

Table D-1
Alternative 1: No Project

TRANSIT CAPITAL IMPROVEMENTS AND OPERATIONS					
Service	Route	Description	Status		
COASTER	398	Santa Margarita River Bridge Replacement	Opened 2013		
COASTER	398	Sorrento to Miramar Double Track Phase 1	Opened 2014		
COASTER	398	San Onofre to Pulgas Double Track Phase 1	Construction 2014; open 2015		
COASTER	398	Oceanside Transit Center Through Track	Construction 2015; open 2016		
COASTER	398	Poinsettia Station Improvements	Construction 2015		
COASTER	398	San Elijo Lagoon Double Track	Open 2017		
COASTER	398	Sorrento Valley Double Track	Construction 2014; open 2015		
COASTER	398	Tecolote/Washington St. Crossovers	Opened 2013		
COASTER	398	Elvira to Morena Double Track	Construction 2015; open 2018		
COASTER	398	San Diego River Double Track	Construction 2015; open 2018		
COASTER	398	COASTER passenger rail frequencies: 30-45 minutes (AM), 120 minutes (mid-day), 30-36 minutes (PM)	Takes effect 2018		
Mid-Coast LRT	510	Extend Trolley Blue Line from Old Town to University Towne Center. Route 150 becomes peak only route.	Construction late 2015; service begins 2019		
<i>Rapid</i>	215	Mid-City <i>Rapid</i> Downtown San Diego to SDSU. 10 minute all-day service. Replaces local route 15.	Service began 2014		
<i>Rapid</i>	225	South Bay <i>Rapid</i> Otay Mesa to Downtown San Diego. 15 minute peak service, 30 minute off-peak.	Construction 2015; service begins 2016		
<i>Rapid</i>	235	I-15 <i>Rapid</i> Escondido to Downtown San Diego. 15 minute peak service, 30 minute off-peak by 2020. 15 minute all-day service by 2035.	Service began 2014		
<i>Rapid</i>	237	Rancho Bernardo Transit Station to UC San Diego via I-15. 15 minute peak service	Service began 2014		
<i>Rapid</i>	280	Escondido Transit Center to Downtown San Diego. 15 minute peak direction.	Service began 2014		
<i>Rapid</i>	290	Rancho Bernardo to Downtown San Diego. 15 minute peak direction.	Service began 2014		
HIGHWAY GENERAL PURPOSE LANES					
Freeway	From	To	Existing	Improvement	Year
SR 76	S. Mission Rd	I-15	2C	4C	2017 (under construction)
MANAGED LANES					
Freeway	From	To	Existing	Improvement	Year
I-805	SR 52	Carroll Canyon Rd	8F	8F+2ML	2015 (under construction)
SR 15	I-805	I-8	6F/8F	+2 Transit Only Lanes	2016
TOLL LANES					
Freeway	From	To	Existing	Improvement	Year
SR 11	SR 125	Enrico Fermi Dr	--	4 toll lanes	2018
SR 125	SR 905	SR 54	Tolls	Remove tolls	2042

Table D-2
Alternative 2: SCS + Trans Alt 2

TRANSIT CAPITAL IMPROVEMENTS AND OPERATIONS			
Service	Route	Description	Year
COASTER	398	COASTER double tracking (20-minute peak; 120-minute off-peak frequencies)	2020
COASTER	398	COASTER double tracking (20-minute peak; 60-minute off-peak frequencies, grade separation)	2025
COASTER	398	COASTER double tracking Phase 2050 (completes double tracking; includes Del Mar Tunnel)	2025
SPRINTER	399	SPRINTER efficiency improvements (20-minute frequencies)	2025
SPRINTER	399	Double tracking Oceanside to Escondido; includes 10-minute frequencies and six rail grade separations	2025
SPRINTER	399	Branch Extension to Westfield North County	2025
SPRINTER	588	SPRINTER Express	2025
Trolley	510	Phase I - Blue Line Frequency Enhancements and rail grade separations, Blue/Orange Track Connection at 12th/Imperial	2025
Trolley	510	Phase II - Blue Line rail grade separations (two)	2025
Trolley	520	Orange Line Frequency Enhancements and four rail grade separations	2025
Trolley	530	Green Line Frequency Enhancements	2025
Trolley	560	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER Connection Segment	2025
Trolley	562	Phase I - San Ysidro to Kearny Mesa via Mission Valley, Mid-City, National City/Chula Vista via Highland Ave/4th Ave	2025
Trolley	562	Phase II - Kearny Mesa to Carmel Valley	2025
Trolley	563	Phase I - Pacific Beach to Balboa; Kearny Mesa to El Cajon Transit Center	2025
Trolley	563	Phase II - Balboa to Kearny Mesa	2025
<i>Rapid</i>	90	El Cajon Transit Center/Grossmont to San Diego International Airport ITC via SR 94, City College (peak only)	2025
<i>Rapid</i>	235	Temecula (peak only) Extension of Escondido to Downtown <i>Rapid</i>	2025
<i>Rapid</i>	640A/ 640B	Route 640A: I-5 - San Ysidro to Old Town Transit Center via City College, Chula Vista and National City Route 640B: I-5 Iris Trolley/Palomar to Kearny Mesa via City College	2025
<i>Rapid</i>	650	Chula Vista to Palomar Airport Road Business Park via I-805/I-5 (peak only)	2025
<i>Rapid</i>	653	Mid City to Palomar Airport Road via Kearny Mesa/I-805/I-5	2025
<i>Rapid</i>	870	El Cajon to UTC via Santee, SR 52, I-805	2025
<i>Rapid</i>	890	El Cajon to Sorrento Mesa via SR 52, Kearny Mesa	2025
<i>Rapid</i>	688/689/690	San Ysidro to Sorrento Mesa via I-805/I-15/SR-52 Corridors; Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia, I-805 Corridor; Mid City to Sorrento Mesa via I-805 Corridor (Peak Only)	2025
<i>Rapid</i>	SR 163 DARs	Kearny Mesa to Downtown via SR 163. Stations at Sharp/Children's Hospital and Hillcrest, + DAR at SR 163/Fashion Valley Transit Center	2025
<i>Rapid</i>	905	<i>Rapid</i> extension of Iris to Otay Mesa Point of Entry (POE) with new service to Otay Mesa East POE and Imperial Beach	2020
<i>Rapid</i>	550	SDSU to Palomar Station via East San Diego, Southeast San Diego, National	2025

