San Diego County
Regional Transportation Commission

TransNet Extension Ordinance: 10-Year Look-Back

January 2018 | Revised March 2018

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REPORT HIGHLIGHTS

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EXECUTIVE SUMMARY

While the economy and transportation environment have significantly changed over the last decade, the *TransNet* Program (*TransNet*) delivered on its plans to expand freeways, improve local roads, add capacity to rail service, and increase transit for seniors. SANDAG successfully leveraged sales tax monies to complete or start 60 percent of capital projects envisioned over the 40-year lifecycle of *TransNet*, employed leading project delivery and project management best practices, and implemented a robust Environmental Mitigation Program. Results of these *TransNet* efforts indicated that the San Diego region generally outperformed its peers and comparison areas in metrics such as hours of delay, safety, operating expense, and farebox recovery. To improve *TransNet*, the SANDAG Board of Directors may consider setting aside additional funds for performance reporting and use of technology, modifying the Local Street and Road Program reporting and project definitions, and revisiting the local environmental mitigation bank.

BACKGROUND AND PURPOSE

Passed in 2004, the *TransNet* Extension Ordinance enacted a half-cent sales tax to fund transportation improvements in the San Diego region consistent with the San Diego Forward: The Regional Plan.[1]

TransNet funds a variety of capital construction projects on highways and transit corridors, local streets and roads, and bikeways in addition to an environmental mitigation program, transit services and subsidies, grants for smart growth, active transportation, and subsidized transit for seniors and persons with disabilities.

The *TransNet* Extension Ordinance calls for an evaluation of program performance every 10 years. This report summarizes results of the first 10-year look-back on *TransNet* program and project results since 2005—the inception of the *TransNet* Early Action Program—as well as provides considerations for the future. The review was based on existing materials and documentation.

KEY *TRANSNET* RESULTS FROM 10-YEAR LOOK-BACK

- Over the last decade, the transportation landscape significantly changed with mobile technology and testing of autonomous cars, effects of the Great Recession, and legislation related to the environment, bike and pedestrians, and performance measurement.
- *TransNet* delivered on its plans and expanded freeways, improved local roads, added capacity to rail and Trolley service, added new *Rapid* service, and increased transit services for seniors. In fact, more than half of the capital construction projects envisioned were completed or are in-progress in one-quarter of the life of the *TransNet* measure. Roughly $4.4 billion was invested on 78 large-scale capital construction project segments—48 of which were completed and 30 that are in-progress as of June 30, 2017.
- *TransNet* supported alternate modes of transportation for transit, bike riders, and pedestrians—allocating approximately $344 million to existing transit operations and awarding approximately $15 million for senior transit, $32 million for smart growth grants, and $30 million for active transportation grants.
- *TransNet* acquired more than 9,000 acres of land for environmental mitigation at savings of $120 million due to low-cost land prices.
- Environmental Mitigation Program (EMP) awarded $14.6 million in grants for restoration and habitat conservation efforts with more than 71 percent completed. The EMP also received a best practices award from the American Planning Association.
- Nearly 90 miles of managed and general purpose lanes were added or enhanced, along with at least 101 transit revenue miles, 17 miles of rail, and 3 miles of bikeway.
- Enhanced or upgraded more than 80 transit stations and stops as well as purchased 94 new transit vehicles—including 65 low-floor light rail vehicles.
- SANDAG, Caltrans, and its *TransNet* partners followed leading project management and monitoring practices, with strong oversight by the SANDAG Board of Directors and *TransNet* Independent Taxpayer Oversight Committee. Further, several innovations were employed such as the Corridor Director Model, performance dashboard, and Construction Manager/General Contractor project delivery method.

[1] At its May 25, 2012, meeting, the SANDAG Board of Directors approved the integration of the Regional Comprehensive Plan update with the development of the Regional Transportation Plan/Sustainable Communities Strategy. The integrated plan (San Diego Forward: The Regional Plan) was adopted October 9, 2015.

Key Performance Goals

KEY *TRANSNET* GOALS

- Relieve congestion
- Improve safety
- Match state/federal funds
- Expand freeways
- Maintain or improve local streets and roads
- Increase transit for seniors and those with disabilities
- Expand commuter express bus, trolley, and COASTER services

SAN DIEGO FORWARD RELATED GOALS AND METRICS [2]

- Innovative mobility and planning
  - Travel time
  - Commute mode share
  - Annual transit boardings
- Healthy environment and communities
  - Fatalities/serious injuries per vehicle miles traveled
- Vibrant economy

SPECIFIC LANGUAGE IN NOVEMBER 2004 BALLOT PERTAINING TO THE *TRANSNET* ORDINANCE WAS AS FOLLOWS:

A	**SAN DIEGO COUNTY TRANSPORTATION IMPROVEMENT PROGRAM.**

To relieve traffic congestion, improve safety, and match state/federal funds by:

- Expanding I-5, I-8, I-15, SR 52, SR 54, SR 56, SR 67, SR 76, SR 78, SR 94, SR 125, I-805;
- Maintaining/improving local roads;
- Increasing transit for seniors and disabled persons;
- Expanding commuter express bus, trolley, Coaster services;

Shall San Diego County voters continue the existing half-cent transportation sales tax (SDCRTC Ordinance 04-01) for forty years, including creating an Independent Taxpayer Oversight Committee to conduct yearly audits ensuring voter mandates are met?

YES 000 → O

NO 000 → O

Over the last decade since the *TransNet* Extension Program has been in place, many external changes took place that impacted *TransNet's* performance such as changes in the population, economy, and gas prices. In fact:

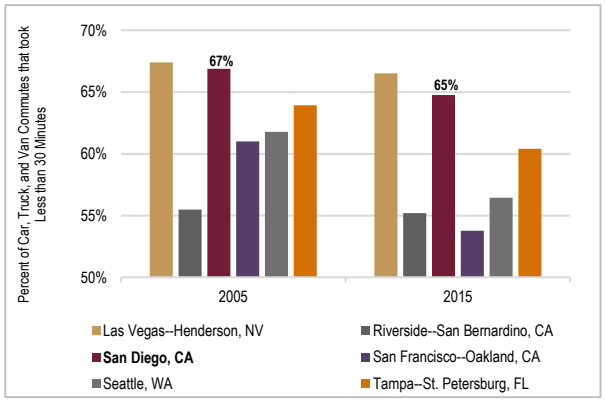
- Since 2006, the San Diego region's population grew 10 percent to approximately 3.3 million in 2016.
- Housing and the economy fluctuated with the Great Recession. In recent years, the economy grew stronger, but at a slower pace than expected.
- Gas prices in California were the highest on the West Coast and impacted driver behavior—lower prices mean more vehicles on the roadways, and higher prices often turn drivers to other alternate transportation options.

[2] The Regional Comprehensive Plan and the Regional Transportation Plan were integrated into the San Diego Forward: The Regional Plan in October 2015. See Footnote 1.

Congestion Relief

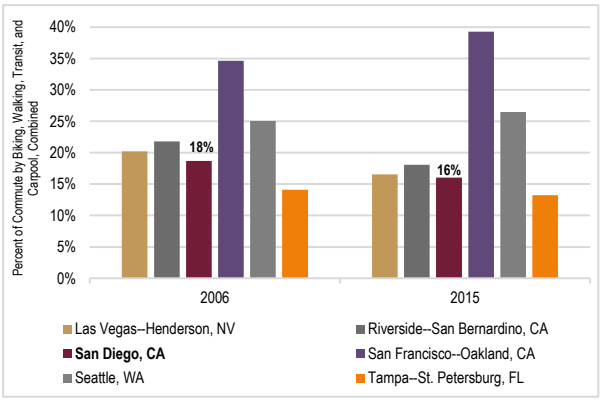
The *TransNet* Extension Ordinance envisioned the investment of billions of dollars of local, state, and federal funds to support numerous transportation improvements—including alternate modes of transportation such as bike and transit—to relieve congestion in the San Diego region. Congestion relief can be measured in a variety of ways including commute time, delay, and commute share. Results comparing the San Diego region to comparable metropolitan areas for congestion relief and pavement/bridge condition over the last decade are highlighted below.[3]

Commute Time Lasting Less Than 30 Minutes



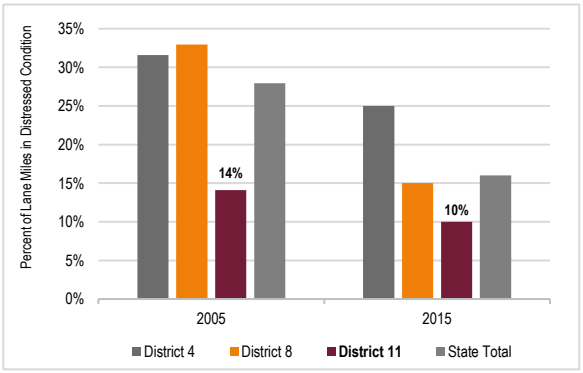
"65% of vehicle commutes took less than 30 minutes, which puts the San Diego Urbanized Area among the lowest for commute time."

Bike, Transit, Carpool, and Walking Commute Share



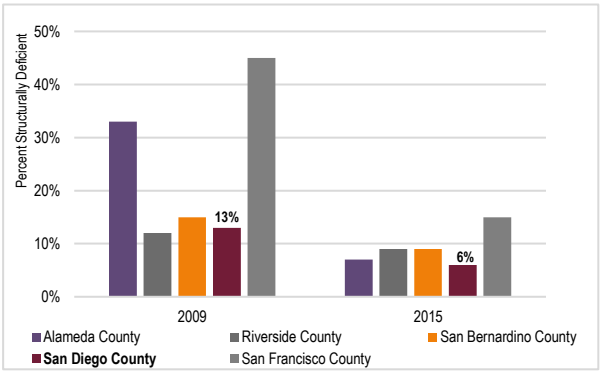
"Commuting using alternate modes of transportation in the San Diego Urbanized Area decreased from 18% in 2006 to 16% in 2015."

Highway Pavement Condition



"Highway pavement in distressed condition decreased from 14% in 2005 to just less than 10% in 2015. This was better than comparison areas." [4]

Bridge Condition



"Only 6% of bridges were rated structurally deficient in 2015. Among comparison areas, San Diego County had the fewest number of bridges that were structurally deficient."

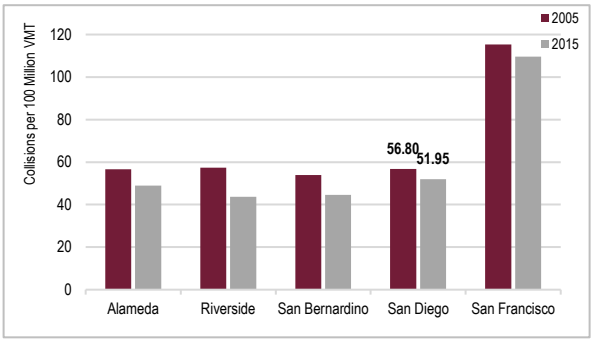
[3] Comparison areas were selected using United States American Census Survey data for population and land area. Additional factors considered included geographical proximity to the San Diego region, tourism, and coastal climate. Refer to Appendix A for methodology. Data from different systems was not consistently available across the same timeframe. Data was retrieved from 2005 forward when the EAP started where possible, but some data years were not available. Thus, the initial year of performance data presented, is the earliest year that data was available.

[4] District 4 includes Sonoma, Napa, Solano, Marin, Contra Costa, San Francisco, Alameda, San Mateo, and Santa Clara counties. District 8 includes San Bernardino and Riverside Counties. District 11 includes San Diego and Imperial Counties.

Safety

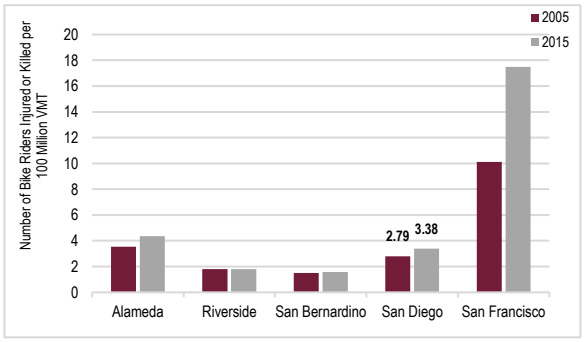
The *TransNet* Extension Ordinance envisioned safety benefits of improved facilities and connectivity for biking and walking. When comparing historical levels of safety on the highways, roadways, and bikeways reported for the region as a whole in the California Highway Patrol's Statewide Integrated Traffic Records System, there was a decline in fatalities and collisions since 2008. As shown in the graphics that follow, the San Diego County region generally performed better or in-line with comparison regions in California for collisions on the roadway. Yet, the rate of bike rider injuries and fatalities per 100 million VMT increased by 21 percent and the rate of pedestrian collisions resulting in injuries or fatalities per 100 million VMT increased 18 percent since 2005.

Highway and Roadway Collisions



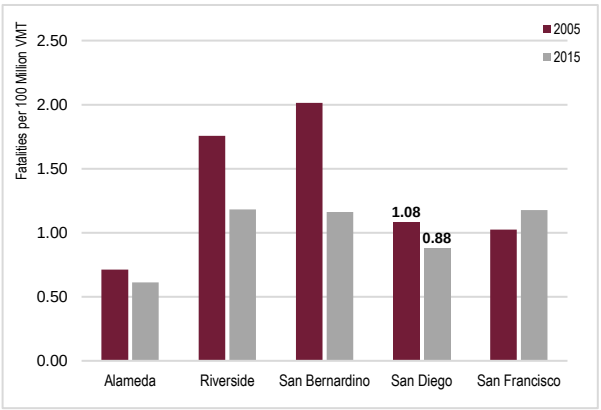
"Overall collisions on highways and roadways resulting in injuries decreased by 9% from 2005 to 2016."

Bike Rider Only Collisions



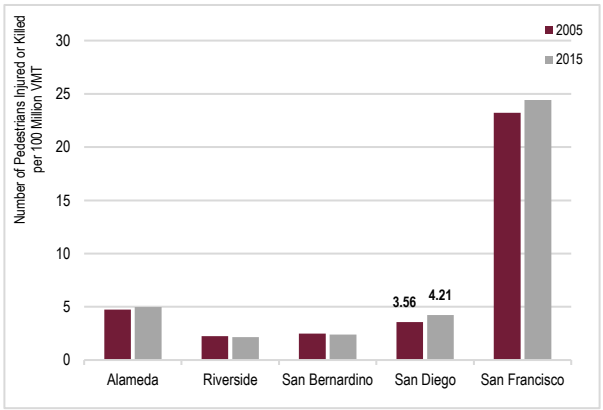
"While the San Diego region generally performed in-line with comparable areas, bike rider collisions that resulted in injuries or fatalities increased by 21% from 2005 to 2015."

Highway and Roadway Fatal Collisions



"Collisions involving at least one fatality on the highways and roadways in San Diego region decreased by 19% between 2005 and 2015—a trend similar to most other comparison areas."

Pedestrian Only Collisions

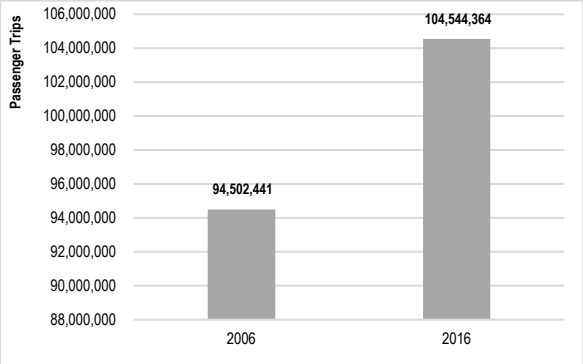


"While the total number of pedestrian collisions that resulted in injuries or fatalities is in-line or better than comparison areas, collisions increased by 18% from 2005 to 2015."

Transit Performance

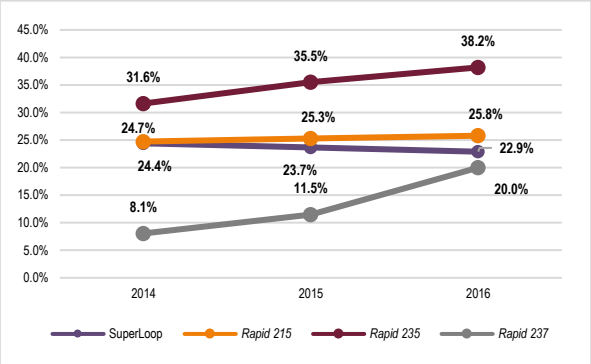
The *TransNet* Extension Ordinance envisioned the expansion of transit services for commuter express buses, Trolley, and COASTER services in addition to increased transit for seniors and persons with disabilities.[5]

SAN DIEGO SYSTEMWIDE TRANSIT RIDERSHIP



"Overall transit systemwide ridership increased 11 percent since 2006."

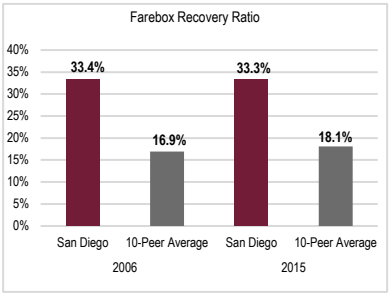
RAPID AVERAGE WEEKDAY SEAT UTILIZATION

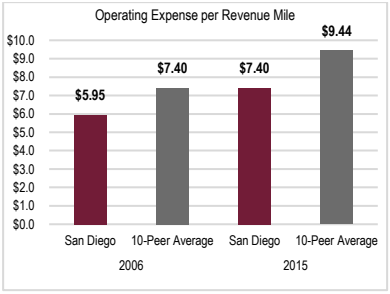


"Percent of seats occupied on *Rapid* services increased, except for the *SuperLoop*."

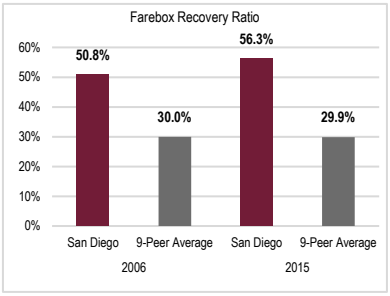
"In nearly all performance areas, the San Diego region's transit service outperformed its peers across the nation. For the metric highlighted below, performance indicated that a higher percent of operating costs were covered by fare revenue in San Diego than in peer regions and operating costs were lower as well."

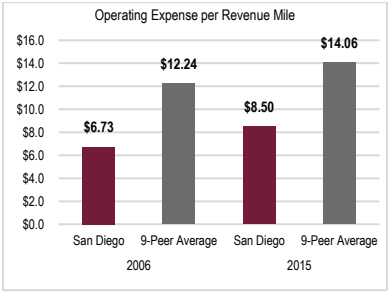
FIXED ROUTE BUS PEER COMPARISON [6]



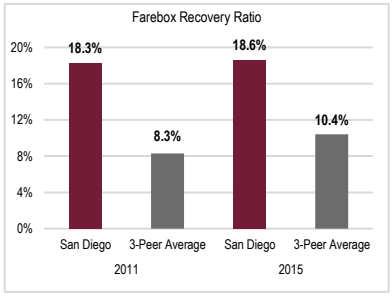


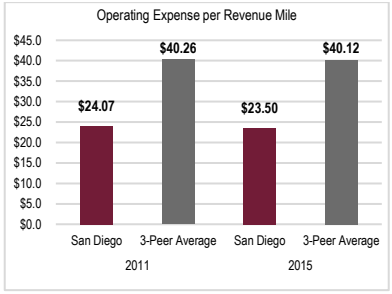
LIGHT RAIL PEER COMPARISON [7]





SPRINTER HYBRID RAIL PEER COMPARISON [8]





[5] Data from different systems was not consistently available across the same timeframe. We tried to retrieve data from 2005 forward when the EAP started, but some data years were not available. Thus, the initial year of performance data presented, is the earliest year that data was available.

[6] The 10 Fixed Route Bus Peers are: Dallas (DART), Denver (RTD), Los Angeles (LACMTA), Minneapolis (Metro Transit), Orange (OCTA), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA). See Appendix A for selection methodology.

[7] The 9 Light Rail Peers are: Dallas (DART), Denver (RTD), Los Angeles (LACMTA),), Minneapolis (Metro Transit), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA). See Appendix A for selection methodology.

[8] The 3 Hybrid Rail Peers are: Capital Metropolitan Transportation Authority, New Jersey Transit Corporation, and Tri-County Metropolitan District of Oregon. The SPRINTER was re-classified from Light Rail to Hybrid Rail in 2011. See Appendix A for selection methodology.

Financing and Future Considerations

TransNet Past Financing and Capacity for Remaining Projects

- *TransNet*'s Plan of Finance (POF) placed heavier emphasis on the short-term 5- to 7-year timeframe where revenue and cost projections have more certainty, with the largest variations of forecasted revenues and costs occurring at the end of the 40-year program.
- SANDAG's use of debt and its revenue projections aligned with others in industry.
- Benefits from *TransNet*'s use of debt included the acceleration of large capital construction projects through the Early Action Program.
- Like other comparison areas with sales tax measures, *TransNet* forecasts were impacted by the Great Recession.
- SANDAG successfully leveraged federal and state funding, with roughly $2.5 billion in grant funds spent on Major Corridor Projects—significantly more than initially estimated in the 2005 POF.
- Financing decisions made by SANDAG maintained the financial viability and increased the likelihood of delivering the *TransNet* Program by 2048. Currently, at least an estimated $22.7 billion of Major Corridor projects remain to be completed.
- As costs rise and SANDAG transitions to pay-as-you-go expected in 2022, SANDAG may wish to consider whether the program needs to be rebalanced by reducing project scope, delaying project start or completion, or moving projects past the *TransNet* 40-year timeframe.

Future Considerations

- Several themes emerged for the SANDAG Board of Directors, acting as the San Diego County Regional Transportation Commission, to consider as it looks forward to the next decade of the *TransNet* Program.
- Areas for consideration are highlighted below, but more analysis will be performed and specific recommendations made for some areas as part of the *TransNet* Triennial Performance Audit to be completed in 2018.
    - **Reporting for Local Streets and Roads Program**: To strengthen accountability surrounding 30 percent of *TransNet* money in this area, the SANDAG Board of Directors could require additional performance reporting from local jurisdictions to assess value for the investment.
    - **Local Streets and Roads Project Definition**: To allow local jurisdictions more flexibility to spend *TransNet* monies to best meet project needs, the SANDAG Board of Directors could consider revisiting its requirements related to congestion relief and maintenance project classifications.
    - **Regionwide Allocations for Performance Tracking and Analysis**: With the passage of federal and state legislation requiring more performance outcome tracking, analysis, and reporting, the SANDAG Board of Directors may need to allocate additional *TransNet* funding, or other funding, for extra resources to gather and report on performance.
    - **Investment in Technology to Manage Network**: As projects are completed and philosophies migrate toward sustainable communities and complete streets concepts, the SANDAG Board of Directors may need to allocate additional *TransNet* funds, or other funds, for intelligent traffic systems technology to manage through multimodal efforts.
    - **Environmental Mitigation Program's Local Mitigation Bank:** Nearly 94 percent of the $200 million allocated for a Local Mitigation Bank to mitigate direct environmental impacts of local construction projects has not been used to date. As such, the SANDAG Board of Directors could closely monitor the need for this bank and consider repurposing the funds. While the SANDAG Board of Directors may have some flexibility in this area, it will need to stay within the limits presented in the ordinance.
    - **Mix of Future *TransNet* Projects**: Given how technology and the transportation landscape changed over the last decade and the growing focus on the environment and sustainable communities, the SANDAG Board of Directors could evaluate its portfolio of future projects to assure they remain the best mix for achieving the goals of *TransNet*.

Introduction and Background

With nearly 10 percent of California's population, San Diego County is the second largest of California's 58 counties and the fifth largest county in the nation.[9] As such, San Diego's regional system relies on several individual transportation modes and programs to move people around the area such as major highway corridors, local streets and roads, transit operations, bikes and pedestrian facilities, related grants, and the iCommute program for alternative commute choices. Each mode and related transportation improvement project must be planned, coordinated, and funded.

