

High Desert Corridor Preferred Project/Alternative Decision Matrix

Alternative	Pro	Con	Preferred Project/Alternative
Project			
Freeway-Expressway	<ul style="list-style-type: none"> • Would assist in achieving local general plan goals to attract investments to jobs/housing balance. • Would increase east/west mobility. • Would improve regional goods movement. • Would improve travel safety and reliability. 	<ul style="list-style-type: none"> • Would add 995 acres to impervious surface area. 	
Freeway-Tollway	<ul style="list-style-type: none"> • Would assist in achieving local general plan goals to attract investments to jobs/housing balance. • Would increase east/west mobility. • Would improve regional goods movement. • Would improve travel safety and reliability. 	<ul style="list-style-type: none"> • Would add 995 acres to impervious surface area. • Some additional burden could be placed on low-income population due to tollway vs. without. 	
Freeway-Expressway with HSR	<ul style="list-style-type: none"> • Potential to connect the San Francisco, Central Valley, Los Angeles, Las Vegas, and San Diego regions through an HSR system. • Improved access and linkages between various residential communities, businesses, and facilities. • Would assist in achieving local general plan goals to attract investments to jobs/housing balance. • Could help achieve smart growth required by SB 375: in that it could foster higher-density and mixed-use developments near the proposed rail stations in Palmdale and Victorville. • Would increase east/west mobility. • Would improve regional goods movement. • Would improve travel safety and reliability. • Would contribute to a reduction in GHG emissions. 	<ul style="list-style-type: none"> • Would add 1,335 acres to impervious surface area. • Permanent impacts on approximately 1.44 more acres of wetland than other build alts. • Additional 650 acres of sheep grazing land required with HSR than without. • Slightly greater impacts on Section 4(f) resources and cumulative impacts for HSR than other build alternatives without. 	

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Freeway-Tollway with HSR	<ul style="list-style-type: none"> • Potential to connect the San Francisco, Central Valley, Los Angeles, Las Vegas, and San Diego regions through an HSR system. • Improved access to and linkages between various residential communities, businesses, and facilities. • Could help achieve smart growth required by SB 375, in that it could foster higher-density and mixed-use developments near the proposed rail stations in Palmdale and Victorville. • Would increase east/west mobility. • Would improve regional goods movement. • Would improve travel safety and reliability. • Would contribute to a reduction in GHG emissions. 	<ul style="list-style-type: none"> • Adds 1,335 acres to impervious surface area. • More future operational energy consumption than Freeway-Exp Alt and Freeway-Toll Alt; slightly more energy consumption than Freeway-Expressway w/HSR. • Additional 650 acres of sheep-grazing land required w/HSR than without. • Some additional burden could be placed on low-income population due to tollway vs. without. • Slightly greater impacts on Section 4(f) resources due to noise and visual proximity impacts on St. Clair Parkway in Palmdale due to relocation of the rail tracks closer to the parkway. • Greater cumulative impacts for HSR feeder than other build alternatives without HSR. 	<p>This Alt would be preferred</p>
No Build	<ul style="list-style-type: none"> • No funding would be required. • No impact to various environmental resources from project construction and operation. 	<ul style="list-style-type: none"> • No new transportation infrastructure would be built within the project area to connect Los Angeles and San Bernardino counties, aside from existing SR-138 safety corridor improvements in Los Angeles County and SR-18 corridor improvements in San Bernardino County. • Traffic circulation and congestion currently experienced on Palmdale Boulevard, Pearblossom Highway, Air Expressway, Palmdale Road, and Happy Trails Highway (existing SR-18) would remain from increasing transportation demand. • Accident rates on SR-138 would remain high or increase. • Drivers would have no alternate route to avoid flooding along the SR-18/SR-138 corridor and other area roads during major rain events. • The regional movement of goods would be slower due to an overloaded transportation network. • Access to regional airports, rail facilities, and other means of transportation would be limited. • Opportunities to contribute to State GHG reduction goals resulting from reduction in GHG emissions from the efficient movement of vehicles in the area, as well as green energy facilities that would be part of the HDC Project, would be lost. 	
Segment A			