		City			
<i>Rapid</i>	2	North Park to Downtown San Diego via 30th St	2025		
<i>Rapid</i>	10	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	2025		
<i>Rapid</i>	11	Spring Valley to SDSU via Southeast San Diego, Downtown, Hillcrest, Mid-City	2025		
<i>Rapid</i>	28	Point Loma to Kearny Mesa via Old Town, Linda Vista	2025		
<i>Rapid</i>	30	Old Town to Sorrento Mesa via Pacific Beach, La Jolla, UTC	2025		
<i>Rapid</i>	41	Fashion Valley to UTC/UCSD via Linda Vista and Clairemont	2025		
<i>Rapid</i>	103	Solana Beach to Sabre Springs <i>Rapid</i> station via Carmel Valley	2025		
<i>Rapid</i>	120	Kearny Mesa to Downtown	2025		
<i>Rapid</i>	440	Carlsbad to San Marcos via Palomar Airport Road	2025		
<i>Rapid</i>	471	Downtown Escondido to East Escondido	2025		
<i>Rapid</i>	473	Phase I - Solana Beach to UTC/UCSD via Hwy 101 Coastal Communities, Carmel Valley	2025		
<i>Rapid</i>	473	Phase II - Oceanside to Solana Beach via Hwy 101 Coastal Communities	2025		
<i>Rapid</i>	474	Oceanside to Vista via Mission Ave/Santa Fe Road Corridor	2025		
<i>Rapid</i>	477	Camp Pendleton to Carlsbad Village via College Blvd, Plaza Camino Real	2025		
<i>Rapid</i>	635	Eastlake to Palomar Trolley via Main Street Corridor	2025		
<i>Rapid</i>	636	SDSU to Spring Valley via East San Diego, Lemon Grove, Skyline	2025		
<i>Rapid</i>	637	North Park to 32nd Street Trolley via Golden Hill	2025		
<i>Rapid</i>	638	Iris Trolley to Otay Mesa via Otay, Airway Dr, SR 905 Corridor	2025		
<i>Rapid</i>	709	H Street Trolley to Millennia via H Street Corridor, Southwestern College	2025		
<i>Rapid</i>	910	Coronado to Downtown via Coronado Bridge	2025		
Streetcar	553	Downtown San Diego: Little Italy to East Village	2025		
Streetcar	554	Hillcrest/Balboa Park/Downtown San Diego Loop	2025		
Streetcar	555	30th St to Downtown San Diego via North Park/Golden Hill	2025		
Streetcar	565	Mission Beach to La Jolla via Pacific Beach	2025		
Shuttle	-	San Marcos Shuttle (Capital cost to be funded by the City of San Marcos)	2020		
Airport Express	-	Airport Express Routes (Capital cost to be funded by aviation and other private funds)	2020		
Intermodal	-	San Diego International Airport <u>Intermodal Transit Center (ITC) and I-5 Direct Connector Ramps</u>	2025		
Intermodal	-	Phase I - San Ysidro ITC	2025		
Intermodal	-	Phase II - San Ysidro ITC	2025		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2020		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025		
HIGHWAY GENERAL PURPOSE LANES					
Freeway	From	To	Existing	Improvement	Year
I-8	2nd Street	Los Coches	4F/6F	6F	2048
SR 52	I-5	I-805	4F	6F	2048
SR 56	I-5	I-15	4F	6F	2048
SR 67	Mapleview St	Gold Bar Ln	2C	4C	2025
SR 67	Gold Bar Ln	Scripps Poway	2C/4C	4C	2040
SR 67	Scripps Poway	Dye Rd	2C/4C	4C	2048

SR 94	SR 125	Avocado Blvd	4F	6F	2040
SR 94	Avocado Blvd	Jamacha	4C	6C	2048
SR 94	Jamacha	Steele Canyon Rd	2C/4C	4C	2048
SR 125	San Miguel Rd	SR 54	4F	8F	2048
SR 125	SR 94	I-8	8F	10F	2048
SR 52	I-15	SR 125	4F/6F	6F	2035
HIGHWAY OPERATIONAL IMPROVEMENTS					
Freeway	From	To	Existing	Improvement	Year
I-5	I-15	I-8	8F	8F+Operational	2048
I-8	I-5	SR 125	8F/10F	8F/10F+Operational	2048
I-8	SR 125	2nd Street	6F/8F	6F/8F+Operational	2048
SR 76	I-15	Couser Canyon	2C/4C	4C/6C+Operational	2040
MANAGED LANES					
Freeway	From	To	Existing	Improvement	Year
I-5	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 640)	2025
I-5	Palomar St	SR 54	8F	8F +2ML (supports <i>Rapid</i> Route 640)	2025
I-5	SR 54	SR 15	8F	10F+2ML (supports <i>Rapid</i> Route 640)	2025
I-5	I-8	La Jolla Village Dr	8F/10F	8F/10F+2ML	2048
I-5	La Jolla Village Dr	I-5/805 Merge	8F/14F	8F+2ML	2025
I-5	I-5/I-805 Merge	SR 56	8F/14F +2ML	8F/14F+4ML (supports <i>Rapid</i> Route 650)	2025
I-5	SR 56	Manchester Ave	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653)	2025
I-5	Manchester Ave	SR 78	8F	8F+2ML (supports <i>Rapid</i> Routes 650, 653)	2020
I-5	Manchester Ave	SR 78	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653)	2025
I-5	SR 78	Vandegrift Blvd	8F	8F+2ML	2025
I-5	SR 78	Vandegrift Blvd	8F+2ML	8F+4ML	2040
I-5	Vandegrift Blvd	Orange County	8F	8F+4T	2048
SR 15	I-5	SR 94	6F	8F+2ML (supports <i>Rapid</i> Route 610)	2025
SR 15	SR 94	I-805	6F	6F+2ML (supports <i>Rapid</i> Routes 235, 610)	2025
I-15	Viaduct		8F	8F+2ML (supports <i>Rapid</i> Route 690)	2025
I-15	I-8	SR 163	8F	8F+2ML (supports <i>Rapid</i> Route 690)	2025
I-15	SR 78	Riverside County	8F	8F+4T	2048
SR 52	I-805	I-15	6F	6F+2ML (supports <i>Rapid</i> Routes 653, 690, 870, 890)	2025
SR 52	I-15	SR 125	6F	6F+2ML(R) (supports <i>Rapid</i> Routes 654, 870, 890)	2025

Appendix D-1 Project Tables for Alternatives Considered in Detail

SR 54	I-5	SR 125	6F	6F+2ML	2048
SR 78	I-5	College Blvd	6F	6F+2ML/Operational	2025
SR 78	College Blvd	Twin Oaks	6F	6F+2ML/Operational	2030
SR 78	Twin Oaks	I-15	6F	6F+2ML/Operational	2025
SR 94	I-5	I-805	8F	8F+2ML (supports <i>Rapid</i> Routes 90, 235, 610)	2025
SR 94	I-805	SR 125	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
SR 125	SR 54	SR 94	6F	6F+2ML	2048
SR 125	SR 94	I-8	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
I-805	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 688)	2025
I-805	SR 54	SR 94	8F +2ML	8F+4ML (supports <i>Rapid</i> Routes 628, 650, 688, 689)	2025
I-805	SR 94	SR 15	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 94	SR 15	8F+2ML	8F+4ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 15	SR 163	8F	8F+4ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 163	SR 52	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 163	SR 52	8F+2ML	8F+4ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 52	Carroll Canyon Rd	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653, 688, 690, 870, 890)	2025
MANAGED LANE CONNECTORS					
Freeway	Intersecting Freeway	Movement			Year
I-5	SR 78	South to East and West to North, North to East and West to South			2025
I-5	I-805	North to North & South to South			2025
I-15	SR 52	West to North and South to East			2048
I-15	SR 78	East to South & North to West			2025
SR 15	SR 94	South to West & East to North			2025
SR 15	I-805	North to North & South to South			2025
I-805	SR 52	West to North & South to East			2025
I-805	SR 94	North to West & East to South			2025
FREEWAY CONNECTORS					
Freeway	Intersecting Freeway	Movement			Year
I-5	SR 56	West to North and South to East			2030
I-5	SR 78	South to East and West to South			2025
I-15	SR 56	North to West			2050
SR 94	SR 125	South to East			2020
SR 94	SR 125	West to North			2030
SR 11/	SR 125	SB 125 to WB SR 905, SB SR 125 to EB SR 11, SB SR 125 to SB SR			2022

SR 905		905	
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**Table D-3
Alternative 3: SCS + Trans Alt 3**

