

Freeway Deficiency Plan Final

Central Interstate 5 Corridor Study

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Central I-5 Corridor Study Freeway Deficiency Plan

EXECUTIVE SUMMARY

E.1 Introduction

The Final Subsequent Environmental Impact Report (SEIR) for the Ballpark and Ancillary Development Projects and Associated Plan Amendments, dated October 26, 1999, required the development of a Freeway Deficiency Plan (FDP). As described in this mitigation measure, this FDP shall be prepared for the freeway systems serving Centre City. Mitigation Measures 13.1-5 and 13.1-6 of the Mitigation Monitoring and Reporting Program for the Ballpark and Ancillary Development Projects and Associated Plan Amendments require the following:

- 13.1-5 Caltrans, San Diego Association of Governments (SANDAG), and the City of San Diego shall prepare a FDP which identifies both near-term and long-term capacity improvements and programs to improve the freeway system serving Centre City.

Possible improvements may include:

- Enhanced alternate mode service and facilities (e.g., trolley, express bus, bicycle, and pedestrian);
- Enhanced Transportation Demand Management (TDM) measures to reduce peak hour congestion, such as carpooling, vanpooling, parking restrictions, staggered work hours, and telecommuting;
- Increased carrying capacity on I-5, SR-94, and I-15;
- Improved/reconfigured freeway on-ramps and off-ramps; and
- Modifying peak hour flow rates at freeway ramp meters, in conjunction with increased mainline capacity, to maximize egress from surface streets connecting to freeway on-ramps.

- 13.1-6 Improvements and programs identified in the FDP shall be carried out in accordance with the implementation program included as part of the Plan.

In addition to this mitigation requirement from the SEIR, this FDP satisfies another requirement imposed by the State of California Congestion Management Program (CMP). In the San Diego region, the CMP established LOS "E" as the standard for the freeways in the CMP roadway system, except for segments that were at LOS "F" in 1991 CMP base year. In those cases, LOS "F" would be the standard for those segments. For new segments added after the 1991 base year LOS was established, the standard shall be LOS "E". The LOS is measured as the highest peak hour (AM or PM) in the heaviest travel direction.

In the CMP, a deficiency plan is required whenever a freeway segment on the CMP system fails to meet the CMP Level of Service (LOS) standard and is designated as a “deficient segment” after allowing for certain statutory exclusions. Further, roadway segments designated as “deficient segments” should be grouped into common sub-areas or corridors based upon the following criteria:

- The segments are contiguous or share a common CMP route
- The segments are grouped near intersecting CMP routes
- The segments are included in a previously defined study area.

In conjunction with Caltrans and SANDAG, the City of San Diego identified the facilities to be included in this FDP. While the detailed deficiency analysis conducted in the Traffic Analysis for the Ballpark and Ancillary Development Projects considered both local roadways and freeway facilities, the portions of the analysis summarized in the FDP relate only to the major CMP freeway routes. The segments analyzed in conjunction with the Ballpark and Ancillary Development Projects and included within this FDP are I-5 between Sea World Drive and SR-54, SR-163 between Genesee Avenue and I-5, SR-94 between 17th Street and Massachusetts Avenue, and I-15 between I-805 and SR-94.

E.2 Background and Purpose

As stated above, the primary factor which required the preparation of this FDP was the mitigation requirement from the SEIR for the San Diego Ballpark Project. The discussion below provides background on this project and describes the linkage between the Ballpark Project and the Central I-5 Corridor Study.

The planned Ballpark and Ancillary Development Projects are located in the East Village area of downtown San Diego. The proposed activities are to be located in an area roughly bounded by Sixth Avenue, Market Street, Interstate 5, and Commercial Avenue/Harbor Drive. The proposed construction consists of two basic components. The first, the Ballpark Project, is composed of a new ballpark and related retail, entertainment center, and parking facilities. The second component, the Ancillary Development Projects, consist of facilities around the Ballpark Project, including hotels, office, research and development, residential, and retail. For the Ballpark and Ancillary Development Projects traffic analysis, both non-event and event conditions were analyzed to determine resulting impacts. This FDP focuses on the non-event condition because event conditions would not occur on a regular daily basis, and the City of San Diego is developing a formal Event Traffic Management Plan (ETMP) to address the traffic generated by special events.

To accomplish the SEIR mitigation requirement to prepare an FDP, SANDAG and the City of San Diego included the development of this plan as a scope element within the Work Program established for the Central I-5 Corridor Study.

The Central I-5 Corridor Study was conducted under the direction of SANDAG and Caltrans, with participation by the Centre City Development Corporation (CCDC), the Metropolitan Transit Development Board (MTDB), the San Diego Unified Port District, and the cities of San

Diego, National City, and Chula Vista. The primary issues that led to initiation of the Central I-5 Corridor Study were related to access and mobility and the desire to enhance the economic vitality of the Corridor and the region as a whole. The purpose of the study was to identify short-range and long-range actions to reduce traffic congestion on freeways, interchanges, and arterials that provide regional access to Centre City and other corridor activity centers, including San Diego International Airport (Lindbergh Field), the San Diego Unified Port District marine terminals at 10th Avenue in San Diego and Bay Marina Drive in National City, and the Old Town Transit Center.