Transportation Planning

Transportation planning in California is conducted by a multitude of individual agencies with their own unique set of responsibilities, authorities, and rules of governance for long-term planning, congestion management, and greenhouse gas reduction. In the San Diego region, authority for all these activities was consolidated in the San Diego Association of Governments (SANDAG) giving it broad authority for decision-making in the region. Established in 1966, SANDAG received the federal Metropolitan Planning Organization (MPO) designation in 1970. As such, SANDAG is responsible for long-range transportation planning, regional transportation improvement program preparation, and receiving federal financial assistance that flows through SANDAG to other implementing agencies. Subsequently, SANDAG received additional responsibilities as the region's Congestion Management Agency under federal law in 1991 to draft congestion management plans and monitor air quality.

Transportation activities are guided by a variety of plans as detailed below, with the most significant plan being the long-range Regional Plan. Without SANDAG's planning and coordination, transportation plans from individual jurisdictions could become fragmented and not best serve the region.

- **Regional Plan**: Given the nexus between transportation and regional land use concerns such as mobility, economic activity, smart growth, and the environment, MPOs like SANDAG must create a Regional Plan. Additionally, every four years, SANDAG is required to update its long-range Regional Transportation Plan to cover a rolling 20-year period or longer. In 2015, these regional plans were integrated into one document, known as San Diego Forward: The Regional Plan, that outlined the investments to "maintain, manage, and improve the region's transportation system" with a focus on housing, job growth, protection of habitat and open space, reduction of greenhouse gas emissions, and investment in transportation options. The most recent San Diego Forward: The Regional Plan adopted in 2015 serves as the blueprint of projects to be funded and implemented over the next 30+ years—including the remaining *TransNet* projects and other regional projects. California Senate Bill 375 established new requirements related to greenhouse gas emission reduction goals that must be planned and documented in a Sustainable Communities Strategy that is also contained in San Diego Forward: The Regional Plan.[10]

[9] According to the California Department of Finance State Population Report for 2016.
[10] The Regional Comprehensive Plan and the Regional Transportation Plan were integrated into the San Diego Forward: The Regional Plan in October 2015. See Footnote 1.

- **Regional Transportation Improvement Program**: From the long-range San Diego Forward: The Regional Plan, a shorter-term priority list of projects is maintained in a Regional Transportation Improvement Program covering a four-year period schedule of individual local jurisdiction's project priorities as well as those of SANDAG, Caltrans, Metropolitan Transportation System (MTS), and North County Transit District (NCTD).
- **Coordinated Transit Plan**: SANDAG also is responsible for short-range transit planning that is consolidated into the Coordinated Transit Plan—a five-year blueprint for implementing public transit and social service transportation concepts described in San Diego Forward: The Regional Plan. This plan also provides a regional strategy for providing transportation to the most sensitive populations including seniors and individuals with disabilities as funded through *TransNet* and federal funding sources.
- **Regional Bike Plan**: The Riding to 2050: The San Diego Regional Bike Plan is a complement to San Diego Forward: The Regional Plan that outlines projects and recommendations to increase bike ridership and frequency of trips, encourage development of complete streets, improve safety for bike riders, and increase public awareness for biking in the region.

Together, these planning documents summarize the significant projects that the community deemed necessary to address current and future transportation demands as projected through sophisticated modeling tools. Plans are continually revisited, revised, and refined. In addition to federal and state funding, a region's transportation plans often include funding from other local sources and sales tax extension funds. In fact, more than 20 cities and counties in California have passed ballot measures assessing additional sales tax increment to fund certain transportation projects, programs, or goals—similar to San Diego County.[11]

TransNet Extension Ordinance

In 2004, San Diego County voters approved the extension of an existing *TransNet* half-cent sales tax increment for an additional 40-year period from 2008 through 2048. The SANDAG Board of Directors (Board), as the San Diego County Regional Transportation Commission, has the responsibility to implement the tax measure through the *TransNet* Extension Ordinance and Expenditure Plan. The intent of *TransNet* is to implement transportation improvements that will relieve congestion, improve safety, and match state and federal funds by:

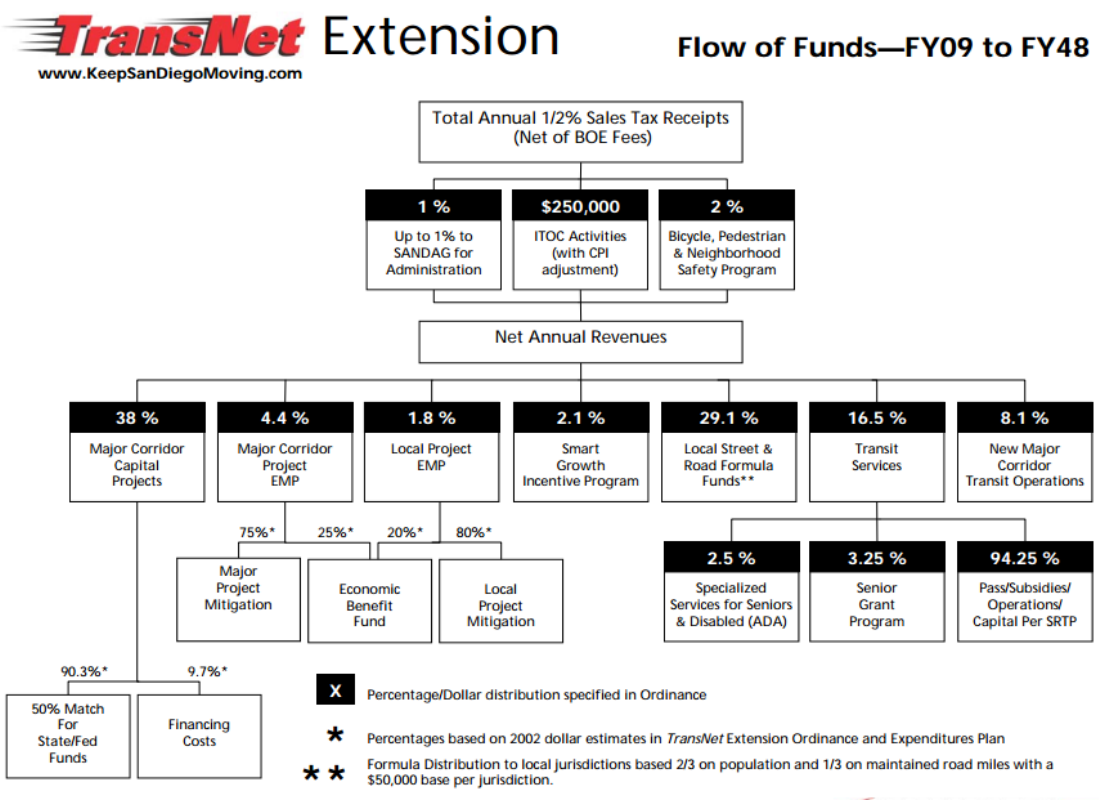
- Expanding freeways
- Maintaining and improving roads
- Increasing transit for seniors and persons with disabilities
- Expanding commuter express bus, Trolley, and COASTER services.

Under provisions of the *TransNet* Extension Ordinance, funds generated must be allocated to each *TransNet* area using a specified percentage or amount, as shown in Exhibit 1, to improve transportation

[11] According to StreetsBlog.org, Recap: California Transportation Sales Taxes on Today's Ballot, November 8, 2016.

facilities and services countywide in a manner consistent with the Regional Comprehensive Plan, Regional Transportation Plan, and the Regional Transportation Improvement Program.[12] Nearly 83 percent of *TransNet* funds are dedicated to major corridor capital projects for highway and transit in addition to an Environmental Mitigation Program and local street and road projects. The remaining 17 percent is allocated specifically for alternate modes of transportation such as transit operations, bike and pedestrian projects, and grants for specialized transportation activities.

EXHIBIT 1. *TRANSNET* FOCUS AREAS AND REQUIRED PERCENT OF ALLOCATION



Source: SANDAG and the 2004 *TransNet* Extension Ordinance.

TransNet Projects

To relieve traffic congestion and improve safety, the *TransNet* Extension Ordinance identified 48 specific capital projects along 15 major highway and transit corridors scheduled for completion by 2048. In addition to these highway and transit capital projects, there are approximately 40 proposed bike construction projects and hundreds of local street and road capital projects identified on a biennial basis as part of each local jurisdiction's transportation improvement plans. Other *TransNet* Program areas scheduled individual projects on an annual basis through environmental mitigation needs, transit service analysis, or SANDAG grants targeted for activities surrounding active transportation, smart growth, and services to seniors.

[12] The Regional Comprehensive Plan and the Regional Transportation Plan were integrated into the San Diego Forward: The Regional Plan in October 2015. See Footnote 1.

TransNet Funding

From the beginning, *TransNet* was envisioned to be only one of the funding mechanisms used to pay for the projects identified in the *TransNet* Extension Ordinance and Expenditure Plan. Even if all *TransNet* funds materialized as projected, some projects could still be at risk if the state or federal funds come in less than expected. Because of the long-term nature of projects and that state and federal funding is committed in multiple-year intervals, regional transportation plans nationwide run the risk of projects not being completed as scheduled.

As such, *TransNet* endeavors to leverage other funding sources to enable the region to complete projects more quickly than if the region only had federal and state sources to fund its projects. SANDAG reported that $3.3 billion in *TransNet* funds were leveraged with more than $10 billion from federal, state, and local funding sources to complete more than 650 highway, transit, bikeway, environmental mitigation, and grant projects and programs—approximately 500 of these projects solely relate to the *TransNet* Extension Ordinance.[13]

While blending a mix of funding sources is standard practice throughout the industry for long-term capital projects, these funding sources bring different requirements or intended uses. Some funds can be spent only on surface transportation projects or pavement, while others may be spent only on congestion mitigation. Thus, SANDAG's *TransNet* partners decide what projects are needed and what mix of funding is available to meet those needs; each jurisdiction needs a different mix of funding—what works well in one jurisdiction, might not meet the needs of a different jurisdiction.

TransNet Early Action Program

Although the collections from the *TransNet* Extension Ordinance did not start until 2008, the SANDAG Board made a strategic decision in 2005 to launch an "Early Action Program" (EAP) that accelerated 19 major corridor capital construction project segments through long-term bonding activity based on future tax revenues and shorter-term commercial paper to leverage state and federal funds. Specifically, the SANDAG Board intended to jump-start these segments "to help minimize disruption to the traveling public and give full utility to the corridor within a condensed timeframe, as opposed to phasing the improvements in smaller stages over a greater number of years."[14] Those projects were planned for completion within a 10-year timeframe by 2015. As of 2017, nearly all EAP project segments have been completed. However, since 2005, the SANDAG Board of Directors approved additional project segments consistent with the *TransNet* Extension Ordinance for a total of 78 budgeted EAP project segments as summarized in Exhibit 2 and detailed in Appendix B.

Another critical factor considered to better ensure success of the EAP was advancement of the Environmental Mitigation Program (EMP). From the early stages, the intent was to advance project mitigation packages to facilitate and expedite EAP project delivery. This involved discussions, collaboration, and agreements with external resource agencies and permit holders.

[13] SANDAG reported figures include both the original *TransNet* Ordinance and the *TransNet* Extension Ordinance activities.
[14] SANDAG Board Agenda, December 2004 and January 2005. Board approved an initial list of 22 project segments, but three segments were subsequently merged into other project segments for a total of 19 EAP project segments.

EXHIBIT 2. STATUS OF ORIGINAL EARLY ACTION PROGRAM PROJECT SEGMENTS APPROVED BY THE SANDAG BOARD

#	Project Name (CIP Number)	2005 POF Estimate (2005 Dollars)	2005 Budget Escalated to Year Open to the Public[1]	Actual Expenditures as of August 30, 2017 [2]	Status
1	I-15 Express Lanes South Segment (1201501)	$332M	$380M	$330M	Open
2	I-15 Express Lanes Middle Segment (1201502) [3]	$72M	$79M	$464M	Open
3	I-15 Express Lanes North Segment (1201503)	$179M	$208M	$183M	Open
4	I-15 FasTrak® (1201504)	$20M	$23M	$26M	Open
5	I-15 BRT Stations: Rancho Bernardo, Sabre Springs, and Del Lago (1201505)	$63M	$69M	$49M	Open
	I-15 Mira Mesa Direct Access Ramp (DAR)- Bus *Rapid* Transit (BRT) Station (1201506)	$58M	$70M	$54M	Open
6	SR 15 BRT: Mid-City Centerline Stations (1201507)	$63M	N/A	$32M	In-Progress
	I-15 Bus *Rapid* Transit (1201508)	-	-	$34M	Open
	Downtown Multiuse and Bus Stopover Facility (1201514)	-	N/A	$2M	In-Progress
7	I-15 BRT Sabre Springs Parking Structure (1201512)	$9M	$11M	$14M	Open
8	I-805 South 4 Express Lanes (1280501) [4]	$10M	$12M	$28M	Open
9	I-805 North 4 Express Lanes (1280503) [4]	$7M	$8M	$12M	Open
10	South Bay BRT (1280504)	$106M	N/A	$34M	In-Progress
11	*SuperLoop* (1041502)	$52M	$61M	$31M	Open
12	Mid-Coast Light Rail Transit (LRT) (1257001)	$914M	N/A	$229M	In-Progress
13	I-5 North Coast: 4 Express Lanes (1200501)	$37M	$45M	$73M	Open
14	I-5 HOV Extension & Lomas Santa Fe Interchange (1200502)	$60M	$66M	$67M	Open
15	SR 52 2ML: I-15 to SR 125 (1205201)	$192M	N/A	$7M	In-Progress
16	SR 52 Widening (1205202)	$18M	$21M	$36M	Open
17	SR 52 Extension (1205203)	$288M	$331M	$456M	Open
18	SR 76 Middle (1207602)	$195M	$227M	$162M	Open
19	SR 76 East (1207606)	$147M	$189M	$145M	Open
	Original Early Action Projects Total:	**$2,822M**		**$2,468M**	
	Additional 59 Early Action Program Projects Total:			**$1,923M**	

Source: *TransNet* Dashboard (*TransNettrip.com*).

Note: [1] 2005 Project Costs were escalated to the first year in which the Project was open to the public using the Bureau of Labor Statistics' Adjusted CPI for the San Diego Region. [2] Expenditure data is from the *TransNet* Dashboard as of July 31, 2017, for SANDAG and August 30, 2017, for Caltrans. [3] Expenses for the I-15 Middle Segment include project expenses incurred under the initial *TransNet* Program due to the methodology used to track expenditures in the *TransNet* Dashboard. The budget figures in the Exhibit are for the portion of the project that fell under the *TransNet* Extension period. [4] The I-805 Middle EAP project segment was combined with the I-805 South and I-805 North projects.

In addition to the EAP major corridor project segments, the SANDAG Board of Directors also launched a Regional Bike EAP in 2013—a $200 million initiative to expand the bike network countywide and finish high-priority projects within a decade. This involved 40 projects totaling 77 miles of new bikeways.

Roles of Key *TransNet* Partners

While SANDAG is the primary entity responsible for the *TransNet* Program, other entities cooperatively share responsibilities for managing and implementing projects and programs funded through *TransNet*. As shown in Exhibit 3, key *TransNet* partners include Caltrans, Metropolitan Transit System (MTS), North County Transit District (NCTD), and 19 local jurisdictions, although there are a multitude of grantees, non-profits, conservancy groups, and other federal and state agencies that assist the *TransNet* Program.

EXHIBIT 3. ROLES AND RESPONSIBILITIES OF KEY *TRANSNET* PARTNERS

TransNet Independent Taxpayer Oversight Committee (ITOC)

- Independent committee established by the *TransNet* Extension Ordinance representing taxpayer interests which monitors the financial integrity and performance of the *TransNet* Program.

San Diego Association of Governments (SANDAG)

- Regional decision-making body consisting of 18 cities and the county government.
- Charged with administering, planning, implementing, and funding regional transportation programs funded by *TransNet.*
- Responsible for *TransNet* transit capital construction, active transportation, environmental mitigation, and grant programs.

Caltrans

- Statewide government department overseen by a State Transportation Agency and organized into 12 Districts.
- District 11 encompasses the San Diego region and Imperial County.
- Responsible by statutes for highway capital project planning, construction, and maintenance--including *TransNet* projects.

Local City Jurisdictions

- Governed by individual city councils, the local jurisdictions are responsible for overseeing and delivering transportation improvement projects to city residents.
- 18 cities involved with *TransNet* include: Carlsbad, Chula Vista, Coronado, Del Mar, El Cajon, Encinitas, Escondido, Imperial Beach, La Mesa, Lemon Grove, National City, Oceanside, Poway, San Diego, San Marcos, Santee, Solana Beach, and Vista.

County of San Diego

- Governed by a Board of Supervisors, the County oversees and provides transportation improvement projects to residents outside of city incorporated areas.

Metropolitan Transit System (MTS)

- Responsible for service planning, scheduling, and performance monitoring of transit operations.
- MTS is represented by the cities of Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, San Diego, and Santee as well as the County of San Diego.

North County Transit District (NCTD)

- Responsible for service planning, scheduling, and performance monitoring of transportation in Northern San Diego County.
- NCTD is represented by Carlsbad, Del Mar, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista as well as the County of San Diego.

Source: Agency websites, fact sheets, and prior Triennial *TransNet* Performance Audits.

Scope and Methodology

Sjoberg Evashenk Consulting Inc. (Sjoberg Evashenk), was contracted by the SANDAG Board of Directors, acting as the San Diego County Regional Transportation Commission, to conduct the "look-back" component of the independent 10-year review of the performance of the overall *TransNet* Program through June 30, 2017, as well as to evaluate program and project results since 2005—the inception of the *TransNet* Early Action Program. In conducting the review, Sjoberg Evashenk was asked to use existing materials and documentation. Additionally, Sjoberg Evashenk was asked to make recommendations in the form of preliminary options and alternatives for consideration by the SANDAG Board of Directors. These preliminary options are to be considered as part of the "look-forward" component to be conducted separately under the upcoming 2019 Regional Plan to make improvements over the subsequent 10 years and throughout the remainder of the measure. Specifically, Sjoberg Evashenk considered the following:

1. **Evaluation of the performance of the overall program to date by:**
    - Determining whether the allocation of funds for each purpose as provided in Section 4 of the Ordinance will be maintained over the duration of the measure.
    - Providing an analysis of projects completed and underway, what projects remain to be completed, the estimated cost to complete those projects, and the revenues expected to be available over the life of the program.
    - Evaluating use of debt to accelerate projects.
    - Evaluating the leveraging of *TransNet* with state/federal/other matching funds.
2. **Evaluation of the financial capacity of the sales tax revenue to continue implementation of the *TransNet* Extension Ordinance including**:
    - Review of the transition to a pay-as-you-go approach from the EAP format of advancing future sales tax funds through the issuance of bonds.
    - Identification of fiscal challenges and opportunities in implementing the remaining projects and programs under the Ordinance.
    - Evaluation of current project and program revenue assumptions, impact of changes in project scope and construction costs.
3. **Identification of any external policy and/or regulation changes at the local, state, and /or federal levels that may require consideration, such as**:
    - Reporting requirements established through the implementation of the transportation authorization MAP-21 and continued under FAST Act established by USDOT.
    - Funding opportunities established through recent initiatives such as Senate Bill 1 (Beall 2017) or other future funding opportunities or constraints.
    - Potential impact of disruptive transportation technologies. [15]

Appendix A provides the detailed methodology and specific tasks employed on this review.

[15] According to SANDAG, disruptive technologies refer to innovations that may be considered unproven or relatively unknown (e.g., autonomous vehicles), creating a new market and eventually disrupting an existing market and displacing and ultimately supplanting existing technologies.

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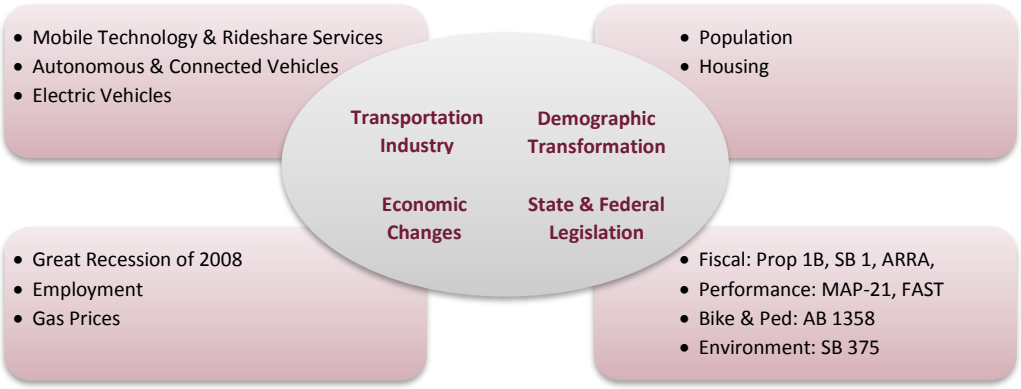
Chapter 1: Changes in the Transportation Landscape

Over the last decade, there were many changes in the transportation landscape related to technology, demographics, economy, and legislation as highlighted in Exhibit 4 and described in the sections that follow.

EXHIBIT 4. KEY CHANGES IN THE TRANSPORTATION LANDSCAPE



Source: Legislative research and SANDAG Info: Demographics in the San Diego Region, January 2016.

Technology Changes

Every day, new technologies are invented that change how people live, travel, and plan for the future. These innovations can "disrupt" the existing transportation network and could ultimately change the existing transportation structure. Over the last decade, the way people move and attitudes about transportation changed and trends emerged with people choosing to walk or bike along with growing concerns about the environment. Concepts such as "complete streets" where transportation modes align to create a safe, accessible, and convenient travel environment are being implemented throughout the nation. When commuting, many use technology to navigate traffic, avoid delays, or find rideshare services as discussed in the bullets that follow.

- ✓ **Mobile Technology and Rideshare Services**
  Over the last decade, the prevalence of smart phones and related technology applications strongly influenced travel choices. People navigated travel using smart phone applications for directions, traffic, and transit passes. Instead of driving their own car, many used smart phone applications to arrange for convenient ridesharing like Uber or Lyft. Instead of buying or using a car, individuals made travel choices on demand using a pay-per-use model. Such technology innovations changed people's travel behavior which impacted the transportation network. Some transportation agencies allowed third-party applications creators access to their data and let the technology experts create new solutions for travelers, while others proposed public agencies should take a larger role to develop integrated technologies to guide mobility. Integrated applications could combine real-time traffic updates, transit schedules, and parking spaces available to help inform commuters of the best options to get around.

- ✓ **Autonomous Vehicles**
  One widely-reported innovation that emerged in recent years is the autonomous vehicle that is driverless and robotic. At least half the states in the United States passed legislation or executive orders related to autonomous vehicles.[16] Autonomous vehicles are already operating legally on some public roadways and being studied in several testbeds—including the San Diego Regional Proving Ground partnership between SANDAG, Caltrans, and the City of Chula Vista. The San Diego region was designated by the U.S. Department of Transportation as a venue to test autonomous and connected vehicles, supporting technology, and innovative methods to transform the movement of people and goods; the proving ground is expected to be operational by January 2018. Although certain advances of technology make this a near-term reality, there are many forces that affect when these technologies might become the new norm such as social attitudes of owning and driving cars, manufacturers producing the vehicles, energy companies support of technology, and government funding.

- ✓ **Connected Vehicles**
  Technology allows vehicle-to-vehicle connections as well as vehicle-to-infrastructure connections. This connectivity can be beneficial when technology in emergency vehicles can "talk" to a traffic signal to maintain a green light longer or when private sector data collectors can deliver traffic data to passenger vehicles or smart phones to shorten commutes. While the technology was available over the last decade, full implementation will rely on identifying funding to purchase new vehicles such as railcars with the specialized probe technology to communicate with a traffic signal as well as for the technology needed inside the traffic signal to receive and process information.

- ✓ **Electric Vehicles**
  Electric vehicles became mainstream using powerful, compact, and efficient batteries and needed charging stations along the transportation network. Currently, SANDAG has proposed investments in areas to support recharging electric buses through wireless, inductive methods at key transit stations and layover locations. Yet, a complete build-out of the charger network would require additional funding and incentives for publicly available charging stations.[17]

Demographic Transformations

Since 2005 when the first EAP project segments under the *TransNet* Extension Ordinance were accelerated for funding, California and the nation have undergone significant demographic changes.