TRANSIT CAPITAL IMPROVEMENTS AND OPERATIONS			
Service	Route	Description	Year
COASTER	398	COASTER double tracking (20-minute peak frequencies and current 120-minute off-peak frequencies)	2020
COASTER	398	COASTER double tracking (20-minute peak frequencies and 60-minute off-peak frequencies, and grade separation)	2025
COASTER	398	COASTER double tracking Phase 2050 (completes double tracking; includes Del Mar Tunnel)	2025
SPRINTER	399	SPRINTER efficiency improvements (20-minute frequencies)	2025
SPRINTER	399	Double tracking Oceanside to Escondido; includes 10-minute frequencies and six rail grade separations	2025
SPRINTER	399	Branch Extension to Westfield North County	2025
SPRINTER	588	SPRINTER Express	2025
Trolley	510	Phase I - Blue Line Frequency Enhancements and rail grade separations, Blue/Orange Track Connection at 12th/Imperial	2025
Trolley	510	Phase II - Blue Line rail grade separations (two)	2025
Trolley	520	Orange Line Frequency Enhancements and four rail grade separations	2025
Trolley	530	<u>Green Line Frequency Enhancements</u>	<u>2025</u>
Trolley	560	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER Connection Segment	2025
Trolley	562	Phase I - San Ysidro to Kearny Mesa via Mission Valley, Mid-City, National City/Chula Vista via Highland Ave/4th Ave	2025
Trolley	562	Phase II - Kearny Mesa to Carmel Valley	2025
Trolley	563	Phase I - Pacific Beach to Balboa; Kearny Mesa to El Cajon Transit Center	2025
Trolley	563	Phase II - Balboa to Kearny Mesa	2025
<i>Rapid</i>	90	El Cajon Transit Center/Grossmont to San Diego International Airport ITC via SR 94, City College (peak only)	2025
<i>Rapid</i>	237	Temecula (peak only) Extension of Escondido to Downtown <i>Rapid</i>	2025
<i>Rapid</i>	640A/ 640B	Route 640A: I-5 - San Ysidro to Old Town Transit Center via City College, Chula Vista and National City Route 640B: I-5 Iris Trolley/Palomar to Kearny Mesa via City College	2025
<i>Rapid</i>	650	Chula Vista to Palomar Airport Road Business Park via I-805/I-5 (peak only)	2025
<i>Rapid</i>	653	Mid City to Palomar Airport Road via Kearny Mesa/I-805/I-5	2025
<i>Rapid</i>	870	El Cajon to UTC via Santee, SR 52, I-805	2025
<i>Rapid</i>	890	El Cajon to Sorrento Mesa via SR 52, Kearny Mesa	2025
<i>Rapid</i>	688/689 690	San Ysidro to Sorrento Mesa via I-805/I-15/SR-52 Corridors; Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia, I-805 Corridor; Mid City to Sorrento Mesa via I-805 Corridor (Peak Only)	2025
<i>Rapid</i>	SR 163 DARs	Kearny Mesa to Downtown via SR 163. Stations at Sharp/Children's Hospital and Hillcrest, + DAR at SR 163/Fashion Valley Transit Center	2025
<i>Rapid</i>	905	<i>Rapid</i> extension of Iris to Otay Mesa Point of Entry (POE) with new service to	2020

Otay Mesa East POE and Imperial Beach					
Rapid	550	SDSU to Palomar Station via East San Diego, Southeast San Diego, National City			2025
Rapid	2	North Park to Downtown San Diego via 30th St			2025
Rapid	10	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town			2025
Rapid	11	Spring Valley to SDSU via Southeast San Diego, Downtown, Hillcrest, Mid-City			2025
Rapid	28	Point Loma to Kearny Mesa via Old Town, Linda Vista			2025
Rapid	30	Old Town to Sorrento Mesa via Pacific Beach, La Jolla, UTC			2025
Rapid	41	Fashion Valley to UTC/UCSD via Linda Vista and Clairemont			2025
Rapid	103	Solana Beach to Sabre Springs Rapid station via Carmel Valley			2025
Rapid	120	Kearny Mesa to Downtown			2025
Rapid	440	Carlsbad to San Marcos via Palomar Airport Road			2025
Rapid	471	Downtown Escondido to East Escondido			2025
Rapid	473	Phase I - Solana Beach to UTC/UCSD via Hwy 101 Coastal Communities, Carmel Valley			2025
Rapid	473	Phase II - Oceanside to Solana Beach via Hwy 101 Coastal Communities			2025
Rapid	474	Oceanside to Vista via Mission Ave/Santa Fe Road Corridor			2025
Rapid	477	Camp Pendleton to Carlsbad Village via College Blvd, Plaza Camino Real			2025
Rapid	635	Eastlake to Palomar Trolley via Main Street Corridor			2025
Rapid	636	SDSU to Spring Valley via East San Diego, Lemon Grove, Skyline			2025
Rapid	637	North Park to 32nd Street Trolley via Golden Hill			2025
Rapid	638	Iris Trolley to Otay Mesa via Otay, Airway Dr, SR 905 Corridor			2025
Rapid	709	H Street Trolley to Millennia via H Street Corridor, Southwestern College			2025
Rapid	910	Coronado to Downtown via Coronado Bridge			2025
Streetcar	553	Downtown San Diego: Little Italy to East Village			2025
Streetcar	554	Hillcrest/Balboa Park/Downtown San Diego Loop			2025
Streetcar	555	30th St to Downtown San Diego via North Park/Golden Hill			2025
Streetcar	565	Mission Beach to La Jolla via Pacific Beach			2025
Shuttle	-	San Marcos Shuttle (Capital cost to be funded by the City of San Marcos)			2020
Airport Express	-	Airport Express Routes (Capital cost to be funded by aviation and other private funds)			2020
Intermodal	-	San Diego International Airport <u>Intermodal Transit Center (ITC) and I-5 Direct Connector Ramps</u>			2025
Intermodal	-	Phase I - San Ysidro ITC			2025
Intermodal	-	Phase II - San Ysidro ITC			2025
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)			2020
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)			2025
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)			2025
HIGHWAY GENERAL PURPOSE LANES					
Freeway	From	To	Existing	Improvement	Year
I-8	2nd Street	Los Coches	4F/6F	6F	2050
SR 52	I-5	I-805	4F	6F	2050
SR 56	I-5	I-15	4F	6F	2050
SR 67	Mapleview St	Gold Bar Ln	2C	4C	2050
SR 67	Gold Bar Ln	Scripps Poway	2C/4C	4C	2050
SR 67	Scripps Poway	Dye Rd	2C/4C	4C	2050

SR 94	SR 125	Avocado Blvd	4F	6F	2050
SR 94	Avocado Blvd	Jamacha	4C	6C	2050
SR 94	Jamacha	Steele Canyon Rd	2C/4C	4C	2050
SR 125	San Miguel Rd	SR 54	4F	8F	2050
SR 125	SR 94	I-8	8F	10F	2050
SR 52	I-15	SR 125	4F/6F	6F	2050
HIGHWAY OPERATIONAL IMPROVEMENTS					
Freeway	From	To	Existing	Improvement	Year
I-5	I-15	I-8	8F	8F+Operational	2050
I-8	I-5	SR 125	8F/10F	8F/10F+Operational	2050
I-8	SR 125	2nd Street	6F/8F	6F/8F+Operational	2050
SR 76	I-15	Couser Canyon	2C/4C	4C/6C+Operational	2050
MANAGED LANES/TOLL LANES					
Freeway	From	To	Existing	Improvement	Year
I-5	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 640)	2025
I-5	Palomar St	SR 54	8F	8F +2ML (supports <i>Rapid</i> Route 640)	2025
I-5	SR 54	SR 15	8F	10F+2ML (supports <i>Rapid</i> Route 640)	2025(8F+2ML) 2050(10F)
I-5	I-8	La Jolla Village Dr	8F/10F	8F/10F+2ML	2050
I-5	La Jolla Village Dr	I-5/805 Merge	8F/14F	8F+2ML	2050
I-5	I-5/I-805 Merge	SR 56	8F/14F +2ML	8F/14F+4ML (supports <i>Rapid</i> Route 650)	2050
I-5	SR 56	Manchester Ave	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653)	2050
I-5	Manchester Ave	SR 78	8F	8F+2ML (supports <i>Rapid</i> Routes 650, 653)	2020
I-5	Manchester Ave	SR 78	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653)	2050
I-5	SR 78	Vandegrift Blvd	8F	8F+2ML	2050
I-5	SR 78	Vandegrift Blvd	8F+2ML	8F+4ML	2050
I-5	Vandegrift Blvd	Orange County	8F	8F+4T	2048
SR 15	I-5	SR 94	6F	8F+2ML (supports <i>Rapid</i> Route 610)	2025(6F+2ML) 2050(8F)
SR 15	SR 94	I-805	6F	6F+2ML (supports <i>Rapid</i> Routes 235, 610)	2025
I-15	Viaduct		8F	8F+2ML (supports <i>Rapid</i> Route 690)	2025
I-15	I-8	SR 163	8F	8F+2ML (supports <i>Rapid</i> Route 690)	2025
I-15	SR 78	Riverside County	8F	8F+4T	2048
SR 52	I-805	I-15	6F	6F+2ML (supports <i>Rapid</i> Routes 653, 690, 870, 890)	2025
SR 52	I-15	SR 125	6F	6F+2ML(R) (supports <i>Rapid</i> Routes 654, 870, 890)	2025
SR 54	I-5	SR 125	6F	6F+2ML	2050