As a component of the Central I-5 Corridor Study work program, this FDP was prepared under the direction of Caltrans, the City of San Diego, and SANDAG. The FDP is based in large part on the analysis in the Central I-5 Corridor Study. A Policy Committee, composed of staff and elected officials from local agencies and jurisdictions, met at key points during the Central I-5 Corridor study process to provide direction and guidance. Meetings with technical staff from the agencies and jurisdictions were also convened at periodic points in the study process to review analysis findings at a more technical level of detail.

As part of the review process, the cities of San Diego and National City must approve the contents and recommendations of the FDP. Ultimately, this FDP must be accepted by SANDAG, acting as the Congestion Management Agency (CMA) for the San Diego region. The SEIR has stipulated that the FDP be accepted prior to the issuance of an occupancy permit by the City of San Diego for any ballpark-related development.

E.3 FDP Methodology and Standards

For the purpose of this FDP, the Ballpark Project SEIR Large Project traffic analysis provided a general guide in determining the extent of the influence area and the resulting freeway facilities to be included in this FDP analysis. **Table E.1** lists each individual “deficient” freeway segment included in the FDP study area. This table also identifies the jurisdictional location of each FDP study segment. Inclusion in the FDP as a deficient freeway segment is triggered by either of two conditions:

- a. The segment has an existing LOS deficiency - i.e., LOS “F.” SANDAG has identified any freeway segments that currently operate at LOS “F,” and these segments are shaded in the column titled “Year 1999 CMP LOS.”
- b. The segment has been identified in a *Large Project Traffic Analysis* (i.e., San Diego Ballpark and Ancillary Development Projects and Associated Plan Amendments SEIR dated October 26, 1999) as experiencing a significant impact (future LOS F) due to the project. For the purposes of this FDP, this means that the traffic analysis for the Ballpark Project SEIR found the segment to be impacted by the project under either opening year (2002) or buildout non-event conditions.

As shown in Table E.1, every freeway segment included in this FDP is projected to operate at LOS “F” in either the near term or buildout time frames. The table also indicates that a number of segments are triggered separately by each of the two criteria.

**Table E.1
Summary of Existing and Future LOS Conditions**

Route	Limits	Jurisdiction	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non-Event	Buildout Non-Event
				Projected LOS ⁽²⁾	Projected LOS ⁽²⁾
I-5	Sea World Drive to I-8	City of San Diego	E	F	F
	I-8 to Washington	City of San Diego	E	F	F
	Washington to Laurel	City of San Diego	E	F	F
	Laurel to SR-163	City of San Diego	F	F	F
	SR-163 to SR-94	City of San Diego	F	E	F
	SR-94 to Imperial	City of San Diego	F	F	F
	Imperial to Crosby	City of San Diego	F	E	F
	Crosby to 28 th Street	City of San Diego	E	D	F
	28 th Street to I-15	City of San Diego	F	F	F
	I-15 to 16 th Street	City of San Diego/ National City	F	F	F
16 th Street to SR-54	National City	F	F	F	
SR-163	Genesee Avenue to Friars Road	City of San Diego	F	F	F
	Friars Road to I-8	City of San Diego	E	F	F
	I-8 to Washington	City of San Diego	F	F	F
	Washington to I-5	City of San Diego	F	F	F
SR-94	17 th Street to 28 th Street	City of San Diego	E	F	F
	28 th Street to I-15	City of San Diego	E	F	F
	I-15 to I-805	City of San Diego	F	F	F
	I-805 to Euclid Avenue	City of San Diego	F	F	F
	Euclid Avenue to College Avenue	City of San Diego/ Lemon Grove	F	F	F
	College Avenue to Massachusetts Avenue	Lemon Grove/La Mesa	F	F	F
I-15	I-805 to SR-94	City of San Diego	C	E	F

Source: URS, March 2003.

- Notes: ⁽¹⁾ Existing LOS conditions established by the SANDAG 1999 Congestion Management Program Update and based upon Year 1998 traffic data.
⁽²⁾ Future LOS conditions derived from the Downtown San Diego Ballpark Traffic and Parking Studies, Project Traffic Study, Final Technical Report dated May 1999.

E.4 Causes of Freeway Deficiencies

As documented in the Central I-5 Corridor Study, existing and future year freeway deficiencies are a function of high levels of travel demand coupled with limited freeway capacity and outdated and/or substandard freeway geometrics.

Corridor Travel Demands

Travel demands are a result of population and employment growth both within the corridor and throughout the region. The following table displays existing year 2000 and forecast year 2020 population and employment projections for the study corridor and the region as a whole.

**Regional and Central I-5 Corridor
Population and Employment Projections**

	Existing		2020			
	Corridor	Region	Corridor	Region	% Increase Over Existing	
					Corridor	Region
Population	274,560	2,946,550	363,600	3,853,300	32.4%	30.8%
Employment	236,510	1,171,000	266,070	1,485,400	12.5%	26.8%

Source: SANDAG, Series 9, September 2001.

As shown, population in the study corridor is projected to increase over existing levels by 32.4 percent by the year 2020. In addition, corridor employment is projected to increase 12.5 percent over existing levels by the year 2020.