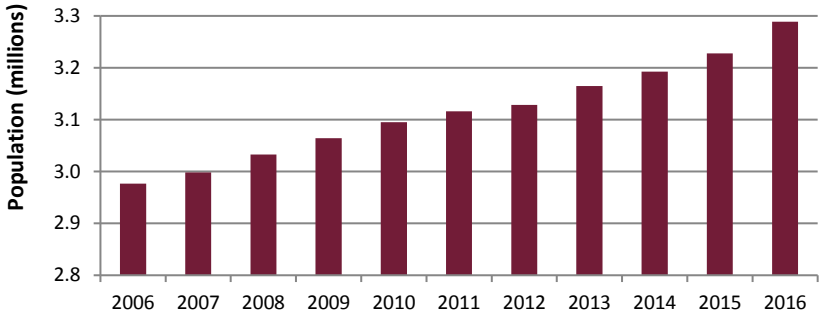
Population

Since 2006, regional population in the San Diego area grew by approximately 10 percent from nearly 3 million residents to approximately 3.3 million in 2016 as shown in Exhibit 5.[18] Today, the San Diego region is growing at a slightly higher rate than the statewide average—a trend that persisted, more or less, over the last decade.[19] The City of San Diego continued to be the largest jurisdiction in San Diego County

[16] National Conference of State Legislatures Research on Autonomous Vehicles, 9/21/2017, page 1.
[17] San Diego Forward: The Regional Plan, Appendix E, Transportation System and Demand Management Programs, and Emerging Technologies.
[18] SANDAG State of the Commute Report, using California Department of Finance statistics.
[19] SANDAG Info: Demographics in the San Diego Region, January 2016, page 3.

with more than 40 percent of the region's total population, and the City of Chula Vista was the second largest city in the region—although San Marcos experienced the fastest growth over the last few years.

EXHIBIT 5. POPULATION GROWTH IN SAN DIEGO REGION, 2006 TO 2016



Source: SANDAG State of the Commute Report, 2015-2016

Housing

Over the last decade, housing fluctuated from the boom in 2006 to the sharp decline and slow recovery since the Great Recession. Between 2010 and 2015, housing in the San Diego region increased approximately 2.2 percent in contrast to the 5 percent growth seen in the years prior to the Great Recession.[20] In terms of housing mix, the region remained relatively unchanged over the decade with single family homes still comprising the majority of the region's housing stock. However, SANDAG expects the future of housing development to diverge from past trends as there will be less opportunity to build new single-family homes throughout the region.

Economic Changes

Each decade has its own set of economic variations, inflationary factors, and fluctuations. Like elsewhere in the nation, San Diego County was significantly impacted by the unprecedented Great Recession of 2008—jobs were lost, unemployment was higher, and fewer people were on the roads. Today, the region is in recovery through a stronger economy. When combined with lower gas prices, the outcome is typically more drivers on the road.

Great Recession of 2008

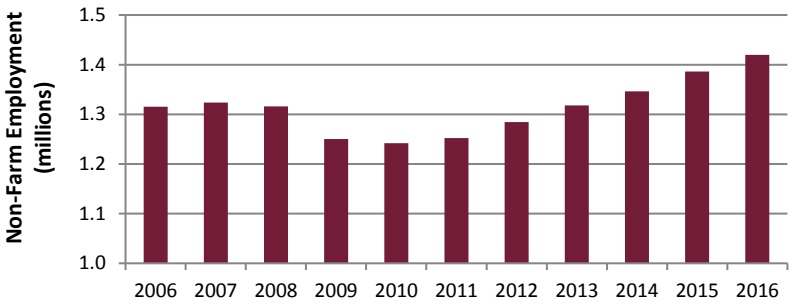
Officially beginning in December 2007, the Great Recession of 2008 did not technically end until June 2009. California experienced record setting job loss, high and long-term unemployment rates, a housing crisis with foreclosures, significant reductions in personal income and wealth, and financial markets in crisis. Combined, these economic factors reduced consumer spending at record levels. For all transportation measures across the state and nation like *TransNet* that were dependent on sales tax revenues, estimated revenues did not materialize. In subsequent years, the economy has grown stronger, but at a slower pace than expected.

[20] SANDAG Info: Demographics in the San Diego Region, January 2016, page 6 and 7.

Employment

Over the last 10-year period, the San Diego region along with the rest of the nation experienced a large decline in employment due to the Great Recession and has slowly rebounded. With the recovery, SANDAG reported that its employment base has been reestablished with cumulative job growth growing more than 7 percent—mostly in the last five years. Refer to Exhibit 6 for regional employment figures from 2006 through 2016.

EXHIBIT 6. REGIONAL EMPLOYMENT, 2006 TO 2016

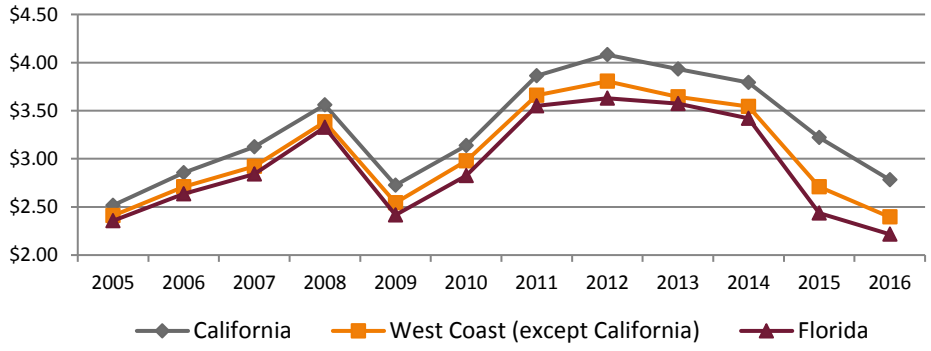


Source: SANDAG State of the Commute Report, 2015-2016.

Gas Prices

Gas prices have a direct correlation with vehicle travel—the lower the price, the more commuters choose to drive. When prices are too steep, some commuters turn to alternate modes of transportation. The U.S. Energy Information Administration collects and disseminates energy information including gasoline prices for the United States and selected states and cities. Gas prices rose between 2005 and 2008, and then experienced a steep drop in 2009 during the Great Recession as shown in Exhibit 7. Prices rose again through 2013, but declined from 2014 through 2016. In all years, California had the highest gas prices out of the comparison regions.

EXHIBIT 7. ANNUAL GASOLINE PRICES FOR ALL GRADES AND FORMULATIONS, 2005 TO 2016



Source: Data from the U.S. Energy Information Administration.

Notes: West Coast data for Annual Gasoline Prices included Alaska, Washington, Oregon, Nevada, Arizona, and Hawaii—but, California data was removed and reported separately.

Legislative Impacts

Over the last decade, legislation both at state and federal levels affected the *TransNet* Program. Some changes surrounded how transit operated or methods of project delivery, while other changes established protections for the environment or provided additional sources of funding. Still other legislation imposed additional requirements on Metropolitan Planning Organizations like SANDAG, including requiring the creation of sustainable community policies and formal performance measurement systems.

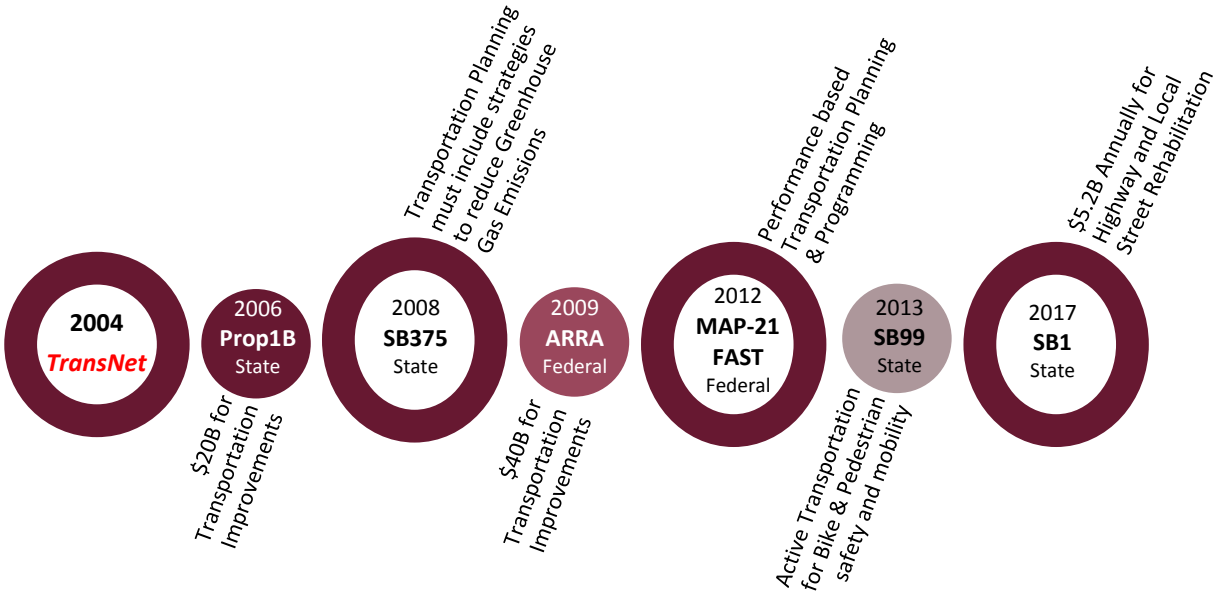
Highlights of Key Federal and State Legislation Affecting *TransNet* and its Partners

Several of the federal laws passed since November 2004 provided significant amounts of additional funding to Metropolitan Planning Organizations like SANDAG for programming in its region—as depicted in Exhibit 8. For instance, one of the larger federal legislative funding packages was the American Recovery and Reinvestment Act (ARRA) of 2009 that provided much needed economic stimulus during the Great Recession of 2008. More recently, the federal Moving Ahead for Progress in the 21st Century (MAP-21) Act and the Fixing America's Surface Transportation (FAST) Act required a new performance and outcome-based program and established nationally consistent metrics in addition to providing funding. Outcome and target measures were stipulated for safety; pavement and bridge condition; system performance, freight, and congestion mitigation and air quality; and asset management.

Moreover, since 2005, numerous state laws impacted the San Diego region's transportation projects affecting fiscal, environmental, construction, bike and pedestrian, and autonomous vehicle areas. These often required changes to the mix of transportation projects, adjustments to project delivery methods and considerations, significant time, and additional resources to implement.

- **Fiscal:** More than 30 state laws over the last decade impacted fiscal aspects of transportation projects—some provided funding for reducing emissions and imposed fees for bicycle projects, while others diverted transportation funds to the state general fund or reduced transit assistance to the San Diego area. Other key funds provided were from Proposition 1B granting nearly $20 billion in bonds for transportation improvements in 2006, Senate Bill 83 authorizing a $10 annual vehicle fee for congestion mitigation in 2009, and Road Repair and Accountability Act (Senate Bill 1) in 2017 projecting an additional $5.2 billion to be available annually for state highways, local maintenance and rehabilitation, and transit.
- **Environmental:** The Legislature enacted a variety of environmental laws touching areas like cumulative impact analysis during tiered environmental impact reports and new environmental guidelines to determine impacts of projects in transit priority areas. One of the more substantial changes was from Senate Bill 375 (2008) requiring transportation plans—such as SANDAG's San Diego Forward: The Regional Plan—to include a Sustainable Communities Strategy that demonstrated how the plan would meet per capita greenhouse emission reduction targets for passenger vehicles in accordance with related statewide legislation, Assembly Bill 32, the Global Warming Solutions Act.

EXHIBIT 8. KEY FEDERAL AND STATE LEGISLATION IMPACTING *TRANSNET* SINCE NOVEMBER 2004



Source: Legislative research and specific statutes pertaining to related laws passed.

- **Construction:** While many of the fiscal and environmental laws proved more broad-sweeping, numerous pieces of legislation directly impacted construction projects and were specific to rail or transit projects. For instance, new state laws passed pertain to prevailing wage requirements for construction and post-construction phases on local public works projects, transit operator use of design-build delivery method, and use of the Construction Manager/General Contractor procurement method.
- **Transit:** In addition to specific transit funding authorized, there was a handful of other legislation passed during this period specific to transit-related bus operations such as employee pensions and advertising exemptions, management of intercity passenger rail service on the Los Angeles-San Diego-San Luis Obispo (LOSSAN) corridor, and bus purchase exemptions from axle weight limits.
- **Bike and Pedestrian:** State legislation also addressed bike and pedestrian needs. In 2008, Assembly Bill 1358 required that local governments plan a multimodal network for safe travel for people biking and walking, and others. Moreover, sweeping legislation in 2013 created the Active Transportation Program within Caltrans. This program provided funding to increase frequency of trips, safety, and mobility for non-motorized users and achieve greenhouse gas reduction goals.

Chapter 2: *TransNet* Accomplishments

As stated in the *TransNet* Extension Ordinance, sales tax revenues received must be used to improve transportation facilities countywide in a manner consistent with the long-range Regional Transportation Plan (now called San Diego Forward: The Regional Plan) and the shorter-term Regional Transportation Improvement Program. Further, *TransNet* called for the delivery of projects that would provide congestion relief, improved safety, and enhanced services for seniors that aligned with the San Diego Forward: The Regional Plan's goals to employ innovative mobility, create a vibrant economy, and support healthy environments and communities. Based on data available, *TransNet* improved transportation facilities across a wide-range of modes and project types. Nearly $4.4 billion was invested in hundreds of completed and in-progress projects that provided additional freeway lanes, improved pavement conditions, facilitated transit services for the elderly, mitigated impact on habitats resulting from transportation projects, and more.[21]

Transportation improvements addressed challenges related to congestion and safety, and the San Diego region performed favorably in a variety of performance areas.

Additionally, while a region's performance is affected by many external factors including population, economy, and gas prices, it appears that transportation improvement efforts in the San Diego region addressed some of the challenges related to congestion, safety, and infrastructure condition. Moreover, when compared to other regions, the San Diego area performed favorably in a variety of performance areas as discussed in the sections that follow.

Summary Accomplishments to Date

Because *TransNet* is only a portion of the various federal, state, and other local funding sources, the impact of *TransNet* alone cannot be isolated to measure performance. Rather, SANDAG worked in collaboration with its *TransNet* partners—Caltrans, MTS, NCTD, and local jurisdictions—with efforts funded through variety of sources to deliver its capital program. Moreover, performance can be influenced by both internal and external factors. Internal factors may include how *TransNet* partner agencies operated a service, constructed a project, or made policies related to the various modes of transportation. Yet, equally important, are the external factors that significantly influence performance such as the economy, housing, employment, population, technology, gas prices, and user preference.

When the *TransNet* Extension Ordinance was passed in 2004, a tracking structure was not established to capture and summarize a comprehensive list of project accomplishments such as quantity of new lane miles, potholes filled, new bike paths, and transit stop improvements. Because *TransNet* did not have a comprehensive inventory available, it is probable that the program has realized more than can be measured. That said, consistent with SANDAG Board of Directors direction to use existing materials and

[21] Data from *TransNet* Quarterly Financial Report, Quarter 4, June 30, 2017 and *TransNet* Dashboard.

documentation, we gathered available documents and database information in an attempt to identify and quantify accomplishments and performance data.[22]

From this data, *TransNet* results show improved transportation facilities across a wide-range of modes and projects in addition to strong performance as summarized in Exhibit 9.

***TransNet* results show improved transportation facilities across a wide-range of modes in addition to strong performance.**

EXHIBIT 9. SUMMARY OF ACCOMPLISHMENTS BY *TRANSNET* AREA

TransNet Area	Accomplishment
Highways-Major Corridors (Managed Lanes Included)	✓ More than $2.9 billion invested in Highway Improvements ✓ 23 segments completed ✓ Commute time for majority of San Diegans was less than 30 minutes ✓ Collisions and collisions resulting in fatalities decreased
Transit-Major Corridors	✓ More than $1.5 billion invested in Transit Capital Improvements ✓ 25 projects completed
Transit Service	✓ Approximately $344 million dedicated to improving transit services ✓ Annual transit ridership rose to nearly 105 million from 94.5 million a decade ago ✓ Transit operator services were on-time between 84 percent and 99 percent depending on the mode and service provided
Local Street and Road	✓ More than $714 million dedicated for the Local Street and Road Program ✓ More than 136 projects completed ✓ Pavement was generally in good condition
Environmental Mitigation Program	✓ More than $222 million invested in project mitigation and habitat conservation ✓ $120 million in land acquisition savings achieved due to favorable land prices during recession ✓ More than 8,900 acres of land acquired
Grants – Senior Mini	✓ More than $14.7 million awarded through 69 grants ✓ Nearly 1.5 million one-way rides provided ✓ Trained 9,300 seniors on using transit services
Grants – Smart Growth	✓ Nearly $31.8 million awarded through 43 grants
Grants – Active Transportation	✓ More than $30 million awarded through 77 grants
Bike Early Action Program	✓ $200 million dedicated to improving bikeways ✓ Bike commuters increased 25 percent since 2006 from 8,000 to 10,000 bike riders annually

Source: *TransNet* Story Map, grant status and update reports, *TransNet* Quarterly Financial Reports, *TransNet* Dashboard, fact sheets, internal SANDAG tracking spreadsheets, and databases maintained by external state and federal agencies.

[22] Data from different systems was not consistently available across the same timeframe and was not validated with source documents. While we tried to retrieve data from 2005 forward when the EAP started, some data years were not available. Thus, the initial year of performance data presented in analyses in this chapter is the earliest year that data was available and may vary depending on performance metric measured. Other data such as expenditures and project completion were pulled from the *TransNet* Dashboard that was validated in a prior *TransNet* Triennial Performance Audit in 2008.

Delivering on the Early Action Program

As described in the Introduction and Background of this report, the Early Action Program (EAP) was created to accelerate 19 major corridor capital construction project segments.[23] Based on data available, results showed that the various *TransNet* partners delivered on the EAP as planned for the first 10 years of the measure with most of the EAP project segments completed and many planned accomplishments realized by the various *TransNet* partner agencies. Highway corridor improvements included the addition of high-occupancy vehicle (HOV) lanes, new and improved interchanges, and direct access ramps, while transit improvements included addition of the SPRINTER rail and COASTER rail service, modernized and expanded Trolley service, and added capacity to existing rail service as shown in Exhibit 10. Moreover, several bike projects improved connectivity for the more than 1,300 miles of bikeways in the region.

EXHIBIT 10. SUMMARY OF *TRANSNET* CAPITAL CONSTRUCTION PROJECT SEGMENT ACCOMPLISHMENTS TO DATE [24]

TransNet Area	Number of Projects Completed (CIP Level)	Number of Remaining Projects (CIP Level)	Accomplishments to Date	Capital Expenditures to Date
Major Corridor Capital Construction-Highways [25]	23	12 In-Progress	✓ 44.8 managed lane miles added or improved (24 express, 20.8 HOV) ✓ 39.6 general purpose miles added or improved (38.2 highway, 1.4 auxiliary) ✓ 21 new lanes ✓ 9 highway interchanges/connectors and DARs ✓ 1 *FasTrak* facility	$2.9 billion
Major Corridor Capital Construction-Transit [26]	25	18 In-Progress	✓ 101 transit revenue miles added ✓ 35 upgraded stations ✓ 47 enhanced transit stops ✓ 94 new vehicles (includes 65 light rail vehicles) ✓ 5 transit stations and 1 Park & Ride ✓ 1,047 parking spots and 20 bus bays ✓ 1 expanded bus maintenance facility ✓ 16.6 railway miles and 3 railway bridges ✓ 4 pedestrian crossings/rail crossovers ✓ 2 railway track extensions	$1.5 billion
Bike EAP	3	24 In-Progress 1 Not started	✓ 2.7 bikeway miles open to traffic since the Bike EAP was approved in late 2013.	$59 million

Source: *TransNet* Dashboard Ad-hoc reports: Projects by Fund Source as well as by Regional Bikeway Program.
Notes: In-Progress includes projects in the following phases—design, environmental, bid/advertise, and under construction.

[23] SANDAG Board Agenda, December 19, 2005. The Board initially approved 22 Early Action Program project segments, but three projects were merged with other projects for a new total of 19 initial EAP project segments.
[24] Accomplishments include activities such as capital construction project segments completed and open to traffic, infrastructure built, and transit service added through capital construction efforts and transit vehicle purchases.
[25] One Direct Access Ramp was included in the Major Corridor Capital Construction – Transit projects, but was counted under Highway.
[26] One transit station and the park & ride was included in Major Corridor Capital Construction - Highway projects, but was counted as Transit.

In addition to the initial SANDAG Board-approved EAP project segments, there were additional EAP project segments subsequently approved by the SANDAG Board of Directors consistent with *TransNet* Extension Ordinance provisions (see Appendix B for full listing) for a total of 78 EAP project segments. Of the 78 EAP project segments, 48 have been completed as summarized in Exhibit 10. Of the remaining 30, nearly all are currently in-progress and set to be delivered by 2027. Exhibit 10 summarizes *TransNet* capital construction accomplishments that have been tracked to date. Further, a Regional Bike Plan EAP was created in 2013; as such, most of those segments are expected to be delivered by 2025. As the *TransNet* Program continues to evolve over the next 30 years, additional project segments will be developed and implemented to address the transportation needs of the region.

Congestion Relief

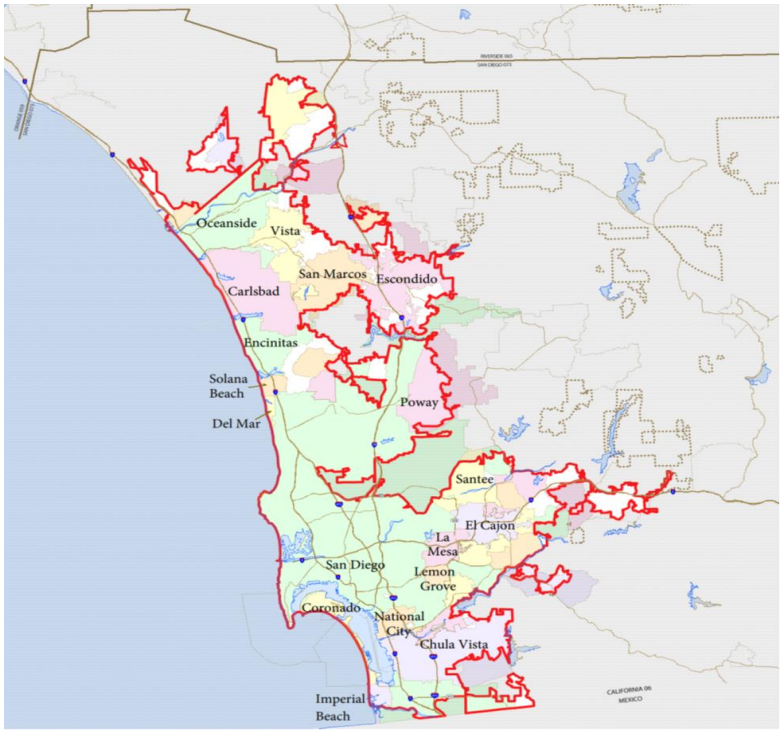
One of the goals of *TransNet* is to provide congestion relief. Similarly, the San Diego Forward: The Regional Plan's focus is on improving mobility through reduced travel time and less delay.[27] SANDAG used Caltrans' Performance Measurement System (PeMS) database to capture traffic indicators that relate to highways only—not for congestion on local streets and roads. The highway results were reported in SANDAG's annual State of the Commute reports that described congestion relief performance for systemwide and specific corridors of interest. Recently, SANDAG received access to real-time traffic data from an external vendor called Inrix. This data covers most of the San Diego region and allows for data collection and analysis at the local street and road level. However, with the significant volume of data, additional staff resources may be needed to analyze the information and determine how it can be used for transportation planning and performance monitoring.

Regional Comparisons

To compare San Diego's performance with others in the California and nation, we used U.S. Census data to identify similarly populated Urbanized Zone Areas (Urbanized Areas) as described in Appendix A. Urbanized Areas are U.S. Census-designated land areas consisting of a central core and adjacent to densely settled territory that together contain at least 50,000 residents. San Diego's Urbanized Area is shown in Exhibit 11.

