CSMP
ADDENDUM

MARCH 2015

TRANSPORTATION SYSTEM PERFORMANCE REPORT

North Coast Corridor CSMP Addendum

Signature Page

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Introduction

This document is an addendum to the I-5 North Coast Corridor (NCC) Corridor System Management Plan (CSMP), which was initially released on July 9, 2010. This addendum provides updated data on performance metrics contained in the original CSMP and documents any changes in assumptions and projections. This type of progress report, which is expected to occur every 4 years, seeks to evaluate the corridor's performance, review the NCC program's implementation plan, and examine the validity of previous projections and conclusions. The information in this document will serve as part of an ongoing monitoring process to report on the metrics and goals outlined in the NCC Public Works Plan/Transportation and Resource Enhancement Program (PWP/TREP), and is intended to provide PWP/TREP stakeholders with assurances that the NCC program is being implemented in a timely and balanced manner.

The North Coast Corridor PWP/TREP

In 2014 the California Coastal Commission adopted the NCC PWP/TREP, a blueprint for implementing a $6-billion, 40-year program of rail, highway, transit, bicycle, pedestrian and coastal resource improvements that span 27 miles of the northern San Diego County coastline from La Jolla to Oceanside. It was authored in collaboration with the San Diego Association of Governments (SANDAG) and the California Department of Transportation (Caltrans), in addition to the six NCC cities, multiple resource agencies, and the public.

The PWP/TREP is a single integrated document that establishes a framework for comprehensively planning, reviewing, and permitting the NCC's transportation, community, and resource enhancement projects. This integrated process allows these improvements to be analyzed as a unified system, with the goal of optimizing the suite of improvements so that transportation goals are met in a manner that maintains and enhances public access to coastal resources and recreational facilities, and protects and enhances sensitive coastal resources wherever feasible. The PWP/TREP aims to enhance public transit and non-motorized transportation options to reduce energy consumption and air emissions, and implement improvements to the existing transportation system that eliminate impediments and enhance coastal access opportunities for residents and visitors. The improvements will foster healthy and sustainable coastal communities by limiting traffic congestion on local streets, minimizing energy consumption and air and greenhouse gas emissions related to travel, and improving the transportation system in a way that supports the concept of Smart Growth as a means of accommodating anticipated future growth in the NCC.

The PWP/TREP Monitoring Process

The PWP/TREP performance reporting process recognizes that the success of a transportation program is not only measured during the initial capital investment, but throughout the program's implementation. This CSMP Addendum demonstrates how the capital investments made in the corridor to date have resulted in tangible progress toward the program's objectives.

The monitoring process seeks to:

- Provide assurances to stakeholders that the program sponsors are implementing the NCC program in good faith, with due diligence and in a timely and balanced manner
- Acknowledge that long-term success in meeting program objectives requires a commitment that goes beyond the initial capital investment
- Provide flexibility to maintain balanced project delivery in spite of year-to-year fluctuations that may occur in available revenue forecasts and other external factors
- Recognize that program success cannot be defined by any one measure, but should instead be analyzed using a suite of measures over a multiyear period to demonstrate specific trends and needed areas of improvement
- Allow for flexibility to address the likely scenario that some outcomes may be underperforming at a given point in the program while others could be performing better than expected. Under this scenario the program would be allowed to proceed if an examination of the overall suite of measures indicates that the program as a whole is moving in the right direction
- Measure and report demand and usage information not as performance thresholds—as these behavior-based measures are extremely difficult to predict and control—but rather as valuable information necessary to inform future decisions.

This quadrennial report will be prepared to coincide with SANDAG's update process for its Regional Transportation Plan (RTP), and will be submitted to the California Coastal Commission in order to provide detail on NCC improvements. In general, the report will provide an overall picture of the progress made during the reporting period toward meeting the 40-year transportation goals expressed by the region within regional plans and the PWP/TREP. It will include an update on capital improvements, an accounting of dollars invested, an evaluation of changes in transportation trends and a summary of other transportation programs and strategies being implemented in the corridor. The report also will include descriptions of areas where measureable enhancements have been realized as well as areas where the results do not meet expectations, an analysis of the factors behind those results and potential adaptive management solutions for improvement where necessary. Moreover, the report will provide an assessment of

land-use changes over time and identify new opportunities for improved transit services as a result of those changes. The full list of performance measures is discussed in the following section *(A Changing Corridor)*.

Series 10-11-12 Model Comparison

As part of the development of the RTP and CSMP, every three to five years SANDAG and Caltrans produce a new set of socio-economic data and land use forecasts for the San Diego region. These are used by the Regional Transportation Model (RTM) to generate regional travel forecasts. Each new edition of the RTP also includes existing and planned transportation infrastructure, and the latest planning data and modal usage assumptions.

During the NCC project development process, SANDAG released three successive RTM forecasts, referred to as Series 10, Series 11, and Series 12. The original plan for I-5 in the NCC, as published in the *MOBILITY 2030 RTP* (released in 2003), called for 10 general-purpose lanes and four HOV/Express Lanes (10+4), utilizing the Series 10 model forecasts with a base year of 2000. In 2007, a revised *2030 RTP* was adopted, utilizing Series 11 forecasts with a base year of 2003; this RTP downsized the NCC project to eight general-purpose lanes and four HOV/Express Lanes (8+4). The latest plan, the *2050 RTP* adopted in 2011, retained the 8+4 configuration and utilized the Series 12 forecasts with a base year of 2008.

The Series 10, 11, and 12 RTM forecasts differ in a few key ways. With base years of 2000 and 2003, the Series 10 and 11 projections were made prior to the economic downturn that began in 2008. The Series 12 model forecasts, with 2008 as the base year, included the initial effects of the recession, as well as a sharp increase in fuel prices and revised estimates for development growth within the region. In addition, beginning in the Series 11 forecast and continuing through Series 12, SANDAG and local jurisdictions adopted various "Smart Growth" land use policies in an effort to accommodate projected regional growth while meeting sustainability targets. This affected the land use inputs to the Series 12 model, including the distribution and density of future housing units throughout the region.

While demographic projections have maintained similar growth trajectories under each successive RTM forecast, the resulting travel demand forecasts do show some variations. A comparison of the Series 10-12 model forecasts indicates that the Series 10 travel demand forecast for the year 2030 is generally equivalent to the more recent Series 12 travel demand forecast for the years 2040-2045—indicating that the growth in travel demand that had originally been anticipated by 2030 is now projected to occur at least a decade later than previously forecast. The following section includes an examination of the Series 10-12 projections for several key measures of demographics, land use and travel demand.

A Changing Corridor

Although its rate of growth has slowed since the boom years between 1970 and 2005, the NCC is expected to continue growing through 2040 and beyond, with thousands of new residents, visitors and jobs compounding the already heavy demands on the corridor's transportation system. This section examines the land use, demographic, and transportation-related changes that have occurred in the corridor since the original CSMP and compares the growth projections of the current and previous forecasts.

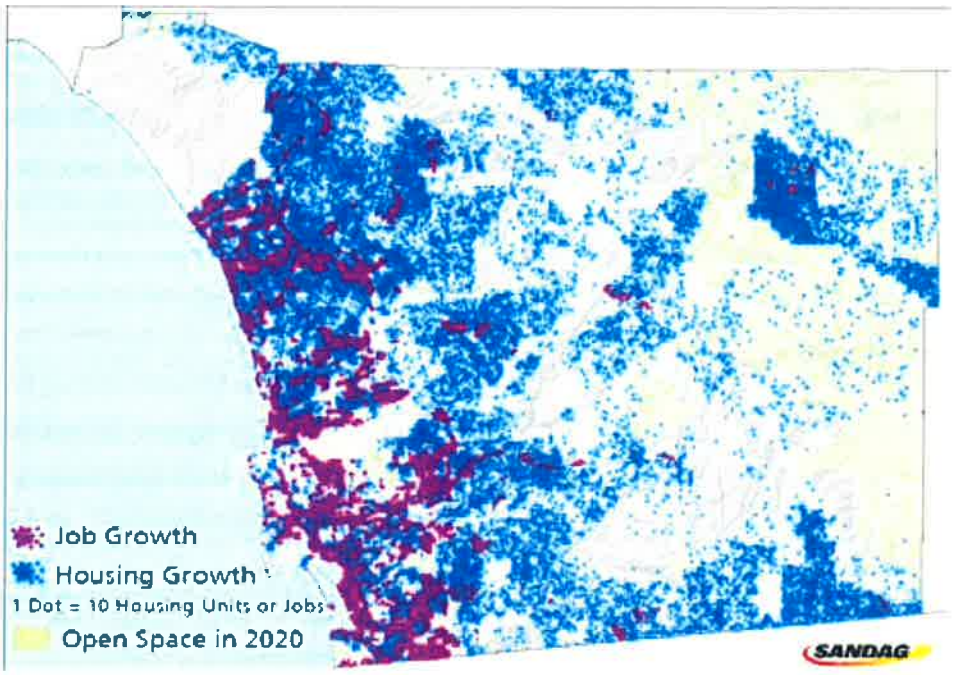
Land Use and Smart Growth

In 2007, the 2030 RTP introduced a planning strategy called "Smart Growth" with the goal of improving the performance of the regional transportation system while meeting local needs for housing, economic development and environmental sustainability. A key element of Smart Growth is to cluster higher-density, mixed-use developments around transit centers and corridors while providing a pedestrian- and bike-friendly environment to reduce dependence on the private automobile. The NCC contains more than a dozen planned and potential Smart Growth areas identified by SANDAG, including those located at all five corridor rail stations north of Sorrento Valley.

In 2011, prompted by state law, the 2050 RTP integrated these Smart Growth principles into a broader Sustainable Communities Strategy. This new strategy seeks to guide the San Diego region toward a more sustainable future by focusing on housing and job growth in urbanized areas where there is existing transportation infrastructure in place. This pattern of development will result in more walkable, transit-oriented areas where people can live, work, and play without requiring long automobile trips.

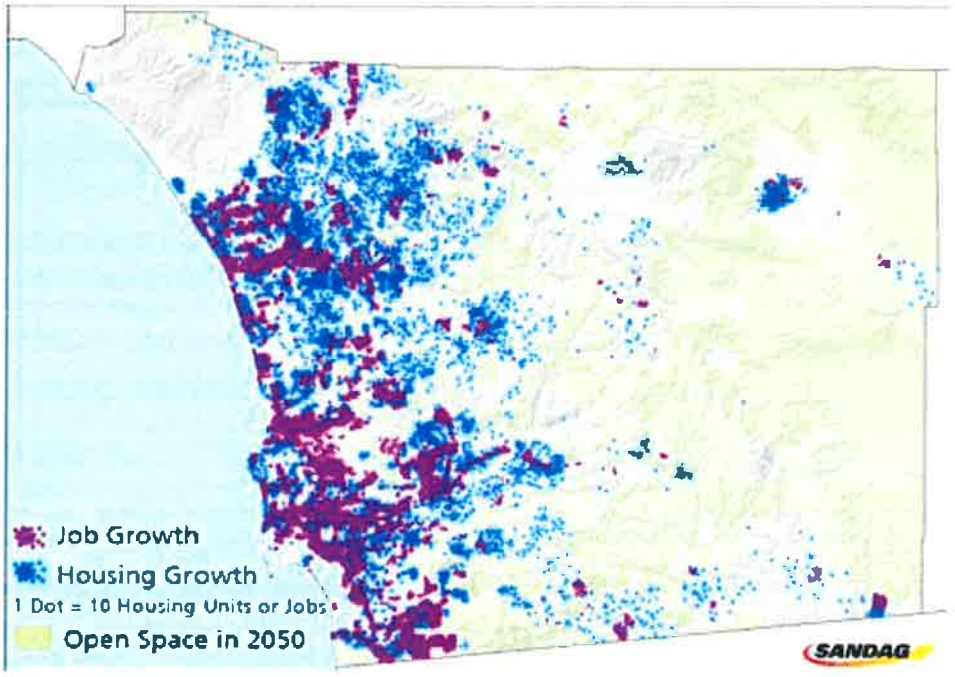
This shift in regional planning is evident in a comparison between the old and new growth projections. Figure 1 shows the projected regional distribution of housing and employment for 2020, based on a forecast SANDAG performed in 1999. It shows expansive housing growth far into the region's eastern and rural areas. By 2008, however, the regional projections had changed. Figure 2 shows SANDAG's regional growth projections for 2050, as forecasted in 2008. The new forecast projects future growth to occur in the region's western end, closer to the existing urbanized areas.