The following table displays the growth of office, retail, and housing within the Centre City, one of the primary focal points of growth in the Central I-5 Corridor.

Centre City Growth Projections

Development Type	2000	2020	
	Amount	Amount	% Increase Over Existing
Office (square feet)	11.8 million	18.1 million	52.8%
Retail (square feet)	4.4 million	4.7 million	6.8%
Housing Units	6,600	28,600	333.3%

Source: SANDAG, CCDC, September 2001.

As shown, Centre City office space is projected to increase by 52.8 percent by the year 2020, with projected retail space in the Centre City increasing by 6.8 percent. The projected increase in Centre City housing units is very significant, from 6,600 units to 28,600 units by 2020, representing over a three-fold increase over the 20-year timeframe. This increase in Centre City housing units will be beneficial by reducing trip lengths and the number of work trips commuting from outside the corridor.

The following table displays the projected number of person trips (work and non-work purposes) for the existing year 2000 and the forecast year 2020, along with the percentage growth over existing year 2000 levels.

**Daily Person Trips
Central I-5 Corridor**

Purpose	Existing 2000	2020	
	Daily Corridor Person Trips	Daily Corridor Person Trips	% Increase 2000-2020
Work	351,800	409,200	16.4%
Non-Work	2,625,500	3,147,200	20.0%
Total	2,977,300	3,556,400	19.5%

Source: SANDAG, August 2001.

As shown, approximately 3.0 million trips currently take place in the corridor on a daily basis. By the year 2020, the number of trips will increase by 20 percent to 3.6 million. As expected, the vast majority of these trips have either an origin or destination within the corridor, with approximately 25 percent of the trips focused on the Centre City area. Less than 10 percent of the corridor's trips are through trips, or trips just passing through the corridor, between SR-54 and I-8. The I-5 freeway provides the primary regional access to the corridor's major activity centers, including Centre City, the airport, Old Town, and the marine terminals at Tenth Avenue and National City. The I-5 freeway also is a major connecting route to regional freeways, including SR-54, I-15, SR-94, SR-163, and I-8.

Freeway Congestion

In addition to the impacts associated with the population, employment, and development growth discussed above, congestion along the various freeway segments within the study area is generally a factor of the following:

1. Areas of capacity constraint wherein traffic flows exceed the carrying capacity of the freeway, as depicted by volume/capacity (v/c) relationships. The resulting high traffic densities restrict traffic flows, limit the ability to change lanes, and result in degraded travel speeds. Locations where capacity is reduced due to lane drops and termination of auxiliary lanes can be particular problems.
2. Merge and diverge conflicts at ramp junctions. At ramps, heavy volumes of merging vehicles entering the freeway traffic flows can create turbulence in the traffic flows. Approaching freeway vehicles must often shift lanes to the left to avoid this turbulence. Diverging vehicles at exit ramps also create turbulence, as exiting vehicles move right and through vehicles move left to avoid potential turbulence.
3. Deficient spacing between entry and exit ramps and corresponding poor weave section operations. The various weave merge and diverge movements cause "turbulence" which constrain traffic flow.

Overall PM peak hour traffic flows on the I-5 freeway facility are constrained in the southbound direction generally between Pacific Highway in the north and SR-54 to the south. Major bottlenecks in the "S curve" through the downtown area occur due to merging and diverging traffic and heavy traffic flows to the South Bay. In a similar manner during the AM peak hour, northbound congestion occurs due to heavy traffic flows out of the South Bay and various conflicts with merging and weaving traffic.

E.5 FDP Freeway Improvements

Once the FDP deficient freeway segments were identified, it was necessary to identify a freeway improvement concept to mitigate the capacity deficiency of each segment. The improvement concept for the deficient freeway segments was derived from one of three sources:

- a. Improvements contained in the 2030 Regional Transportation Plan (RTP) "Reasonably Expected" Revenue (MOBILITY) Scenario.
- b. Additional improvement projects recommended in the Central I-5 Corridor Study.

- c. Other “Improvements to Achieve Minimum LOS E.” Unlike “Reasonably Expected” improvements, these long-term projects are not included in the 2030 RTP and are unfunded at the present time.

The FDP also includes operational and non-highway improvements which are discussed in a following section.

Table E.2 summarizes the deficiencies which would be addressed by improvements contained in the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario. This table also repeats the columns contained in Table E.1, and adds four new columns under the heading, “2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario.” The first column under this heading, “Description of Improvement,” summarizes the improvement concept, if any, proposed in the RTP. The next column provides an estimated cost to implement the identified improvement. The next two columns show the resulting AM and PM peak hour LOS by direction for the year 2030 (the time horizon of the SANDAG RTP). For seven of the segments with proposed improvements, the 2030 AM and PM peak LOS is acceptable in both directions. Eight segments on I-5, however, would still experience a directional LOS “F” during at least one peak period. Four segments of SR-163 (for which no improvements are listed in this table) also operate at LOS “F.” Each of the 12 “failing” segments is shaded in the appropriate columns. To achieve LOS E or better, these 12 segments on both I-5 and SR-163 would require additional improvement actions beyond those included in the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario.