[27] San Diego Forward: The Regional Plan has other measurements of improving mobility such as commute mode share and annual transit boardings—these indicators are discussed and analyzed in Chapter 3 on Alternate Modes of Transportation.

EXHIBIT 11. MAP OF SAN DIEGO URBANIZED AREA USED FOR PERFORMANCE ANALYSIS



Source: U.S. Census MAP/TIGER Database (Tab 10), Map Created by Geography Division 3/11/12.

Comparison areas to San Diego were selected based on population and other factors such as proximity, coastal environment, and tourism destinations as summarized in Exhibit 12. Using performance data available, San Diego Urbanized Area results were compared to other comparison regions since 2006 when the EAP started through 2015 or 2016—depending on the most recent year data was available.

EXHIBIT 12. COMPARISON AREAS SELECTED FOR CONGESTION RELIEF PERFORMANCE COMPARISON

Urbanized Area	Population	Area In Square Miles	Population Density (Capita per Square Mile)	Other Similarities to San Diego Region
Las Vegas-Henderson, Nevada	2,090,708	417	5,014	• Tourism
Riverside-San Bernardino, California	2,073,652	545	3,805	• Proximity
San Diego, California	**3,172,773**	**732**	**4,334**	
San Francisco-Oakland, California	3,529,790	524	6,736	• Tourism • Coastal
Seattle, Washington	3,387,102	1,010	3,354	• Tourism • Coastal
Tampa-St. Petersburg, Florida	2,663,845	957	2,784	• Tourism • Coastal

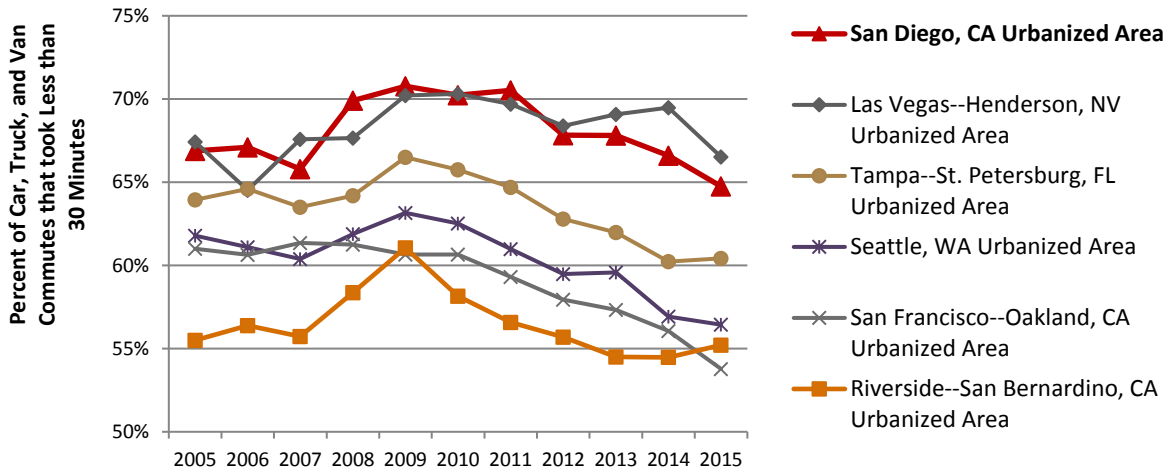
Source: 2016 U.S. Census American Community Survey estimates.

Commute Time

Data produced by the U.S. Census American Community Survey estimated the commute times for cars, trucks, and vans in each of the Urbanized Areas between 2005 and 2015 as summarized in Exhibit 13. The general trend was a rise in commute times from 2005 through 2009, then trending down to 2005 levels or lower by 2015. In 2009, when the economy was in recession, the shorter commute times were likely due to fewer drivers on the road during commute hours. The area with the longest average commute time was the San Francisco–Oakland, California area, with fewer than 55 percent of commutes taking less than 30 minutes. Overall, in comparison to other areas, the San Diego Urbanized Area has a larger share of commute times under 30 minutes, at about 65 percent in 2015—meaning that San Diego's commute times were among the lowest.

Overall, in comparison to others, the San Diego Urbanized Area had shorter commuter times than other comparison areas.

EXHIBIT 13. AVERAGE COMMUTE TIME TRENDS AS COMPARED TO OTHER AREAS, 2005 TO 2015



Source: U.S. Census American Community Survey data.

Hours of Delay per Capita

According to the 2015 Urban Mobility Scorecard produced by the Texas A&M Transportation Institute, improvements in the national economy seen in recent years unfortunately came with worsening congestion—a trend seen in urban areas of all sizes. The most recent report compiled travel time over the year and then divided this data by the number of people commuting in private vehicles in each urbanized area to arrive at an average delay per auto commuter. Results showed the San Diego Urbanized Area ranked the lowest or near the lowest out of the six comparison areas in 2005 and 2015—meaning that San Diego had one of the lowest delays per auto commuter compared to the other regions as shown in Exhibit 14.

According to Texas A&M Transportation Institute, the San Diego Urbanized Area ranked near the lowest out of six comparison areas for delay per auto commuter.

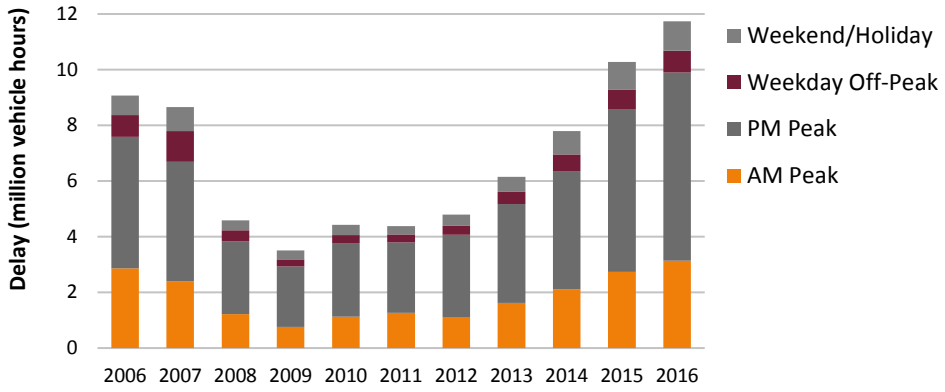
EXHIBIT 14. CHANGE IN RANK IN DELAY PER AUTO COMMUTER FOR COMPARISON AREAS, 2005 AND 2015

Urbanized Area	Rank in Most Delay Per Auto Commuter 2005	Rank in Most Delay Per Auto Commuter 2015
Las Vegas-Henderson, Nevada	6	4
Riverside-San Bernardino, California	3	3
San Diego, California	**2**	**5**
San Francisco-Oakland, California	1	1
Seattle, Washington	4 (tie)	2
Tampa-St. Petersburg, Florida	4 (tie)	6

Source: Texas A&M Transportation Institute Urban Mobility Scorecard, 2007 and 2015.

Looking at just the San Diego County region, trends showed delays in the morning commute were nearly the same in 2016 as it was in 2006—although the afternoon commute peak delay showed sharp increases of approximately 43 percent from 4.7 million vehicle hours in 2006 to 6.7 million vehicle hours in 2016, as shown in Exhibit 15.

EXHIBIT 15. TOTAL ANNUAL FREEWAY DELAY, 2006 TO 2016



Source: 2015-2016 State of the Commute Report as generated by SANDAG using Caltrans' Performance Measurement System (PeMS).

Regional Safety

Another important goal of both *TransNet* and San Diego Forward: The Regional Plan relates to safety in the region. Not only are collisions most important from a life perspective, but also these events disrupt mobility on the regional roadways. When comparing historical levels of safety reported in the region for the system as a whole, including highways and local streets and roads, results showed a slight decline in fatalities and collisions since 2008.

Regional Comparisons

Because of the challenges associated with mining safety data from other states, we compared San Diego County's performance with other counties within the state selected as described in Appendix A. To have some consistency between performance comparisons, we selected the California counties that were

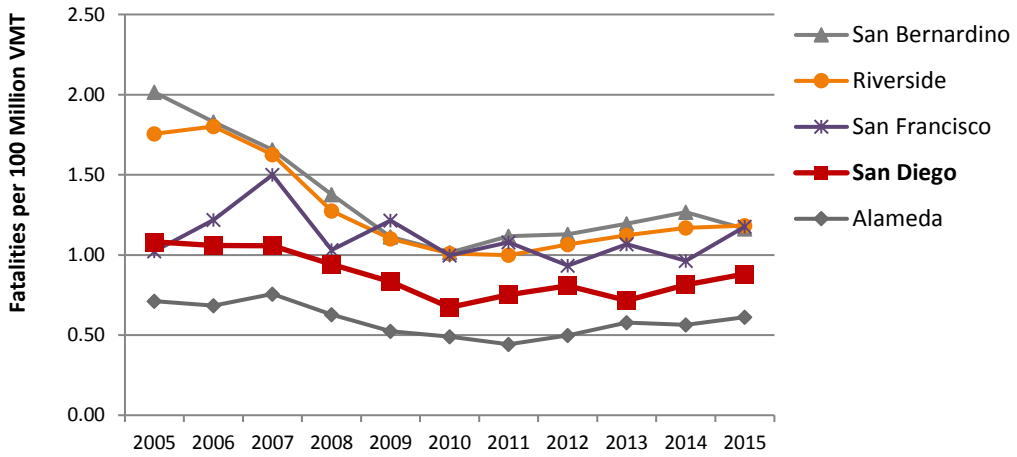
categorized within the three California U.S. Census Urbanized Zone Areas used for comparing congestion relief performance indicators. Using the California Highway Patrol's Statewide Integrated Traffic Records System (SWITRS), we compared San Diego County's safety with Alameda (Oakland), Riverside, San Bernardino, and San Francisco counties with results shown in the sections that follow.[28]

Fatalities

Fatalities are a commonly used measure of roadway safety by state departments of transportation. As shown in Exhibit 16, San Diego's fatality rate was among the lowest of the five comparison regions although there was a reported increase since 2013. The general trend for all comparison regions reflected a decline in fatalities per 100 million vehicle miles of travel (VMT).[29] Specifically in San Diego County, the fatality rate per 100 million VMT decreased 18 percent from 1.08 in 2005 to 0.88 in 2015.[30] There was only one county with an increased rate, San Francisco. While there was a general decline over the entire period, the trends also showed that the decline was most dramatic around the time of the recession between 2008 and 2010, and rates slowly increased subsequently between 2011 and 2015. San Diego County had the second lowest rate of fatalities per 100 million VMT over the entire period.

According to the California Highway Patrol's Statewide Integrated Traffic Records System, fatality rates in San Diego County decreased 18 percent from 2005 to 2015.

EXHIBIT 16. COLLISIONS THAT RESULTED IN AT LEAST ONE FATALITY PER 100 MILLION VMT, 2005 TO 2015



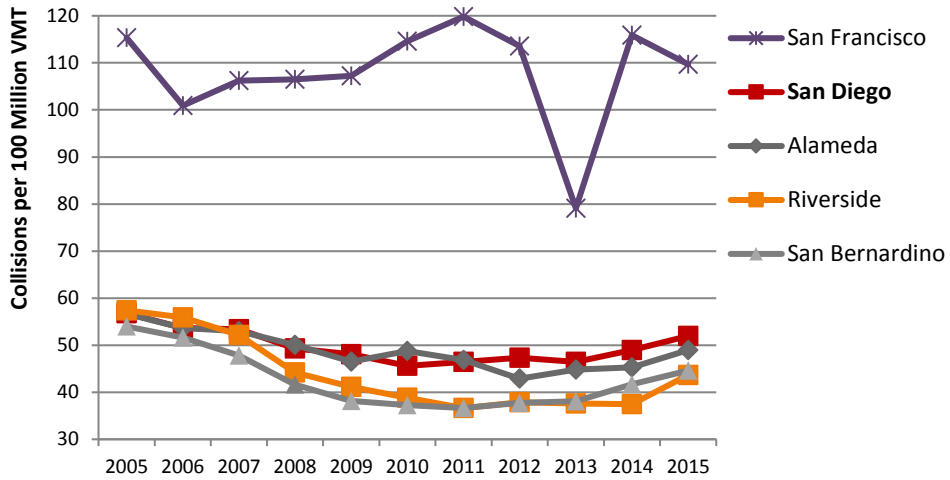
Source: Caltrans Public Road Data reports 2005-2015 and California Highway Patrol Statewide Integrated Traffic Records System.
Note: Collison data includes statistics for severity 1.

[28] SWITRS data by county includes all local city incidents reported as well.
[29] Vehicle miles of travel (VMT) is a measure of the number of miles traveled by vehicles in a region over a period of time. VMT is determined by either actual odometer readings or by estimated modeling calculations.
[30] This statistic is used to "normalize" data with the assumption that more miles of travel results in more changes for collisions. Normalizing also allows for better comparisons with other regions. For instance, in 2015, San Diego reported 251 fatalities that look worse than the 38 fatalities reported by San Francisco. Yet, when data is normalized, the result shows fatalities were fewer per 100 million miles of travel in San Diego at 0.88 versus San Francisco at 1.18.

Collisions

Another measure considers all collisions that result in injury.[31] Most comparison areas, including San Diego County, had fewer collisions per 100 million VMT in 2005 compared to 2016 in Exhibit 17. Specifically, San Diego had 57 collisions resulting in injury per 100 million VMT in 2005 and only 52 in 2016—about 9 percent fewer.

EXHIBIT 17. TOTAL COLLISIONS PER 100 MILLION VMT FOR CALIFORNIAN COMPARISON COUNTIES, 2005 TO 2015



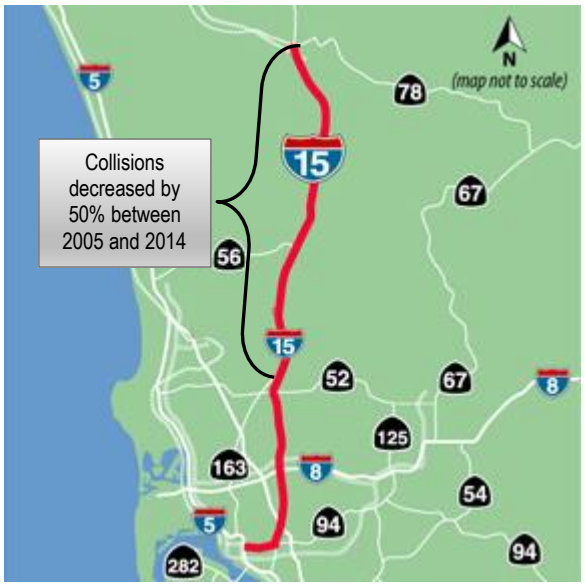
Source: Caltrans Public Road Data reports 2005-2016 and California Highway Patrol Statewide Integrated Traffic Records System.
Note: Collison data includes statistics for severity 1 through 4.

Additionally, we examined Caltrans-provided data for collision activity along two highway corridors where *TransNet* improvement projects were delivered (I-15 and I-805) for three years prior to the *TransNet* improvement project start and three years after the project was completed (where data was available) to gauge whether the rate of collisions improved or declined in the area. While the specific project improvement can influence roadway safety, many other factors come into play, including population, vehicle technology, and driver skill. As shown in Exhibit 18, for the I-15 between Escondido and the SR 52 where managed lanes were added by 2012, collisions decreased by 50 percent between 2005 and 2014. By contrast, collisions on I-805 between SR 94 and East Naples Street in Chula Vista, where HOV lanes opened to traffic in 2014, increased 35 percent between 2009 and 2014.

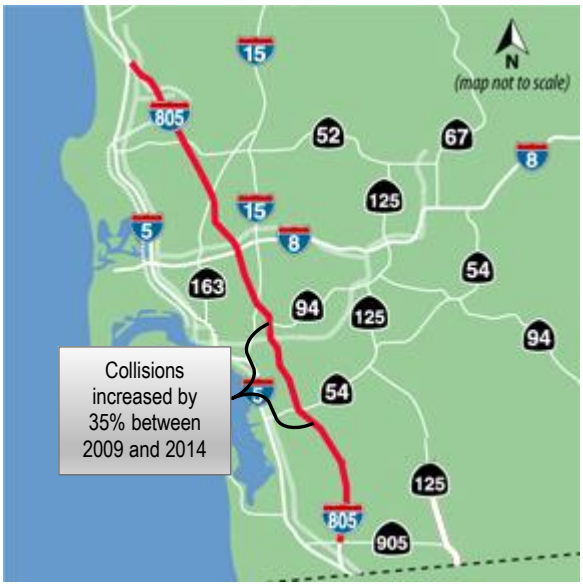
[31] Does not include collisions resulting in property damage only.

EXHIBIT 18. CHANGE IN COLLISIONS ALONG CERTAIN CORRIDORS WHERE *TRANSNET* IMPROVEMENTS WERE DELIVERED

I-15



I-805



Source: Collision Data provided by Caltrans.

Infrastructure Condition

Another measure of the investment of *TransNet* dollars is the improvement in roadway and bridge condition allowing for safe and free-flow travel to help address congestion.

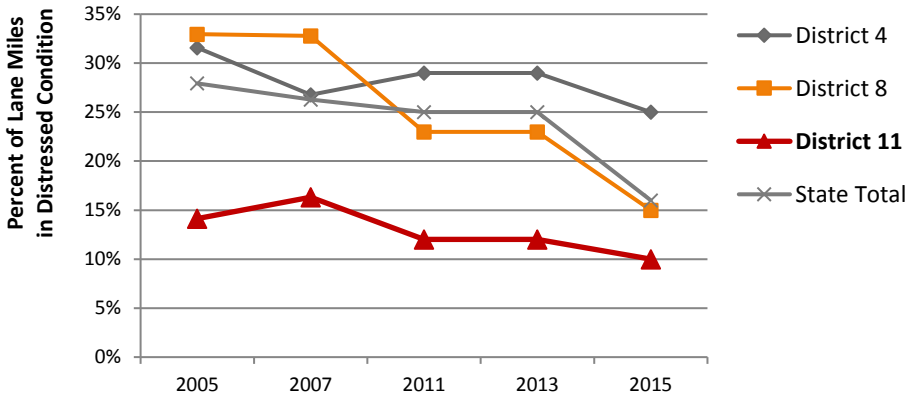
Highway Pavement Quality

While *TransNet* did not provide funds specifically for rehabilitation on the State Highway System, the new highway improvements funded by *TransNet* impacted the average overall pavement condition. Pavement condition can be assessed using a variety of methods, and Caltrans captured the condition of pavement on California's highways for each of its twelve districts in terms of major or minor distress and ride quality in its State of Pavement reports. These reports categorized roads into three main groups to highlight differences in repair, maintenance, or replacement needs and costs—good condition requiring only routine preventative maintenance, fair condition requiring corrective maintenance, and poor or "distressed" condition requiring preventative overlay maintenance or full rehabilitation and replacement. We compared Caltrans' District 11 pavement condition for the combined San Diego/Imperial county region with two other Caltrans districts that encompassed regions used as comparison areas for other performance measures in this report. See Appendix A for selection methodology.

Since 2005, the percent of highway pavement in distressed condition in the San Diego region has dropped from 14 percent in 2005 to less than 10 percent in 2015.

Since 2005, the percent of highway pavement in distressed condition for District 11 where San Diego is located dropped from 14 percent in 2005 to just less than 10 percent in 2015. In fact, this trend followed the statewide average of fewer highways in distressed condition during the 10-year period as shown in Exhibit 19. Notably, District 11, which contains San Diego County and Imperial County, had the lowest percent of distressed miles over the entire period—meaning that the San Diego region's pavement quality was better than the comparison areas over the period measured. Comparisons to other areas outside of California cannot be made since those areas use a different methodology to assess roadway condition than California.

EXHIBIT 19. PERCENT OF DISTRESSED HIGHWAY PAVEMENT CONDITION IN CERTAIN CALTRANS DISTRICTS, 2005 TO 2015



Source: Caltrans State of Pavement reports, 2005 through 2015. Reports published biennially except for 2009.

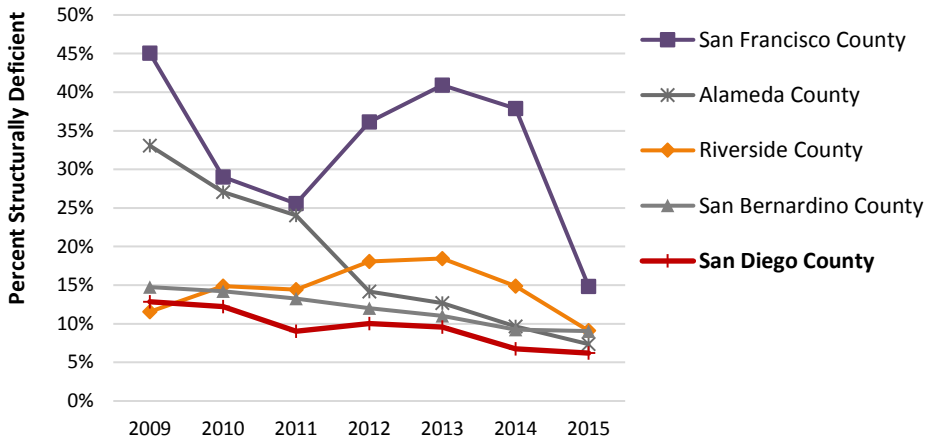
Note: District 4 includes the counties of Sonoma, Napa, Solano, Marin, Contra Costa, San Francisco, Alameda, San Mateo, and Santa Clara. District 8 includes counties San Bernardino and Riverside. District 11 includes the counties of San Diego and Imperial.

Bridge Condition

Multiple entities collected bridge condition data in San Diego County with each entity responsible for assessment of its respective system. This data was reported to the U.S. Department of Transportation's Bureau of Transportation Statistics through the National Bridge Inventory database, and included ratings of deck, superstructure, and substructure conditions in addition to scores for the overall designation of "in good repair" or "structurally deficient." In San Diego County, the percent of bridges rated structurally deficient decreased from 13 percent in 2009 to 6 percent in 2015 across approximately 1,500 bridges. As shown in Exhibit 20, while most of the comparison areas also realized a decrease in structurally deficient bridges in their areas, the San Diego region ranked lowest—meaning that its bridges were in better condition than the comparable areas.

Compared to other regions, bridges in San Diego County are in better condition, showing improvement between 2009 and 2015.

EXHIBIT 20. PERCENT OF BRIDGE DECK AREA CONSIDERED STRUCTURALLY DEFICIENT BY COMPARISON AREA, 2009 TO 2015



Source: U.S. Department of Transportation's Bureau of Transportation Statistics, National Bridge Inventory.

Local Street and Road Program

Local streets and roads feed the highway system, provide paths for transit, and provide neighborhood-level transportation access. *TransNet* set aside 29.1 percent of sales tax increment collections to fund improvements on the region's approximate 7,800 center line miles of local streets and roads. Specifically, the *TransNet* Extension Ordinance stipulated that local jurisdictions propose a variety of congestion relief and maintenance projects through the biennial Regional Transportation Improvement Program to "program" the *TransNet* money and to commit other state, federal, and local funds allocated.

Over the last 10 years, more than $714 million was provided to local jurisdictions for their streets and roads projects. By leveraging *TransNet* with other state and federal monies, local jurisdictions completed more than 136 projects that included a variety of capital construction and maintenance projects such as widening roads, creating bike trails, adding sidewalks and bike lanes, filling potholes, installing street lights, synchronizing traffic signals, and resurfacing streets.

Local jurisdictions received more than $714 million from *TransNet* and completed more than 136 projects including widening roads and repairing potholes.

The two largest jurisdictions—the City of San Diego and San Diego County—provided statistics related to outputs from *TransNet*-funded projects. Specifically, since 2013, these two jurisdictions filled more than 162,000 potholes, added or improved more than 224 bike lane miles, and installed or repaired more than 470 miles of sidewalk as shown in Exhibit 21. Many more improvements were completed in the past 10 years; however, the unavailability of individual data from all local jurisdictions prohibited adequate acknowledgment of all accomplishments of the *TransNet* Local Street and Road Program.