SR 78	I-5	College Blvd	6F	6F+2ML/Operational	2050
SR 78	College Blvd	Twin Oaks	6F	6F+2ML/Operational	2050
SR 78	Twin Oaks	I-15	6F	6F+2ML/Operational	2050
SR 94	I-5	I-805	8F	8F+2ML (supports <i>Rapid</i> Routes 90, 235, 610)	2025
SR 94	I-805	SR 125	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
SR 125	SR 905	San Miguel Rd	4T	8F (supports <i>Rapid</i> Route 689)	2041
SR 125	SR 54	SR 94	6F	6F+2ML	2050
SR 125	SR 94	I-8	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
I-805	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 688)	2025
I-805	SR 54	SR 94	8F +2ML	8F+4ML (supports <i>Rapid</i> Routes 628, 650, 688, 689)	2050
I-805	SR 94	SR 15	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 94	SR 15	8F+2ML	8F+4ML (supports <i>Rapid</i> Route 650)	2050
I-805	SR 15	SR 163	8F	8F+4ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 163	SR 52	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 163	SR 52	8F+2ML	8F+4ML (supports <i>Rapid</i> Route 650)	2050
I-805	SR 52	Carroll Canyon Rd	8F+2ML	8F+4ML (supports <i>Rapid</i> Routes 650, 653, 688, 690, 870, 890)	2050
MANAGED LANE CONNECTORS					
Freeway	Intersecting Freeway	Movement			Year
I-5	SR 78	South to East and West to North, North to East and West to South			2025
I-5	I-805	North to North & South to South			2025
I-15	SR 52	West to North and South to East			2050
I-15	SR 78	East to South & North to West			2025
SR 15	SR 94	South to West & East to North			2025
SR 15	I-805	North to North & South to South			2025
I-805	SR 52	West to North & South to East			2025
I-805	SR 94	North to West & East to South			2025
HIGHWAY CONNECTORS					
Freeway	Intersecting Freeway	Movement			Year
I-5	SR 56	West to North and South to East			2050
I-5	SR 78	South to East and West to South			2050
I-15	SR 56	North to West			2050
SR 94	SR 125	South to East			2050
SR 94	SR 125	West to North			2050
SR 11/	SR 125	EB SR 905 and WB SR 11 to NB SR 125, NB SR 905 to NB SR 125			2050

SR 905			
SR 11/ SR 905	SR 125	SB 125 to WB SR 905, SB SR 125 to EB SR 11, SB SR 125 to SB SR 905	2050

Table D-4
Alternative 4: Intensified Smart Growth + Trans Alt 4

TRANSIT CAPITAL IMPROVEMENTS AND OPERATIONS			
Service	Route	Description	Year
COASTER	398	COASTER double tracking (20-minute peak frequencies and current 120-minute off-peak frequencies)	2020
COASTER	398	COASTER double tracking (20-minute peak frequencies and 60-minute off-peak frequencies, and grade separation)	2025
COASTER	398	COASTER double tracking Phase 2050 (completes double tracking; includes Del Mar and UTC Tunnels)	2025
COASTER	398	COASTER extension to National City	2025
SPRINTER	399	SPRINTER efficiency improvements (20-minute frequencies)	2025
SPRINTER	399	Double tracking Oceanside to Escondido; includes 10-minute frequencies and six rail grade separations	2025
SPRINTER	399	Branch Extension to Westfield North County	2025
SPRINTER	588	SPRINTER Express	2025
Trolley	510	Phase I - Blue Line Frequency Enhancements and rail grade separations, Blue/Orange Track Connection at 12th/Imperial	2025
Trolley	510	Phase II - Blue Line rail grade separations (two)	2025
Trolley	520	Orange Line Frequency Enhancements and four rail grade separations	2025
Trolley	530	Green Line Frequency Enhancements	2025
Trolley	522	Orange Line Express – El Cajon to San Diego International Airport Intermodal Transit Center (ITC)	2025
Trolley	540	Blue Line Express – Santa Fe Depot to San Ysidro via Downtown	2025
Trolley	550	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	560	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER Connection Segment	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER to Mira Mesa Segment	2025
Trolley	562	Phase I - San Ysidro to Kearny Mesa via Mission Valley, Mid-City, National City/Chula Vista via Highland Ave/4th Ave	2025
Trolley	562	Phase II - Kearny Mesa to Carmel Valley	2025
Trolley	563	Phase I - Pacific Beach to Balboa; Kearny Mesa to El Cajon Transit Center	2025
Trolley	563	Phase II - Balboa to Kearny Mesa	2025
Trolley	564	Otay Mesa East Border Crossing to Western Chula Vista via Otay Ranch/Millennia	2025
Trolley	566	Palomar Street Trolley Station to Carmel Valley via Mid-City, Kearny Mesa (Route 562 Express)	2025
Trolley	510, 520,	Downtown Trolley Tunnel	2025