Table E.3 summarizes the LOS results based upon implementation of the Central I-5 Corridor Study recommended improvements between Sea World Drive and SR-54, in addition to the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario (Table E.2). The exception is on Interstate 5 itself, where the RTP and the Central I-5 Corridor Study both recommend adding two lanes, but with different functions. The Central I-5 Corridor Study recommended two general purpose lanes, while the RTP recommends two HOV lanes. SANDAG will conduct further analysis of the feasibility and costs of HOVs in this particular corridor. In either case, the additional two lanes on I-5 shown in Table E.2 are not repeated in Table E.3.

Table E.3 also shows the estimated cost of each improvement project. As shown, all freeway segment deficiencies except those on SR-163 would be mitigated by improvement projects in a combination of the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario and the Central I-5 Corridor Study.

Table E.4 addresses the additional long-term improvements on SR-163. This table contains the same information found in the corresponding columns of Table E.1, with identification of other improvements which would result in a long-term LOS of E or better. As shown, widening of SR-163 would be necessary to address the existing and projected deficiencies. It is important to note that earlier studies determined that no widening of SR-163 will occur through Balboa Park due to environmental constraints and community concerns, and there is no recommendation to widen SR-163 between I-5 and Genesee Avenue at this time.

Table E.2
Summary of Freeway Deficiency Plan Analysis by Segment
Proposed Improvements From 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario

Route	Limits	Jurisdiction	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non-Event	Buildout Non- Event	2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario ⁽³⁾			
				Projected LOS ⁽²⁾	Projected LOS ⁽²⁾	Description of Improvement	Cost (\$M)	Resulting Level of Service	
								AM LOS NB/SB or EB/WB	PM LOS NB/SB or EB/WB
I-5	Sea World Drive to I-8	City of San Diego	E	F	F	New east-north and south-west freeway connectors at I-8	\$200	C/C	D/D
						Construct 2 HOV Lanes			
	I-8 to Washington	City of San Diego	E	F	F	Construct 2 HOV Lanes		E/C	E/D
	Washington to Laurel	City of San Diego	E	F	F	Construct 2 HOV Lanes		E/C	E/D
	Laurel to SR-163	City of San Diego	F	F	F	Construct 2 HOV Lanes		E/C	E/F
	SR-163 to SR-94	City of San Diego	F	E	F	Construct 2 HOV Lanes		F/B	D/E
	SR-94 to Imperial	City of San Diego	F	F	F	Construct 2 HOV Lanes		F/D	E/F
	Imperial to Crosby	City of San Diego	F	E	F	Construct 2 HOV Lanes		F/D	C/F
	Crosby to 28 th Street	City of San Diego	E	D	F	Construct 2 HOV Lanes		F/C	C/E
	28 th Street to I-15	City of San Diego	F	F	F	Construct 2 HOV Lanes		F/B	C/F
	I-15 to 16 th Street	City of San Diego/National City	F	F	F	Construct 2 HOV Lanes		F/B	D/F
16 th Street to SR-54	National City	F	F	F	Construct 2 HOV Lanes	F/B	E/F		
SR-163	Genesee Avenue to Friars Road	City of San Diego	F	F	F	n/a	UNK ⁽⁴⁾	C/E	D/F
	Friars Road to I-8	City of San Diego	E	F	F	n/a		A/D	B/F
	I-8 to Washington	City of San Diego	F	F	F	n/a		D/E	E/F
	Washington to I-5	City of San Diego	F	F	F	n/a		F/F	F/F
SR-94	17 th Street to 28 th Street	City of San Diego	E	F	F	Construct 2 HOV Lanes	\$500	A/C	D/B
	28 th Street to I-15	City of San Diego	E	F	F	Construct 2 HOV Lanes		A/C	D/B
	I-15 to I-805	City of San Diego	F	F	F	Construct 2 HOV Lanes		A/E	C/C
	I-805 to Euclid Avenue	City of San Diego	F	F	F	Construct 2 HOV Lanes		A/E	E/C
	Euclid Avenue to College Avenue	City of San Diego/Lemon Grove	F	F	F	Construct 2 HOV Lanes		B/E	D/C
	College Avenue to Massachusetts Avenue	Lemon Grove/La Mesa	F	F	F	Construct 2 HOV Lanes		B/D	D/C
I-15	I-805 to SR-94	City of San Diego	C	E	F	Construct 2 HOV Lanes	\$200	B/B	C/B
						Construct new south-west and east-north HOV connectors at SR 94	\$150		

Source: SANDAG, March 2003.

- Notes: ⁽¹⁾ Existing LOS conditions established by the SANDAG 1999 Congestion Management Program Update and based upon Year 1998 traffic data.
⁽²⁾ Future LOS conditions derived from the Downtown San Diego Ballpark Traffic and Parking Studies, Project Traffic Study, Final Technical Report dated May 1999.
⁽³⁾ Future recommended improvements and resulting LOS conditions derived from the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario, Spring 2003. Gray shading highlights the segments that are anticipated to remain impacted after the implementation of the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario.
⁽⁴⁾ UNK: Unknown at this time. Cost estimates for constructing the I-5 HOV lanes are not currently available.