EXHIBIT 21. EXAMPLE LOCAL JURISDICTION OUTPUT DATA (SINCE 2013)

	Bike Lanes Added or Improved	Potholes Filled	Sidewalks Repaired	New Sidewalks Installed
City of San Diego	Nearly 216 miles	More than 162,000	More than 554,000 ft^2	Nearly 1,900,000 ft^2
County of San Diego	More than 8 miles	Data not Available	More than 5 miles	

Source: Data provided by City of San Diego and County of San Diego.

Local Street and Road Pavement Quality

Given the lack of local street and road performance outcome measures and data to demonstrate congestion relief improvements and greater mobility, local street and road performance outcome communication was limited to the reporting of road quality. A typical measure of road quality is the Pavement Condition Index (PCI) initially developed by the U.S. Army Corps of Engineers. This measure rates pavement distress with scores ranging from 0 (failed) to 100 (perfect) as shown in Exhibit 22. Points are deducted from 100 for distress such as cracking, rutting, and other distortions. Thus, the higher a PCI score, the better average road condition.

EXHIBIT 22. TYPICAL PAVEMENT CONDITION INDEX RANGES

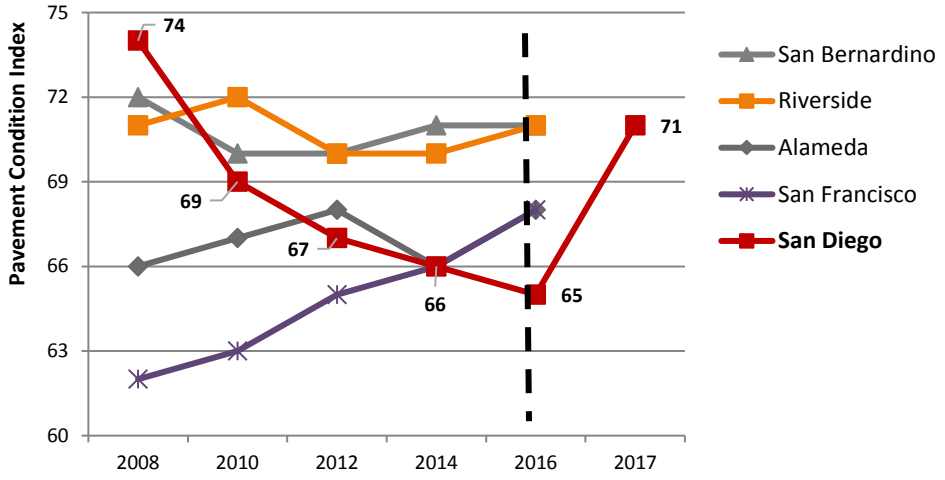
Source: California Statewide Local Street and Road Needs Assessment Report 2016.

Since 2008, the League of California Cities prepared its biennial California Statewide Local Street and Road Needs Assessment Report showing PCI ratings for all California counties. As shown in Exhibit 23, the average PCI for roads in all cities within San Diego County dropped by 12 percent from 2008 to 2016—from a score of 74 indicating a good condition to a score of 65 in the at-risk condition range. While other regions selected for comparison stayed relatively even across the period, the City and County of San Francisco improved while San Diego County's roads declined overall. In fact, the roads in San Diego County had the highest PCI score in 2008 among comparison areas, but the lowest rating in 2016.

San Diego County's average pavement condition had dropped 12 percent from 2008 to 2016. Yet, increases will likely be realized in 2017 with the improved condition of the City of San Diego's roads which comprise nearly 38 percent of the region's roadways.

Because roads and streets within the City of San Diego's limits account for nearly 38 percent of all roads in the San Diego County region, a change in the City of San Diego's pavement condition greatly impacts any summarized data for the region. In fact, the City of San Diego recently invested significant *TransNet* resources and other funding sources to improve its roadways and reported an increased PCI of 71 in 2017 based on road condition survey results conducted in 2016. Given that the City of San Diego has a large percentage of the roadways in the San Diego County, an increase in PCI for the City of San Diego will positively reflect on the overall PCI for San Diego County.

EXHIBIT 23. YEARLY AVERAGE PAVEMENT CONDITION INDEX FOR CALIFORNIA COMPARISON COUNTIES, 2008 TO 2017



Source: California Statewide Local Street and Road Needs Assessment reports, City of San Diego Pavement Survey Response.

Note: 2008 to 2016 data represents the California Statewide Local Street and Road Assessments' report years. 2017 Data was not available for the other counties. City of San Diego data was added to show the positive change from 2016.

Individual Local Jurisdiction Pavement Survey Results

To capture pavement condition at each local jurisdictional level, we surveyed the 19 local jurisdictions to gauge the PCI number beginning with 2004 (prior to the passage of *TransNet*) through the most recent available year of assessment.[32] While not all jurisdictions used *TransNet* funds to maintain their roadways, pavement condition gives some indicator of performance in the Local Street and Road Program. For example, the City of Chula Vista and San Diego County chose to use *TransNet* funds to leverage capital construction projects aimed at relieving congestion, and not for pothole repair or other road maintenance activities.

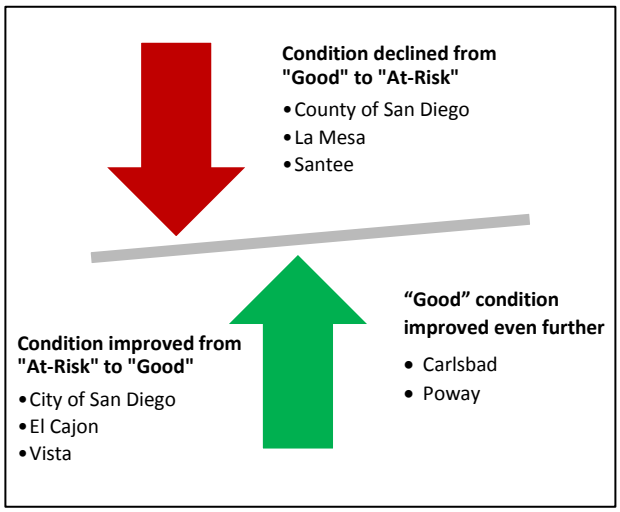
Based on survey data received from 14 local jurisdictions, the average current PCI for the San Diego region was 71, which is considered a "good" condition. This number differed from the results presented by the California Statewide Local Street and Road Assessment in its 2016 report due to timing of the City of San Diego reported data. In the statewide report, the City of San Diego's road condition was categorized as "at-

[32] The following local jurisdictions did not respond to the survey— Del Mar, Imperial Beach, National City, and Solana Beach.

risk," thus lowering the overall index for the San Diego region. However, the report did not include data from the last pavement condition survey conducted by the City in 2016 which rated the City of San Diego's PCI at 71.[33]

Pavement is considered in "Good" condition for most of the San Diego region.

EXHIBIT 24. PAVEMENT CONDITION: 2004 AND 2017



In addition, for eight jurisdictions where "2004" data was available and provided in survey results, pavement condition improved for five jurisdictions and declined for three jurisdictions as shown in Exhibit 24. The most dramatic change occurred for San Diego County where the PCI dropped from 81 in 2003 to 61 in 2017. By contrast, the City of San Diego reported a PCI increase from 62 in 2003 to 71 in 2017.

Environmental Mitigation Program

Part of the *TransNet* Extension Ordinance called for $850 million to fund ***mitigation*** of the direct environmental impacts related the *TransNet* capital construction projects and regional habitat ***conservation*** of habitat and endangered species. In essence, the Environmental Mitigation Program (EMP) focused on acquisitions, restoration, management, and monitoring. Since 2008, SANDAG spent a total of $222 million on this program—$159.2 million at the regional level for mitigation through the acquisition of land, restoration of that land as needed, and management and monitoring of the habitat on those acquired lands. Additionally, SANDAG spent another $12.8 million on local land acquisitions and $49.8 million of regional habitat conservation activities.

Many Acres Were Acquired for Mitigation

To date, the *TransNet* EMP acquired 34 land parcels comprising nearly 3,500 land acres.[34] As part of the EMP efforts, SANDAG and Caltrans worked together with state and federal agencies to acquire lands for mitigating capital construction impacts early in *TransNet*'s lifecycle so project mitigation packages could be submitted and approved.

Over the last decade, the *TransNet* EMP acquired 34 land parcels comprising 3,500 land acres, and realized $120 million in savings on these acquisitions.

[33] City of San Diego reported pavement condition using an Overall Condition Index (OCI), which is similar to PCI but includes an assessment of pavement roughness.
[34] Refer to the *TransNet* Story Map for listing of 34 land parcels acquired http://www.transnetmap.sandag.org.

While 151 percent of the expected acreage was acquired as shown in Exhibit 25, SANDAG struggled to meet the expected acquisition of wetlands due to limited opportunities for acquiring coastal wetlands to meet regulatory requirements given the arid nature of the San Diego region and limited opportunities to restore land in the coastal zone. To meet its promises and requirements towards coastal wetlands, SANDAG is collaborating with state and federal agencies to implement a mitigation strategy.

EXHIBIT 25. PERCENT OF LAND ACQUIRED FOR MITIGATION

	Habitat Types (Post-Mitigation)			
Habitat Acres	Coastal Wetlands	Freshwater Wetlands	Uplands	**Total**
Estimated Required Acres	225	495	1,598	**2,318**
Total Acres Acquired	**67**	**380**	**3,055**	**3,502**
Percent of Land Acquired	30 percent	77 percent	191 percent	**151 percent**

Source: EMP Acquisition Tracking Sheet as of September 17, 2017.

Land Acquired for Mitigation Less Expensive than Expected

Not only were many acres for mitigation acquired during the first quarter of the *TransNet* 40-year timeframe, but also SANDAG realized $120 million in savings on the acquisitions largely attributed to favorable land prices during the Great Recession as well as fewer acquisitions of costly coastal wetlands. Initial expectations of acquisition costs were more than $222 million, but actual costs were $102 million.

Local Land Acquisitions Made Possible Through Grants

***TransNet* provided $15.9 million for land acquisition grants to provide open space land for habitat conservation. Combined, these grants totaled more than 5,400 acres of conserved land.**

In addition to the regional money for land acquisition, *TransNet* provided $15.9 million for specific land acquisition grants to provide open space lands for habitat conservation. *TransNet* funds were leveraged with $18.8 million of matching funds from local sources. These land grants combined for more than 5,400 acres of land to be conserved as shown in Exhibit 26.

EXHIBIT 26. LAND ACQUIRED FOR HABITAT CONSERVATION

Parcel Name	Acres	*TransNet* Funds
Cielo Del Norte	242	$5,691,030
Clover Flat	763	$2,582,781 [1]
Lakeside Downs	409	$4,371,000
Luce Creek	391	$1,208,449
Lucky 5 Ranch	1,873	$1,236,635
San Diego Mountain Ranch	982	[1]
Skyline	779	$760,227
Total	**5,439**	**$15,850,122**

Source: EMP Land Acquisition Tracking Sheet as of September 17, 2017.

Note [1] Clover Flat was acquired with San Diego Mountain Ranch.

Land Management Grants and Habitat Conservation Efforts

Regionally many properties require restoration, active management, and biological monitoring to maintain their biological functions as envisioned by San Diego regional habitat conservation efforts. In 2008, $44 million dollars was set aside for the regional management and monitoring of natural habitats, sensitive plants, and animal species for an 11-year period between 2008 and 2018. In addition to a centralized, coordinated effort contracted by SANDAG to provide consistent management and monitoring, there were land management grants awarded for habitat restoration, habitat maintenance, or species management. Efforts included garbage removal, fire recovery and management, and invasive species and plant control.

As of 2017, seven grant cycles awarded $14.6 million for nearly 100 land management grant projects with $11.2 million spent. More than 71 of those grants were completed, with others are still active until habitat restoration efforts are deemed successful. Many of the ongoing grants relate to habitat maintenance and species management, which can require longer-term efforts. While it is too early to gauge outcomes related to the success of habitats preserved or species protected, a self-audit by SANDAG in 2015 and 2017 concluded that the EMP Land Management Grant Program has been successful at providing sustained benefits to the region with projects completed. In addition to grant activities, another $22 million was spent for habitat conservation efforts in the coordination and monitoring of a variety of species, invertebrates, vertebrates, vegetation, plant, and wildlife corridors.

Program Management Has Achieved Success

The EMP's administration realized several accomplishments over the last decade. For instance, SANDAG worked closely with Caltrans, California Department of Fish and Game, and the U.S. Fish and Wildlife Service to implement a Memorandum of Agreement outlining a plan to acquire and mitigate habitats. Also, a Strategic Management and Monitoring Plan was implemented, including linkages to funding, goals, objectives, and actions—and was viewed by stakeholders as a success of *TransNet's* EMP. Moreover, SANDAG's San Diego Management and Monitoring Program and the U.S. Geological Services developed an online portal allowing significant amounts of habitat management and monitoring data to be stored, tracked, shared, and analyzed between local land managers.[35]

[35] Portal available at https://portal.sdmmp.com/.

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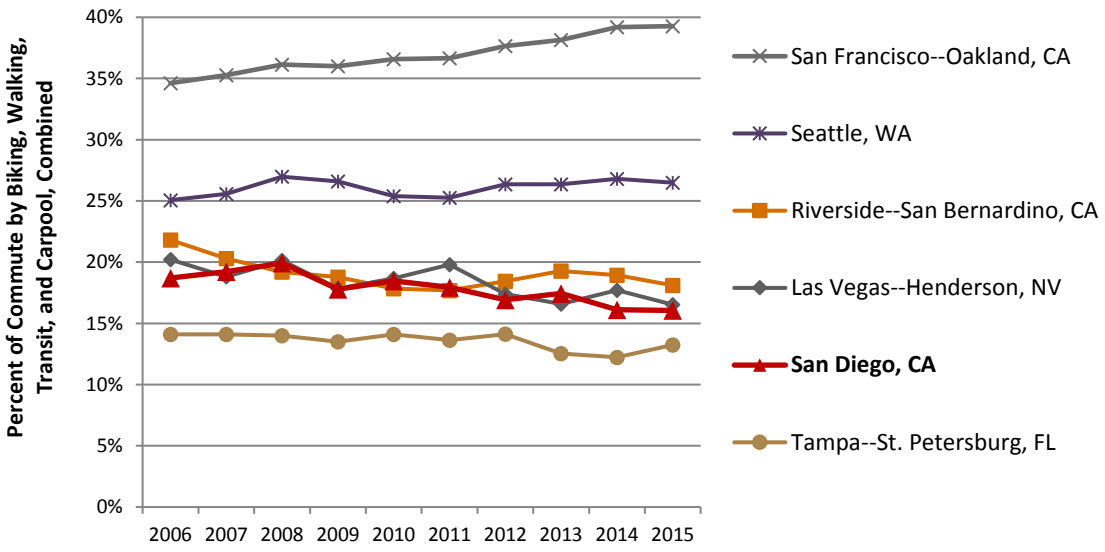
Chapter 3: Alternate Modes of Transportation

Since 2008, the *TransNet* Program supported alternate modes of transportation through a variety of activities including transit, bike and pedestrian initiatives, and technology support systems. *TransNet* supported these modes through transit funding, Local Street and Road funding, and grants from the Active Transportation, Senior-Mini, and Smart Growth Incentive Programs. Included in the various regional plans over the years, SANDAG established goals to support alternate modes of transportation to increase mobility of people walking, biking, carpooling, and using transit.

Like other comparison areas throughout the United States, the San Diego Urbanized Area experienced a downward trend in the percent of commuters using alternate modes of transportation. Similar to performance comparisons on highway and roadways in Chapter 2, we compared the San Diego region's alternate mode travel to the same five regions shown in Exhibit 27. See Appendix A for selection methodology. Only two areas—San Francisco–Oakland, California, and Seattle, Washington—were found to have a higher percent of bike, transit, carpool, and walking commute share in 2015 than in 2006. Out of the six comparison areas, the San Diego region had the second lowest commute share by bike, transit, carpool, and walking—these trends were very close to two other comparison areas in Las Vegas–Henderson, Nevada and Riverside–San Bernardino, California.

EXHIBIT 27. PERCENT OF COMMUTE BY BIKE, TRANSIT, CARPOOL, AND WALKING COMBINED, 2006 TO 2015



Source: US Census American Community Survey data.

Within each of these alternate modes of transportation, we examined performance outcomes in terms of ridership, safety, on-time transit performance, and others discussed in the sections that follow.

TransNet Funded Transit Services

Transit in San Diego County is operated by the Metropolitan Transportation System (MTS) and the North County Transit District (NCTD). A total of 16.5 percent of annual net *TransNet* revenues are available for transit operational costs, minor capital expenses, passes, and subsidies; this *TransNet* money represented less than 13 percent of MTS and NCTD's total revenue. Most *TransNet* funds were not dedicated to specific routes; rather, funds were combined with other revenue sources to offset a portion of total operating costs. To date, $344 million was allocated to the operators with spending on a wide variety of items such as buses and Trolleys, solar panels, crossing upgrades, landscaping, communication systems, ADA upgrades, rail and track, maintenance projects, and train wash buildings. For instance, MTS used *TransNet* funds to acquire 47 *Rapid* transit vehicles as well as 65 low-floor light rail vehicles.

16.5 percent of annual *TransNet* revenues are set aside for transit operational costs, minor capital expenses, passes, and subsidies. An additional 8.1 percent is reserved for new *TransNet* transit operation.

An additional 8.1 percent of annual net *TransNet* revenue was reserved for operation of transit as part of new *TransNet*-funded transit construction. More than $174 million of these funds have been allocated to support the new *Rapid* transit service that features high-frequency, limited-stop bus service, and upgraded vehicle and station amenities. To date, $43 million was spent with the rest held in reserve for future *Rapid* services. *Rapid* provides faster travel times through the use of transit signal priority, dedicated lanes on certain routes, and limited stops. Three *Rapid* services were implemented—the *SuperLoop Rapid* (Routes 201/202 and 204), Mid-City *Rapid* (Route 215), and I-15 *Rapid* (Routes 235 and 237). An additional South Bay *Rapid* service is planned to launch in 2018.[36] Further, reserved monies will be used for future transit services on the Mid-Coast, COASTER, SPRINTER, and Blue Line Trolley. As new services are implemented, more information will be available to refine the finances of transit operations.

Senior Mini-Grant Transportation Services

Further, *TransNet* funded the creation of the Senior Mini-Grant Program to provide innovative transportation services for seniors whose special needs cannot be met by conventional transit or paratransit services. Since 2008, SANDAG awarded more than $14.7 million through 69 grants for services to the senior community including:

Since 2008, SANDAG awarded more than $14.7 million through 69 grants for services to seniors providing nearly 1.5 million rides.

- Nearly 1.5 million one-way rides
- 9,300 seniors trained on transit
- More than 4,180 referrals to other transportation services

Also, in 2012, SANDAG provided funding to a non-profit entity—Facilitating Access to Coordination Transportation (FACT)—that operates a service known as RideFACT. Available in all 19 local jurisdictions, RideFACT grew into a dial-a-ride service for seniors and persons with disabilities and provided more than

[36] Data from *TransNet* Quarterly Reports, Quarter 4, June 30, 2017.

50,000 rides funded solely through *TransNet*. Further, since 2013, grant staff started tracking seat utilization by individual grantee to help influence better performance as well as cost per hour or trip by individual grantee. As of June 2017, most active grantees were outperforming proposed costs estimated per hour or trip.[37]

Systemwide Transit Performance

Transit performance throughout the San Diego region covered by the *TransNet* Program was predominantly influenced by MTS and NCTD's operation of its fleet of 126 fixed-route bus routes, four NCTD flex zones for rural and on-demand service, five light rail lines, and one commuter rail line. *TransNet* funds comprised less than 13 percent of general transit services funding for both operators, with the remaining funds provided through user fares, state funds, and federal funds.[38]

While *TransNet* funds were generally used to supplement other revenue sources to cover systemwide operating expenses, MTS *Rapid* services were fully funded by *TransNet*—as such, we captured performance data for both systemwide performance and MTS *Rapid* performance. Although *TransNet* revenue collections began in 2008 for transit, performance since 2006 was reviewed to illustrate the impact of *TransNet* on transit operations. In the sections that follow, performance metrics and data related to service effectiveness, quality, sustainability, and safety are discussed—with additional metrics and annual performance data provided in Appendix C of this report.

When assessing trends and changes in performance, it is important to recognize that the methodologies and tools used to gather transit operations performance data have significantly changed. Over the years, data gathering transitioned from manual data collection to more accurate automated data collection with the implementation of automatic vehicle location systems, passenger counters, and fare media equipment. Further, over the last 10 years, the National Transit Database provided guidance and better defined how metrics should be calculated and reported to enhance consistency and provide greater uniformity in data reporting among transit operators. While information reported to the National Transit Database was the best available information, it is important to note that information was self-reported by transit agencies—although the data was subject to audit by the Federal Transit Administration and other entities.

Service Effectiveness: Ridership and Revenue Miles

Transit ridership across all modes increased 11 percent from 94.5 million riders in 2006 to 104.7 million riders in 2016. San Diego systemwide ridership was relatively stable, similar to national trends, over the years from 2006 to 2016. As shown in Exhibits 28 and 29, ridership in San Diego County peaked in 2015 and declined since—not unlike national trends. As the economy improves, unemployment rate declines, and gas prices remain relatively low, fewer people ride public transportation.

[37] ITOC 10/11/017 Meeting Agenda Item 4, Attachment 1, Status of Active and Pending Senior-Mini Grant Projects.
[38] State funds include Transportation Development Act funds. Federal funds include Federal Transit Administration Section 5307, 5310, 5337, and 5339, as well as New Freedom, and Job Access Reverse Commute.

EXHIBIT 28. NATIONAL SYSTEMWIDE TRANSIT RIDERSHIP (2006 TO 2016, AMOUNTS IN THOUSANDS)

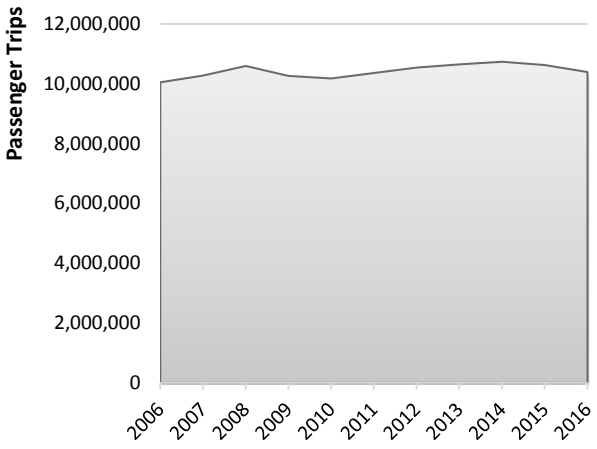
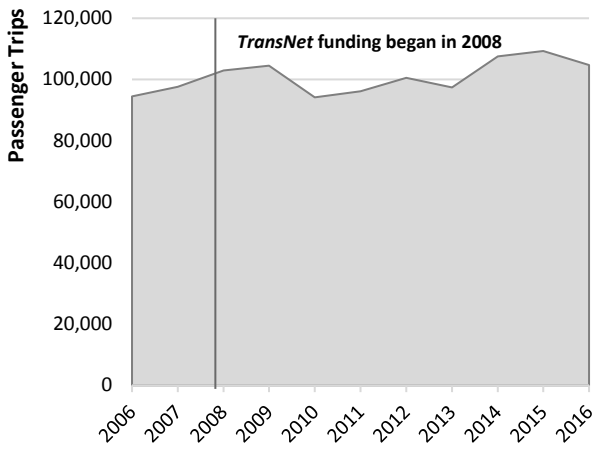


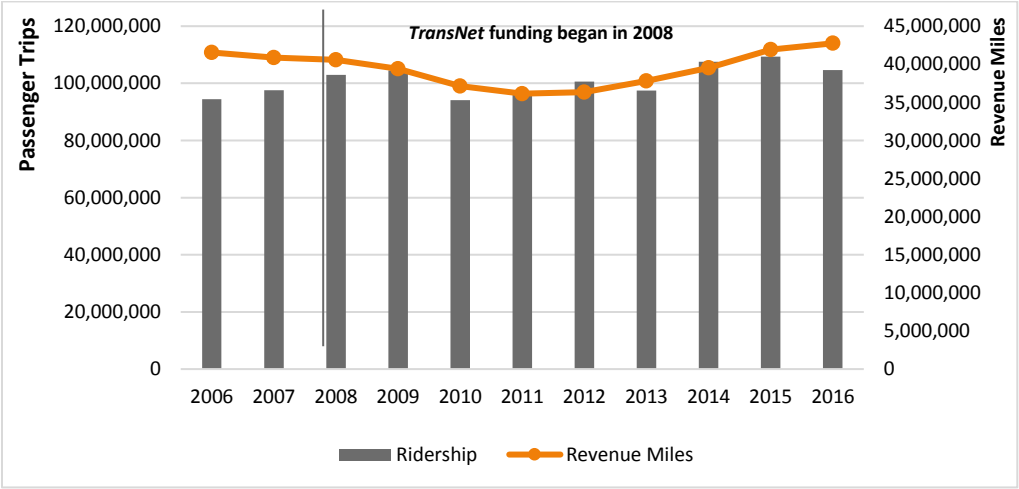
EXHIBIT 29. SAN DIEGO SYSTEMWIDE TRANSIT RIDERSHIP (2006 TO 2016, AMOUNTS IN THOUSANDS)



Source: American Public Transportation Authority, NCTD and MTS 2016 Performance Reports, and http://ftis.org/ Urban Integrated National Transit Database.