FIGURE 1: REGIONAL GROWTH PROJECTION FOR 2020 (FORECASTED IN 1999)



Source: SANDAG.

FIGURE 2: REGIONAL GROWTH PROJECTION FOR 2050 (FORECASTED IN 2008)



Source: SANDAG.

In collaboration with SANDAG, most local jurisdictions have committed to focusing projected growth in the identified Smart Growth areas, better enabling SANDAG to coordinate regional transportation plans with land use plans to help avoid increased traffic congestion, reduced mobility, and a deteriorating quality of life. Within the NCC:

- **Oceanside** updated the Circulation Element of its General Plan in 2012, and changes to its Land Use Element are in progress. The new Circulation Element emphasizes multimodalism through improved pedestrian and bicycle facilities and better connectivity to transit.
- **Carlsbad** is in the process of updating its General Plan. The new General Plan, currently in draft form, envisions more mixed-use, transit-oriented development along with the provision of more neighborhood-scale services to reduce transportation needs.
- **Encinitas** put its General Plan update process on hold in 2012 to solicit more community input. In 2013 city residents passed Proposition A, which requires that any major change to land use or zoning be approved by voters.
- **Solana Beach** began its General Plan update process in 2013. The new plan is expected to emphasize mixed-use, transit-oriented development consistent with Smart Growth principles.
- **Del Mar** has had no major changes to its land use plan since 2006. In 2012 voters defeated Proposition J, the Village Specific Plan, which sought multimodal improvements in the downtown area.
- **San Diego** updated its General Plan in 2008 to reflect a new Smart Growth-oriented strategy called City of Villages, focused on higher-density, mixed-use communities connected by transit. The city is gradually updating its 40+ community plans to support the new General Plan, but the plans for the NCC communities (Torrey Pines, Torrey Hills, Carmel Valley, Pacific Highlands Ranch, University, and La Jolla) are not expected to be updated for several more years. However, in Carmel Valley the city is currently considering a land use plan amendment to accommodate higher density for the One Paseo project, a large mixed-use development proposed just east of I-5.

Corridor Transportation Planning

Plans to improve mobility in the NCC have existed for many years. While the scope of specific improvements has evolved during the project development process, the fundamental vision for the NCC has remained relatively constant: capacity improvements to both the I-5 and LOSSAN corridors, coupled with a suite of complimentary bicycle, pedestrian, coastal access and environmental improvements.

SANDAG's *2030 RTP*, adopted in 2007, contained a vision for the NCC in 2030 that still resembles today's current plans, including:

- **I-5 HOV/Express Lanes**
- **I-5 Interchange Improvements:** Lomas Santa Fe Drive (completed), Manchester Avenue, SR 56, SR 78
- **LOSSAN Corridor:** Double-tracking, station improvements, service increases
- **NCTD SPRINTER:** Light rail from Oceanside to Escondido(completed)
- **Mid-Coast Corridor Transit Project:** Light rail extension from Old Town San Diego to University City/UCSD
- **MTS SuperLoop:** High-frequency circulator bus service in University City/UCSD area (completed)

Demographics

Population

Table 1 shows the recent and projected populations within the NCC jurisdictions as well as for the entire region. In 2012, the NCC comprised approximately 16 percent of the regional population, with most of the corridor's residents located in its northern and southern portions. Between 2006 and 2012, population increased by approximately 5% in the San Diego region and 4% in the NCC, with the cities of Carlsbad and San Diego leading the corridor with respective increases of 9% and 13%.

TABLE 1: CORRIDOR AND REGIONAL POPULATION, SERIES 10-12 MODELS

Jurisdiction	2006	2013	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
Oceanside	174,925	169,350	208,561	207,237	209,613	214,530
Carlsbad	98,607	108,246	128,772	127,046	123,510	127,434
Encinitas	62,815	60,482	71,025	73,170	73,153	75,446
Solana Beach	13,327	12,987	13,674	15,761	14,972	15,619
Del Mar	4,524	4,199	4,720	5,497	4,917	5,059
San Diego	141,435	177,691	181,642	191,450	198,188	209,744
North Coast Corridor	**495,633**	**532,955**	**608,394**	**620,161**	**624,353**	**647,832**
San Diego Region	3,066,820	3,150,178	3,855,085	3,984,753	3,870,000	4,163,688

Sources: Caltrans District 11; SANDAG; SANDAG/Caltrans Series 10-12 RTMs.

In the original CSMP, the Series 10 forecast estimated that the NCC population in 2030 would be slightly more than 608,000. Under the more current Series 12 forecast, the population projection for 2030 is just over 624,000, which constitutes a 3% increase from the Series 10 projection. At the regional level, the Series 12 model projects a 2030

population 0.4% higher than the Series 10 projection for the same time period. Taken together, these two projections indicate that—while the forecasts of overall regional growth have not changed significantly between the Series 10 and 12 forecasts—the latest forecast anticipates more of that growth to occur in the NCC than previously expected. This further underscores the need for improvements to the corridor's multimodal transportation system.

The Series 13 forecast is currently in progress, but regional numbers have already been developed. While Series 13 utilizes different horizon years (2035, 2050) than Series 12 (2030, 2040), a brief comparison of the two forecasts can still be useful in verifying general trends. The Series 13 regional population forecast was 3,853,000 for 2035 and 4,068,000 for 2050—reflecting a decrease in the projected population growth rate from Series 12.

Housing

Table 2 shows the distribution of housing units among corridor cities and the region as a whole, along with the estimated growth under the Series 10-12 forecasts. The NCC contains approximately 18 percent of the 1.1 million housing units in the San Diego region. Over the next 30 years, the Series 12 forecast projects that corridor housing will increase by an additional 14 percent (approximately 29,000 units), while the region is expected to add 27 percent (approximately 308,000 units) to its housing stock.

TABLE 2: CORRIDOR AND REGIONAL HOUSING DISTRIBUTION, SERIES 10-12 MODELS

Jurisdiction	2005	2013	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
Oceanside	62,320	62,049	69,160	66,052	70,630	70,736
Carlsbad	39,396	44,108	49,450	48,538	48,562	49,161
Encinitas	25,395	24,924	27,211	26,328	27,143	27,562
Solana Beach	6,590	6,492	6,682	6,698	6,870	6,999
Del Mar	2,567	2,639	2,611	2,546	2,606	2,606
San Diego	48,182	70,693	56,426	76,726	81,138	84,840
North Coast Corridor	**184,450**	**210,905**	**211,540**	**226,888**	**236,949**	**241,904**
San Diego Region	1,102,818	1,169,095	1,354,088	1,369,807	1,369,807	1,457,545

Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

An examination of the types of housing planned for future growth reveals a gradual shift in the NCC's development patterns. Table 3 and Table 4 show the distribution of single-family and multi-family homes in the corridor and region. Multi-family buildings generally increase the density of an area, typically expressed in residents per acre. Of the approximately 29,000 housing units to be added to the NCC over the next 30 years,

nearly two-thirds are planned to be multi-family housing units, marking a shift in development patterns from the NCC's historical trend of suburban-style development in single-family homes. Most of the estimated 19,000 multifamily units added to the NCC travel shed will be located in Carlsbad, Oceanside, and San Diego.

TABLE 3: SINGLE-FAMILY HOUSING DISTRIBUTION, SERIES 10-12 MODELS

Jurisdiction	2005	2012	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
Oceanside	40,814	42,231	43,827	47,059	45,715	45,892
Carlsbad	27,735	30,520	35,132	35,390	33,075	33,356
Encinitas	19,086	20,823	20,031	18,575	21,753	22,045
Solana Beach	4,307	3,823	4,371	5,129	3,877	3,905
Del Mar	1,702	1,913	1,731	1,699	1,809	1,809
San Diego	25,816	35,949	29,391	50,578	38,298	38,130
North Coast Corridor	**119,460**	**135,259**	**134,483**	**158,430**	**144,527**	**145,137**
San Diego Region	667,757	705,611	778,262	750,022	750,022	758,510

Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

TABLE 4: MULTI-FAMILY HOUSING DISTRIBUTION, SERIES 10-12 MODELS

Jurisdiction	2005	2013	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
Oceanside	18,010	19,818	21,547	18,993	24,915	24,844
Carlsbad	10,343	13,588	12,905	13,148	15,487	15,805
Encinitas	5,526	4,101	6,387	7,753	5,390	5,517
Solana Beach	2,243	2,669	2,267	1,569	2,993	3,094
Del Mar	865	726	880	847	797	797
San Diego	22,336	34,744	27,005	26,148	42,840	46,710
North Coast Corridor	**59,353**	**75,646**	**70,991**	**68,458**	**92,422**	**96,767**
San Diego Region	387,978	420,975	527,221	581,143	581,143	662,428

Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

In the original CSMP, the Series 10 forecasts estimated that approximately 233,000 housing units would be located in the NCC in 2030, a figure that increased by 1.4% under the more current Series 12 forecast. At the regional level, the forecast for 2030 housing units increased by 1.2% from Series 10 to Series 12. This small change between the two 2030 forecasts is consistent with the population forecasts, and further indicates that projections of overall growth have not changed significantly.

However, significant differences between the Series 10 and Series 12 forecasts are evident in the distribution of single-family versus multi-family housing. For horizon year 2030, the projected number of single-family housing units decreased by 3.5% for the NCC—and 3.6% for the region—from Series 10 to Series 12. Conversely, the projected number of multi-family housing units in 2030 increased by 20.1% for the NCC and 10.2% for the region. These changes are largely attributable to the post-Series 10 adoption of "Smart Growth" land use policies by SANDAG and local jurisdictions in order to meet projected regional housing needs. These land use changes have altered the projected distribution of regional population and housing toward more compact, mixed-use development, particularly in semi-urbanized areas like the NCC (as opposed to rural areas of the region). The resulting Series 12 projection of more concentrated growth in the NCC than previously anticipated has led to increases in projected travel demand, further demonstrating the need for transportation improvements in the corridor.

Employment

Table 5 shows the distribution of employment in the NCC. The corridor currently accounts for 19 percent of the 1.5 million jobs in the San Diego region, with many of those in high-income industries such as high technology, biotechnology, and medical fields. The Series 12 forecast projects that employment in the corridor will increase 29 percent between 2010 and 2040, or approximately 80,000 jobs.

TABLE 5: EMPLOYMENT DISTRIBUTION, SERIES 10-12 MODELS

Jurisdiction	2004	2013	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
Oceanside	39,850	41,980	62,409	70,143	54,597	60,377
Carlsbad	54,347	66,279	79,188	78,784	77,436	83,538
Encinitas	25,012	26,165	29,736	30,992	30,296	31,080
Solana Beach	9,416	7,568	10,314	10,185	8,162	8,671
Del Mar	4,335	4,521	4,232	4,627	4,330	4,690
San Diego	185,807	140,182	214,976	170,009	162,569	170,209
North Coast Corridor	**318,767**	**286,695**	**400,855**	**364,740**	**337,390**	**358,565**

Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

While employment is projected to grow in the future, the economic downturn that began in 2008 had significant effects on job growth compared to previous projections. The pre-recession Series 10 forecast estimated that over 400,000 jobs would exist in the NCC by 2030, a figure that was revised downward nearly 16% in Series 12. The ongoing economic recovery is resulting in a slow return to previous growth rates, and the original Series 10 estimate of 400,000 corridor jobs by 2030 is not expected to be reached until well after 2040. While this may ease some of the demand for travel in the NCC that had

been anticipated under the Series 10 forecast, this effect is counteracted by the aforementioned Smart Growth land use changes that were implemented in Series 12, which are expected to concentrate more residential development in the corridor than previously anticipated.