**Table E.3
Summary of Freeway Deficiency Plan Analysis by Segment
Proposed Improvements From Central I-5 Corridor Study**

Route	Limits	Jurisdiction	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non-Event	Buildout Non-Event	Central I-5 Corridor Study Recommended Improvements ⁽³⁾			
						Projected LOS ⁽²⁾	Projected LOS ⁽²⁾	Description of Improvements	Cost \$M
				AM LOS NB/SB	PM LOS NB/SB				
I-5	Sea World Drive to I-8	City of San Diego	E	F	F	Reconfigure Sea World Drive Interchange	\$5	B/C	C/C
						New SB-WB and EB-NB connectors at I-5/I-8, widen ramps at I-5/I-8	\$200		
	I-8 to Washington	City of San Diego	E	F	F	Reconfigure Old Town Ave and Washington St interchange	\$12	C/C	D/D
						Old Towne Transit Center Access Improvements	\$30		
	Washington to Laurel	City of San Diego	E	F	F	Airport Access Improvements	\$125	C/C	D/D
	Laurel to SR-163	City of San Diego	F	F	F	Reconfigure First Ave/Hawthorne St interchange	\$10	D/C	E/D
	SR-163 to SR-94	City of San Diego	F	E	F	Centre City Collector-Distributor System	\$177	E/B	C/C
	SR-94 to Imperial	City of San Diego	F	F	F	Centre City Collector-Distributor System	\$173	D/B	D/C
						Tenth Ave. Marine Terminal Access Improvements	\$160*		
	Imperial to Crosby	City of San Diego	F	E	F	Tenth Ave. Marine Terminal Access Improvements	\$160*	D/B	D/C
	Crosby to 28 th Street	City of San Diego	F	D	F	Tenth Ave Marine Terminal Access Improvements	\$160*	D/B	D/C
	28 th Street to I-15	City of San Diego	E	F	F	New NB auxiliary lanes from SB-15 to National Ave and SB auxiliary lanes from 8 th St to Cleveland Ave	\$30*	E/A	B/E
	I-15 to 16 th Street	City of San Diego/ National City	F	F	F	New NB auxiliary lanes from 7 th /8 th Street to Division Street	\$30*	E/A	B/D
						Add 2 General Purpose Lanes ⁽⁴⁾	\$60		
16 th Street to SR-54	National City	F	F	F	New NB & SB auxiliary lanes between Bay Marina Drive and Harbor Drive	\$30*	E/A	B/D	
					Add 2 General Purpose Lanes ⁽⁴⁾	\$70			
SR-163	Genesee Avenue to Friars Road	City of San Diego	F	F	F	n/a		C/E	D/F
	Friars Road to I-8	City of San Diego	E	F	F	n/a		A/D	B/F
	I-8 to Washington	City of San Diego	F	F	F	n/a		D/E	E/F
	Washington to I-5	City of San Diego	F	F	F	n/a		F/F	F/F

Source: URS, March 6, 2003.

- Notes: ⁽¹⁾ Existing LOS conditions established by the SANDAG 1999 Congestion Management Program Update and based upon Year 1998 traffic data.
⁽²⁾ Future LOS conditions derived from the Downtown San Diego Ballpark Traffic and Parking Studies, Project Traffic Study, Final Technical Report, dated May 1999.
⁽³⁾ Future recommended improvements and resulting LOS conditions derived from the Central I-5 Corridor Study, dated November 2002.
⁽⁴⁾ The Central I-5 Corridor Study recommends widening to accommodate two additional lanes on these segments, for a total of 12 lanes.
* Costs provided are for entire corridor, not specific to the subject section.

Table E.4
Summary of Freeway Deficiency Plan Analysis for Remaining LOS “F” Segments
After 2030 RTP and Central I-5 Corridor Study Improvement

Route	Limits	Jurisdiction	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non-Event	Buildout Non- Event	Concept Improvements to Achieve Minimum LOS “E” ⁽³⁾		
				Projected LOS ⁽²⁾	Projected LOS ⁽²⁾	Description of Improvement	Resulting Ultimate Level of Service	
							AM	PM
SR-163	I-5 to Washington	City of San Diego	F	F	F	Widen to 6 lanes	E or better	E or better
	Washington to I-8	City of San Diego	F	F	F	Widen to 6 lanes ⁽⁴⁾	E or better	E or better
	I-8 to Friars Road	City of San Diego	F	F	F	Widen to 10 lanes	E or better	E or better
	Friars Road to Genesee Avenue	City of San Diego	F	F	F	Widen to 10 lanes	E or better	E or better

Source: URS, March 6, 2003.

- Notes: ⁽¹⁾ Existing LOS conditions established by the SANDAG 1999 Congestion Management Program Update and based upon Year 1998 traffic data.
⁽²⁾ Future LOS conditions derived from the Downtown San Diego Ballpark Traffic and Parking Studies, Project Traffic Study, Final Technical Report dated May 1999.
⁽³⁾ Future concept improvements and resulting LOS conditions based upon requirements to achieve operating conditions of LOS “E” or better. No facility improvement cost estimate has been prepared nor is any widening planned.
⁽⁴⁾ Due to environmental and community concerns, the San Diego City Council removed any recommended improvements to SR-163 in the Ballpark Final SEIR.