	540, 522 and 560		
<i>Rapid</i>	430	Oceanside to Escondido (peak only)	2025
<i>Rapid</i>	235	Temecula (peak only) Extension of Escondido to Downtown <i>Rapid</i>	2025
<i>Rapid</i>	650	Chula Vista to Palomar Airport Road Business Park via I-805/I-5 (peak only)	2025
<i>Rapid</i>	652	Downtown to UTC via Kearny Mesa Guideway/I-805	2025
<i>Rapid</i>	653	Mid City to Palomar Airport Road via Kearny Mesa/I-805/I-5	2025
<i>Rapid</i>	680	Otay Mesa Port of Entry (POE) to Sorrento Mesa via Otay Ranch/Millennia, I-805 Corridor, I-15, Mid City, Kearny Mesa, SR 52	2025
<i>Rapid</i>	692	Grossmont Center to Otay Town Center/Millennium via Southwest College, SR 125, Spring Valley	2025
<i>Rapid</i>	870	El Cajon to UTC via Santee, SR 52, I-805	2025
<i>Rapid</i>	890	El Cajon to Sorrento Mesa via SR 52, Kearny Mesa	2025
<i>Rapid</i>	688/689/690	San Ysidro to Sorrento Mesa via I-805/I-15/SR-52 Corridors; Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia, I-805 Corridor; Mid City to Sorrento Mesa via I-805 Corridor (Peak Only)	2025
<i>Rapid</i>	SR 163 DARs	Kearny Mesa to Downtown via SR 163. Stations at Sharp/Children's Hospital and Hillcrest, + DAR at SR 163/Fashion Valley Transit Center	2025
<i>Rapid</i>	905	<i>Rapid/Rapid</i> extension of Iris to Otay Mesa Point of Entry (POE) with new service to Otay Mesa East POE and Imperial Beach	2020
<i>Rapid</i>	940	Oceanside to Sorrento Mesa via I-5, Carlsbad, Encinitas (peak only)	2025
<i>Rapid</i>	2	North Park to Downtown San Diego via 30th St	2025
<i>Rapid</i>	10	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	2025
<i>Rapid</i>	11	Spring Valley to SDSU via Southeast San Diego, Downtown, Hillcrest, Mid-City	2025
<i>Rapid</i>	28	Point Loma to Kearny Mesa via Old Town, Linda Vista	2025
<i>Rapid</i>	30	Old Town to Sorrento Mesa via Pacific Beach, La Jolla, UTC	2025
<i>Rapid</i>	41	Fashion Valley to UTC/UCSD via Linda Vista and Clairemont	2025
<i>Rapid</i>	103	Solana Beach to Sabre Springs <i>Rapid</i> station via Carmel Valley	2025
<i>Rapid</i>	120	Kearny Mesa to Downtown	2025
<i>Rapid</i>	440	Carlsbad to San Marcos via Palomar Airport Road	2025
<i>Rapid</i>	471	Downtown Escondido to East Escondido	2025
<i>Rapid</i>	473	Phase I - Solana Beach to UTC/UCSD via Hwy 101 Coastal Communities, Carmel Valley	2025
<i>Rapid</i>	473	Phase II - Oceanside to Solana Beach via Hwy 101 Coastal Communities	2025
<i>Rapid</i>	474	Oceanside to Vista via Mission Ave/Santa Fe Road Corridor	2025
<i>Rapid</i>	477	Camp Pendleton to Carlsbad Village via College Blvd, Plaza Camino Real	2025
<i>Rapid</i>	635	Eastlake to Palomar Trolley via Main Street Corridor	2025
<i>Rapid</i>	636	SDSU to Spring Valley via East San Diego, Lemon Grove, Skyline	2025
<i>Rapid</i>	637	North Park to 32nd Street Trolley via Golden Hill	2025
<i>Rapid</i>	638	Iris Trolley to Otay Mesa via Otay, Airway Dr, SR 905 Corridor	2025
<i>Rapid</i>	639	Iris Trolley Station to North Island via Imperial Beach and Silver Strand, Coronado	2025
<i>Rapid</i>	709	H Street Trolley to Millennia via H Street Corridor, Southwestern College	2025
<i>Rapid</i>	910	Coronado to Downtown via Coronado Bridge	2025
Streetcar	551	Chula Vista Downtown	2025
Streetcar	552	National City Downtown	2025

Streetcar	553	Downtown San Diego: Little Italy to East Village	2025		
Streetcar	554	Hillcrest/Balboa Park/Downtown San Diego Loop	2025		
Streetcar	555	30th St to Downtown San Diego via North Park/Golden Hill	2025		
Streetcar	557	El Cajon Downtown	2025		
Streetcar	558	Escondido Downtown	2025		
Streetcar	559	Oceanside Downtown	2025		
Streetcar	565	Mission Beach to La Jolla via Pacific Beach	2025		
Shuttle	-	San Marcos Shuttle (Capital cost to be funded by the City of San Marcos)	2020		
Airport Express	-	Airport Express Routes (Capital cost to be funded by aviation and other private funds)	2020		
Intermodal	-	San Diego International Airport <u>Intermodal Transit Center (ITC) and I-5 Direct Connector Ramps</u>	2025		
Intermodal	-	Phase I - San Ysidro ITC	2025		
Intermodal	-	Phase II - San Ysidro ITC	2025		
Intermodal	-	Otay Mesa East Intermodal Transit Center	2025		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2020		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025		
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025		
HIGHWAY GENERAL PURPOSE LANES					
Freeway	From	To	Existing	Improvement	Year
None.					
MANAGED LANES/TOLL LANES					
Freeway	From	To	Existing	Improvement	Year
I-5	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 640)	2025
I-5	Palomar St	SR 54	8F	8F +2ML (supports <i>Rapid</i> Route 640)	2025
I-5	SR 54	SR 15	8F	8F+2ML (supports <i>Rapid</i> Route 640)	2025
I-5	Manchester Ave	SR 78	8F	8F+2ML (supports <i>Rapid</i> Routes 650, 653)	2020
I-5	Vandegrift Blvd	Orange County	8F	8F+2ML	2048
SR 15	I-5	SR 94	6F	6F+2ML (supports <i>Rapid</i> Route 610)	2025
SR 15	SR 94	I-805	6F	6F+2ML (supports <i>Rapid</i> Routes 235, 610)	2025
I-15	Viaduct		8F	8F+2ML (supports <i>Rapid</i> Route 690)	2025
I-15	I-8	SR 163	8F	8F+2ML(supports <i>Rapid</i> Route 690)	2025
I-15	SR 78	Riverside County	8F	8F+4T	2048
SR 52	I-805	I-15	6F	6F+2ML (supports <i>Rapid</i> Routes 653, 690, 870, 890)	2025
SR 52	I-15	SR 125	6F	6F+2ML(R) (supports <i>Rapid</i>	2025

				Routes 654, 870, 890)	
SR 78	I-5	College Blvd	6F	6F+2ML/Operational (supports <i>Rapid</i> Route 690)	2025
SR 78	College Blvd	Twin Oaks	6F	6F+2ML/Operational (supports <i>Rapid</i> Route 690)	2025
SR 78	Twin Oaks	I-15	6F	6F+2ML/Operational (supports <i>Rapid</i> Route 690)	2025
SR 94	I-5	I-805	8F	8F+2ML (supports <i>Rapid</i> Routes 90, 235, 610)	2025
SR 94	I-805	SR 125	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
SR 125	SR 905	San Miguel Rd	4T	6F+2ML(R) (supports <i>Rapid</i> Route 689)	2041
SR 125	SR 94	I-8	8F	8F+2ML (supports <i>Rapid</i> Route 90)	2025
SR 163	I-805	I-15	8F	8F+2ML (Route 280/290)	2025
I-805	SR 905	Palomar St	8F	8F+2ML (supports <i>Rapid</i> Route 688)	2025
I-805	SR 94	SR 15	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 15	SR 163	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
I-805	SR 163	SR 52	8F	8F+2ML (supports <i>Rapid</i> Route 650)	2025
MANAGED LANE CONNECTORS					
Freeway	Intersecting Freeway	Movement			Year
I-5	SR 78	South to East and West to North, North to East and West to South			2025
I-5	I-805	North to North & South to South			2025
I-15	SR 78	East to South & North to West			2025
SR 15	SR 94	South to West & East to North			2025
SR 15	I-805	North to North & South to South			2025
I-805	SR 52	West to North & South to East			2025
I-805	SR 94	North to West & East to South			2025

**Table D-5
Alternatives 5A, 5B, 5C and 5D**

TRANSIT CAPITAL IMPROVEMENTS AND OPERATIONS			
Service	Route	Description	Year
COASTER	398	COASTER double tracking (20-minute peak frequencies and current 120-minute off-peak frequencies)	2020
COASTER	398	COASTER double tracking (20-minute peak frequencies and 60-minute off-peak frequencies, and grade separation)	2025
COASTER	398	COASTER double tracking Phase 2050 (completes double tracking; includes Del Mar and UTC Tunnels)	2025
COASTER	398	COASTER extension to National City	2025
SPRINTER	399	SPRINTER efficiency improvements (20-minute frequencies)	2025