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A-Main	<ul style="list-style-type: none"> Facilitates the use of HSR through this area – the HSR alignment would be on a horizontal tangent section for approximately 4.5 miles from the Wye connection to 70th St. 	<ul style="list-style-type: none"> Alignment would encroach onto Los Angeles World Airport property. 	A-Main would be preferred
Variation A	<ul style="list-style-type: none"> Alignment would be within the Los Angeles World Airport dedicated easement. 	<ul style="list-style-type: none"> Alignment would not allow a southern wye connection to the CHST station platform without shifting the station platform further south. Track alignment would still be out of the LAWA dedicated easement because HSR alignment standards would not be able to follow tight horizontal curves of the easement. Variation A has three more parcels with hazardous waste than A-Main. 	
Segment B			
D-Main	<ul style="list-style-type: none"> The alignment is shorter than Variation D and would require less right-of-way and material (concrete, track) to build. Would create less impervious surface. HDC and HSR alignments would be on a horizontal tangent section for approximately 20 miles from 140th St to Mountain View Rd. 	<ul style="list-style-type: none"> Alignment would pass through an existing vineyard. Would have two more hazardous waste sites than Variation D. 	
Variation D	<ul style="list-style-type: none"> HDC and HSR alignments would avoid the existing vineyard. HSR would maintain a design speed of 180 mph. Variation D would have less of an impact on the community of Lake Los Angeles. 	<ul style="list-style-type: none"> Alignment would include a reverse curve to leave main alignment and another reverse curve to re-enter the main alignment. Is longer and would require more right-of-way and material (concrete, track) to build. Would create more impervious surface. 	Variation D would be preferred
Segment C			
B-Main	<ul style="list-style-type: none"> HSR alignment would be on a horizontal tangent section for approximately 20 miles from 140th St to Mountain View Rd. Is a shorter and more direct route than Variation B. Would require less right-of-way and material to build. 	<ul style="list-style-type: none"> Alignment would pass through property owned by the Phelan-Pinon Hills Community Conservation District. . 	

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Variation B	<ul style="list-style-type: none"> • HSR alignment would avoid property owned by the Phelan-Pinon Hills Community Conservation District. and Krey Field Airport. • HSR would maintain a design speed of 180 mph. 	<ul style="list-style-type: none"> • This variation would increase track and highway length and also introduce a reverse curve to leave main alignment and another reverse curve to re-enter the main alignment. 	
Variation B1	<ul style="list-style-type: none"> • HDC and HSR alignments would avoid property owned by the Phelan-Pinon Hills Community Conservation District. Is a shorter and more direct route than Variation B. Would require less right-of-way and material to build. • HSR would maintain a design speed of 180 mph. 	<ul style="list-style-type: none"> • HDC and HSR alignments would pass through existing Krey Field Airport. • The alignments would cut the straight tangent section from 20 miles down to 15 miles. • Krey Field Airport may have unidentified hazardous waste. 	Variation B1 would be preferred
Segment E			
E-Main	<ul style="list-style-type: none"> • HSR alignment is the more direct route and would require the least track length and right-of-way. • Would provide a more direct access to the federal prison and SCLA. • Would not disrupt the City of Victorville's rail spur. 	<ul style="list-style-type: none"> • Right of way would be cut down to 290' between the federal prison and SCLA. • Alignment would pass through numerous environmentally sensitive areas. • There would be additional cost associated with installing crash barriers between the HSR and road. 	E-Main is preferred for both Highway and HSR
Variation E	<ul style="list-style-type: none"> • HSR alignment would avoid the space constraints between the federal correction facility and the Southern California Logistics Airport. • It also would bypass environmentally sensitive areas located before the Mojave River. • Variation E would not need a <i>de minimus</i> determination for the Westwinds Golf Course. 	<ul style="list-style-type: none"> • HSR alignment would require more track and right-of-way. • It would cut through new residential area and cause greater disruption to communities than other variations. • HSR alignment would have to leave the HDC R/W earlier which would require more R/W solely for the track. • Variation E would also require 3 bridge structures, which have span lengths of 5,000', 4,500' and 9,000'. • Variation E would result in impacts on a larger acreage of Waters of the U.S. wetlands than other variations. • Variation E would have additional substantial impacts on the State and federally listed southwestern willow flycatcher and least Bell's vireo species. • Would provide a less direct access to the federal prison and SCLA. • Would disrupt the City of Victorville's rail spur. 	
Palmdale Rail Connection			