E.6 FDP Operational and Non-Highway Improvements

In addition to the highway capital improvements noted on Tables E.2 and E.3, the improvements derived from both the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario and the Central I-5 Corridor Study also included a comprehensive set of freeway operational improvements, in addition to an expanded focus on alternative modes and travel demand management (TDM) strategies as follows:

- Mobility 2030 Regional Transit Vision (RTV) - The RTV, as a significant component of Mobility 2030, calls for a network of fast, flexible, reliable, and convenient transit services connecting the region’s major employment and activity centers. The Mobility 2030 Plan includes an extensive network of managed/HOV lanes on the highway system designed to accommodate transit services as well as carpools and vanpools. The plan also includes an emphasis on demand management strategies to reduce peak period travel and to change when and how people travel. New and/or improved transit routes as identified in the RTV within the FDP study area include:
 - a. Increase in existing Coaster service
 - b. Increase in existing and planned Blue Line Trolley service
 - c. Mid-Coast from Old Town to Sorrento Mesa
 - d. Old Town to Kearny Mesa via Mission Boulevard/Balboa Avenue
 - e. Old Town to Kearny Mesa via Linda Vista
 - f. Coronado and Centre City to Sorrento Mesa via Hillcrest/Genesee.
- Central I-5 Corridor Study – In addition to improvements on I-5, the recommended plan includes a comprehensive set of corridor improvements incorporating a variety of multi-modal options focused on improving access to key activity centers and enhancing mobility throughout the corridor, including:
 - a. An extensive set of transit system improvements consistent with the Mobility 2030 RTV.
 - b. Improvements to adjacent parallel arterials to facilitate more efficient utilization, including intersection enhancements and signal coordination.
 - c. An extensive set of operational improvements including metering of freeway on-ramps, additional auxiliary lanes, and ramp interchange enhancements to improve freeway merge and diverge movements.
 - d. Travel demand management (TDM) strategies, including implementing a Centre City TDM program for promotion of transit, rideshare, flextime, and telecommuting.

E.7 Summary of Identified Improvements

The freeway projects identified to achieve acceptable levels of service are shown in Figure E-1. The legend indicates those projects that have been incorporated into the RTP and those that have not. Only those projects in the RTP are recommended at this time.

Table E.5 summarizes the FDP triggers that apply to each freeway segment, identified long-range freeway capital improvements for each segment by source, and the year 2030 LOS that would result from implementation of the improvements, in addition to the operational and non-highway improvements incorporated within both the Mobility 2030 and Central I-5 Corridor Study. Assuming that the improvements are technically and financially feasible, each identified deficient freeway segment would be improved to an acceptable LOS of E or better.

Some of the non-RTP projects, including the Collector/Distributor Ramp System and the I-5/SR-94 connector ramp, are listed in the plan because technical analysis identified them as means to alleviate congestion. Because of strong community objection based on potentially strong adverse impacts, neither the Collector/Distributor nor the I-5/SR-94 connector is recommended. The community also identified other potential options to relieve Interstate 5, such as double-decked construction, tunnels, vertical retaining walls, and a reverse clover leaf interchange with SR-94. All such alternatives should be considered in the future planning process, where they will be subjected to environmental review, available funding and community input.

E.8 FDP Phasing Plan and Implementation Strategy

Table E.6 provides an indication of the anticipated schedule for the phased implementation of the improvements recommended in the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario. The table includes the planned HOV lanes and missing freeway to freeway connector ramps, with the timeframes shown based upon the Final RTP as adopted in March 2003. Details such as the phasing of the individual interchange and ramp proposals were not included in MOBILITY 2030.

It is envisioned that future RTP updates will review the additionally recommended concepts from the Central I-5 Corridor Study and recommend projects for implementation based upon results of further environmental review, available funding, and input from the community.

Funding and implementation of the recommended Deficiency Plan improvements will be a joint local and regional effort that will require the use of federal, state, regional, local, and private funding sources. Toward this end, National City and the City of San Diego will:

- Work with SANDAG through the RTP and Regional Transportation Improvement Program (RTIP) processes to advance and fund the recommended Deficiency Plan improvement projects.
- To the extent possible and using local or private funds, consider Deficiency Plan recommendations when developing annual and multi-year capital improvement programs.

- Advocate and, to the extent possible, fund Transportation Demand Management and Transportation System Management strategies to provide interim congestion relief until longer-term Deficiency Plan recommendations can be implemented.
- Work with SANDAG to identify new funding sources and advocate the allocation of these funds for Deficiency Plan improvements.
- Work with SANDAG to implement new congestion mitigation strategies resulting from the study currently underway to develop a Toolbox of mitigation strategies to address congestion within the San Diego region.