Travel Behavior

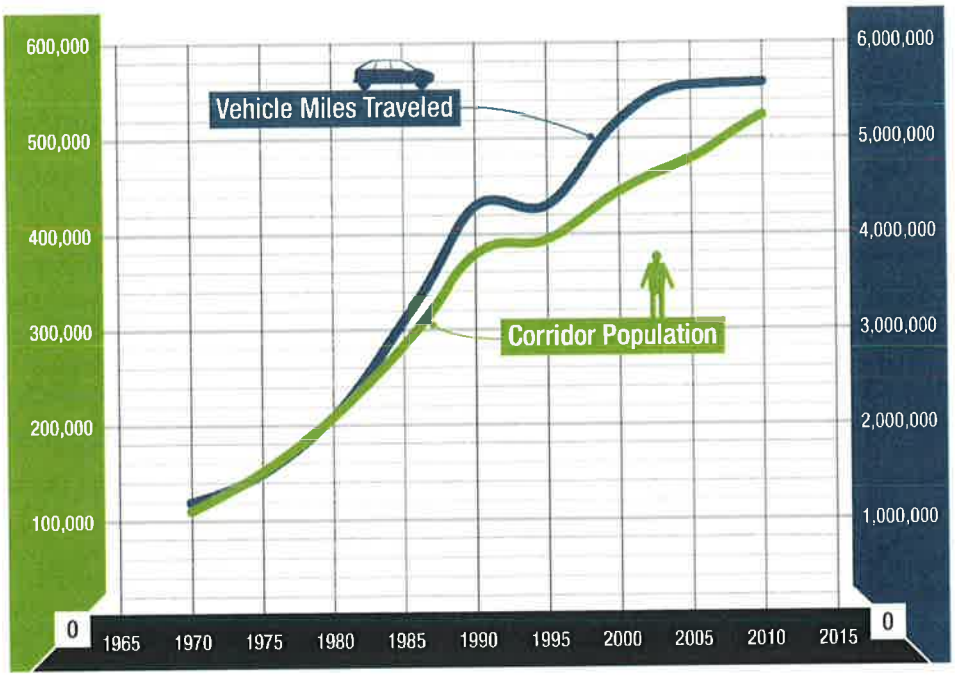
While population expanded significantly in the region between 1970 and 2005, vehicle-miles traveled (VMT) grew at an even faster rate (Figure 3). This indicated that people were making many more trips, and covering much longer distances, than they were in 1970. However, between 2006 and 2010 VMT growth flattened in the NCC, a phenomenon that was initially attributed to the economic downturn. But VMT rebounded very slowly during the economic recovery, actually decreasing between 2010 and 2012, and then trending slightly upward in 2013 (Figure 4).[1]

Both corridor and regional VMT are expected to grow in the coming decades, but a comparison of the old and new projections reveals a decline in the estimated VMT growth rates between the Series 10 and Series 12 model forecasts. As a result, the Series 10 and Series 11 forecasts for VMT in 2030 exceed the Series 12 forecasts for that same metric in 2040. Figure 5 shows the projections of regional VMT from all three model forecast series. The forecasts for 2030 from Series 10 and 11 were within one percent of each other. However, the subsequent Series 12 projection for 2030 revised the regional VMT forecast downward significantly, with the 2030 VMT levels seen in Series 10 and 11 not projected to occur until approximately 2045.

This indicates that a mix of economic changes, land use changes, and behavioral changes has led to a desired reduction in the corridor's per capita VMT. Unfortunately it is still too early to determine which factors are the primary drivers of this trend, whether this trend is likely to continue, and how this trend may impact future projections. The decrease in VMT does not diminish the existing need for improvements in the corridor—but if the trend holds, it could increase the congestion reduction benefits of the first-phase improvements, and possibly delay the need for some second-phase freeway improvements. This trend should be flagged for further monitoring in successive reports.

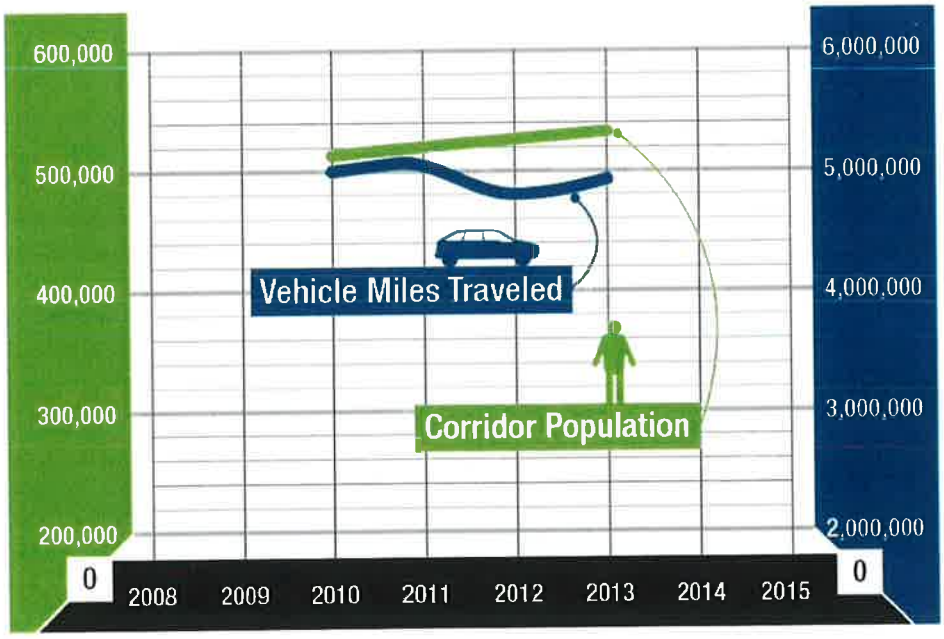
[1] NOTE: Figure 3 and Figure 4 differ due to the 2010 implementation of an improved Vehicle Detection System (VDS) in the corridor, which allows for more precise measurement of VMT. Figure 3 relies primarily on modeled VMT, while Figure 4 relies on the improved VDS.

FIGURE 3: CORRIDOR VMT VS. POPULATION, 1970-2010



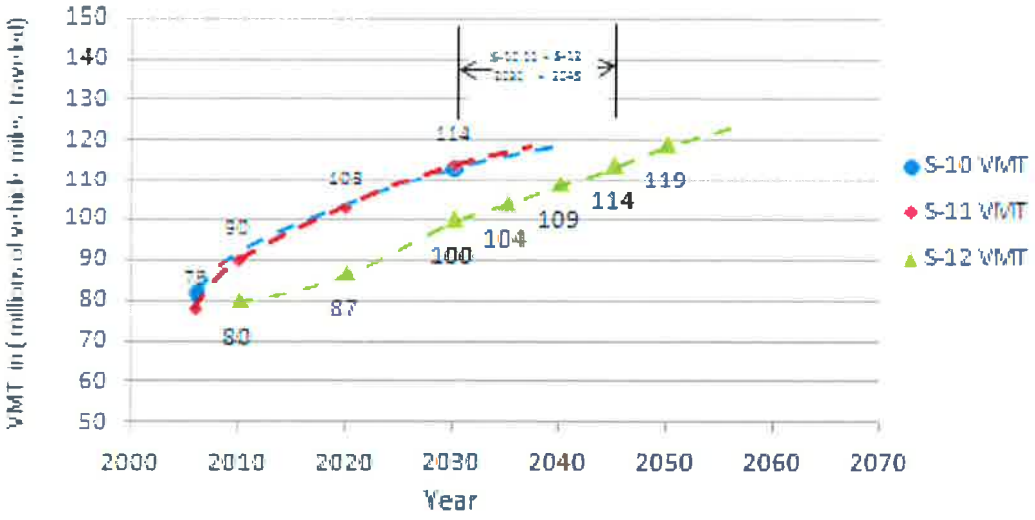
Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

FIGURE 4: CORRIDOR VMT VS. POPULATION, 2010-2013



Sources: SANDAG; Caltrans District 11; Caltrans Performance Management System (PeMS)

FIGURE 5: REGIONAL "REVENUE CONSTRAINED" VMT, SERIES 10-12 MODELS



Sources: SANDAG; Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs.

Table 6 shows historic and projected average daily traffic (ADT) on selected segments of I-5 in the NCC. A comparison of the 2030 projections under Series 10 and Series 12 shows a gradual slowing of growth consistent with the trend in VMT. While the total amount of traffic is still expected to increase in the coming decades, the projected rate of increase has lessened with each successive forecast.

TABLE 6: ANNUAL AVERAGE DAILY TRAFFIC ON SELECTED I-5 SEGMENTS, SERIES 10-12 MODELS

Jurisdiction	2006	2013	Series 10 2030	Series 11 2030	Series 12 2030	Series 12 2040
I-805 to Carmel Mountain Rd	265,000	255,000	408,500	403,050	390,000	415,000
Encinitas Blvd to Leucadia Blvd	198,000	193,000	298,000	270,530	240,000	263,000
Oceanside Blvd to Mission Ave	181,300	172,330	289,000	255,800	216,800	243,530

Sources: Caltrans District 11; SANDAG/Caltrans Series 10-12 RTMs; I-5 NCC Final EIR/EIS, November 2013.

System Performance

In order for a transportation system to function effectively, it must be able to facilitate the movement of people and goods from origins to destinations in a safe and efficient manner, maximizing the throughput of existing facilities to accommodate all levels of travel demand. This section examines several metrics used to measure the performance of the NCC highway and rail facilities, and evaluates how that performance has changed since the 2006 baseline.

PWP/TREP Performance Measures

Table 7 contains the full list of performance measures included in the PWP/TREP monitoring program, along with their values for 2006 and 2013. The measures are divided into the following categories:

- Coastal Access and Connectivity Improvements
- Moving People, Not Vehicles
- Level of Investment
- Improving Efficiency and Managing Demand
- Facility Performance
- General Trends

The broad trends in each of the six performance categories are discussed below, followed by the full reporting of metrics in Table 7. The discussion following Table 7 contains in-depth analysis of some of the key measures.

Coastal Access and Connectivity Improvements

The NCC has benefitted from several coastal access improvements since 2006, including significant gains in parking capacity at corridor rail stations, one new segment of the Coastal Rail Trail and two improved crossings of the I-5 and LOSSAN corridors for bicycles and pedestrians. However, transit budget constraints following the 2008 recession prompted reductions in corridor bus services, and an attendant drop in bus ridership at corridor rail stations.

Moving People, Not Vehicles

The corridor's ability to move people has improved since 2006, with significant increases in both the number of vanpools serving the corridor and the quantity of HOVs using I-5. As the LOSSAN corridor under existing conditions is nearing its maximum capacity for train throughput, the quantity of rail service provided has remained constant, but its ridership has been steadily increasing.

Level of Investment

Investment in corridor transportation facilities has grown for all modes since 2006. The lane-miles of HOV facilities on I-5 doubled and the length of double-tracked segments in the LOSSAN rail corridor increased by approximately 25%. The cumulative capital investment in these completed projects has exceeded $400 million, with over $1 billion in additional projects currently under development. In addition, nearly 100 acres of habitat have been purchased and over 50 acres have been restored in the corridor, more than tripling the levels that existed in 2006.

Improving Efficiency and Managing Demand

In 2013 SANDAG adopted the NCC Transportation Demand Management (TDM) Plan—the region's first corridor-specific TDM effort—and is currently examining various TDM strategies for implementation to influence corridor travel behavior. On I-5, five new ramp meters were installed to improve highway operations as well as hundreds of new detectors in the corridor's Vehicle Detection System. Finally, several rail improvements outside or adjacent to the NCC helped to improve operational mobility in the corridor, including double-tracking projects and the opening of the SPRINTER light rail service.

Facility Performance

Both the highway and rail corridors saw improved operational performance between 2006 and 2013, which was driven at least partially by decreases in travel demand resulting from the 2008 economic recession. On the I-5 corridor, both travel times and vehicle hours of delay (VHD) were lower in 2012 than in 2006, but they began to show signs of rebound in 2013 as travel demand continued to grow.

On the rail side, on-time performance for both COASTER and Amtrak has improved since 2005. However, there was also a slight increase in the COASTER's scheduled travel time, mainly the result of construction activity associated with the ongoing LOSSAN capital investment program that will result in major operational improvements. See the following sections *(System Performance; Recent and Planned Capital Investment)* for more detailed assessments of both the highway and rail facilities.

General Trends

Overall, the NCC has experienced mixed growth since 2006. The corridor's population increased by approximately 7.5%, but the number of corridor jobs decreased by over 10% following the economic downturn. The steady population growth indicates that demand for travel in the corridor will continue to increase as more residents make daily trips to work, school, entertainment and recreation. However, the concurrent loss of jobs in the corridor suggests that an increasing number of those work trips may be destined for locations outside the corridor, a trend that would increase the strain on both the I-5 and LOSSAN corridors, as the NCC's primary regional facilities.