Generally, the introduction of new or expanded services has a positive impact on ridership and revenue miles. Revenue miles are transit vehicle miles traveled while available for service to customers. When new or expanded service is introduced the number of revenue miles also generally increases. As shown in Exhibit 30, there was a correlation between revenue miles and ridership in the San Diego region where, since 2006, both revenue miles and ridership grew.

EXHIBIT 30. SAN DIEGO SYSTEMWIDE RIDERSHIP AND REVENUE MILES, 2006 TO 2016



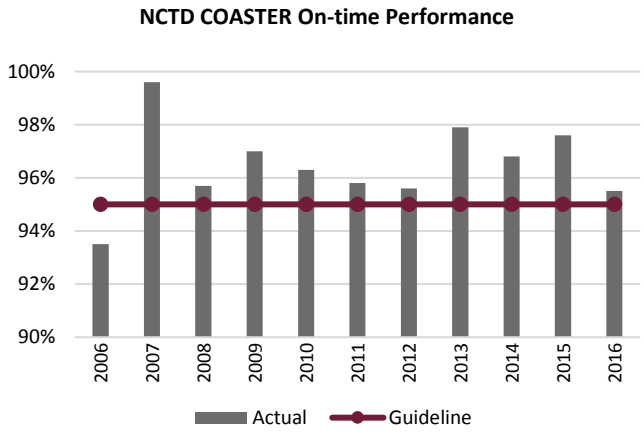
Source: http://ftis.org/ Urban Integrated National Transit Database, and MTS and NCTD 2016 Performance Reports.
Note: Ridership does not include Vanpool.

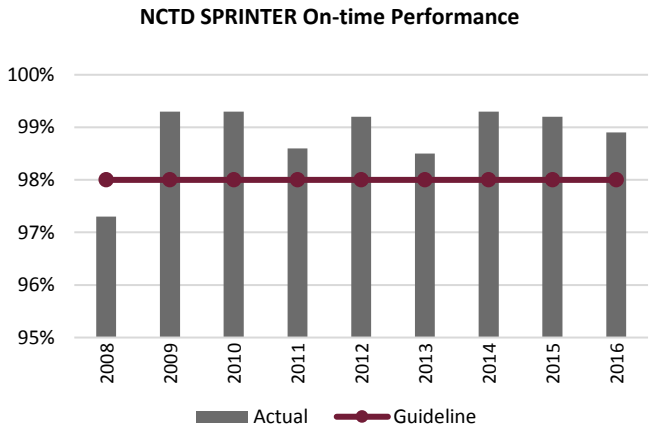
Quality of Service: On-Time Performance

On-time performance is a metric of system quality and indicates the percent of trips that arrive on-time, and also directly impacts customer satisfaction and customers' decision to use public transportation.[39] Since 2006, both MTS and NCTD's on-time performance fluctuated by mode, with some modes generally meeting or exceeding established on-time performance guidelines such as the NCTD COASTER and SPRINTER rail services. Conversely, fixed route bus service for both operators and the NCTD LIFT paratransit service struggled to consistently meet established guidelines.[40] While NCTD tracked and reported annual on-time performance, MTS tracked on-time performance by month and did not provide on-time performance for its MTS Access demand response service. Although the NCTD BREEZE met its 90 percent on-time guideline from 2006 through 2012, actual on-time performance missed the goal over the past four years from 2013 to 2016 as shown in Exhibit 31. This recent change in performance could be partly due to the accuracy of automatic vehicle location technology that NCTD implemented on its BREEZE busses in Year 2013. After the transition from manual to automated data collection, NCTD noted a 10 percent decline in on-time performance for its bus operations.

Since 2006, on-time performance has fluctuated by mode and service, with most generally meeting established guidelines.

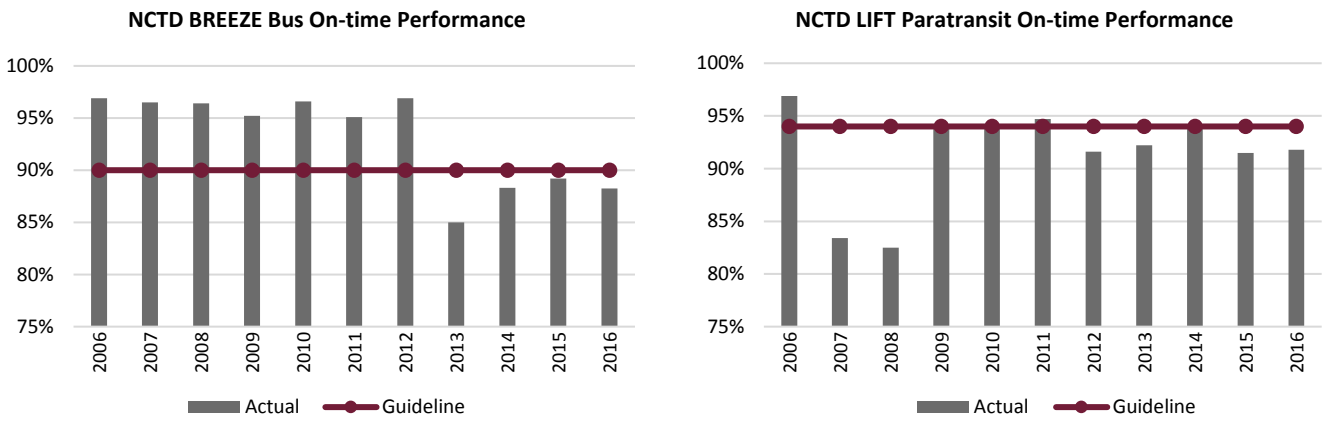
EXHIBIT 31. NCTD ON-TIME PERFORMANCE BY MODE, 2006 TO 2016





[39] MTS classifies on-time as buses departing stops within zero to five minutes of the scheduled time and light rail trips arriving at their end terminal within zero to five minutes of the scheduled time.

[40] In years when NCTD on-time performance did not meet guidelines, it was within 1 to 5 percent of those established guidelines.



Source: SANDAG Performance Monitoring Data.
Note: SPRINTER service began in 2008.

Similarly, MTS Express, Urban Frequent, and Urban Standard route categories did not consistently meet targeted on-time performance goals as shown in Exhibit 32. According to MTS, traffic congestion on arterial streets, roadwork and associated detours, and traffic calming measures had a negative impact on bus on-time performance. On-time performance improved for several routes, including *Rapid* and *Rapid Express*, by incorporating signal priority measures, and dedicated lanes for transit in addition to reducing the number of stops. Further, to enhance the accuracy of on-time performance data and provide more robust data analytics, MTS installed automatic vehicle location equipment on its contracted bus service in 2016.

EXHIBIT 32. MTS ON-TIME PERFORMANCE BY ROUTE CATEGORY, JUNE YEAR-TO-YEAR COMPARISON

MTS Route Category	Goal	June 2012	June 2013	June 2014	June 2015
Rapid Corridor (Routes 235/237)	90%	N/A	✓	✓	
Express	90%				
Premium/*Rapid Express*	90%	✓	✓		✓
Light Rail (Blue, Orange, and Green Line Trolleys)	90%		✓		✓
Light Rail (Silver Line Trolley)	90%	N/A		✓	✓
Rapid Arterial (Route 215/*SuperLoop*)	85%	✓	✓	✓	✓
Urban Frequent	85%				
Urban Standard	90%				
Circulator	90%	✓	✓	✓	
System On-Time Performance		**83.4%**	**84.1%**	**85%**	**84.4%**

Source: MTS Policy 42 Performance Monitoring Reports 2013, 2014, and 2015.
Note: ✓ = Target met or exceeded. N/A = Route category was not in service. Categories provided by MTS.

Sustainability: Farebox Recovery

The farebox recovery ratio is the percent of operating expenses covered by fare revenue. A higher farebox recovery ratio indicates a greater percent of the operating costs are covered by fare revenue and provides increased financial stability. Several factors influence farebox recovery, including changes in operating costs, ridership, and fare structure. For instance, higher fares can increase the farebox recovery ratio; however, regional fares in San Diego have not changed since 2008. In fact, farebox recovery ratios have remained relatively stable from 2006 to 2016.

With the exception of the NCTD SPRINTER hybrid rail, annual farebox recovery ratios remained above internal guidelines for each mode of transit. As shown in Exhibit 33, MTS consistently exceeded goals with bus and rail farebox recovery ratios ranging from a low of 35.6 percent to a high of 53.75 percent. In fact, MTS Bus consistently exceed the Transit Development Act (TDA) mandated recovery ratios for bus service. Similarly, MTS farebox recovery for paratransit services exceeded the TDA 10 percent farebox recovery ratio guideline, and NCTD met the guideline in most years—with the exception of 2015 and 2016.

EXHIBIT 33. SYSTEMWIDE FAREBOX RECOVERY BY MODE AND SERVICE GUIDELINE VS. 11-YEAR AVERAGE (2006 TO 2016)

	Guideline	11-Year Average (2006 to 2016)
Fixed Route Bus		
MTS *Rapid Express*	20.0%	47.94%
MTS Bus	31.9%	35.61%
NCTD BREEZE Bus	18.8%	20.01%
Rail		
MTS Light Rail	31.9%	53.75%
NCTD SPRINTER Hybrid Rail [1]	18.8%	16.64%
NCTD COASTER Commuter Rail	18.8%	38.72%
Paratransit Demand Response		
MTS Access Paratransit	10.0%	14.42%
NCTD LIFT Paratransit	10.0%	12.22%

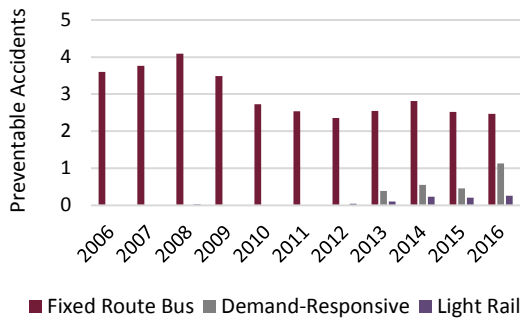
Source: SANDAG Performance Monitoring Data.

Note: [1] The SPRINTER began service in 2008 and was re-classified from light rail to hybrid rail in 2011.

Safety: Preventable Accidents

Several metrics can be used to measure transit safety, such as the number of preventable accidents, safety incidents, or crime rates. Exhibits 34 and 35 reflect the metric of number of preventable accidents per 100,000 miles by mode. According to MTS, this metric indicated that the driver could have potentially done something different to prevent the accident from occurring, but the accident was not a code violation. Since 2006, MTS decreased the number of preventable accidents for fixed route. Similarly, NCTD reported two or fewer preventable accidents for each mode from 2015 to 2017—NCTD was unable to provide data for prior years.

EXHIBIT 34. MTS PREVENTABLE ACCIDENTS PER 100,000 MILES BY MODE, 2006 TO 2016



Source: Data provided by MTS.
Note: Fixed Route Bus includes MTS Directly Operated Bus and Contracted Fixed Route Bus.

EXHIBIT 35. NCTD PREVENTABLE ACCIDENTS PER 100,000 MILES BY MODE, 2015 TO 2017

	Average Miles Between Preventable Accidents		
Mode	2015	2016	2017
BREEZE	0.77	0.82	0.97
SPRINTER	0.00	0.00	0.00
COASTER	0.00	0.00	0.00
LIFT/FLEX	0.97	1.07	1.55

Source: Data provided by NCTD.
Note: NCTD could only provide data for 2015 to 2017.

Safety Excellence on the Blue Line Trolley

In 2017, MTS' Blue Line Trolley renewal project won a "certificate of merit" for safety from the American Public Transportation Association. As part of this *TransNet* project, passengers experienced a safer and more reliable riding experience. In particular, MTS reported a 55 percent drop in losses due to customer settlements and a 50 percent reduction in formal liability claims. During the construction period, there were zero worker-related injuries or injury claims from passengers due to construction. According to MTS, the project even improved on-time performance from a low of 75 percent to a high of 96 percent.

In 2017, MTS' Blue Line Trolley renewal project won a "certificate of merit" for safety from the American Public Transportation Association.

Peer Performance Comparisons

We compared San Diego systemwide fixed route performance to national peers for five performance metrics—farebox recovery ratio, operating expense per revenue mile, operating expense per passenger trip, passenger trips per service area capita, and passenger trips per revenue mile. As described in Appendix A, these peers were selected based on type of service provided using the Integrated National Transit Database Analysis System.[41] Generally, San Diego outperformed the combined peer average for each mode reviewed— fixed route bus, light rail, and hybrid rail.

Generally, the San Diego region outperformed the peer average for each mode.

[41] 10 peers selected that operated similar services included Dallas (DART), Denver (RTD), Los Angeles (LACMTA), Minneapolis (Metro Transit), Orange (OCTA), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA). See Appendix A for selection methodology.

Fixed Route Bus Peer Comparisons

Between 2006 and 2015, San Diego generally performed better than the 10-peer average for nearly all of the metrics, as shown in Exhibit 36. For instance, the San Diego systemwide fixed route farebox recovery ratio was 33.3 percent compared to the 18.1 percent 10-peer average in 2015—indicating a higher percent of the operating costs are covered by fare revenue in San Diego than in peer regions. Similarly, San Diego systemwide performance for operating expense per revenue mile was better than peers in 2015 with an operating expense per revenue mile of $7.40 in San Diego compared to the $9.44 peer average—meaning it was less expensive to operate fixed route buses systemwide in San Diego than in peer regions.

EXHIBIT 36. SAN DIEGO SYSTEMWIDE FIXED ROUTE BUS PERFORMANCE COMPARED TO 10 PEERS, 2006 TO 2015

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2006	San Diego	33.4%	$5.95	$2.70	14.29	2.4
	10-Peer Average	16.9%	$7.40	$3.85	17.90	2.0
2015	San Diego	33.3%	$7.40	$3.25	9.62	2.5
	10-Peer Average	18.1%	$9.44	$5.30	14.28	2.0

Source: http://ftis.org/ Urban Integrated National Transit Database.

Green = San Diego performed better than peers. Red = San Diego performed worse than peers.

Light Rail Peer Comparisons

Similarly, the San Diego systemwide light rail generally outperformed the 9-peer average for most metrics reviewed, as shown in Exhibit 37. From 2006 to 2015, San Diego showed improved performance with Light Rail farebox recovery increasing from 50.8 to 56.3 percent compared to the 9-peer average of 30 to 29.9 percent. In addition, passenger trips per revenue mile increased from 4.14 in 2006 to 4.66 in 2015, while the 9-peer average declined over the same period from 4.10 to 3.71.

EXHIBIT 37. SAN DIEGO SYSTEMWIDE LIGHT RAIL PERFORMANCE COMPARED TO 9 NATIONAL PEERS, 2006 TO 2015 [42]

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2006	San Diego	50.8%	$6.73	$1.63	16.09	4.14
	9-Peer Average	30.0%	$12.24	$3.30	10.28	4.10
2015	San Diego[1]	56.3%	$8.50	$1.82	16.28	4.66
	9-Peer Average	29.9%	$14.06	$4.07	19.48	3.71

Source: http://ftis.org/ Urban Integrated National Transit Database.

Note: In 2011, the SPRINTER was re-classified as Hybrid Rail.

Green = San Diego performed better than peers. Red = San Diego performed worse than peers.

[42] 9 peers selected that operated similar service included Dallas (DART), Denver (RTD), Los Angeles (LACMTA), Minneapolis (Metro Transit), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA). See Appendix A for selection methodology.

The NCTD SPRINTER is one of four hybrid rail systems in the nation. Since the SPRINTER was reclassified from light rail to hybrid rail in 2011, the San Diego region outperformed the 3-peer average for each metric reviewed. As depicted in Exhibit 38, the NCTD SPRINTER reported a higher farebox recovery ratio, higher number of passenger trips, and lower operating costs than its peers. These indicators measure financial stability, efficiency of service, and service utilization.

EXHIBIT 38. NCTD SPRINTER HYBRID RAIL PERFORMANCE COMPARED TO 3 NATIONAL PEERS, 2011 TO 2015 [43]

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2011	San Diego[1]	18.3%	$24.07	$5.87	2.6	4.1
	3-Peer Average	8.3%	$40.26	$17.35	0.3	2.3
2015	San Diego	18.6%	$23.50	$5.83	3.3	4.0
	3-Peer Average	10.4%	$40.12	$14.85	0.4	2.7

Source: http://ftis.org/ Urban Integrated National Transit Database.

Note: [1] In 2011, the SPRINTER was re-classified as Hybrid Rail.

Green = San Diego performed better than peers Red = San Diego performed worse than peers.

Performance of *Rapid* Services Funded Solely by *TransNet*

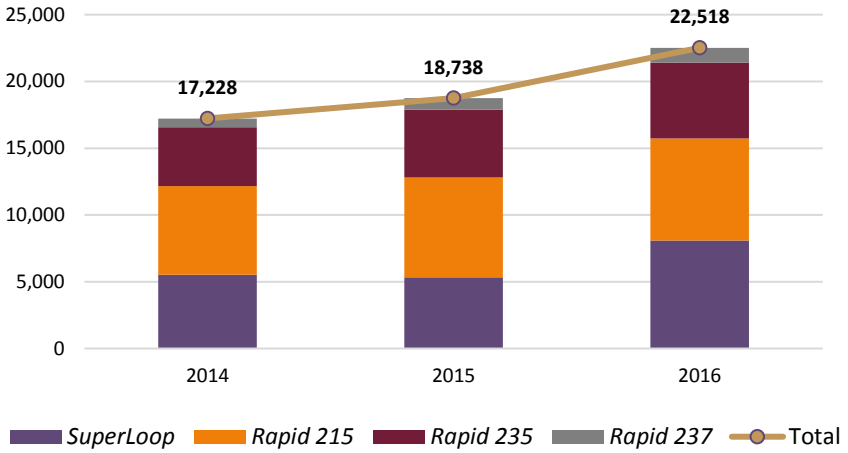
While the previous section provided systemwide performance data for all routes and lines funded partially by *TransNet* and partially by other federal, state, and local sources, performance data provided in this section is specific to those routes and lines that were fully funded through *TransNet*—namely, the new bus rapid transit services, known as *Rapid*.

Transit Ridership

With the addition of three new *TransNet* funded routes in 2014, *Rapid* Transit weekday boardings increased from 17,228 weekday boardings in 2014 to 22,518 weekday boardings in 2016—an increase of 31 percent. Although the weekday boardings for all MTS fixed-route bus modes declined between 2015 and 2016, ridership for the *TransNet* funded *Rapid* Transit routes continued to grow from 2015 to 2016 as shown in Exhibit 39.

[43] Only three other transit entities operated hybrid rail services in the nation and were used for peer comparisons—Capital Metropolitan Transportation Authority, New Jersey Transit Corporation, and Tri-County Metropolitan Transportation District of Oregon.

EXHIBIT 39. *Rapid* Transit Weekday Boardings by Route, 2014 to 2016



Source: State of the Commute Spreadsheets provided by SANDAG.
Note: *Rapid* Routes 215, 235, and 237 began service in 2014.
SuperLoop began service in 2010 and experienced a relative steady increase in ridership over the years.

Quality of Service: On-Time Performance

On-time performance is one metric used to measure the quality and reliability of transit service. On-time performance for *Rapid* routes remained more than 82 percent from 2014 to 2016 as shown in Exhibit 40. *SuperLoop Rapid* showed a positive improvement to its weekday average on-time performance from 2014 to 2016, and experienced a 93 percent on-time success in 2016. Weekday average on-time performance for the other *Rapid* routes decreased. According to MTS, on-time performance was impacted by road construction and increased traffic congestion.

EXHIBIT 40. *RAPID* TRANSIT WEEKDAY AVERAGE ON-TIME PERFORMANCE BY ROUTE, 2014 TO 2016

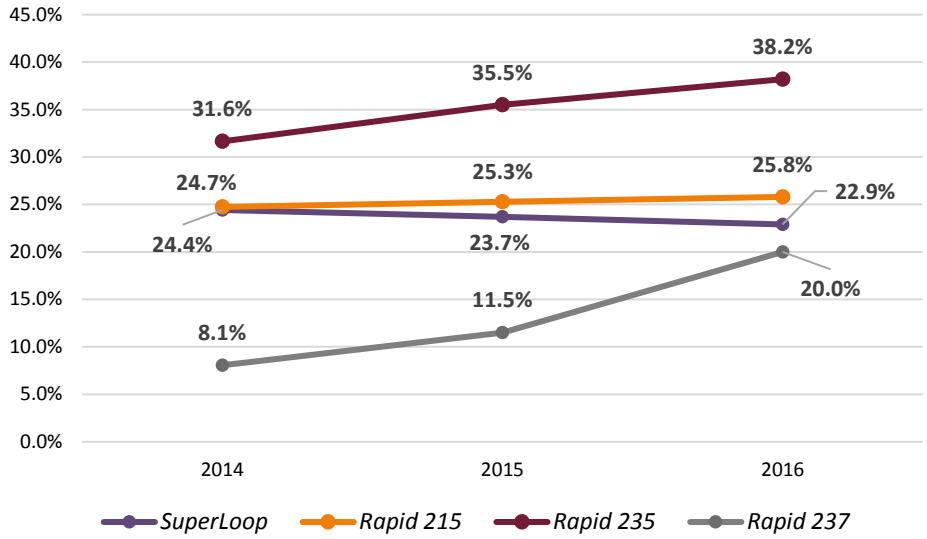
Route	2014	2015	2016	2-Year % Change
SuperLoop	87.1%	85.4%	93.4%	7%
Rapid 215	82.4%	82.4%	83.4%	1%
Rapid 235	95.3%	88.8%	82.9%	-13%
Rapid 237	92.1%	87.1%	85.5%	-7%

Source: State of the Commute spreadsheets provided by SANDAG.
Note: *Rapid* Routes 215, 235, and 237 began service in 2014.
SuperLoop began service in 2010 and showed a decline in on-time performance through 2015.

Seat Utilization: Load Performance

Load factor relates to seat utilization and measures the percent of seats occupied. With the exception of the *SuperLoop* service, the weekday average load factor generally increased over seven years. For example, *Rapid* 237 weekday average load factor showed a notable improvement, increasing from 8.1 percent in 2014 to 20 percent in 2016—as shown in Exhibit 41. At the same time, the *SuperLoop* weekday average load factor declined from 24.4 percent in 2014 to 22.9 percent in 2016.