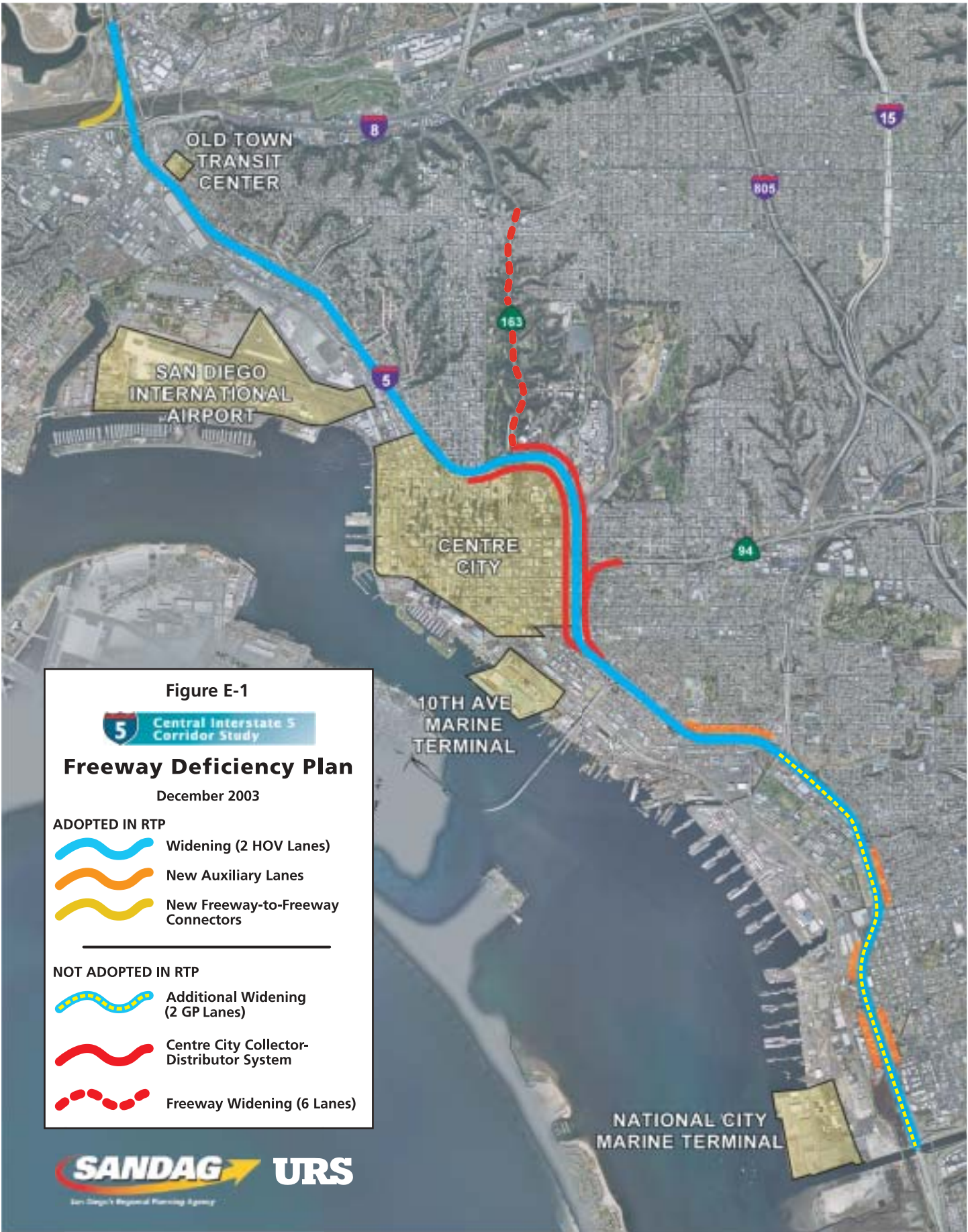





Figure E-1

5 Central Interstate 5 Corridor Study


Freeway Deficiency Plan

December 2003

ADOPTED IN RTP

-  Widening (2 HOV Lanes)
-  New Auxiliary Lanes
-  New Freeway-to-Freeway Connectors

NOT ADOPTED IN RTP

-  Additional Widening (2 GP Lanes)
-  Centre City Collector-Distributor System
-  Freeway Widening (6 Lanes)



**Table E.5
Summary of Freeway Segment Deficiencies and Identified Improvements**

Route	Limits	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non- Event	Buildout Non-Event	Identified 2030 Improvements		Resulting Level of Service (based upon implementation of all improvements)	
			Projected LOS ⁽²⁾	Projected LOS ⁽²⁾	2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario	Central I-5 Corridor Study	AM (NB/SB or EB/WB)	PM (NB/SB or EB/WB)
I-5	Sea World Drive to I-8	E	F	F	Construct two HOV lanes; new E-N and S-W freeway connectors at I-8	Reconfigure Sea World Dr interchange; new S-W and E-N connectors at I-5/I-8; widen ramps at I-5/I-8	B/C	C/C
	I-8 to Washington	E	F	F	Construct HOV lanes	Reconfigure Old Town Ave & Washington St interchange; Old Town transit center access improvements	C/C	D/D
	Washington to Laurel	E	F	F	Construct HOV lanes	Airport access improvements	C/C	D/D
	Laurel to SR-163	F	F	F	Construct HOV lanes	Reconfigure First Ave/Hawthorne St interchange	D/C	E/D
	SR-163 to SR-94	F	E	F	Construct HOV lanes	Centre City Collector-Distributor System	E/B	C/C
	SR-94 to Imperial	F	F	F	Construct HOV lanes	10 th Ave Marine Terminal access improvements	D/B	D/C
	Imperial to Crosby	F	E	F	Construct HOV lanes	10 th Ave Marine Terminal access improvements	D/B	D/C
	Crosby to 28 th Street	E	D	F	Construct HOV lanes	10 th Ave & National City Marine Terminal access improvements	D/B	D/C
	28 th Street to I-15	F	F	F	Construct HOV lanes	New NB auxiliary lanes from SR-15 to National Ave & SB aux. lanes from 8 th St to Cleveland Ave	E/A	B/E
	I-15 to 16 th Street	F	F	F	Construct HOV lanes	Add 2 General Purpose lanes; new NB auxiliary lanes from 7 th /8 th St to Division St	E/A	B/D
	16 th Street to SR-54	F	F	F	Construct HOV lanes	Add 2 General Purpose lanes; new NB & SB auxiliary lanes between Bay Marina Dr & Harbor Dr	E/A	B/D