Appendix D-1 Project Tables for Alternatives Considered in Detail

SPRINTER	399	Double tracking Oceanside to Escondido; includes 10-minute frequencies and six rail grade separations	2025
SPRINTER	399	Branch Extension to Westfield North County	2025
SPRINTER	588	SPRINTER Express	2025
Trolley	510	Phase I - Blue Line Frequency Enhancements and rail grade separations, Blue/Orange Track Connection at 12th/Imperial	2025
Trolley	510	Phase II - Blue Line rail grade separations (two)	2025
Trolley	520	Orange Line Frequency Enhancements and four rail grade separations	2025
Trolley	<u>530</u>	<u>Green Line Frequency Enhancements</u>	<u>2025</u>
Trolley	522	Orange Line Express – El Cajon to San Diego International Airport Intermodal Transit Center (ITC)	2025
Trolley	540	Blue Line Express – Santa Fe Depot to San Ysidro via Downtown	2025
Trolley	550	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	560	SDSU to Downtown via El Cajon Blvd/Mid-City (transition of Mid-City <i>Rapid</i> to Trolley)	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER Connection Segment	2025
Trolley	561	UTC to Mira Mesa via Sorrento Mesa/Carroll Canyon (extension of Route 510) - COASTER to Mira Mesa Segment	2025
Trolley	562	Phase I - San Ysidro to Kearny Mesa via Mission Valley, Mid-City, National City/Chula Vista via Highland Ave/4th Ave	2025
Trolley	562	Phase II - Kearny Mesa to Carmel Valley	2025
Trolley	563	Phase I - Pacific Beach to Balboa; Kearny Mesa to El Cajon Transit Center	2025
Trolley	563	Phase II - Balboa to Kearny Mesa	2025
Trolley	564	Otay Mesa East Border Crossing to Western Chula Vista via Otay Ranch/Millennia	2025
Trolley	566	Palomar Street Trolley Station to Carmel Valley via Mid-City, Kearny Mesa (Route 562 Express)	2025
Trolley	510, 520, 540, 522 and 560	Downtown Trolley Tunnel	2025
<i>Rapid</i>	430	Oceanside to Escondido (peak only)	2025
<i>Rapid</i>	235	Temecula (peak only) Extension of Escondido to Downtown <i>Rapid</i>	2025
<i>Rapid</i>	650	Chula Vista to Palomar Airport Road Business Park via I-805/I-5 (peak only)	2025
<i>Rapid</i>	652	Downtown to UTC via Kearny Mesa Guideway/I-805	2025
<i>Rapid</i>	653	Mid City to Palomar Airport Road via Kearny Mesa/I-805/I-5	2025
<i>Rapid</i>	680	Otay Mesa Port of Entry (POE) to Sorrento Mesa via Otay Ranch/Millennia, I-805 Corridor, I-15, Mid City, Kearny Mesa, SR 52	2025
<i>Rapid</i>	692	Grossmont Center to Otay Town Center/Millennium via Southwest College, SR 125, Spring Valley	2025
<i>Rapid</i>	870	El Cajon to UTC via Santee, SR 52, I-805	2025
<i>Rapid</i>	890	El Cajon to Sorrento Mesa via SR 52, Kearny Mesa	2025
<i>Rapid</i>	688/689/690	San Ysidro to Sorrento Mesa via I-805/I-15/SR-52 Corridors; Otay Mesa Port of Entry (POE) to UTC/Torrey Pines via Otay Ranch/Millennia, I-805 Corridor; Mid City to Sorrento Mesa via I-805 Corridor (Peak Only)	2025
<i>Rapid</i>	SR 163 DARS	Kearny Mesa to Downtown via SR 163. Stations at Sharp/Children's Hospital and Hillcrest, + DAR at SR 163/Fashion Valley Transit Center	2025

Rapid	905	Rapid/Rapid extension of Iris to Otay Mesa Point of Entry (POE) with new service to Otay Mesa East POE and Imperial Beach	2020
Rapid	940	Oceanside to Sorrento Mesa via I-5, Carlsbad, Encinitas (peak only)	2025
Rapid	2	North Park to Downtown San Diego via 30th St	2025
Rapid	10	La Mesa to Ocean Beach via Mid-City, Hillcrest, Old Town	2025
Rapid	11	Spring Valley to SDSU via Southeast San Diego, Downtown, Hillcrest, Mid-City	2025
Rapid	28	Point Loma to Kearny Mesa via Old Town, Linda Vista	2025
Rapid	30	Old Town to Sorrento Mesa via Pacific Beach, La Jolla, UTC	2025
Rapid	41	Fashion Valley to UTC/UCSD via Linda Vista and Clairemont	2025
Rapid	103	Solana Beach to Sabre Springs Rapid station via Carmel Valley	2025
Rapid	120	Kearny Mesa to Downtown	2025
Rapid	440	Carlsbad to San Marcos via Palomar Airport Road	2025
Rapid	471	Downtown Escondido to East Escondido	2025
Rapid	473	Phase I - Solana Beach to UTC/UCSD via Hwy 101 Coastal Communities, Carmel Valley	2025
Rapid	473	Phase II - Oceanside to Solana Beach via Hwy 101 Coastal Communities	2025
Rapid	474	Oceanside to Vista via Mission Ave/Santa Fe Road Corridor	2025
Rapid	477	Camp Pendleton to Carlsbad Village via College Blvd, Plaza Camino Real	2025
Rapid	635	Eastlake to Palomar Trolley via Main Street Corridor	2025
Rapid	636	SDSU to Spring Valley via East San Diego, Lemon Grove, Skyline	2025
Rapid	637	North Park to 32nd Street Trolley via Golden Hill	2025
Rapid	638	Iris Trolley to Otay Mesa via Otay, Airway Dr, SR 905 Corridor	2025
Rapid	639	Iris Trolley Station to North Island via Imperial Beach and Silver Strand, Coronado	2025
Rapid	709	H Street Trolley to Millennia via H Street Corridor, Southwestern College	2025
Rapid	910	Coronado to Downtown via Coronado Bridge	2025
Streetcar	551	Chula Vista Downtown	2025
Streetcar	552	National City Downtown	2025
Streetcar	553	Downtown San Diego: Little Italy to East Village	2025
Streetcar	554	Hillcrest/Balboa Park/Downtown San Diego Loop	2025
Streetcar	555	30th St to Downtown San Diego via North Park/Golden Hill	2025
Streetcar	557	El Cajon Downtown	2025
Streetcar	558	Escondido Downtown	2025
Streetcar	559	Oceanside Downtown	2025
Streetcar	565	Mission Beach to La Jolla via Pacific Beach	2025
Shuttle	-	San Marcos Shuttle (Capital cost to be funded by the City of San Marcos)	2020
Airport Express	-	Airport Express Routes (Capital cost to be funded by aviation and other private funds)	2020
Intermodal	-	San Diego International Airport <u>Intermodal Transit Center (ITC) and I-5 Direct Connector Ramps</u>	2025
Intermodal	-	Phase I - San Ysidro ITC	2025
Intermodal	-	Phase II - San Ysidro ITC	2025
Intermodal	-	Otay Mesa East Intermodal Transit Center	2025
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2020
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025
Other	-	Other Improvements (Vehicles, transit system rehabilitation, regulatory compliance, park & ride)	2025