TABLE 7: NORTH COAST CORRIDOR TRANSPORTATION AND ENVIRONMENTAL PERFORMANCE MEASURES

Performance Measure	Definition	2006	2013
Coastal Access and Connectivity Improvements			
Number of Park-and-Ride Parking Spaces in NCC	Total number of parking stalls at carpool/ vanpool park-and-ride facilities (not LOSSAN stations or other transit-only stops/stations) in the NCC.	564	564
Number of Transit Station Parking Spaces in NCC	Total number of parking stalls at LOSSAN rail and other transit stops/stations in the NCC.	1,675	2,887
Cumulative Number of Complete Streets Multi-Modal Improvements Implemented on Coast Highway	Cumulative quantity of Complete Streets concepts and designs implemented on Coast Highway in the NCC, including enhanced pedestrian, bicycle and/or transit facilities.	NA	3 (Solana Beach; Encinitas; Carlsbad)
Number of Peak-Period and Daily Local Bus and Shuttle Trips to LOSSAN Corridor Stations	Number of scheduled peak-period and daily local bus and shuttle trips, including the COASTER Connection, serving LOSSAN stations in the NCC.	364 / 883	242 / 543
Weekday Local Bus Passenger Ons/Offs at LOSSAN Corridor Stations	Total number of weekday local bus boarding and alighting passengers at LOSSAN rail stations in the NCC.	6,151	4,852
Cumulative Miles of New/Improved Regional Bicycle/Pedestrian Facilities	Cumulative length (in miles), of new or improved bicycle paths/lanes and pedestrian paths/trails/sidewalks of regional significance constructed in the NCC since 2006, including crossings of I-5 and LOSSAN corridors.	NA	0.4 (Coastal Rail Trail Tyson to Wisconsin)
Cumulative Number of New/Improved Bike/Ped Crossings of I-5/LOSSAN/ Lagoons	Cumulative quantity of new or improved bicycle or pedestrian facilities constructed in the NCC since 2006 that allow for the safe crossing of the I-5 corridor, the LOSSAN corridor, and lagoons.	NA	2 (Lomas Santa Fe I-5 Crossing; Santa Fe LOSSAN Crossing)
Moving People, Not Vehicles			
Number of Weekday/ Saturday/Sunday COASTER Train Trips	Number of scheduled weekday, Saturday and Sunday COASTER trips in the NCC from published COASTER Schedule. Does not include Friday night and special-event trips.	22 / NA / NA	22 / 12 / 8
Number of Weekday/ Weekend LOSSAN Passenger Train Trips (COASTER/Amtrak/ Other)	Number of scheduled weekday and weekend passenger train trips on COASTER/ Amtrak/other rail in the LOSSAN corridor in the NCC.	44 / NA	44 / 38
Average Weekday/Annual COASTER Commuter Rail Ridership	Number of boarding passengers on the COASTER commuter rail on a weekday/annual basis for entire line (Oceanside to Downtown San Diego/Santa Fe Depot).	NA / 1.5 Million	5,318 / 1.67 Million
Average Monthly Amtrak Ridership	Average monthly number of Amtrak Surfliner boarding passengers on the LOSSAN rail corridor (San Diego to San Luis Obispo).	208,000	233,000
COASTER Seat Capacity Occupied – Average Weekday	Average of maximum passenger loads on weekday COASTER trips divided by average number of seats on weekday COASTER trips.	NA	26.2%
COASTER Seat Capacity Occupied – Average Peak Period	Average of maximum passenger loads on weekday peak-period COASTER trips divided by average number of seats on weekday peak-period COASTER trips.	NA	38.0%
Daily Number of BRT or Commuter Bus Trips in NCC	Daily number of scheduled BRT trips serving the NCC.	0	0

TABLE 7: NORTH COAST CORRIDOR TRANSPORTATION AND ENVIRONMENTAL PERFORMANCE MEASURES (CONT'D)

Performance Measure	Definition	2006	2013
Moving People, Not Vehicles (cont'd)			
Number of Vanpools in NCC	Number of vanpools with origins, destinations or routes in the NCC according to SANDAG's iCommute Vanpool Program.	87	157
Daily Carpool and FasTrak Users on the I-5 HOV/Express Lanes	Number of daily passenger trips in carpools on the HOV/Express Lanes in the NCC (number of carpool vehicles X estimated occupancy)	16,291	36,147
Peak-Period Mode Share at Key Locations	Peak-period mode shares for person-trips on I-5, local roads and transit at SANDAG's Solana Beach screen line.	I-5: 81% Local Roads: 16% Transit: 3%	I-5: 86% Local Roads: 11% Transit: 3%
Level of Investment			
Total One-Way Lane Miles of HOV/Express Lanes in NCC	The total length, measured in one-way lane-miles, of HOV or Express Lane facilities on I-5 in the NCC.	6	13
Total Miles of LOSSAN Corridor Double Track in NCC	The total length (miles) of double-tracked (or greater) segments of the LOSSAN rail corridor in the NCC, and the percentage of the LOSSAN corridor length in the NCC that this represents.	13.6 / 41.7%	16.8 / 51.5%
Habitat Acres Purchased (Cumulative)	The cumulative number of acres of habitat purchased in the NCC.	NA	105.9
Habitat Acres Restored (Cumulative)	The cumulative number of acres of habitat restored in the NCC.	14.0 (Note A)	55.8 (Note B)
Cumulative Capital Investment in Completed HOV/Express Lanes	The cumulative amount of capital dollars invested in completed HOV and Express Lane-related projects in the NCC since 2006.	NA	$160 Million
Cumulative Capital Investment in Completed Transit Projects	The cumulative amount of capital dollars invested in completed transit-related projects in the NCC since 2006.	NA	$42 Million
Cumulative Investment in Environmental Improvements	The cumulative amount of capital and planning dollars invested in environmental improvements in the NCC.	$0.85 Million	$14.9 Million
Programming of FasTrak Revenue	Accounting of I-5 Express Lanes revenue collected and expended.	NA	NA
Improving Efficiency and Managing Demand			
Transportation Demand Management Programs/ Activities	Implementation of TDM programs and activities that support NCC mobility, access and education.	NA	SANDAG NCC TDM Program Adopted
Transportation System Management Operations/ Infrastructure	Implementation of TSM operational and infrastructure improvements that support NCC mobility and access.	NA	Ramp meters (5 locations); Detection system
Rail Improvements Made Outside NCC that Improve Conditions within NCC	Infrastructure and operational investments and improvements that support NCC mobility and access.	NA	4 (Note C)
Coordinated Project Construction to Minimize Environmental Impacts	Description of coordinated project construction activities that avoid/minimize environmental impacts.	NA	NA

Note A: Racetrack View (13 acres); I-5/I-805 Mitigation Site (1 acre)

Note B: Deer Canyon (21.0 acres); Dean Family Trust (20.8 acres, in progress since 2013)

Note C:
1. SPRINTER light rail transit opening w/connection to LOSSAN (2008)
2. Metrolink Service Expansion Program with connection to Oceanside (2011)
3. Tecolote Road-Washington Street cross-overs project for operational flexibility (2013)
4. NCTD/Amtrak Rail2Rail program with 6 Amtrak trains per day stopping at all COASTER stations (2013)

TABLE 7: NORTH COAST CORRIDOR TRANSPORTATION AND ENVIRONMENTAL PERFORMANCE MEASURES (CONT'D)

Performance Measure	Definition	2006	2013
Facility Performance			
I-5 NCC General-Purpose Lane Travel Time. Weekday Peak/Off-Peak Periods (Northbound/Southbound)	Median travel time to traverse the NCC on I-5 general-purpose lanes during the weekday peak and off-peak periods in the northbound and southbound directions.	NB – 37 / 24 min SB – 43 / 24 min	NB – 35 / 24 min SB – 34 / 24 min
I-5 NCC HOV/Express Lane Travel Time, Weekday Peak/Off-Peak Periods (Northbound/Southbound)	Median travel time to traverse the NCC on I-5 HOV/Express Lanes during the weekday peak and off-peak periods in the northbound and southbound directions. (Currently only 6 miles of HOV/Express Lanes exist, with the remaining 21 miles traveling on general -purpose lanes.)	NB – 32 / 24 min SB – NA	NB – 30 / 24 min SB – 30 / 24 min
I-5 NCC General-Purpose Lane Travel Time, Weekend Peak/Off-Peak Periods (Northbound/Southbound)	Median travel time to traverse the NCC on I-5 general-purpose lanes during the weekend peak and off-peak periods in the northbound and southbound directions.	NB – 26 / 24 min SB – 26 / 24 min	NB – 25 / 24 min SB – 26 / 24 min
I-5 NCC General-Purpose Lane Reliability (Buffer Time), Weekday Peak Periods (Northbound/Southbound)	Given historical congestion patterns, the time required for a traveler to guarantee 95% on-time arrival on a trip through the corridor during weekday peak periods.	17 / 23 min	15 / 15 min
I-5 NCC General-Purpose Lane Reliability (Buffer Time), Weekend Peak Periods (Northbound/Southbound)	Given historical congestion patterns, the time required for a traveler to guarantee 95% on-time arrival on a trip through the corridor on weekend peak periods.	14 / 20 min	15 / 13 min
Annual Hours of Traffic Delay (VHD) on I-5	The total hours of delay experienced by NCC drivers on I-5 due to congestion in the corridor.	9,584	3,581
Weekday/Weekend Average Daily Traffic (ADT) on I-5 at Selected Screenline Location	Total number of daily weekday and weekend motorized vehicles crossing SANDAG's Solana Beach screenline location on I-5.	Weekday 214,059 Weekend 189,100	Weekday 205,600 Weekend 178,600
Weekday Average Daily Traffic (ADT) on Coast Highway at Selected Screenline Location	Total number of daily weekday motorized vehicles crossing SANDAG"s Solana Beach screenline location on Coast Highway.	Weekday 24,900	Weekday 16,100
COASTER Travel Time	Scheduled trip travel time for COASTER between Oceanside and Downtown San Diego (Santa Fe Depot).	57 min	58-69 min
COASTER/Amtrak On-Time Performance	Percent of COASTER and Amtrak trips on-time as reported by NCTD and Amtrak.	90% / 75%	97% / 82%
Average Weekday Vehicle Miles Traveled (VMT) on I-5 NCC	The total number of miles traveled on I-5 in the NCC on an average weekday by all vehicles.	5.3 Million	4.9 Million
Percent of I-5 NCC Traffic Comprised of Trucks	Truck traffic on I-5 in the NCC as a percentage of total traffic.	4.0-6.0%	4.0-6.0%
Number of Daily/Weekly/ Annual Freight Trains	Number of daily, weekly or annual freight trains operating in the NCC.	NA	4 / 24 / 1248
NCC Population Growth	Number of people living in the NCC and percent change from 2006 baseline.	495,634	532,955 (+7.5%)
NCC Housing Growth	Number of housing units in the NCC and percent change from 2006 baseline.	184,450	210,905 (+14.0%)
NCC Employment Growth	Number of jobs in the NCC and percent change from 2006 baseline.	318,767	286,695 (-10.1%)

Interstate 5 System Performance

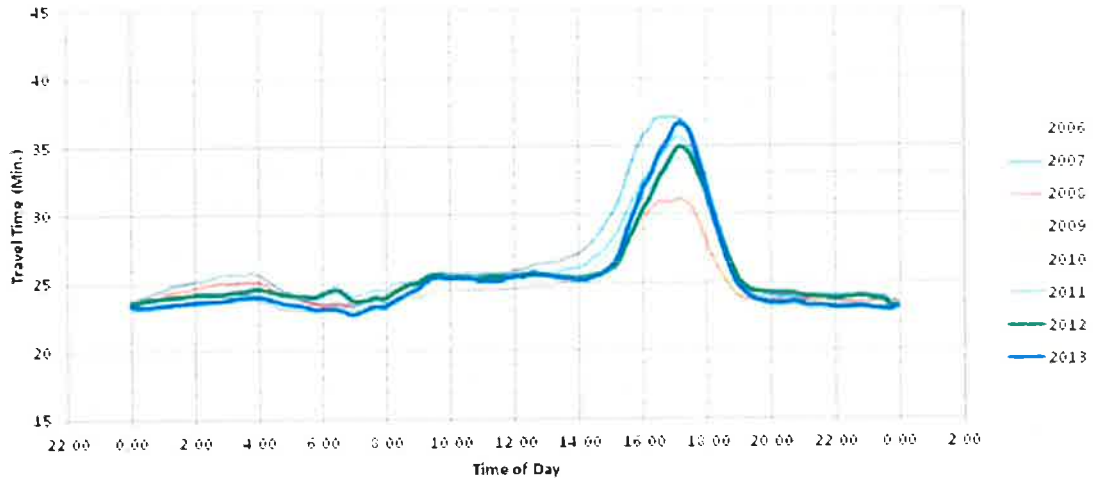
The performance of a highway transportation system describes how well mobility is being achieved, and is typically measured in terms of travel time, vehicle speed and vehicle delay. While individual metrics varied between 2006 and 2013, the overall trend of I-5 facility performance followed a broad pattern: steadily decreasing performance (resulting from increased travel demand) until 2008, followed by an improvement in highway operations as travel demand slowed during the economic recession, and finally a gradual degradation in performance as travel demand has slowly begun to trend upward again.