EXHIBIT 41. *RAPID* TRANSIT WEEKDAY AVERAGE LOAD FACTOR BY ROUTE, 2014 TO 2016

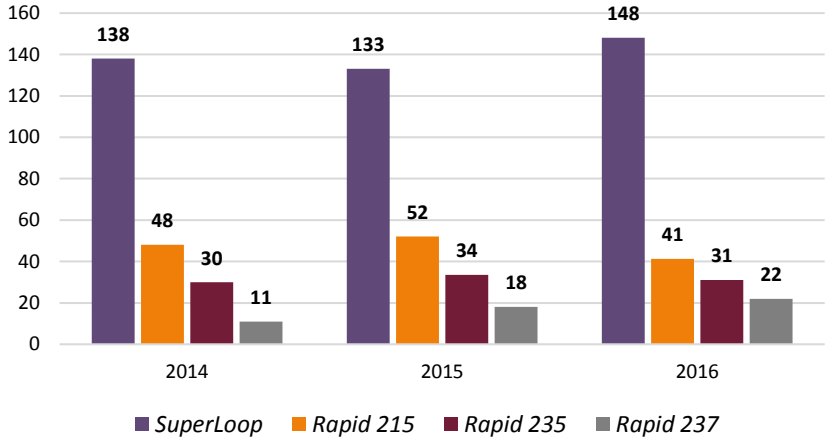


Source: State of the Commute spreadsheets provided by SANDAG.
Note: *Rapid* Routes 215, 235, and 237 began service in 2014.
SuperLoop began service in 2010.

Productivity: Passengers per Hour

Overall, the productivity of *Rapid* routes measured in terms of passengers per hour increased as shown in Exhibit 42. Specifically, the *SuperLoop* service weekday average passengers per hour increased by 7.2 percent over the last three years—yet, individual route performance varied. For instance, *Rapid* 235, one of the three new *Rapid* services, weekday average passengers per hour slightly increased from 30 in 2014 to 31 in 2016.

EXHIBIT 42. *RAPID* TRANSIT WEEKDAY AVERAGE PASSENGERS PER HOUR BY ROUTE, 2014 TO 2016



Source: State of the Commute spreadsheets provided by SANDAG.
Note: *Rapid* Routes 215, 235, and 237 began service in 2014.

Sustainability: Farebox Recovery

Weekday average farebox recovery ratios for *Rapid* services fluctuated between 2015 and 2016, but rose again with one-year increases between 3 percent and 66 percent as shown in Exhibit 43. Most of the individual routes remained above the industry standard transit farebox recovery of 20 percent in 2016, yet the *Rapid* 237 route was lower than industry averages at 16.4 percent. Given that the route was a newer service, the ridership base may be continuing to form.

EXHIBIT 43. *RAPID* TRANSIT WEEKDAY AVERAGE FAREBOX RECOVERY BY ROUTE, 2015 TO 2016

	2015	2016	1-Year % Change
SuperLoop	28.9%	35.1%	21%
Rapid 215	30.1%	30.9%	3%
Rapid 235	19.5%	22.7%	16%
Rapid 237	9.9%	16.4%	66%

Source: State of the Commute Spreadsheets provided by SANDAG.

Note: *Rapid* Routes 215, 235, and 237 began service in 2014, but no data was available for that year. *SuperLoop* began service in 2010 and experienced increases over the years.

Smart Growth Grant Programs Enhance Transit Services

Another *TransNet* grant program that assisted San Diego travelers with transit mobility was the Smart Growth Incentive Grant Program. The goal of the *TransNet* Smart Growth Incentive Grant program is to fund comprehensive public infrastructure projects and planning activities at the local level to facilitate compact, mixed use development focused around public transit that also will increase housing and transportation choices. Since 2008, there were three grant funding cycles awarding nearly $31.8 million for 43 grants—of which 19 projects totaling $13.2 million were completed. SANDAG is in the process of capturing how well the Smart Growth Incentive Grant program goals have been met. In particular, some grants included $5,000 for grantees to capture "before" data to establish a baseline and for SANDAG staff to capture "after" counts to evaluate performance. However, these tracking systems are just starting to be put in place.

Bike and Pedestrian Performance

TransNet provides funding streams for bike and pedestrian related activities through a variety of areas and programs as discussed on the sections that follow.

Active Transportation Grants

Since 2008, SANDAG awarded 77 Active Transportation Program Grants totaling more than $30 million with nearly 65 percent of the grants completed.

Active Transportation Grant monies specifically encourage local jurisdictions to plan and build facilities that promote travel choices for residents and connectivity to transit, school, retail centers, and work as well as encourages safety, parking, and awareness programs focused on bike and pedestrian options. Since 2008, SANDAG awarded 77 grants totaling more than $30 million with nearly

65 percent of the grants completed. Projects involved streetscape, Americans with Disabilities Act compliance, bike paths, pedestrian sidewalks, crosswalks, and bike facilities such as racks, lockers, detectors, and boxes. In 2013, $200 million was carved out of the Active Transportation Grant Program to establish a new Bike Early Action Program administered by SANDAG. From that point forward, Active Transportation Grant awards for projects implemented by local jurisdictions were limited at a total of $1 million in *TransNet* Active Transportation Grant Program funding per year.

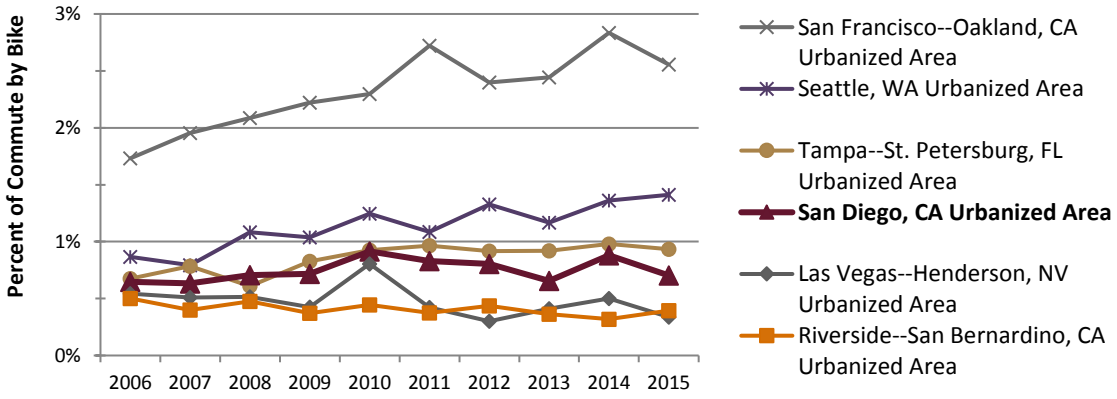
Bike Early Action Program

In 2013, SANDAG created its 2050 Bike Early Action Program (EAP) and invested $200 million to expand the bike network regionwide and finish high-priority projects within a decade. The Bike EAP consisted of approximately 40 projects totaling 77 miles of new bikeways to make it easier for riders to get to work, school, transit stations, or other destinations. Through the efforts of this program since 2013, SANDAG constructed and completed 3 projects with 2.7 miles of new bikeways and had nearly 25 projects underway. The remaining 12 projects had not started.

Bike Ridership and Percent of Commute

In general, ridership for bike commuters in the San Diego Urbanized Area grew from approximately 8,000 to 10,000 over the period from 2006 to 2015—an increase of approximately 25 percent. However, in terms of all commute modes, San Diego's commute by bike had a small increase, from 0.65 percent in 2006 up to 0.70 percent in 2015.[44] This commute data was limited to primary mode, so biking to transit may be captured as transit, or biking one day a week and carpooling four days a week may be captured as carpool. According to SANDAG, in 2017, it commenced efforts to understand and validate the data from local bike counters and establish a volume baseline. Part of the validation process will be to determine the accuracy of the counter data, including whether the functioning of the counter system could result in inconsistent data collected. When comparing the San Diego region with five comparison areas in Exhibit 44, we found that the San Francisco–Oakland, California area had a larger increase—from 1.73 percent in 2006 up to 2.6 percent in 2015.

EXHIBIT 44. PERCENT OF COMMUTE BY BIKE COMPARED TO PEER URBANIZED AREAS, 2006 TO 2015



Source: U.S. Census American Community Survey data.

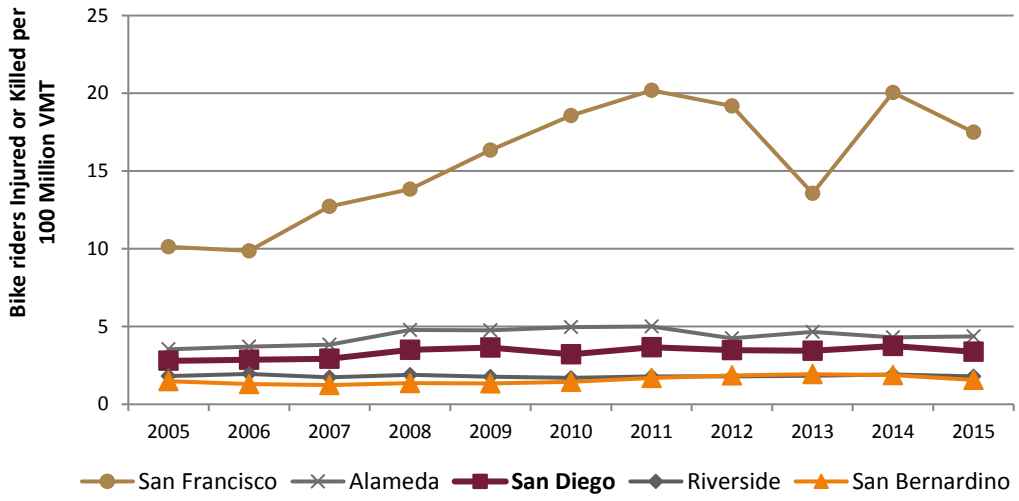
[44] One limitation of the data source is that it is only collected for commute and, thus, does not provide a full understanding of the importance of bike pathways for other trips such as shopping, visiting friends, and other non-commute related travel.

Bike and Pedestrian Safety

In San Diego County, the rate of bike rider and pedestrian injuries and fatalities per 100 million VMT increased by 21 percent and 18 percent between 2005 and 2015.

California Vehicle Code requires local governments to submit their police collision reports to the California Highway Patrol (CHP) for consolidation into the Statewide Integrated Traffic Records Systems (SWITRS) database. We used this data to compare injuries and fatalities in the San Diego County region with four California comparison counties. In San Diego, collisions resulting in bike rider injuries and fatalities per 100 million VMT increased by 21 percent. The largest increase experienced was in San Francisco which had 73 percent more reported bike rider injuries and fatalities in 2015 than in 2005. Trends are shown in Exhibit 45.

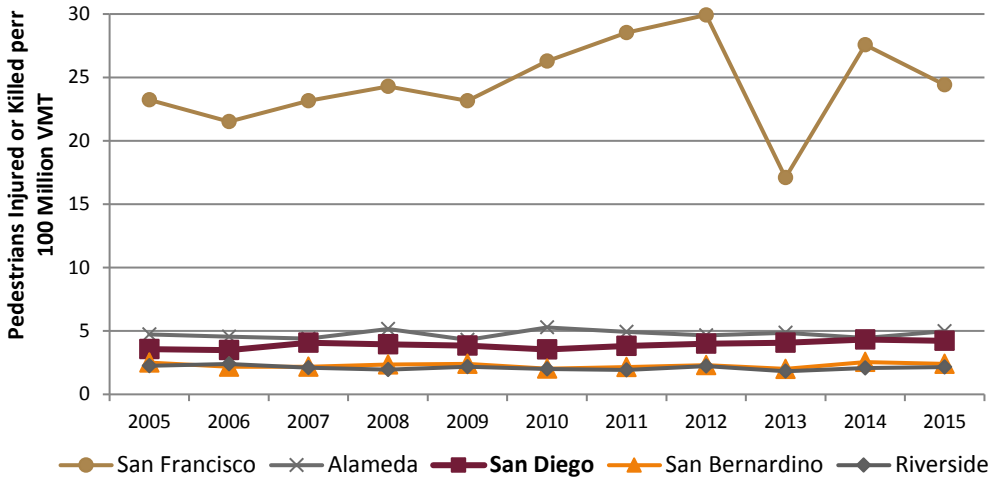
EXHIBIT 45. BIKE RIDERS INJURED OR KILLED IN CALIFORNIA COMPARISON COUNTIES, 2005 TO 2015



Source: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS).
Note: Severity levels 1 through 4 were included in exhibit—severity 1 = fatality; severity 2 = serious injury, severity 3 = visible injury; and severity 4 = complaint of pain. In 2013, there were an unexplained and unusually low number of injuries and fatalities in San Francisco as compared to 2011 and 2014. It appears the dip may be due to an underreported number of bicycle injuries Severities 3-4.

Similarly for pedestrian injuries and fatalities, San Diego County experienced an 18 percent increase in pedestrian injuries and fatalities per 100 million VMT between 2005 and 2015—the largest amongst comparison areas as shown in Exhibit 46. Riverside and San Bernardino had a lower rate in 2015 compared to 2005 by approximately 4 percent each. While San Francisco had the largest number of injuries and fatalities, the increase was only 5 percent over the 10-year period.

EXHIBIT 46. PEDESTRIANS INJURED OR KILLED IN CALIFORNIA COMPARISON COUNTIES, 2005 TO 2015



Source: California Highway Patrol Statewide Integrated Traffic Records System (SWITRS).
Note: Severity levels 1 through 4 were included in exhibit—severity 1 = fatality; severity 2 = serious injury, severity 3 = visible injury; and severity 4 = compliant of pain. In 2013, there were an unexplained and unusually low number of injuries and fatalities in San Francisco as compared to 2011 and 2014. It appears the dip may be due to an underreported number of pedestrian injuries Severities 2-4.

Chapter 4: *TransNet* Oversight and Project Delivery

From the taxpayers' perspective, value and performance from expending *TransNet* revenues can be measured through a variety of means, such as outputs and outcomes, as described in earlier report chapters. In this chapter, we focus on the value provided to the taxpayers through oversight, governance, collaboration, and project management over the years.

Strong Oversight and Governance

Upon passage of the *TransNet* Extension Ordinance in 2004 and before the related revenues were collected in April 2008, SANDAG worked in conjunction with its transportation and transit partners to develop and employ a strong framework to help achieve long-term program and project success. In addition to appropriate levels of governance and involvement from SANDAG Board of Directors and its committees including the *TransNet* Independent Taxpayer Oversight Committee, past audits found that SANDAG methods fostered an environment of collaboration crossing local jurisdictional and governmental borders that created synergies in the delivery of the region's transportation, transit, and environmental projects.[45]

SANDAG and Its Board of Directors

In its role as the San Diego County Regional Transportation Commission, the SANDAG Board of Directors is responsible for administering and allocating the *TransNet* sales tax consistent with the Regional Plan. Past audits found that SANDAG has worked with its *TransNet* partner agencies to develop an accountable environment set by management's "tone at the top." Several management controls were used such as close executive level oversight, consistent communication and information, frequent team meetings, conflict resolution protocols, and a culture open to continuous improvement.

SANDAG and Board of Directors

- Accountable environment and tone at the top.
- Management controls for close oversight, consistent communication, frequent team meetings, and continous improvement.
- Board and Committees provided active governance.

Moreover, *TransNet* was overseen by a Board of Directors and several other policy and technical committees and working groups that were involved in governance and approval of program activities. Past audits also found that the Board and its various committees provide active governance and approval of program activities. Based on reviews of board meeting minutes, there was significant data provided to the Board for review and action and rigorous questions posed by Board members related to the *TransNet* projects and data put before them.[46]

[45] *TransNet* Triennial Performance Audit, 2009, page 1.
[46] *TransNet* Triennial Performance Audit, 2009, pages 19-21 and page 38.

TransNet Partner Agencies

Although SANDAG has primary responsibility for the *TransNet* Program, a multitude of partner agencies are critical to the successful implementation of the program. Specifically, SANDAG has a shared responsibility with Caltrans for highway projects and with MTS and NCTD for transit projects and services. Moreover, SANDAG relied on the 19 local jurisdictional agencies to implement local street and road projects, design and construct alternate modes of transportation for bike rides and pedestrians, and assist with environmental efforts.

TransNet Partner Agencies

- Sense of communication, collaboration, and commitment between SANDAG and dozens of local and statewide entities.
- Written agreements and standards of practice followed by *TransNet* partner agencies.
- Past audits found communication was unrestricted and productive.

Prior audits reported a sense of communication, collaboration, and commitment among the *TransNet* partner agencies afforded through written agreements and standard practices to seek buy-in from all partners. Moreover, the communication structure in place avoided potential disconnects between staff and management as well as between the *TransNet* partner agencies. Executive management from all entities met formally and informally with project team members to ensure communication was unrestricted and collaborative.[47]

Independent Taxpayer Oversight Committee

Created in 2004 as part of the *TransNet* Extension Ordinance, the Independent Taxpayer Oversight Committee (ITOC) is a critical safeguard that provides an increased level of accountability. While other similar tax increment measures and entities operate taxpayer or transportation oversight committees, San Diego's ITOC subscribed to unique best protocols and incorporated many of its peers' best practices. As such, ITOC was an integral and accountable part of the *TransNet* Program exercising diligence, vetting, and deliberations when advising SANDAG and its *TransNet* partner agencies over the last decade. Past audits revealed strong practices.[48] For instance, members possessed a wide-breath of experience and certifications as required by *TransNet* in fields such as engineering, construction, biology and environmental science, public finance, and real estate in addition to completing conflict and economic interest statements. Also, ITOC conducted monthly meetings, contracted for financial and performance audits, and issued annual reports. Members also followed written guidance, operating protocols, and bylaws related to committee duties and responsibilities.

ITOC

- Critical safeguard to increase level of accountability.
- Members possessed wide-breath of experience and certifications in engineering, construction, biology, and public finance.
- ITOC met regularly and was well attended.
- Committee followed operating protocols and bylaws.

[47] *TransNet* Triennial Performance Audit, 2009, pages 24-28.
[48] *TransNet* Triennial Performance Audits—2009, page 22; 2012, pages 91-95; and 2015, page 11.

Several Innovations Employed

As part of its San Diego Forward: The Regional Plan partially-funded through the *TransNet* Program, SANDAG directed billions of dollars in spending to improve the regional transportation network through collaboration among federal, state, and local partners. Yet, with funding sources often declining and costs rising, SANDAG and its *TransNet* partners used resources efficiently and employed innovative practices to deliver a quality transportation improvement program. In the sections that follow, some innovations employed over the last 10 years are highlighted.

- **Corridor Director Function**

  Like other regions throughout the State of California, Caltrans is responsible for work on state highways. With a portion of the 38 percent of *TransNet* revenues allocated to major highway corridors, SANDAG and Caltrans worked closely together to ensure completion of all aspects of a project including environmental, design, construction, reporting, and communication to travelers. According to SANDAG, both SANDAG and Caltrans recognized that a different organizational structure was needed to manage the new *TransNet* multimodal corridor projects. With this recognition, SANDAG and Caltrans developed a Corridor Director model organized around the success of projects rather than agency roles and responsibilities. This model allows for heightened responsibility through a cross-agency project management structure whereby project teams are accountable to both SANDAG and Caltrans.

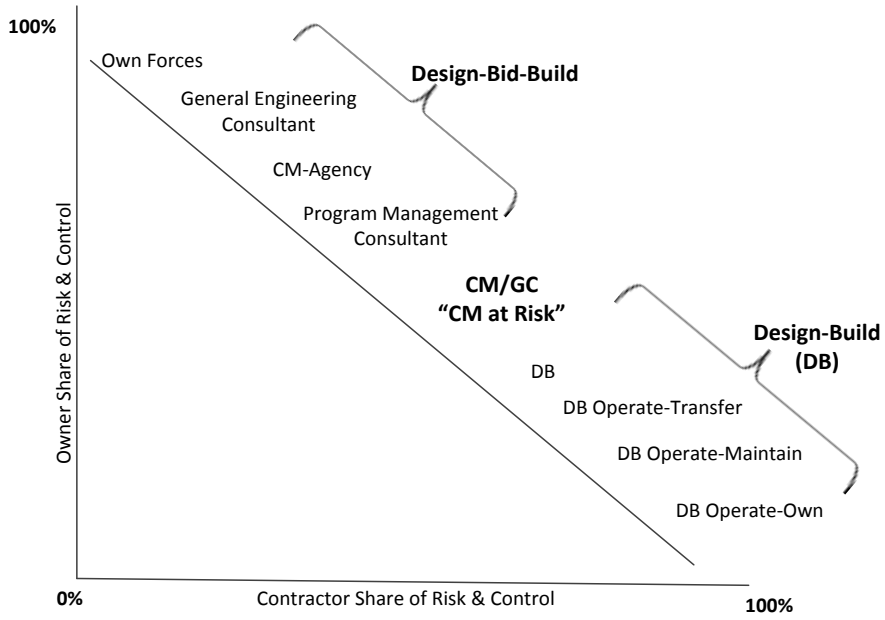
  Corridor Directors served as a single point of contact and streamlined coordination efforts between project managers, functional teams, external contractors, and other *TransNet* partner agencies. Each Corridor Director was charged with ultimate accountability to ensure each project was delivered per the Board-approved scope, within budget, and on schedule. This unique partnership between SANDAG and Caltrans resulted in a cohesive team accountable and focused on a shared goal, rather than parochial decisions benefiting one entity over another. In fact, prior audits reported that the synergy stems from the specific entrepreneurial spirit of the individuals involved as well as the practices developed to guide program delivery. Although it is difficult to quantify the cost and schedule-saving of this team approach, SANDAG believes the Corridor Director model appears to save time and money for large, complex transportation projects compared to traditional models used throughout the state.

- **Construction Manager/General Contractor (CM/GC) Delivery Method**

  For decades, transportation entities used a design-bid-build approach to contracting and constructing long-term capital projects. In recent years, other methods were used to deliver capital construction projects such as design-build that came into more prevalence with one contractor doing both design and construction. More recently, the trend in project delivery is the Construction Manager/General Contractor (CM/GC) model. In fact, it was not until 2012 that state legislation allowed Caltrans to engage in CM/GC methods for a limited number of projects statewide. Currently, SANDAG and Caltrans are managing delivery of two large CM/GC projects both of which are *TransNet*-funded and together total more than $2.8 billion.

The CM/GC model relies on commitments from a construction manager to deliver the project within a guaranteed maximum price under an integrated approach where the CM/GC is involved at each stage of the project acting as consultant to the owner in the initial development and design phases (preconstruction), and general contractor during the construction phase. Available national research cited many benefits as well as challenges and risks associated with this delivery method, but when used well, it shares risk and obligates the CM/GC to deliver the project within the established price.[49] A comparison of CM/GC to other project delivery methods is provided in Exhibit 47.

EXHIBIT 47. COMPARISON OF CM/GC TO OTHER PROJECT DELIVERY METHODS



Source: U.S. Department of Transportation/Federal Highway Administration "CM/GC 101 Workshop", 2012 CM/GC Peer Exchange.

- **Funding Won on "Shovel Ready" Projects**

  Although much of the available funding for the San Diego region is formula-driven using funding factors established by the grantor, other opportunities materialized over the years to compete for additional funding. Over the last decade, SANDAG was successful in winning competitive grant funding at the state and federal level. Specifically, since 2006, SANDAG received more than $1.7 billion in competitive state and federal funds. By using debt to advance capital funds for Early Action Program projects, the *TransNet* projects were in a "shovel ready" state with environmental permits and designs in place when it came time to compete for statewide funds such as Proposition 1B in 2006 and federal American Recovery and Reinvestment Act funds in 2009. Because the *TransNet* EMP was coordinated with capital construction, the transportation projects in the EAP were permitted early in the *TransNet* lifecycle allowing for construction to quickly begin. In fact, SANDAG expects to be in a similar condition with shovel ready projects to attract more than

[49] *TransNet* Triennial Performance Audit, 2015, page 22-24.

$5.4 billion over the next 30 years from the state's recent 2017 Road Repair and Accountability Act (Senate Bill 1) funding source.[50]

- **Keep San Diego Moving and the Dashboard**

  In 2006, SANDAG launched its KeepSanDiegoMoving.com website with an interactive Dashboard feature. While more agencies have since developed similar reporting features, this innovative website integrated up-to-date data from both SANDAG and Caltrans and allowed for progress tracking and accountability between the two *TransNet* partners. The Dashboard contained a multitude of information regarding *TransNet* projects including items such as:

  - Detailed project descriptions, brochures, fact sheets, maps, and pictures;
  - Project strategic plans, implementation plans, and environmental documents; and
  - Summarized budget and schedule information in addition to construction notices.