		compliance, park & ride)			
HIGHWAY GENERAL PURPOSE LANES					
Freeway	Year From	To	Existing	Improvement	Year
None.					
TOLL LANES					
Freeway	From	To	Existing	Improvement	Year
I-5	Vandegrift Blvd	Orange County	8F	8F+4T	2048
I-15	SR 78	Riverside County	8F	8F+4T	2048
EXISTING HIGHWAY GENERAL PURPOSE LANES CONVERTED TO MANAGED LANES					
Freeway	From	To	Existing	With Improvements	Year
I-5	SR 905	Palomar St	8F	6F+2ML	2025
I-5	Palomar St	SR 54	8F	6F+2ML	2025
I-5	SR 54	SR 15	8F	6F+2ML	2025
I-5	Manchester Ave	SR 78	8F	6F+2ML	2020
SR 15	I-5	SR 94	6F	4F+2ML	2025
SR 15	SR 94	I-805	6F	4F+2ML	2025
I-15	Viaduct		8F	6F+2ML	2025
I-15	I-8	SR 163	8F	6F+2ML	2025
SR 52	I-805	I-15	6F	4F+2ML	2025
SR 52	I-15	SR 125	6F	4F+2ML	2025
SR 94	I-5	I-805	8F	6F+2ML	2025
SR 94	I-805	SR 125	8F	6F+2ML	2025
SR 125	SR 94	I-8	8F	6F+2ML	2025
I-805	SR 905	Palomar St	8F	6F+2ML	2025
I-805	SR 94	SR 15	8F	6F+2ML	2025
I-805	SR 15	SR 163	8F	6F+2ML	2025
I-805	SR 163	SR 52	8F	6F+2ML	2025
SR 163	I-805	I-15	8F	6F+2ML	2025
SR 78	I-5	College Blvd	6F	4F+2ML/Operational	2025
SR 78	College Blvd	Twin Oaks	6F	4F+2ML/Operational	2025
SR 78	Twin Oaks	I-15	6F	4F+2ML/Operational	2025

Appendix D-2. Alternative Land Uses Methodology and Results

Alternative 4: Intensified Smart Growth Land Use

In this alternative, residential densities and employment intensities were increased relative to the Series 13 Regional Growth Forecast (i.e., the Sustainable Communities Strategy land use pattern identified in the proposed Plan) within specified 2014 Smart Growth Opportunity Areas (SGOAs) identified on the SANDAG Smart Growth Concept Map. Development assumptions for the Metropolitan Center, Urban Center, and Town Center smart growth place types were modified to allow for increased residential and employment development. Special Use centers were modified to allow for increased employment development. There are no changes to other smart growth place types under this alternative. Different assumptions are made for “existing/planned” SGOAs and “potential” SGOAs.

“Existing/planned” SGOAs develop at the maximum densities/intensities allowed under adopted plans (i.e., 100 percent of plan capacity). Under the regional growth forecast, development typically occurs at a level less than 100 percent of plan capacity, such as 75 percent. The “potential” SGOAs are not reflected in the adopted plans used in the forecast (because they have the “potential” to be incorporated into adopted plans at some point in the future). Therefore, this alternative assumes that development within “potential” SGOAs would occur at the minimum residential and employment density/intensity targets for smart growth place types as established by the SANDAG Regional Comprehensive Plan and shown in the table below.

Minimum Density/Intensity Targets:

<i>Smart Growth Place Type</i>	<i>Minimum Residential Target</i>	<i>Minimum Employment Target</i>
Metropolitan Center	75 du/ac	80 emp/ac
Urban Center	40 du/ac	50 emp/ac
Town Center	20 du/ ac	30 emp/ac
Special Use Center	N/A	45 emp/ac

Source: SANDAG Regional Comprehensive Plan (2004).

Methodology

SANDAG staff modified the capacity table to ensure that the desired targets for density of 100 percent would occur on parcels within the specified SGOAs. The first step in this process was to develop a list of LCKeys (similar to assessor’s parcels) falling within the specified SGOAs based on the criteria outlined above. Next, the “residential development point” table, which corresponds to the general plan codes from each jurisdiction, was modified to allow for a development point of 100 percent. This ensures that each parcel will develop to the maximum density allowed per adopted plans (for “existing/planned” SGOAs) and per the smart growth place type residential targets (for “potential” SGOAs).

After these changes to the capacity file were made, a new capacity file was generated. The results indicated that restricting growth to the specified SGOAs would not allow the Urban Development Model (UDM) to site the full increment of forecasted growth for the region by 2050. There was both a shortage of multi-family and single-family residential housing unit capacity. To accommodate all of the housing growth forecasted in the region, capacity was relaxed under this alternative to allow further development adjacent to the SGOAs. In this alternative, housing capacity within the specified SGOAs is maxed out first, and then additional housing stock is sited in the “overflow” areas adjacent to SGOAs. Summary of the region-wide housing capacity file for this alternative:

Single Family Units	Multi-family Units	Total Units
76,961	290,004	424,581

Results: Population, Housing Stock, and Employment Differences by Smart Growth Opportunity Areas

Table 1 compares housing stock by type and employment within the specified SGOAs for the Series 13 Regional Growth Forecast and Alternative 4. Overall, there is a significant increase in housing located within the SGOAs in Alternative 4 as compared with Series 13. Between 2012 and 2050, total housing stock within SGOAs between Series 13 and Alternative 4 differs by 35,397 total units – an increase of 7.7 percent for Alternative 4. By 2050, Alternative 4 results in approximately 0.6 percent more single family units within SGOAs compared to Series 13. In terms of multi-family housing stock, Alternative 4 has 34,468 more units within SGOAs – approximately 8.5 percent more than Series 13. As a result of the overall increase in housing stock within SGOAs under Alternative 4 – an additional 250,151 units by 2050 – there is a corresponding increase in the total population within SGOAs of 644,848. By 2050, the population of SGOAs would increase by 95,411 people in Alternative 4 – an 8.5 percent increase – relative to Series 13.

Alternative 4 has approximately 5.2 percent more employment by 2050 within SGOAs compared with Series 13; this can largely be attribute to the redevelopment of single family land to mixed use and/or commercial uses.

Table 1. Population, Housing Stock by Type, and Employment within Smart Growth Opportunity Areas

Alternative 4 Intensified Smart Growth Land Use										
Scenario	Population		Housing Stock		Single Family		Multi-Family		Employment	
	2012	2050	2012	2050	2012	2050	2012	2050	2012	2050
Series 13	572,108	1,121,545	244,587	459,341	56,828	51,902	181,332	404,569	523,004	745,089
Alternative 4	572,108	1,216,956	244,587	494,738	56,828	52,192	181,332	439,037	523,004	783,624

Alternative 5: Dense Cores Land Use

This alternative focuses housing and employment growth within four existing urbanized areas as outlined in Urban Footprint’s “Multiple Dense Core” scenario (Scenario C). Specific emphasis is placed on siting growth in the SGOAs and “transit-proximate” areas. The same rules regarding target residential densities from Alternative 4 were also applied here (i.e., parcels within specified SGOAs develop at 100 percent of capacity). A single family capacity shortage within the dense cores resulted in a modified boundary that includes the 2035 Transit Priority Areas (TPAs) and modified control totals reducing single family units and increasing multi-family housing units.

Methodology

Similar to Alternative 4, SANDAG staff made modifications to the capacity file for this alternative to restrict development to the multiple dense cores and Transit Priority Areas. All parcels falling outside of the boundary were not allowed to develop or further intensify. Summary of region-wide housing capacity results for Alternative 5:

Single Family Units	Multi-family units	Total units
21,712	325,397	340,143

Modified DEFM control totals

With all capacity restricted to the Multiple Dense Cores and Transit Priority Areas it is necessary to adjust the control totals for housing by structure type in order to accommodate all forecasted regional growth within this area. Employment is similar to housing stock in that there is not quite enough capacity in the dense cores alone to accommodate all the types of forecasted employment. As seen in the summary of capacity above, with the substantial majority of available capacity being multi-family, only 21,712 total new single family units can be built under this alternative between 2012 and 2050.