Travel Time

Travel time is defined as the amount of time it takes for a vehicle to travel from its origin to its destination. For I-5 in the NCC, this is the time it takes to travel the 27 miles between La Jolla Village Drive (San Diego) and Harbor Drive (Oceanside). Figure 6 through Figure 9 show the average weekday and weekend travel times by time of day for the years 2006-2013. In 2006 the northbound travel time peaked at approximately 40 minutes, then decreased to approximately 31 minutes in 2008-2009, largely due to the opening of the Lomas Santa Fe Project—which provided additional capacity (HOV and auxiliary lanes) at a major bottleneck location—and the economic downturn that depressed travel demand across the region. In 2010 the travel time began to increase as demand levels recovered and regional growth continued, and in 2012 the peak was approximately 35 minutes.

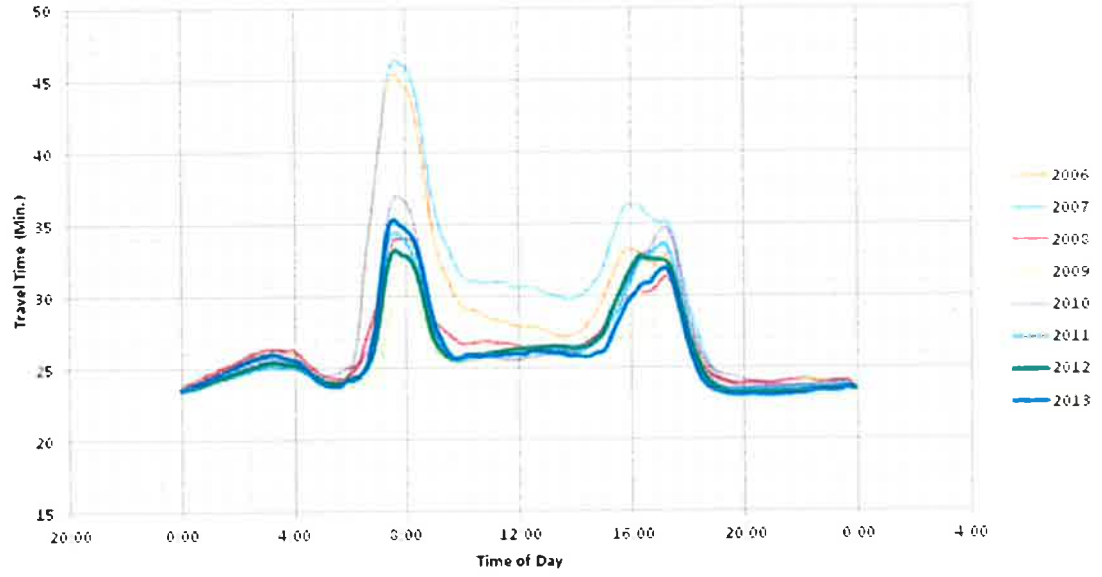
In the southbound direction, peak travel time occurred in 2006-2007 at about 46 minutes, and then dropped significantly in 2008 (34 minutes) and 2009 (30 minutes). As with the northbound travel times, this decrease can be attributed to the opening of the Lomas Santa Fe Project as well as the economic recession. In 2010 travel times began to rebound, and have remained in the 33-37 minute range since then. The southbound direction in this corridor is unique, in that it suffers from congestion in both the morning and afternoon peak periods.

FIGURE 6: AVERAGE WEEKDAY TRAVEL TIME, I-5 NORTHBOUND FROM LA JOLLA VILLAGE DRIVE TO HARBOR DRIVE, 2006-2013



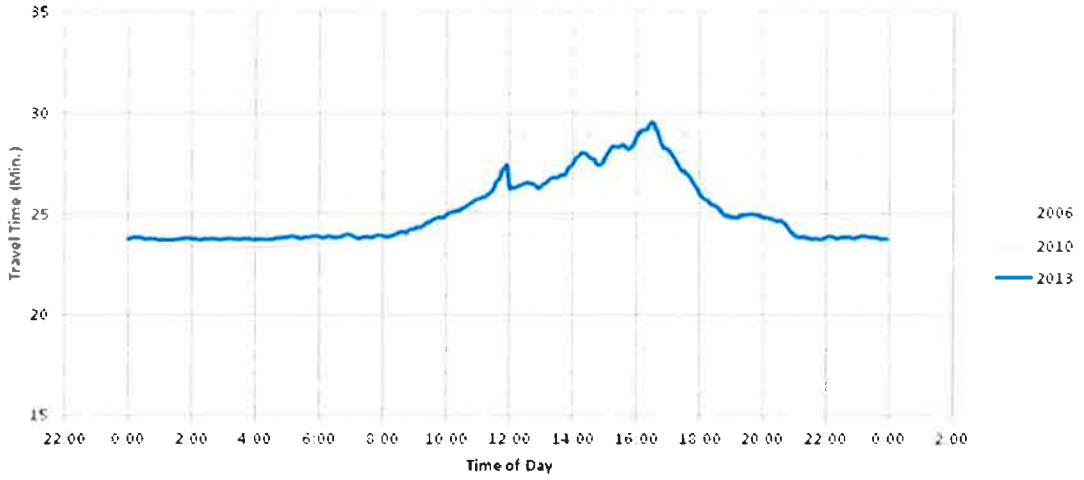
Source: Caltrans District 11.

FIGURE 7: AVERAGE WEEKDAY TRAVEL TIME, I-5 SOUTHBOUND FROM HARBOR DRIVE TO LA JOLLA VILLAGE DRIVE, 2006-2013



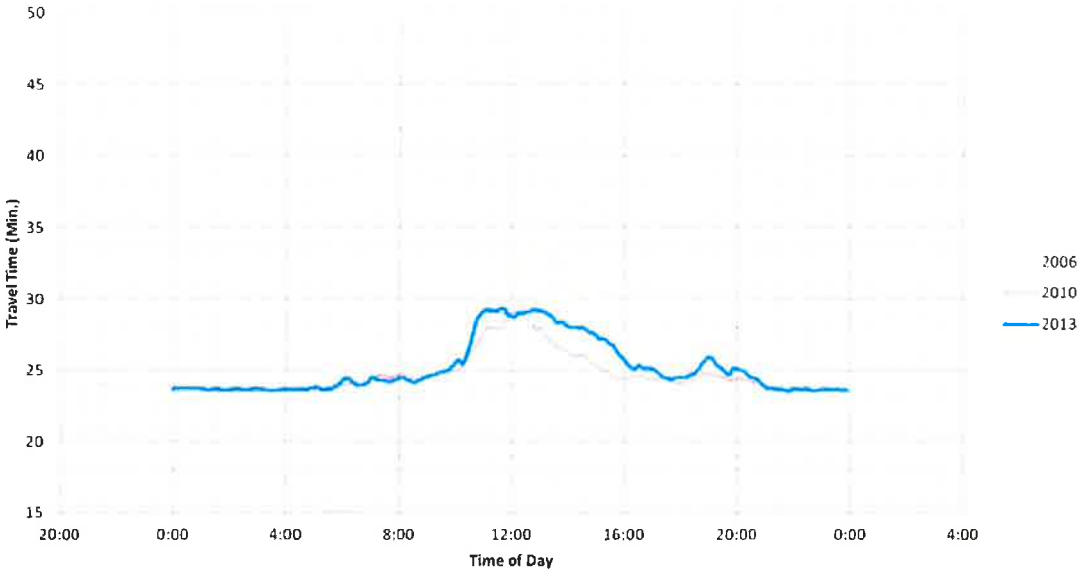
Source: Caltrans District 11.

FIGURE 8: AVERAGE WEEKEND TRAVEL TIME, I-5 NORTHBOUND FROM LA JOLLA VILLAGE DRIVE TO HARBOR DRIVE, 2006, 2010, 2013



Source: Caltrans District 11.

FIGURE 9: AVERAGE WEEKEND TRAVEL TIME, I-5 SOUTHBOUND FROM HARBOR DRIVE TO LA JOLLA VILLAGE DRIVE, 2006, 2010, 2013



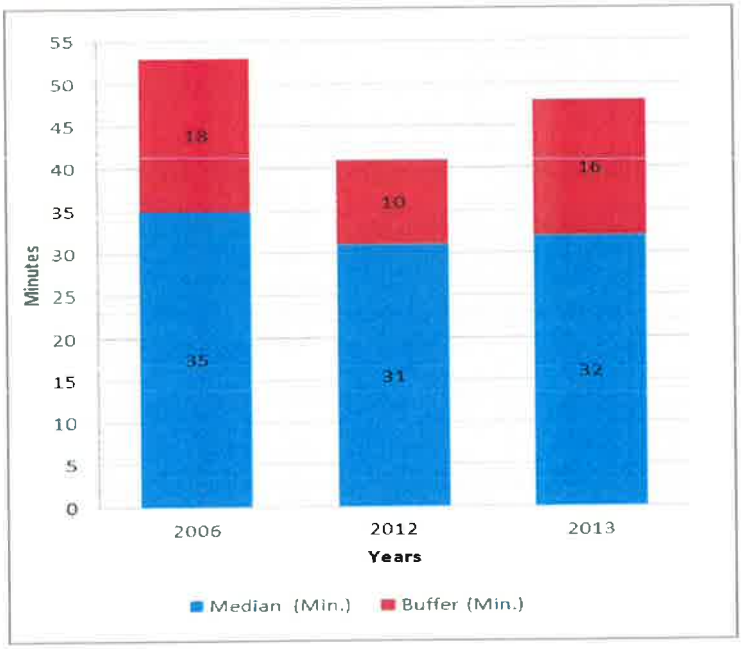
Source: Caltrans District 11.

Travel Time Reliability

When considering the amount of time lost due to congestion, average travel times tell only part of the story. Individual travel times actually fluctuate widely based on day-to-day traffic conditions—sometimes longer than the average, sometimes shorter—which results in unpredictable travel for all motorists. The concept of travel reliability focuses on this unpredictability by accounting for the wide distribution of travel times that is known to occur and measuring the amount of additional time (called "buffer time") that would be required to guarantee an on-time arrival 95% of the time.

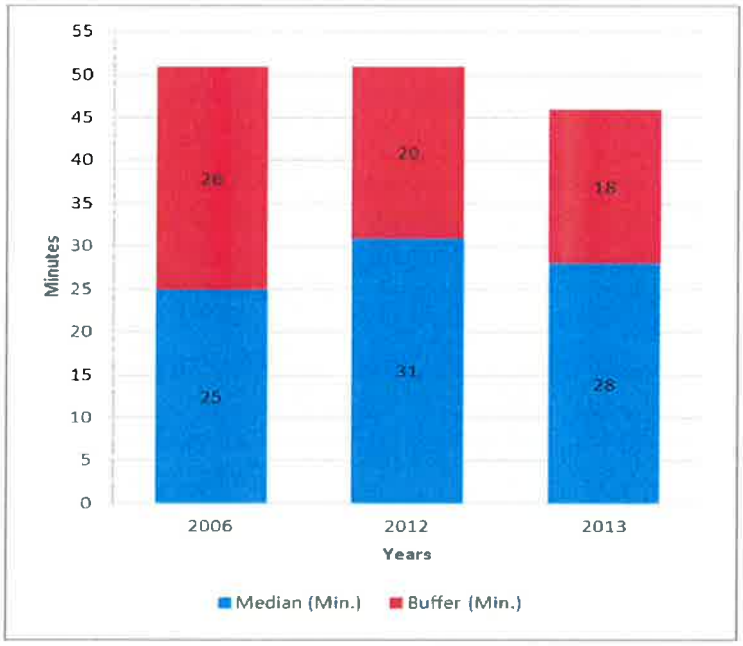
Figure 10 through Figure 13 show the median travel times in the NCC on typical weekdays and weekends during the peak period, with median travel time in blue and the "buffer time" above it in red. The weekday northbound trip, for example, averaged 32 minutes in 2013. However, the unpredictability of congestion means that commuters cannot simply plan for a 32-minute trip; rather, travelers must allow 48 minutes to ensure their on-time arrival 95% of the time. These "buffered" travel times reflect the true economic and personal costs of congestion borne by the region's residents, visitors, and businesses.