Alternative	Pro	Con	Preferred Project/Alternative
Rail Option 1 Variation A	<ul style="list-style-type: none"> • HSR alignment would be underground for both northbound and southbound wye connections. The northbound connection would be in bored tunnel leaving the HDC and would cross under the conventional UPRR and Metrolink tracks, avoiding any potential conflicts. • Being underground the northbound tracks would also avoid any Runway Protection Zone conflicts with the Air Force Plant 42 runways. • This alignment would require the least amount of R/W once it leaves the HDC median. • The southbound connector would terminate approximately at the current Palmdale Transportation Center therefore no shift of the PTC will be necessary. • The cost estimate for this Wye connection in 2014 dollars is \$2.87 billion. It will be the least cost alignment out of Alternative 1 options. 	<ul style="list-style-type: none"> • Exceptional grade of 3.5% had to be used for the southbound connector tracks to be able join the CHSR tracks out of the tunnel section. HSR profile standard grades of 1.5% are desirable. • The Sierra Hwy realignment would either need to go on a high aerial structure or deep tunnel to cross the conventional and high speed rail tracks. • Due to right-of-Way limitations, there would be 4F issues with St Clair Parkway at the 6 track section of the high speed rail station platforms. • Realignment of Sierra Hwy would be necessary to be able to fit in 6 high speed rail tracks and 4 conventional tracks at the station platform section. • Realigning Sierra highway would encroach onto the Palmdale Sheriff station at located on the southeastern corner of Ave Q and Sierra Hwy. 	
Rail Option 1 Variation B	<ul style="list-style-type: none"> • HSR alignment would be underground for both northbound and southbound wye connections. The northbound connection would be in bored tunnel leaving the HDC, and would cross under the conventional UPRR and Metrolink tracks, avoiding any potential conflicts. • Being underground, the northbound tracks would also avoid any Runway Protection Zone conflicts with the Air Force Plant 42 runways. • The southbound connector would terminate approximately 500' south of the current Palmdale Transportation Center. A minimal shift of the PTC would be necessary to accommodate this location of CHSR station platforms. • Realignment of Sierra Hwy at the Station platform would not be necessary due to the CHSR tracks being shifted approx. 50' to the west. • Profile grades climbing out of the tunnel section would be at maximum 2.5%, which is within minimum design criteria. 	<ul style="list-style-type: none"> • With this option, the Sierra Hwy realignment would either have to go on a high aerial structure or deep tunnel to cross the conventional and high speed rail tracks. • Due to Right of Way limitations there would be 4F issues with St Clair Parkway at the 6 track section of the high speed rail station platforms. • The cost estimate for this Wye connection in 2014 dollars is \$2.94 billion. It would be the most costly alignment out of Alternative 1 options due to the extended length of tunneling required. 	

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<p>Rail Option 1 Variation C</p>	<ul style="list-style-type: none"> • HSR alignment would be underground for both northbound and southbound wye connections. The northbound connection would be in bored tunnel leaving the HDC and would cross under the conventional UPRR and Metrolink tracks avoiding any potential conflicts. • Being underground, the northbound tracks would also avoid any Runway Protection Zone conflicts with the Air Force Plant 42 runways. • The southbound connector tracks would be approx. 500' west of the SCRRA right-of-way, which would completely avoid the 4F issues with St Clair Parkway. • The location of the tracks farther west would provide greater flexibility for the realignment and grade separation of Sierra Hwy. • Southbound and northbound connector tracks would be completely out of the UPRR right-of-way. 	<ul style="list-style-type: none"> • The Palmdale Transportation Center would need to be moved 500' west and 1,500' south of its current location. This would entail realigning the Metrolink tracks and moving the Metrolink station platform to follow. • Additional right-of-way would need to be taken along 6th St East, which would affect businesses and residential properties. 	<p>Palmdale Rail Connection Option 1 Variation C would be preferred.</p>
<p>Rail Option 7 Variation A</p>	<ul style="list-style-type: none"> • HSR alignment would have profile grades within the standard minimum limits. • The cost estimate for this Wye connection in 2014 dollars is \$1.44 billion. It is the least-cost alignment among the alignment options. • The HSR station platform would utilize the existing PTC location and layout. 	<ul style="list-style-type: none"> • HSR northbound and southbound wye connectors would be on at-grade embankment after leaving the HDC. • Major street crossings would be grade-separated, however the tracks would split parcels of land diagonally. • HSR alignment would fall within UPRR and SCRRA right of way, therefore careful coordination would be required with those two entities. • Existing storage facility would need to be removed completely to accommodate the realigned Metrolink and freight tracks. • A portion of St Clair Parkway would need to be taken, thereby causing 4F issues. • Northbound connector would be on an aerial structure crossing over the conventional tracks. Due to the required geometry, the aerial structure would encroach onto Plant 42 right of way. 	