Table E.5 (continued)
Summary of Freeway Segment Deficiencies and Identified Improvements

Route	Limits	Year 1999 CMP LOS ⁽¹⁾	Opening Year Non- Event	Buildout Non-Event	Identified 2030 Improvements		Resulting Level of Service (based upon implementation of all improvements)	
			Projected LOS ⁽²⁾	Projected LOS ⁽²⁾	2030 RTP "Reasonably Expected" Revenue (MOBILITY) Scenario	Central I-5 Corridor Study	AM (NB/SB or EB/WB)	PM (NB/SB or EB/WB)
SR-163	Genesee Ave to Friars Rd	F	F	F	No identified improvements	No identified improvements	n/a	n/a
	Friars Road to I-8	E	F	F				
	I-8 to Washington	F	F	F				
	Washington to I-5	F	F	F				
SR-94	17 th Street to 28 th Street	E	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	A/C	D/B
	28 th Street to I-15	E	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	A/C	D/B
	I-15 to I-805	F	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	A/E	C/C
	I-805 to Euclid Avenue	F	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	A/E	E/C
	Euclid Ave to College Ave	F	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	B/E	D/C
	College Avenue to Massachusetts Avenue	F	F	F	Construct HOV lanes	2030 Reasonably Expected Improvements	B/D	D/C
I-15	I-805 to SR-94	C	E	F	Construct HOV lanes; construct new S-W & E-N HOV connectors at SR-94	2030 Reasonably Expected Improvements	B/B	C/B

Source: URS, March 6, 2003.

- Notes: ⁽¹⁾ Existing LOS conditions established by the SANDAG 1999 Congestion Management Program Update and based upon Year 1998 traffic data.
⁽²⁾ Future LOS conditions derived from the Downtown San Diego Ballpark Traffic and Parking Studies, Project Traffic Study, Final Technical Report dated May 1999.

**Table E.6
Freeway Deficiency Plan Recommended Improvement Phasing Plan**

Route	Limits	Recommended 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario Improvements ⁽¹⁾	Recommended Implementation Timeframe (Year) ⁽²⁾		
			2010-2014	2015-2020	2020-2030
I-5	Sea World Drive to I-8	Construct 2 HOV lanes		X	
		Construct new E-N and S-W freeway connectors at I-8			X
	I-8 to Washington	Construct 2 HOV lanes		X	
	Washington to Laurel	Construct 2 HOV lanes		X	
	Laurel to SR-163	Construct 2 HOV lanes		X	
	SR-163 to SR-94	Construct 2 HOV lanes	X		
	SR-94 to Imperial	Construct 2 HOV lanes	X		
	Imperial to Crosby	Construct 2 HOV lanes	X		
	Crosby to 28 th Street	Construct 2 HOV lanes	X		
	28 th Street to I-15	Construct 2 HOV lanes	X		
	I-15 to 16 th Street	Construct 2 HOV lanes	X		
16 th Street to SR-54	Construct 2 HOV lanes	X			
SR-163	Genesee Ave to Friars Rd	No improvements recommended	(3)	(3)	(3)
	Friars Road to I-8				
	I-8 to Washington				
	Washington to I-5				
SR-94	17 th Street to 28 th Street	Construct 2 HOV lanes			X
	28 th Street to I-15	Construct 2 HOV lanes			X
	I-15 to I-805	Construct 2 HOV lanes			X
	I-805 to Euclid Avenue	Construct 2 HOV lanes			X
	Euclid Ave to College Ave	Construct 2 HOV lanes			X
	College Avenue to Massachusetts Avenue	Construct 2 HOV lanes			X
I-15	I-805 to SR-94	Construct 2 HOV lanes			X
		Construct new S-W & E-N HOV connectors at SR-94			X

Source: URS, March 6, 2003.

- Notes:
- (1) For other recommended improvements listed in Tables E.3 and E.5 and not included in the 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario, Section 6.0 of the Central I-5 Corridor Study Draft Final Report dated November 2002 contains details related to the “Implementation Process” and “Phasing Concept.”
 - (2) Recommended implementation timeframe derived from the Final 2030 RTP “Reasonably Expected” Revenue (MOBILITY) Scenario, March 2003.
 - (3) No implementation timeframe for the improvements to SR-163 has been included and no widening is recommended.

The complete Freeway Deficiency Plan, Central Interstate 5 Corridor Study is located on SANDAG's Web site under Publications/Transportation/Roads and Highways.