FIGURE 10: WEEKDAY TRAVEL TIME VARIABILITY, I-5 NORTHBOUND PEAK PERIOD FROM LA JOLLA VILLAGE DRIVE TO HARBOR DRIVE



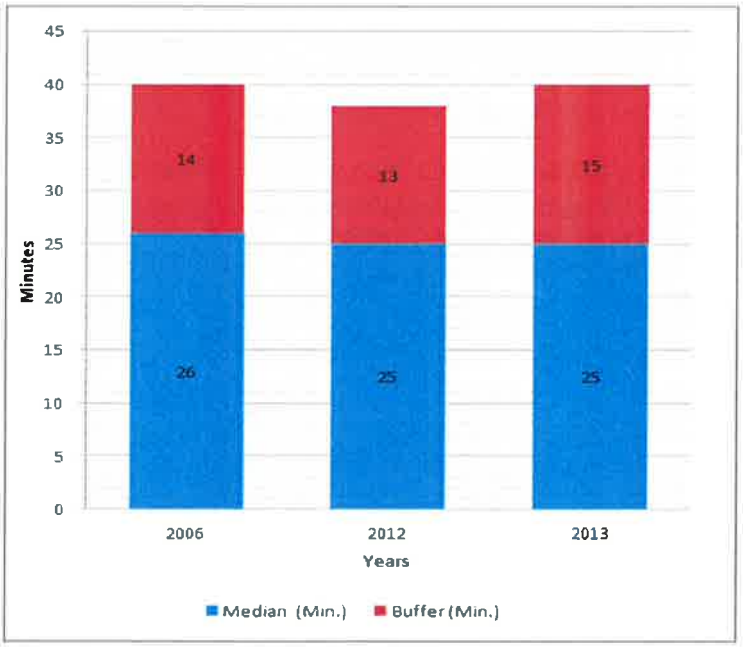
Source: Caltrans District 11.

FIGURE 11: WEEKDAY TRAVEL TIME VARIABILITY, I-5 SOUTHBOUND PEAK PERIOD FROM HARBOR DRIVE TO LA JOLLA VILLAGE DRIVE



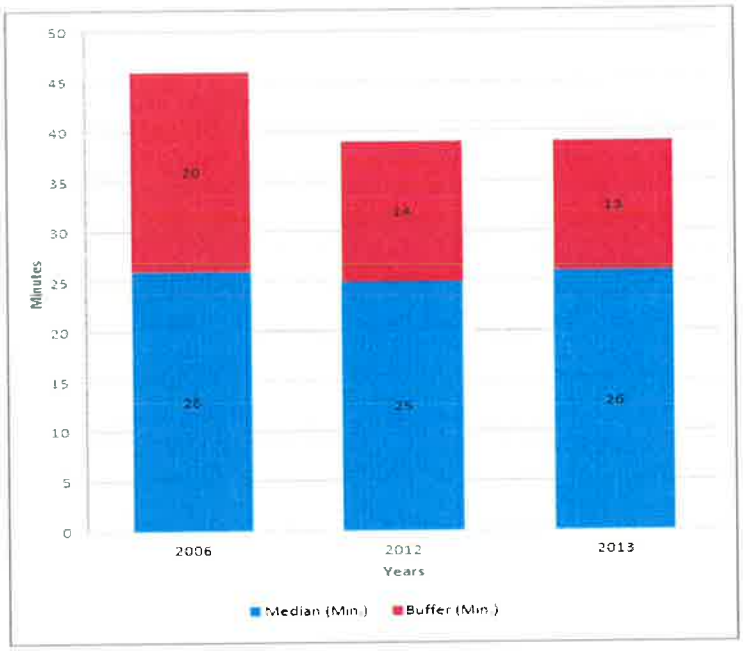
Source: Caltrans District 11.

FIGURE 12: WEEKEND TRAVEL TIME VARIABILITY, I-5 NORTHBOUND PEAK PERIOD FROM LA JOLLA VILLAGE DRIVE TO HARBOR DRIVE



Source: Caltrans District 11.

FIGURE 13: WEEKEND TRAVEL TIME VARIABILITY, I-5 SOUTHBOUND PEAK PERIOD FROM HARBOR DRIVE TO LA JOLLA VILLAGE DRIVE



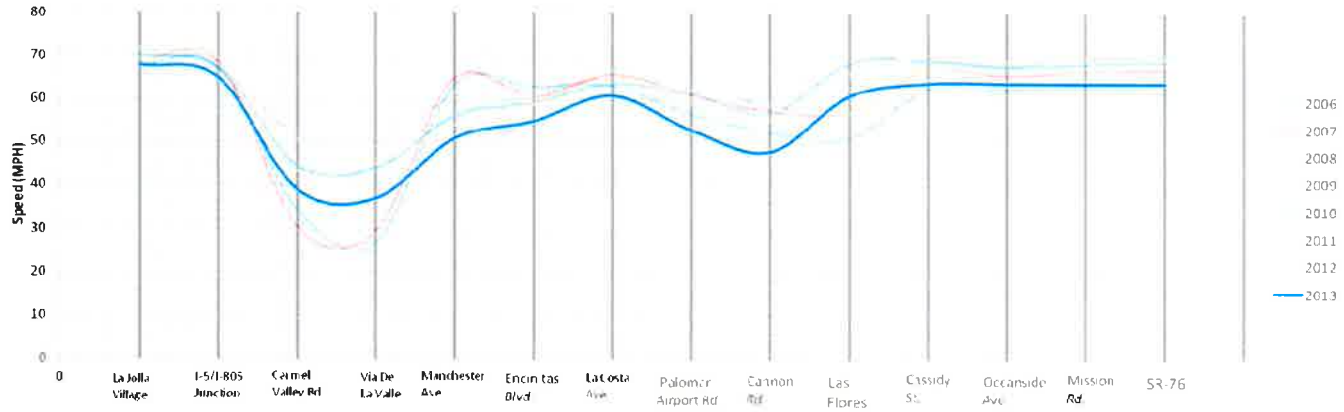
Source: Caltrans District 11.

Compared across years, the data show mixed results for reliability on I-5. In the northbound direction, reliability improved between 2006 and 2012, but then began to degrade in 2013. This is consistent with most of the travel-demand and performance data examined above, which were largely driven by the 2008 recession and subsequent recovery. However, reliability in the southbound direction remained constant between 2006 and 2012, and then actually improved slightly in 2013.

Vehicle Speeds

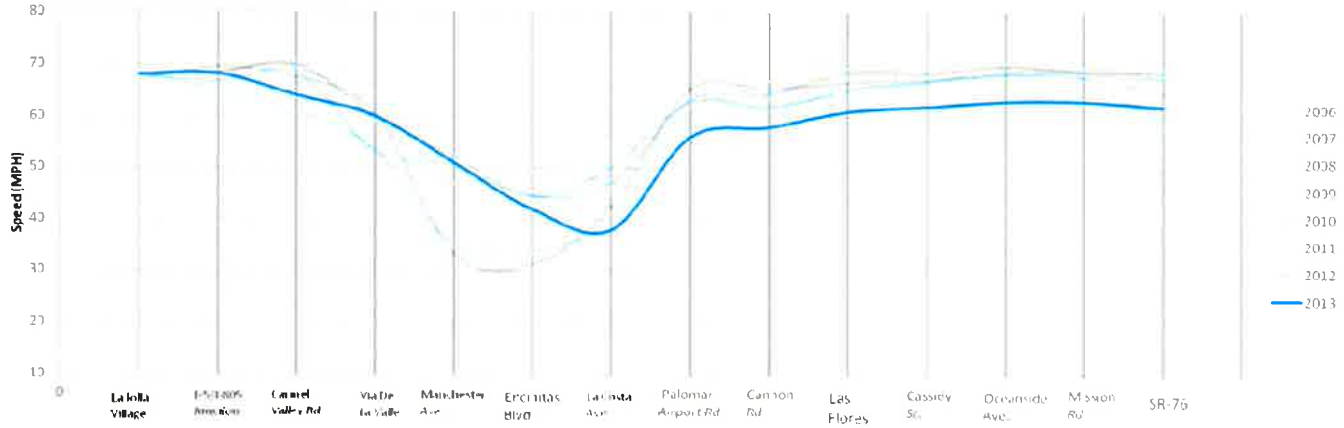
Closely related to travel time, average vehicle speed is an indicator of congestion and mobility. Figure 14 through Figure 17 show the average weekday and weekend peak-period speeds, by interchange, of vehicles traveling on I-5 since 2006. Similar to the travel time and reliability metrics, the worst speeds occurred in 2006-2007 before improving substantially in 2008-2009 (a result of the Lomas Santa Fe Project and the economic downturn). Travel speeds then began to degrade again in 2010 as demand for travel continued to grow.

FIGURE 14: AVERAGE WEEKDAY PEAK-PERIOD SPEEDS BY INTERCHANGE, I-5 NORTHBOUND, 2006-2013



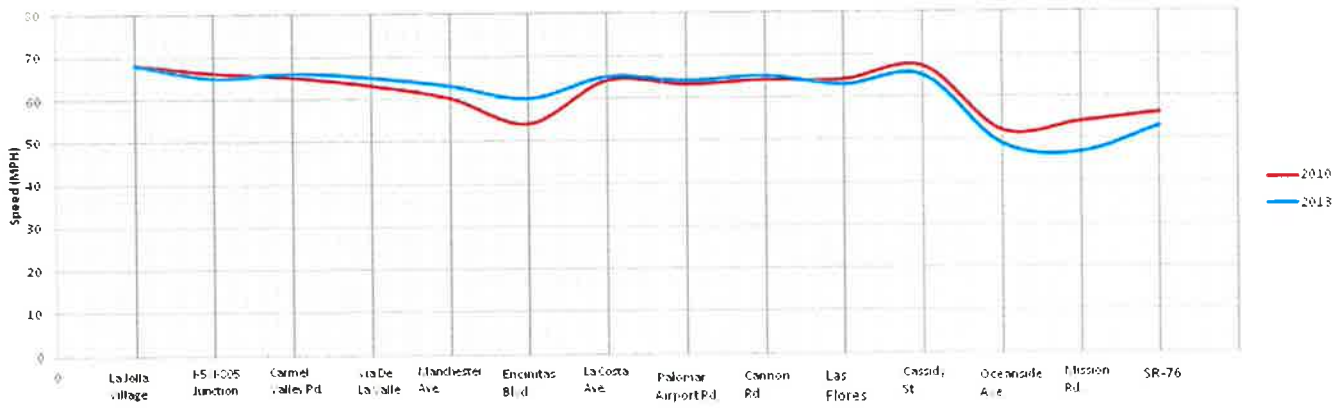
Source: Caltrans District 11.

FIGURE 15: AVERAGE WEEKDAY PEAK-PERIOD SPEEDS BY INTERCHANGE, I-5 SOUTHBOUND, 2006-2013



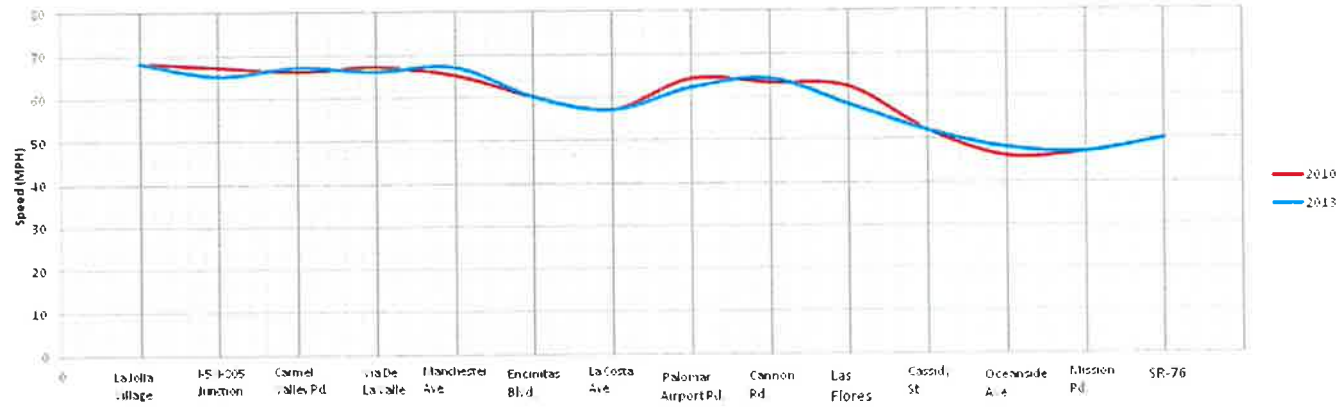
Source: Caltrans District 11.