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Rail Option 7 Variation B	<ul style="list-style-type: none"> • HSR alignment would have profile grades within the minimum limits. • This option is almost identical to Option 7 Variation A except for the station platform being shifted 500' farther south. 	<ul style="list-style-type: none"> • HSR northbound and southbound wye connectors would be on at-grade embankment after leaving the HDC. • Major street crossings would be grade separated, however the tracks would split parcels of land diagonally. • HSR alignment would fall within UPRR and SCRRA right-of-way; therefore, careful coordination would be required with those two entities. • Half of St Clair Parkway would need to be taken, thereby causing 4F issues. • Northbound connector would be on an aerial structure crossing over the conventional tracks. Due to the required geometry, the aerial structure would encroach onto Plant 42 right-of-way. • CHSR station platform is approximately 500' south of the existing Palmdale Transportation Center; therefore the PTC will have to be shifted. 	
Rail Option 7 Variation C	<ul style="list-style-type: none"> • HSR alignment would have profile grades within the minimum limits. • The southbound connector tracks would be approx. 500' west of the SCRRA right-of-way, which would completely avoid the 4F issues with St Clair Parkway. • The location of the tracks farther west would provide greater flexibility for the realignment and grade-separation of Sierra Hwy. • Southbound and northbound connector tracks would be completely out of the UPRR right-of-way. • Also the northbound connector tracks would avoid Plant 42 property limits. 	<ul style="list-style-type: none"> • HSR northbound and southbound wye connectors would be on at-grade embankment after leaving the HDC. • The northbound connector would be in direct conflict with the Rancho Vista Grade Separation Project, because it would be on a high aerial structure. • The Palmdale Transportation Center would need to be moved 500' west and 1,500' south of its current location. This would entail realigning the Metrolink tracks and moving the Metrolink station platform to follow. • Additional right-of-way would need to be taken along 6th St East, which would affect businesses and residential properties. 	
XpressWest Rail Connection			

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XpressWest Rail Main Alignment	<ul style="list-style-type: none"> Track alignment length for this alternative is 2,300' less than for Variation E. HSR alignment would require less R/W because the tracks would leave the HDC approximately 1.8 miles after the HDC crosses the Mojave River. This alternative would be more cost-effective because the tracks would stay within the HDC median longer and because two separate crossings over the Mojave River would not be required. 	<ul style="list-style-type: none"> HDC right-of-way would be reduced to 290' between Phantom West St and Phantom East St due to property constraints between SCLA and the Federal Prison. The area where the tracks would leave the HDC median also coincides with the Mojave Railroad freight crossing. This would require a complicated 3-level crossing, with the HSR tracks on the lowest level, the freight tracks in the middle, and the HDC highway on the upper level. HSR alignment design speed would be reduced to 150 mph after the tracks leave the median of the HDC to meet the XpressWest connection 	Main Alignment is preferred
XpressWest Rail Variation E Alignment	<ul style="list-style-type: none"> HDC would have a continuous 500' Right-of-way Track would maintain a 180-mph design speed throughout the segment 3 alignment. 	<ul style="list-style-type: none"> Track alignment length for this alternative is 2,300' more than the main alignment. This alternative would require two separate bridge crossings over the Mojave River that would be approximately 3,000' apart. Track alignment would cross over additional "Environmentally Sensitive Areas" once the tracks leave the HDC median. HSR alignment would cross over the HDC highway twice, once leaving the HDC median and then another crossing over the HDC and its eastbound and westbound connector ramps with I-15. Realignment of Stoddard Wells Road would be necessary because the track alignment would encroach onto the roadway. HSR alignment would require over 9000' of bridge structure at high elevation. 	
Bike Path			
Bike Path	<ul style="list-style-type: none"> Community character and livability would be enhanced as a result of the proposed bike path. Studies have highlighted the social benefits of paths that can accommodate pedestrians and bicycles, including contributing to healthier lifestyles, spaces to encounter neighbors, and enhanced civic pride. Incorporation of a bike path would provide the community with an additional transportation option. 	<ul style="list-style-type: none"> Riding a bicycle in the summer sun could lead to extreme dehydration. 	Bike path is preferred.

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Green Energy			
Green Energy Corridor	<ul style="list-style-type: none"> The green and renewable energy component would contribute to greenhouse gas and energy cost reductions. The green energy production and transmission facilities would be constructed within the freeway/tollway right-of-way, thus resulting in no additional impacts on environmental resources. 	<ul style="list-style-type: none"> Due to the ongoing development of new green and renewable energy technologies and the unsecured funding at the present time, choosing any technology at this point may not be feasible. Also Caltrans is not in the business of operating and maintaining the renewable energy system, therefore funding and operation and maintenance of the system would have to be done through a PPP or a utility company. 	Green Energy should be considered a part of the project. Specific technologies, including funding, construction, and operation, would be selected by the PPP or utility company.