The DEFM component of the Series 13 Regional Growth Forecast, however, projects the need for 60,125 new single family units between 2012 and 2050. New control totals by structure type were generated using the capacity totals above as the basis (so as not to exceed single family capacity of adopted plans within the dense cores and TPA boundary) and the steps are outlined below:

1. Determine site-specific projects for single- and multi-family. UDM will respect the first 5 years of growth (2012-2017) with regard to single/multi-family split in DEFM, ensuring no change site specific projects for 2012 to 2017 identified by the jurisdictions. There are 13,949 single-family and 48,537 multi-family site specific projects.
2. Determine shortage of single-family capacity (difference between DEFM single family stock projections and single family capacity in modified Alternative 2 capacity file) and shift those units to the multi-family control totals.
3. Subtract single-family site-specific projects from new single family control to determine the remaining single family units to be allocated between 2017 and 2050.
4. Apply DEFM yearly growth rates to the new single-family increment and factor to match the maximum growth allowed.

Results: Population, Housing Stock, Employment within Dense Cores

In this alternative, approximately 70 percent of the future housing growth is located within the Dense Cores, with the remaining 30 percent being mostly located in the surrounding Transit Priority Areas (TPAs). This paragraph describes forecasted growth under this alternative within Dense Cores only (forecasted growth within Dense Cores and TPAs is shown in Table 3).

As shown in Table 2, total housing stock within the dense cores is approximately 4.7 percent higher than in Series 13. The majority of this increase can be attributed to the significant increase in multi-family units. Between 2012 and 2050, multi-family units increase by 244,961 units, or 97.4 percent. Multi-family housing stock within the Dense Cores in this alternative is 7 percent greater relative to Series 13 by 2050. Single family housing stock, by comparison, sees a slight increase within Dense Cores compared to Series 13, approximately 0.7 percent higher than Series 13.

Between 2012 and 2050 employment grows from 884,704 to 1,269,654 within Dense Cores; over 5.1 percent more than 2050 employment in Dense Cores under Series 13.

Table 2. Population, Housing Stock by Type, and Jobs within Multiple Dense Cores

Scenario	Population		Housing Stock		Single Family		Multi-Family		Employment	
	2012	2050	2012	2050	2012	2050	2012	2050	2012	2050
Series 13	1,415,244	2,005,867	521,457	734,519	251,696	257,012	251,381	463,750	884,704	1,208,028
Alt. 5	1,415,244	2,092,517	521,457	768,982	251,696	258,922	251,381	496,342	884,704	1,269,654

Table 3. Population, Housing Stock, Employment within Multiple Dense Cores and Transit Priority Areas

Scenario	Population		Housing Stock		Single Family		Multi-Family		Employment	
	2012	2050	2012	2050	2012	2050	2012	2050	2012	2050
Series 13	2,199,450	2,924,206	832,013	1,026,867	457,838	467,359	349,217	605,278	1,117,122	1,490,312
Alt. 5	2,199,450	3,052,023	832,013	1,140,049	457,838	469,063	349,217	651,838	1,117,122	1,567,062

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Appendix D-4 EMFAC2014 (v.1.0.7) Output Summary for Alternatives Considered in Detail

Alternative	Annual CO2	Annual PM10	Annual PM2.5	PM 10 Tire Wear	PM 10 Brake Wear	PM 10 Total Exhaust	Annual gasoline consumption	Annual diesel consumption	Summer ROG	Summer NOx	Winter CO	ROG+Nox
	tons/day	tons/day	tons/day	tons / day	tons / day	tons / day	thousand gallons/day	thousand gallons/day	tons/day	tons/day	tons/day	tons / day
2012	41,195	5.40	2.76	0.73	3.55	1.11	4019.31	351.88	33.23	53.01	274.45	86.25
Alt 1 - 2020	36,482	4.98	2.18	0.80	3.83	0.36	3422.96	409.76	17.48	24.49	129.78	41.97
Alt 1 - 2025	31,749	5.07	2.16	0.83	3.97	0.27	2888.10	430.90	14.07	15.21	97.16	29.28
Alt 1 - 2035	27,716	5.23	2.16	0.88	4.19	0.16	2371.74	500.74	10.34	10.75	73.20	21.09
Alt 1 - 2050	28,350	5.47	2.24	0.93	4.42	0.12	2359.64	567.19	9.01	9.88	68.16	18.89
Proposed Plan - 2020	36,260	4.99	2.18	0.79	3.83	0.37	3390.79	416.70	17.35	24.86	128.79	42.21
Proposed Plan - 2025	31,337	5.04	2.15	0.82	3.95	0.27	2834.62	438.67	13.85	15.41	95.42	29.25
Proposed Plan - 2035	27,299	5.19	2.15	0.86	4.17	0.16	2307.73	516.87	10.03	10.77	71.26	20.80
Proposed Plan - 2050	27,663	5.39	2.20	0.91	4.38	0.11	2265.95	583.93	8.59	9.47	65.08	18.07
Alt 2 - 2020	36,260	4.99	2.18	0.79	3.83	0.37	3390.79	416.70	17.35	24.86	128.79	42.21
Alt 2 - 2025	31,610	5.12	2.19	0.82	4.02	0.28	2846.57	453.10	13.90	16.11	95.91	30.01
Alt 2 - 2035	27,346	5.21	2.16	0.86	4.19	0.16	2309.73	519.38	10.04	10.80	71.26	20.83
Alt 2 - 2050	27,663	5.39	2.20	0.91	4.38	0.11	2265.95	583.93	8.59	9.47	65.08	18.07
Alt 3 - 2020	36,254	4.98	2.18	0.79	3.83	0.37	3390.19	416.67	17.34	24.85	128.71	42.20
Alt 3 - 2025	31,430	5.10	2.18	0.82	4.00	0.28	2828.41	452.20	13.83	16.08	95.66	29.91
Alt 3 - 2035	27,212	5.18	2.15	0.86	4.17	0.16	2296.72	518.27	9.99	10.80	71.12	20.79
Alt 3 - 2050	27,663	5.39	2.20	0.91	4.38	0.11	2265.95	583.93	8.59	9.47	65.08	18.07
Alt 4 - 2020	36,229	4.99	2.18	0.79	3.83	0.37	3380.25	422.78	17.32	25.03	128.50	42.35
Alt 4 - 2025	31,421	5.10	2.18	0.81	4.01	0.28	2818.77	459.48	13.79	16.23	95.32	30.02
Alt 4 - 2035	27,410	5.22	2.16	0.86	4.20	0.16	2307.58	526.98	10.04	10.93	71.51	20.97
Alt 4 - 2050	27,572	5.36	2.19	0.90	4.35	0.11	2247.92	591.02	8.54	9.60	65.06	18.14
Alt 5a - 2020	36,215	4.97	2.18	0.79	3.82	0.37	3387.94	415.08	17.32	24.80	128.68	42.12
Alt 5a - 2025	31,098	5.02	2.15	0.80	3.94	0.28	2796.28	449.36	13.64	16.02	94.76	29.66
Alt 5a - 2035	26,966	5.12	2.12	0.85	4.12	0.16	2274.50	514.87	9.88	10.81	70.63	20.69
Alt 5a - 2050	27,144	5.26	2.15	0.88	4.27	0.11	2217.18	578.33	8.42	9.55	64.32	17.97
Alt 5b - 2020	36,047	4.95	2.17	0.78	3.80	0.37	3364.76	419.47	17.22	24.87	127.86	42.09
Alt 5b - 2025	30,920	4.99	2.14	0.80	3.92	0.28	2771.55	454.11	13.54	16.05	93.97	29.58
Alt 5b - 2035	26,860	5.09	2.11	0.84	4.09	0.16	2260.34	517.18	9.82	10.80	70.15	20.62
Alt 5b - 2050	27,025	5.23	2.14	0.88	4.24	0.11	2199.36	582.62	8.35	9.57	63.77	17.92
Alt 5c - 2050	26,997	5.23	2.14	0.87	4.25	0.11	2187.38	590.14	8.29	9.57	63.61	17.86
Alt 5d - 2050	25,969	5.01	2.05	0.83	4.07	0.10	2078.87	588.86	7.86	9.27	60.33	17.13