FIGURE 16: AVERAGE WEEKEND PEAK-PERIOD SPEEDS BY INTERCHANGE, I-5 NORTHBOUND, 2006-2013



Source: Caltrans District 11.

FIGURE 17: AVERAGE WEEKEND PEAK-PERIOD SPEEDS BY INTERCHANGE, I-5 SOUTHBOUND, 2006-2013



Source: Caltrans District 11.

Figure 15 shows the effects of the extension of HOV lanes northward to Manchester Avenue in 2008. Although this improved the bottleneck condition near Manchester Avenue, the added capacity has allowed additional traffic to move north, pushing the congestion problem farther downstream. Average speeds north of Cannon Road used to be around 70 mph, and now they are closer to 60 mph—indicating that this area is now getting closer to capacity. This shows that fixing bottlenecks is only part of the mobility solution, and further illustrates the importance of a system-wide approach to corridor planning.

An examination of weekday (Figure 14/15) versus weekend (Figure 16/17) data shows that weekday congestion mainly occurs in the corridor's southern end, while weekend congestion mainly occurs north of SR 78 in Oceanside. This weekend congestion pattern supports the proposed change to accelerate construction of the HOV lane north of SR 78 to an earlier phase.

Delay and Vehicle Miles Traveled

Vehicle Hours of Delay (VHD) is the total time spent by vehicles operating in severe congestion, which is generally defined in California as freeway speeds below 35 mph. Figure 18 shows the total weekday peak-period VHD in the NCC for each month between 2007 and 2012, with the northbound and southbound directions aggregated. As with the other highway metrics, performance improved in 2008-2009 and then began to degrade in 2010; however, current levels of delay are still well below the peaks seen in 2007.

Figure 18 also displays corridor VMT during the same time period. Analyzed together, these two metrics can reveal how recent investments have improved freeway performance. Following the opening of the Lomas Santa Fe Project in the summer of 2007—still one year prior to the economic downturn—the corridor experienced a 56% reduction in VHD (both directions) while accommodating roughly the same level of demand (VMT).

FIGURE 18: WEEKDAY PEAK-PERIOD VMT AND VEHICLE HOURS OF DELAY, I-5 NCC, 2007-2013

Source: Caltrans District 11.

Corridor Goods Movement

A significant amount of international, regional and interregional goods are moved through the San Diego region by several modes, including ship, truck, rail and airplane. However, truck travel is by far the most significant mode for goods movement. The I-5 highway in the NCC is a crucial link in a network of roadways that deliver goods to all points north and east, including California well as the nation. I-5 also serves as a critical link between intermodal centers in Southern California that facilitate ship-to-truck and train-to-truck transfers.

In both 2007 and 2012, approximately 97% of all the goods moved through the San Diego region utilized trucking on the local roadway system. Furthermore, approximately 12,000 trucks (4-6% of corridor ADT) used the NCC portion of I-5 on a daily basis. While a considerable portion of these trucks serve interregional goods movement, a portion also serves the local and regional trucking needs of the San Diego metropolitan area. This underscores the need for transportation improvements on I-5, which will increase capacity for both passengers and freight.

Rail System Performance

The performance of a rail transportation system describes how well mobility is being achieved, and can be measured with metrics such as train throughput, ridership and on-time performance. In general, the performance of the LOSSAN rail corridor in the NCC remained relatively steady between 2006 and 2013.

Train Throughput and Ridership

The number of trains traversing the NCC on the LOSSAN rail corridor has not changed significantly since 2006, reflecting the fact that the corridor—which remains 48% single-tracked in the NCC—is near its maximum capacity. Ridership has increased modestly in that same period.

As shown Table 8, approximately 44 passenger trains per weekday travel the full length of the corridor: 22 COASTER commuter rail trips and 22 Amtrak interregional rail trips (11 trips in each direction for each service), which is unchanged since 2006. Ridership on both services increased slightly over that same period, with the COASTER annual ridership growing from 1.5 million to over 1.6 million, and Amtrak growing from 2.5 million to 2.8 million.

While the NCC's two principal rail services have not changed significantly since 2006, two of the corridor's connecting rail services have seen modifications. The Los Angeles-based Metrolink commuter rail system began daily service to Oceanside Transit Center in 2006, and adjusted its service levels multiple times until reaching the current level of 16 trains per day (8 trips in each direction, spread across two lines). In addition, the new SPRINTER light rail line—which began service in 2008 between the Oceanside Transit Center and Escondido—makes 68 trips each weekday (34 trips in each direction).

The LOSSAN corridor's freight operations have remained relatively constant since 2006 as well, with approximately 4-7 trains traversing the corridor daily. Freight operations normally occur at night and during off-peak periods to reduce schedule conflicts with passenger operations, but may occur during other hours if necessary.

TABLE 8: NORTH COAST CORRIDOR RAIL SERVICE SUMMARY, 2012

Service	Route	Trips per Day (both directions)			Travel Time	Ridership (Annual)
		Weekday	Saturday	Sunday		
COASTER	San Diego to Oceanside	22	8	8	60-65 mins.	1.62 million
Amtrak Pacific Surfliner	San Diego to San Luis Obispo	22	22	22	2:45	2.8 million
Metrolink OC Line	Oceanside to Los Angeles	12	4	4	2:00	-
Metrolink IE-OC Line	Oceanside to San Bernardino	4	2	2	2:25	-
SPRINTER	Oceanside to Escondido	68	55	50	53 mins.	2.2 million

Source: SANDAG.

The planned future service levels for NCC rail also have not changed since 2006, and are summarized in Table 9. These plans would nearly double the number of trains operating in the NCC over the next 20 years. However, because the rail corridor is near capacity, these service enhancements are dependent upon the continued progress of the LOSSAN double-tracking program (discussed further in the *Recent and Planned Capital Investment* section below).

TABLE 9: LOSSAN CORRIDOR PLANNED WEEKDAY SERVICE, 2012-2030

	Existing Service (2013)	Planned Service	
		Mid-Term (2020)	Long-Term (2030)
Amtrak	22	36	36
COASTER	22	36	54
Metrolink	16	16	20
BNSF (Freight)	4–7	9	9
Total	**64–67**	**97**	**119**

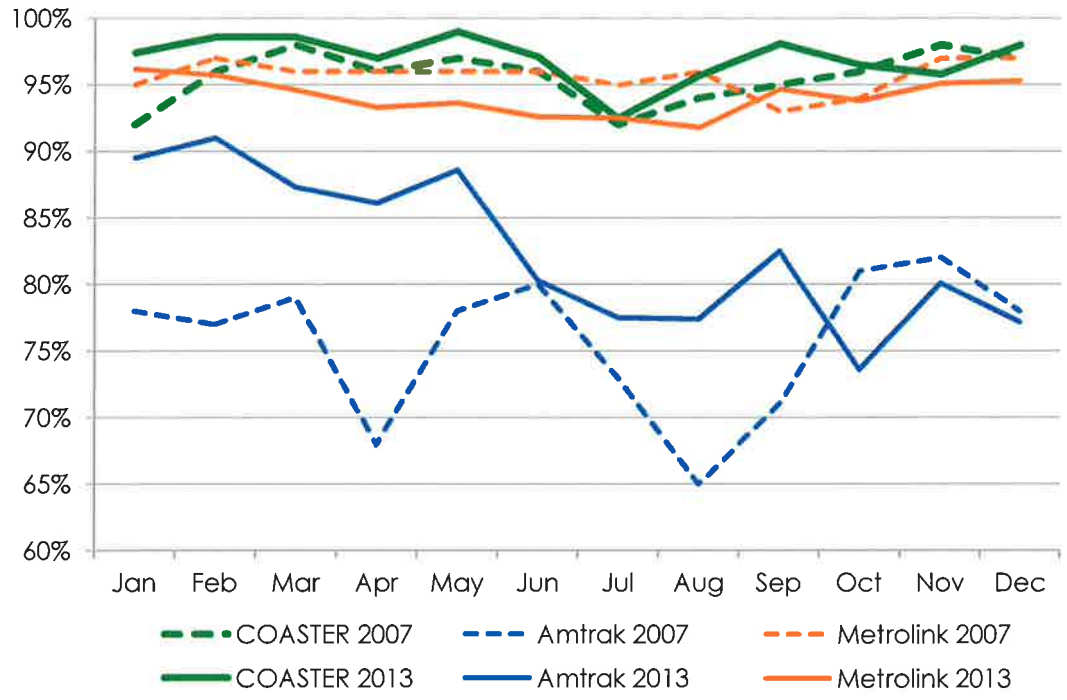
Source: SANDAG; North Coast Corridor PWP/TREP.

On-Time Performance

The on-time performance of NCC rail services has remained relatively constant since 2007, with only the Amtrak Pacific Surfliner service experiencing significant improvements.[2] COASTER and Metrolink commuter rail maintained their on-time performance levels of around 90-95%.

Some degradation in on-time performance was the result of construction activity associated with the ongoing LOSSAN capital investment program that is aimed at double-tracking the corridor, replacing bridges and improving other rail and signal systems. More detail on these rail projects is available in the following section *(Recent and Planned Capital Investment)*.

FIGURE 19: ON-TIME PERFORMANCE OF LOSSAN RAIL SERVICES, 2007 & 2013



Source: SANDAG.

[2] LOSSAN on-time performance data not available for 2006.

Recent and Planned Capital Investment

Since 2006 there have been multiple projects implemented in the NCC aimed at enhancing mobility, reducing the amount of daily congestion, creating a regional HOV network and improving environmental conditions. This section lists improvements that have been completed in the NCC since 2006 as well as projects that are ongoing.

Interstate 5 Capital Investment

Completed Projects

Totaling $160 million, the following I-5 or related projects have been completed since 2006:

- **Lomas Santa Fe Interchange ($64 million, Completed 2008)**

  Re-constructed the undercrossing and ramps, constructed a new HOV lane in each direction, and added additional general-purpose and auxiliary lanes in each direction.

- **Intelligent Transportation System (ITS) Investment ($5 million, Completed 2012)**

  Installed over 200 new detectors in the corridor's Vehicle Detection System, for a current total of 519 detectors.

- **I-5 NCC Final EIR/EIS (Completed 2013)**

  Completed a comprehensive environmental review of the planned I-5 HOV/Express Lane improvements. It included an initial analysis, followed by a supplemental review of corridor lagoon crossings and water quality.

- **NCC Final PWP/TREP (Completed 2014)**

  Completed, and received California Coastal Commission approval of, a comprehensive planning and permitting document detailing the NCC's multimodal improvement program.

- **I-805 HOV/Carroll Canyon Road Extension ($91 million, Completed 2014)**

  Added approximately two miles of new HOV lanes in each direction along I-805 from I-5 to Carroll Canyon Road, a direct access ramp (DAR) in the center median connecting Carroll Canyon Road directly to the HOV lanes, and extended Carroll Canyon Road to connect with Sorrento Valley Road and surrounding businesses.

Ongoing and Partially Funded Projects

Totaling an estimated $1.2 billion, the following I-5 or related projects are currently moving through the planning and design stages:

- **I-5/Genesee Avenue Interchange (Est. $93 million, Est. Completion 2017)**

  Upgrade of overcrossing to include more traffic lanes, new bicycle and pedestrian facilities, widened freeway access ramps, freeway auxiliary lanes, and a Class 1 bicycle facility from Sorrento Valley Road to Voigt Drive.

- **I-5 HOV Lanes (Est. $480 million, Est. Completion 2020)**

  Continuation of single HOV lane in both directions from Manchester Avenue to SR-78, to include the replacement of the San Elijo and Batiquitos Lagoon bridges (to include new bicycle/pedestrian facilities) and the construction of a DAR at Manchester Avenue.

- **Voigt Drive Overcrossing & Realignment (Est. $28 million, Est. Completion 2020)**

  Replacement of an existing I-5 overcrossing at Voigt Drive in San Diego and realignment of Voigt Drive between I-5 and Genesee Avenue. The project will support a planned I-5 DAR at Voigt Drive and improve local circulation across I-5 in the University City area. The improvements will include dedicated bicycle and pedestrian facilities.

- **Gilman Drive New Overcrossing (Est. $10 million, Est. Completion 2020)**

  Construction of new I-5 overcrossing at Gilman Drive in San Diego, to improve local circulation across I-5 in the University City area. The improvements will include dedicated bicycle and pedestrian facilities.

- **I-5/SR-56 Interchange (Est. $250 million, Est. Completion 2021-2030)**

  Improvement of traffic operations on I-5 between Del Mar Heights Road and Carmel Valley Road, and on SR-56 between I-5 and Carmel Country Road. Project alternatives include improvements to local streets, the addition of auxiliary lanes along I-5 and SR-56, interchange improvements, or southbound-to-eastbound and westbound-to-northbound freeway connector ramps.

- **I-5/SR-78 Interchange (Est. $346 million, Est. Completion 2040)**

  Improvement of traffic operations at the I-5/SR-78 interchange along the border of Carlsbad and Oceanside. Improvements to be studied may include additional freeway connectors, a DAR providing access to Express Lanes, and/or reconfiguration of the existing facility. The first public scoping meeting is scheduled for summer 2014.

Rail System Capital Investment

Completed Projects

Totaling $87 million, the following LOSSAN rail projects have been completed between 2006 and early 2014:

- **LOSSAN Program EIR/EIS (Completed 2007)**
  Conducted and certified a programmatic (tier 1) environmental review of the overall improvement program for the LOSSAN corridor.
- **Oceanside Double Track ($12 million, Completed 2009)**
  Completed 1.3 miles of double track and replaced the Loma Alta Creek bridge in Oceanside.
- **Carlsbad Double Track ($20 million, Completed 2012)**
  Completed 1.9 miles of double track and replaced the Agua Hedionda Lagoon bridge in Carlsbad.
- **Del Mar Bluffs Stabilization Phases 2 and 3 ($10 million, Completed 2012)**
  Completed second and third phases of stabilization and reinforcement of the coastal bluffs adjacent to the rail corridor in Del Mar.
- **Sorrento to Miramar Phase 1 (Est. $45 million, Completed March 2014)**
  Construction of 1.4 miles of double track, upgrade of signaling and drainage systems, and straightening of curves through Soledad Canyon in San Diego.

Ongoing and Partially Funded Projects

Totaling an estimated $506 million, the following rail projects are currently moving through the planning and design stages:

- **Oceanside Transit Center & Through Track (Est. $19 million, Est. Completion 2015)**
  Addition of third track, crossovers, and a new boarding platform at Oceanside Transit Center. New customer amenities are also planned, to include new shelters, seating, signage, and lighting.
- **Sorrento Valley Double Track (Est. $40 million, Est. Completion 2015)**
  Construction of 1.1 miles of double track, replacement of two bridges, and construction of an additional parking lot at Sorrento Valley Station in San Diego.

- **Poinsettia Station Improvements (Est. $13 million, Est. Completion 2016)**
  Replacement of at-grade pedestrian crossing with grade-separated undercrossing, installation of inter-track fence, and improvements to signaling system at Poinsettia Station in Carlsbad.
- **Los Peñasquitos Lagoon Bridges (Est. $24 million, Est. Completion 2017)**
  Replacement of four timber trestle rail bridges in Los Peñasquitos Lagoon in San Diego.
- **San Elijo Lagoon Double Track (Est. $76 million, Est. Completion 2018)**
  Construction of 1.5 miles of double track, replacement of San Elijo Lagoon bridge, and modification of grade crossing at Chesterfield Avenue in Encinitas.
- **Batiquitos Lagoon Double Track (Est. $48 million, Est. Completion 2019)**
  Construction of 2.7 miles of double track, replacement of Batiquitos Lagoon bridge, and modification of grade crossing at La Costa Avenue In Carlsbad.
- **Eastbrook to Shell Double Track (Est. $59 million, Est. Completion 2021-2030)**
  Construction of 0.6 miles of double track and replacement of San Luis Rey River bridge in Oceanside.
- **Carlsbad Village Double Track (Est. $49 million, Est. Completion 2021-2030)**
  Construction of 1.0 mile of double track and replacement of Buena Vista Lagoon bridge in Carlsbad.
- **San Dieguito Double Track/Platform (Est. $178 million, Est. Completion 2021-2030)**
  Construction of 2.1 miles of double track, replacement of San Dieguito Lagoon bridge, and construction of new special-events platform at Del Mar Fairgrounds.

Bicycle and Pedestrian Capital Investment

In addition to—and often in conjunction with—the capital investments in highway and rail, numerous bicycle and pedestrian projects of regional significance are also under development in the NCC.

Completed Projects

Totaling over $6 million, the following bicycle and pedestrian projects have been completed between 2006 and early 2014:

- **Santa Fe Drive Pedestrian Crossing ($6 million, Completed 2013)**
  Constructed bicycle/pedestrian undercrossing of LOSSAN rail corridor at Santa Fe Drive in Encinitas.

- **Coastal Rail Trail, Tyson to Wisconsin (Completed 2013)**
  Constructed 0.4 miles of Class 1 bike path adjacent to LOSSAN rail corridor, between Tyson Street and Wisconsin Avenue in Oceanside.

- **Coastal Rail Trail, Wisconsin to Oceanside ($0.2 million, Completed 2014)**
  Constructed 0.4 miles of Class 1 bike path adjacent to LOSSAN rail corridor, between Wisconsin Avenue and Oceanside Boulevard in Oceanside.

Ongoing and Partially Funded Projects

Totaling over $12 million, the following bicycle and pedestrian projects are currently moving through the planning and design stages:

- **Genesee Av Overcrossing Bike/Ped Improvements (Est. Completion 2017)**
  Construction of new bicycle and pedestrian facilities at the Genesee Avenue overcrossing of I-5 in San Diego. Part of the I-5/Genesee Avenue Interchange Project discussed above.

- **Sorrento Valley to Voigt Class 1 Bike Path (Est. Completion 2017)**
  Construction of a new Class 1 bike path adjacent to I-5, from Sorrento Valley Road to Voigt Drive in San Diego. Part of the I-5/Genesee Avenue Interchange Project discussed above.

- **Coastal Rail Trail, Solana Beach to Chesterfield (Est. Completion 2020)**
  Construction of Coastal Rail Trail from Solana Beach city limit to Chesterfield Drive in Encinitas.

- **Coastal Rail Trail, Chesterfield to G (Est. $7 million, Est. Completion 2020)**
  Construction of Coastal Rail Trail from Chesterfield Drive to G Street in Encinitas.

- **Coastal Rail Trail, G to Leucadia (Est. $5 million, Est. Completion 2020)**
  Construction of Coastal Rail Trail from G Street in Leucadia Boulevard in Encinitas.

Environmental Capital Investment

The transportation improvements planned for the NCC are being developed alongside a suite of environmental enhancements. Many of these projects are located near planned transportation projects, and wherever possible they will feature concurrent construction to reduce impacts.

Ongoing and Partially Funded Projects

Totaling over $150 million, the following environmental projects and acquisitions are currently moving through the planning and implementation stages:

- **San Elijo Lagoon Restoration Project (Est. $45 million)[3]**

  Large-scale restoration of San Elijo Lagoon, to include future maintenance and management activities. The project will be coordinated with the replacements of both the I-5 and LOSSAN rail bridges crossing the lagoon, in order to minimize impacts to the lagoon environment.

- **Buena Vista Lagoon Restoration Project (Est. $45 million)[3]**

  Large-scale restoration of Buena Vista Lagoon, to include future maintenance and management activities. The project will be coordinated with the replacements of both the I-5 and LOSSAN rail bridges crossing the lagoon, in order to minimize impacts to the lagoon environment.

- **San Dieguito W-19 Restoration Site (Est. $48.6 million)**

  Restoration of two critical coastal habitat sites adjacent to San Dieguito Lagoon, resulting in over 100 acres of restored wetlands and uplands.

- **Dean Family Trust Restoration & Mitigation Site (Est. $2.7 million)**

  Purchased 23.1 acres of coastal sage scrub, and began first-phase restoration of 20.8 acres.

- **Deer Canyon II Restoration & Mitigation Site (Est. $1.6 million)**

  Purchased rights to restore up to 31.4 acres of wetlands and uplands, with 21 acres already restored.

- **Hallmark East & West Mitigation Site (Est. $9.6 million)**

  Purchased 19.3 acres of wetlands and uplands for future preservation.

- **La Costa/Ayoub Preservation Site (Est. $1.4 million)**

  Purchased 21.7 acres of coastal sage scrub for future preservation.

- **Laser Preservation Site (Est. $1.6 million)**

  Purchased 5.8 acres of coastal sage scrub for future preservation.

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[3] There is a combined $90 million available for the San Elijo and Buena Vista lagoon restoration projects. Both projects could be eligible for this funding if all regulatory permits are obtained. Ultimately the available funding could go to one lagoon, or be shared between the two. Until actual allocations are determined, for planning purposes this report estimates that the $90 million will be split evenly between the two projects.

Conclusion

This CSMP Addendum provides NCC stakeholders with the opportunity to evaluate the program's implementation plan every four years. This process is intended to track the progress of improvements within the corridor—particularly those that enhance connectivity between transportation modes—and to ensure the continuation of a balanced, multimodal approach. This inaugural report shows that some shifts have already begun occurring in the NCC, and while it is too early to determine long-term trends, they will need to be monitored closely in successive reports.

Land Use and Demographics

The corridor's population, employment and housing levels are continuing to grow, with an additional 100,000 NCC residents—as well as 1 million regional residents—projected in the next three decades. Additionally, regional projections have shifted over the last twenty years, focusing more of this new growth in the NCC and other infill areas in the region's western portion. Accordingly, the corridor's land use patterns are gradually evolving to include more multi-family dwellings and more mixed-use, "Smart Growth" development, consistent with these regional planning efforts. This will encourage continued population growth and infill development in the NCC, further compounding the demand for multimodal transportation improvements.

Travel Demand

In spite of the continued demographic growth, the NCC's transportation trends have shown signs of change—at least over the short term. Measures like travel time, vehicle miles traveled and vehicle hours of delay have begun reversing their historical trends, undergoing downward shifts in the short period between 2006 and 2013. This sudden decrease slowed the growth in travel demand that had previously been anticipated, and resulted in a slight decrease in the corridor's per capita VMT.

These shorter-run shifts may be attributed to many factors, including the economic downturn that began in 2008, a spike in fuel prices, land use and housing changes, and multimodal transportation investments that have reduced delay and increased efficiency. It is still too early to determine which factors are the primary drivers of this trend, whether it is likely to continue, and how it may impact future projections. Indeed, some key transportation metrics such as VMT began showing signs of rebound in 2013, indicating that the slowdown may only be temporary. This momentary decrease in VMT does not diminish the existing need for improvements in the corridor—but if the trend holds, it could increase the congestion-reduction benefits of the first-phase improvements, and possibly delay the need for some second-phase freeway improvements.

Two additional key conclusions emerged from the travel demand data summarized in this report. The first is indicated by the shifting of I-5 northbound congestion from Manchester Avenue to locations farther north, which was primarily the result of an HOV lane extension opened in 2008. This improvement alleviated a major bottleneck, but ultimately just pushed the congestion problem downstream. This illustrates that fixing bottlenecks is only part of the mobility solution, and further illustrates the importance of a system-wide approach to corridor planning. The second notable conclusion stemmed from an examination of weekday versus weekend congestion in the NCC. While weekday congestion mainly occurs in the corridor's southern end, weekend congestion tends to occur north of SR 78 in Oceanside. This weekend congestion pattern supports the proposed change to accelerate construction of the HOV lane north of SR 78 to an earlier phase.

Ongoing Capital Investment and Planning

As the NCC program of multimodal improvements continues to move forward, regional transportation planning will continue with the quadrennial cycle of the RTP (whose next edition will be combined with the *Regional Comprehensive Plan* and be retitled the *Regional Plan*). The next transportation plan is anticipated in late 2015, and will address the region's evolving transportation needs as well as the impact of any changes in revenue projections. Depending on the outcome of this ongoing regional planning process, a subsequent CSMP Addendum may be warranted prior to the four-year revision cycle.