  For more than a decade, the *TransNet* "Dashboard" promoted transparency and greater accountability. This interactive tool allowed the public to obtain timely information about corridor, segment, or project status, budget, and schedule. Data presented derived from financial records for costs and project management tools for schedule information. Public viewers could get a quick status of projects or delve deeper into segments and individual projects, and *TransNet* project managers used the automated tool for project monitoring. Other sections on the Dashboard relayed information on emerging trends, risks, and issues that could impact scope, cost, or schedule of a project.[51]

- **Environmental Mitigation Program**

  As previously described, *TransNet* revenues included more than $850 million for environmental mitigation activities. Efforts focused first on acquiring land for mitigation and restoration as needed, and then managing the land in addition to monitoring efforts to conserve habitats and protect species. SANDAG's Environmental Mitigation Program (EMP), established in 2008, was recognized for its role in habitat restoration and preservation, species conservation, scientific research, and land management for the region. Further, the EMP dedicated funds to help fill in the gaps in regional conservation efforts that were often fragmented between local subarea plans and larger regional conservation plans required by state and federal law. These *TransNet* funds provided consistency in the implementation of broader biological conservation goals of the region and incentivized the local agencies to participate in coordinated conservation efforts.[52] Further, SANDAG regularly met and continues to meet on a formal basis with Riverside and Orange County representatives to discuss mutual environmental issues, collaborative efforts, and lessons learned. According to SANDAG, these collaborations led to a leveraging of resources above and beyond any single agency's efforts. In 2012, the California Chapter of the American Planning Association conferred its Best Practices Award on the EMP.

[50] Amounts scaled to year of expenditure.
[51] *TransNet* Triennial Performance Audit, 2009, pages 42-44.
[52] *TransNet* Triennial Performance Audit, 2012, page 63.

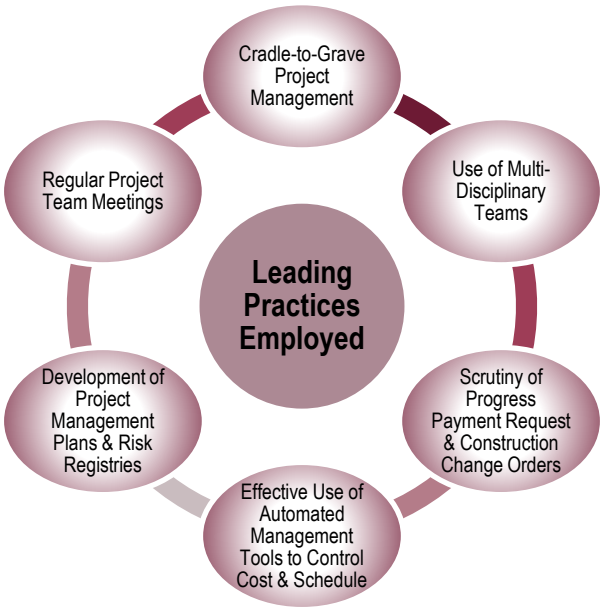
Project Management and Monitoring Follow Leading Practices

Successfully delivering transportation and transit development projects relies on employing the proper mix of project management practices to ensure that appropriate fiscal, schedule, monitoring, communication, and oversight controls are in place throughout a project's life cycle.

Leading Practices Employed

Compared to other public works and transportation programs and entities, past audits found that the *TransNet* Program had similar or better project management practices in place over areas such as multi-disciplinary teams, communication, project documentation, monitoring and oversight, conflict resolution, cost control, schedule adherence, and quality of work as highlighted in Exhibit 48.[53]

EXHIBIT 48. LEADING PRACTICES EMPLOYED



Source: Past *TransNet* Triennial Performance Audits.

Projects are Closely Monitored

In addition to other devices, SANDAG and Caltrans used the *TransNet* Dashboard as a project and program management tool to track up-to-date schedule and expenditure information against original baselines and budgets. When delays and overruns occur, there was a strong network in place to track conditions, minimize impacts, and communicate with all levels within the organizations and oversight leadership.

[53] *TransNet* Triennial Performance Audit, 2009, pages 69-75; 2012 pages 47 to 48; 2015 pages 21 and 22. Leading practices drawn from a variety of industry sources including the Construction Management Association's Construction Management Standards of Practice, Federal Highway Administration guidance, and Project Management Institute's Construction Extension to the Project Management Body of Knowledge Guide, among others.

Past audits found that schedule and cost variance on selected projects reviewed were reasonable. Like typical capital construction projects, schedule delays on *TransNet* projects often related to uncertainty of conditions, clearing environmental or permitting requirements, or changing design or regulatory standards. Cost increases were mostly related to adding new phases of a project to the *TransNet* Program or construction price fluctuations.

TransNet Grants Protocols are Rigorous

Complementing the capital project practices, past audits also noted strong protocols over *TransNet* grant application and award administration, monthly and quarterly status reporting, review of invoices and deliverables, and monitoring of all grant activities for the Senior-Mini, Active Transportation, Smart Growth, and EMP Land Management grant programs.[54] For example, SANDAG staff developed specific goals, eligibility and award criteria, consistent scoring sheets, thorough grant agreements, and specific deliverables. Moreover, SANDAG used a grants coordination team concept to collaboratively engage experts across grant areas to ensure implementation of best and consistent practices, as well as seek input from functional SANDAG areas such as planning, finance, contracting, and legal. Past audits found that SANDAG actively monitored grantees' compliance with grant terms, ensured grant schedules and activities were on target, and kept oversight committees regularly informed.

Revenue Fund Allocations Comply with Ordinance

Embedded within the *TransNet* Extension Ordinance are provisions for the specific allocation of *TransNet* sales tax revenues. California Board of Equalization collects the revenues and deducts its costs for performing this function prior to remitting sales tax collections to SANDAG, acting as the San Diego County Regional Transportation Commission. Allocations are made from gross revenues for SANDAG administrative expenses, Independent Taxpayer Oversight Committee expenses, and the Bicycle, Pedestrian, and Neighborhood Safety program. From those net revenues, the remaining annual revenues are allocated to the various major corridor, local street and road, environmental, and transit programs following stated percentages. Based on quarterly *TransNet* financial reports produced by SANDAG, the *TransNet* revenues were distributed in accordance with the required fund allocations over the last 10 years under review. Future annual financial audits will review the *TransNet* distributions and specifically report on accuracy and compliance.

[54] *TransNet* Triennial Performance Audit, 2012, pages 73-78, and page 82-83.

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Chapter 5: *TransNet* Financing

Funding a long-term regional capital improvement program is a much different and more complex activity than funding an annual operating need or even a short-term capital project as cradle to grave project development and implementation phases may stretch from 5 to more than 20 years for corridor capital improvement projects.[55] As the San Diego region continues to evolve and change, SANDAG is challenged to ensure that capital projects both meet current needs and achieve the vision outlined in the *TransNet* Extension Ordinance. With the nature of project scope modifications, cost increases, and needs that change, SANDAG is continually tasked with effectively leveraging and balancing *TransNet* funds. Compounding the challenge is that federal, state, and local funding sources are often allocated over shorter timeframes every few years, and may continually fluctuate adding to the uncertainty of managing long-term funding. As such, SANDAG, as well as those in the industry, must leverage a variety of fund sources to deliver the maximum projects possible in a capital project portfolio.

Since 2008, the financing decisions made by SANDAG and its *TransNet* partner agencies have generally benefited the program by allowing the acceleration of many Early Action Program (EAP) projects and positioned SANDAG to maximize funding available for projects. SANDAG adopted a Plan of Finance (POF)—a continually updated document focused primarily on the next 5 to 7 years—although it included revenue and cost assumptions through the end of the current *TransNet* Extension Ordinance through 2048. The Board of Directors approved the first POF in December 2005, which SANDAG has updated on an annual basis.[56] This plan was similar to those models used by others in the industry.

Before the *TransNet* Extension passed in 2004, SANDAG estimated it would generate $14 billion, as measured in 2002 dollars, of sales tax revenue over its 40-year life—or approximately $36 billion in nominal (year of collection) dollars. However, the most recent forecast predicted the total will now be closer to $8.9 billion in 2002 dollars or $19.2 billion in nominal (year of collection) dollars—a significant reduction in forecasted revenues in large part due to the Great Recession and slower than expected population growth rates.[57] Peer agencies also made significant reductions in their sales tax forecasts over the last 10 years ranging from 32 percent to 41.6 percent, and some agencies rebalanced their portfolio of projects to reduce scope of projects, delay projects outside the sales tax measure timeframe, or eliminate projects. During the Great Recession, SANDAG took advantage of more favorable construction costs and a highly competitive bidding environment to continue constructing projects. Also, SANDAG leveraged significant state and federal dollars available at the time for projects entering the construction phase.

Ultimately, SANDAG accelerated projects in its EAP through the issuance of debt while maintaining the financial viability of the *TransNet* Program. As of June 30, 2017, SANDAG issued five bond series totaling more than $2 billion, and its use of bonding was consistent with the financing activity of peer agencies. Further, consistent with the intent of the original POF, sales tax revenues under the *TransNet* Extension

[55] According to SANDAG.
[56] Due to issues with sales tax forecasting, a 2016 update was completed but not incorporated into a full-fledged POF. Completion of the 2017 update was delayed to include the latest Senate Bill 1 Road Repair and Accountability Act and federal Transportation Infrastructure Financing and Innovation Act (TIFIA) loan terms. The most recent update, covering 2016-2017, was presented to the Board in September 2017.
[57] SANDAG also discovered in 2016 that its revenue forecasting model had a significant data aggregation error; however, an independent report confirmed that those errors did not affect the initial 2002 estimates for the *TransNet* Program.

Ordinance allocated to the Major Corridors program were leveraged at a ratio of $1.89 to $1 generating more than $2.9 billion in state and federal funding and providing collateral for bond financing.

While continuing with a ratio of $1.89 to $1 would likely not be sufficient to complete the remaining *TransNet* projects, it is reasonable that the *TransNet* Program could be delivered as expected given the nearly 30-year historic leveraging from *TransNet* and the T*ransNet* Extension, reported by SANDAG to be approximately 3-to-1 program-wide, as well as reasonably expected revenues from other sources if SANDAG continues to employ strong project management and fund management practices. However, as the past decade has shown, making long-range predictions—such as those over the 40-year *TransNet* Program—is an inaccurate science no matter the sophistication of methods employed, as forecasts become more uncertain the longer the period with the innumerable unknowns. Moreover, as costs continue to rise and SANDAG transitions to pay-as-you-go for funding capital projects, it will need to vigilantly ensure that it has the financial capacity to complete *TransNet* Ordinance projects or whether the program needs to be rebalanced by reducing scope or delaying projects outside the remaining 30-year *TransNet* period.

Given historic revenue generation and the continuation of strong practices, it is reasonable to expect the *TransNet* Program could be delivered in the 40-year timeframe.

TransNet Plan of Finance Model

The POF was the tool used by SANDAG over the last decade to help identify funding sources over the entire 40-year *TransNet* Extension and illustrated SANDAG's financing strategies and cash flow considerations as the organization works to deliver the projects approved by voters as part of the *TransNet* Extension Ordinance in 2004. In Exhibit 49, funding sources as identified in the 2005 Plan of Finance were compared to actual major corridor expenditures through the end of 2017.[58] The table does not include funding amounts awarded to SANDAG that have not yet been spent on *TransNet* projects.[59]

As shown, the initial POF estimated roughly $5.2 billion in funding sources, with 61.5 percent coming from *TransNet* revenues and proceeds for financing activities (such as commercial paper and bond debt) and the remaining 38.5 percent of funds from federal, state, and other local sources. Actual expenditures through July 2017 for 78 major corridor project segments and four project studies, including the 19 initial EAP project segments, were $4.4 billion. *TransNet* revenues and proceeds from financing accounted for 34.6 percent of Major Corridor expenditures to date, while the other 65.4 percent came from federal, state, and other local sources.

[58] Note that this period goes beyond the initial 5-7 year timeframe on which the 2005 POF was focused.
[59] Expenses capture funds spent by SANDAG and Caltrans on Major Corridor projects (consistent with the methodology used for the POF).

EXHIBIT 49. COMPARISON OF PLANNED FUNDING SOURCES WITH ACTUAL SOURCES EXPENDED THROUGH 6/30/2017

Source	2005 POF Expected Funding Source Mix		Actual Expenditures by Funding Source	
***TransNet* and Financing Proceeds**	**$3,169,019,566**	**61.5%**	**$1,517,731,839**	**34.6%**
TransNet Revenues	$1,601,751,560	31.1%		
Bond Proceeds	$1,031,210,445	20.0%		
Commercial Paper Proceeds	$492,350,041	9.6%		
Other Financing Proceeds	$43,707,520	0.8%		
Other Revenues	**$1,984,506,033**	**38.5%**	**$2,872,939,120**	**65.4%**
Federal Capital Funds	$947,929,959	18.4%	$983,664,476	22.4%
State Capital Funds	$287,617,000	5.6%	$1,613,315,828	36.7%
Other Local	$50,156,000	1.0%	$275,958,816	6.3%
Other Potential Revenues (STP, CMAQ, etc.) [60]	$668,557,285	13.0%	-	-
Interest / Fund Proceeds	$30,245,789	0.6%	-	-
Total	**$5,153,525,599**	**100.0%**	**$4,390,670,958**	**100.0%**

Source: 2005 EAP Plan of Finance and *TransNet* Dashboard.

TransNet Funds have been Leveraged with Significant State, Federal, and Other Local Dollars

Since 2008, SANDAG and its *TransNet* partners generally positioned the *TransNet* Program well to maximize funding available for improvement projects. Similar to other government capital projects, SANDAG leveraged *TransNet* dollars with significant amounts of state, federal, and local funds. The ability to leverage funds effectively is crucial to SANDAG's ability to complete the major corridor capital construction projects, while also amplifying the effectiveness of *TransNet* dollars in other areas.

As presented in Exhibit 50, *TransNet* funds expended on major corridors (through June 2017) were leveraged at a rate of 1.89:1. Although *TransNet* funds at the local street and road level were planned to be leveraged with other funding sources at a 1.10 ratio, the actual expenditure data for other funds was not available for review. For *TransNet* grant programs, SANDAG provided information showing leveraging ratios ranging from 0.59 for the Senior Mini-Grant Program to 1.85 for Active Transportation Grants.

EXHIBIT 50. *TRANSNET* LEVERAGED FUNDS BASED ON EXPENDITURES, AS OF 6/30/2017

Program Area	*TransNet* Funds	Other Funds	Total	Leveraging Ratio
Major Corridors	$1,517,731,839	$2,872,939,120	$4,390,670,958	1.89
Local Street and Road	$626,295,805	Planned leverage ratio was 1.10 per the 2014 Regional Transportation Improvement Program data provided by SANDAG.		

Source: *TransNet* Quarterly Reports, Regional Transportation Improvement Program, *TransNet* Dashboard, and data provided by SANDAG.

[60] Other potential revenues will be categorized as federal or state fund sources once received and available to spend.

Debt versus Pay-as-you-Go Practices

Prior to the start of sales tax collections under the *TransNet* Extension Ordinance, SANDAG was faced with a decision—either use debt-financing to provide immediate funding for major corridor capital projects or adopt a pay-as-you-go (pay-go) approach saving sales tax revenues to spend on large capital projects. As summarized in Exhibit 51, both approaches have advantages and benefits over the other method. Ultimately, SANDAG issued debt to advance projects, although it expects to transition to a pay-go approach by 2022 to limit the amount of accumulated debt.

EXHIBIT 51. BENEFITS OF TWO PRIMARY METHODS USED TO FINANCE CAPITAL TRANSPORTATION PROJECTS

Debt Financing	Pay-Go
• Greater control over cash-flow • Repayment in "cheaper" dollars • Shorter lead time / projects completed as needed • Intergeneration equity [61]	• Avoids cost of funds associated with borrowing (debt service) • No excessive debt burden or risk of default due to economic downturns • Increased flexibility in future years due to no long-term debt service

Source: Industry research and financing practices.

Benefit of SANDAG's Use of Debt to Accelerate Early Action Program Projects

In 2005, the SANDAG Board of Directors authorized the use of debt financing to accelerate the start of 19 major corridor capital construction project segments through design and environmental permit stages. Since that time, 59 EAP project segments were approved and added by the SANDAG Board of Directors consistent with the *TransNet* Ordinance. Over the last decade, five bond series have been issued generating more than $2 billion—$1.8 billion of which provides cash flow to capital EAP projects (including local street and road projects). Having these projects accelerated in their project phases likely helped SANDAG take advantage of unexpected funding streams that emerged throughout the decade such as state Proposition 1B in 2006 and the federal American Recovery and Reinvestment Act in 2009.

Accelerating project phases through debt financing likely helped SANDAG take advantage of unexpected funding streams such as Proposition 1B in 2006 and the American Recovery and Reinvestment Act in 2009.

SANDAG's Use of Debt Aligns with Comparison Areas

SANDAG's use of debt financing allowed it to raise significant capital funds while maintaining a reasonable debt service schedule and appeared to be consistent with sound financial management practices. Specifically, SANDAG used a variety of debt financing mechanisms, including bonds commercial paper, interest rate swap agreements, and grant anticipation notes to fund *TransNet* and major corridors, in particular. Commercial paper was issued to raise an additional $100.1 million between 2009 and 2016, and SANDAG used bond proceeds to pay down outstanding commercial paper, taking advantage of lower rates

[61] Capital transportation projects typically have a useful life of approximately 45 years; while future residents will enjoy the benefits of these projects, they would not have contributed to their completion under a pay-go system. Under debt financing, debt is repaid over a time period that is close to the useful life of the asset. As such, those who benefit from the project also pay the cost.

on bond funds. More importantly, SANDAG kept debt service obligations reasonable throughout the life of the program.

Peer transportation agencies with similar sales tax measures, including the Orange County Transportation Agency, the Pima Association of Governments in Arizona, and Valley Metro (which covers the City of Phoenix and Maricopa County) in Arizona all have issued debt to fund transportation projects. The Pima Association of Governments, for example, issued $267 million in bonds under their current ordinance, with current sales tax collections of roughly $75 million and annual debt service obligations of $28 million.[62] SANDAG, by comparison, issued more than $2.2 billion in bonds, with current sales tax collections of $290 million and annual debt service of $105 million.[63] Although the agencies differed significantly in size and scope, both have annual debt service obligations equal to roughly one-third of current sales tax collections.

Like SANDAG, these agencies raised bond funds over multiple bond issuances, including issuing the Build America Bonds introduced as part of the American Recovery and Reinvestment Act in 2009. Most importantly, SANDAG bonds were consistently rated as "AAA" by Moody's Investor Service and its bonds have recently been rated with the highest rating possible of "AAA" by both the Standard and Poor and Fitch rating agencies.[64]

Impacts of Transitioning to Pay-as-you-Go Financing

As the *TransNet* Program reaches the end of its long-term debt-financing strategy used to advance larger capital-intensive projects, it will transition to a pay-as-you-go (pay-go) approach to fund projects. Under pay-go, SANDAG will have to save up funding from *TransNet* sales tax collections while securing federal, state, and local grant and matching funds before expending them on capital projects. SANDAG is expecting to transition from a debt-financing model for funding capital construction to a pay-go approach by 2022. Although SANDAG has additional debt capacity, the change to pay-go will help ensure that debt can be repaid without jeopardizing SANDAG's ability to deliver remaining *TransNet* projects. Assuming it does not take on unreasonable debt between 2017 and 2022, SANDAG should be able to meet its existing debt obligations without sacrificing the ability to allocate *TransNet* dollars to capital projects.

However, the pay-go approach could require stretching out projects over a longer time until adequate funding is saved or dividing projects into manageable segments to complete as funding is available. According to SANDAG, it might also involve a "staggered, or accordion approach, where work is accelerated or slowed down depending on funding availability." Debt funds may be unavailable, but there will still likely be regular formula funds coming into the region from state and federal sources to augment the *TransNet* collections. Moreover, there will still be options to advance projects through short-term financing mechanisms like grant anticipation notes and bond anticipation notes and to stay competitive for future opportunities for money from state or federal programs to be developed in the future.

[62] Sales tax collections are for 2016 and were provided by the Pima Association of Governments. Debt service and bond amounts taken from the most recent bond issuance notice from May 2014.
[63] A portion of funds from recent bond issuances have been used to refund prior bond issuances. The $2.2 billion figure represents gross bond funds issued. SANDAG amounts are for fiscal year 2015-2016.
[64] Refer to rating notices posted on SANDAG's investor relations website.

While pay-go has an advantage of avoiding the costs of debt financing, changes to project scopes and cost increase could have a greater impact on SANDAG's ability to complete the major corridor capital construction projects by 2048. Two trends further complicate matters—first, *TransNet* revenues were lower than expected through 2016 likely due to the Great Recession, with future revenue projections similarly revised downward. Second, construction costs continued to increase. Together, these factors present challenges to completing the major corridor projects by the 2048 horizon year of the *TransNet* Program.

Revenue Projections and Assumptions

Predicting long-term funding availability for capital construction projects is challenging. SANDAG will collect *TransNet* sales tax revenues through 2048, although the exact dollar value is less certain. While collections can be reasonably forecasted over the short term, forecasting models cannot capture the complicated changes in macroeconomics and consumer behavior that occur over long time periods. As a result, the accuracy of a forecast decreases the farther it is extrapolated from actual data. When forecasting 40 years into the future, even relatively small changes to models produce large variations in forecasts during the final years of the *TransNet* Extension Ordinance. As shown in Exhibit 52, actual collections were notably lower than the initial forecasts—a difference driven primarily by the effects of the Great Recession.

Through 2016, Actual *TransNet* Collections Were Significantly Lower than the Ordinance Forecast

Before the *TransNet* Extension passed, SANDAG estimated it would generate $14 billion, as measured in 2002 dollars, in sales tax revenue over its 40-year life—or approximately $36 billion in nominal (year of collection) dollars. Sales tax collections under the extension began in 2009, coinciding with the Great Recession. Over the first eight years of the *TransNet* Extension, actual collections were much lower than the ordinance forecast presented to voters. Exhibit 52 shows actual collections through 2016 were 22.6 percent lower than initially forecasted—a difference of more than $566 million dollars.[65]

EXHIBIT 52. ACTUAL AND FORECASTED *TRANSNET* COLLECTIONS, 2009 TO 2016 (IN NOMINAL DOLLARS)

Year	Ordinance Forecast	Actual Collections	Difference	Percent Difference
2009	$258,770,831	$221,991,360	($36,779,471)	-14.2%
2010	$273,052,156	$204,191,747	($68,860,409)	-25.2%
2011	$282,676,207	$221,304,015	($61,372,192)	-21.7%
2012	$299,446,544	$236,947,112	($62,499,432)	-20.9%
2013	$316,569,168	$247,221,161	($69,348,007)	-21.9%
2014	$336,031,020	$260,114,931	($75,916,089)	-22.6%
2015	$356,769,930	$268,840,550	($87,929,380)	-24.6%
2016	$379,187,588	$275,500,023	($103,687,565)	-27.3%
Total	**$2,502,503,443**	**$1,936,110,899**	**($566,392,544)**	**-22.6%**

Source: Forecast data obtained from SANDAG's 2002 Preliminary Series 10 model. Collections obtained from *TransNet* Quarterly Reports.
Note: Sales tax revenues projections have been regularly updated since the initial figures presented to voters that are shown in Exhibit 52-54.

[65] As part of the Plan of Finance update process, SANDAG regularly produced a revenue forecasts. In late 2016, a significant data aggregation error was discovered that overestimated revenue forecasts made between 2007 and 2015. After discovering the error, SANDAG produced a new sales tax forecast using data from several nationally recognized and widely-used firms. An independent investigation conducted by Hueston Hennigan LLP confirmed those errors were not present in the forecasted amounts shown in Exhibits 52-54.

Recent Forecasts Indicate that *TransNet* Collections will be Significantly Less than Initial Forecast

While the initial *TransNet* Extension Ordinance forecasted total collections of $14 billion, as measured in 2002 dollars—or approximately $36 billion in nominal (year of collection) dollars—through 2048, the most recent forecast in 2017 suggested the total sales tax collections will be closer to $8.9 billion in 2002 dollars or $19.2 billion in nominal (year of collection) dollars—despite the fact that actual collections have compared favorably to the initial ordinance forecast over the first eight years of the *TransNet* Extension.

EXHIBIT 53. ESTIMATED AND ACTUAL *TRANSNET* REVENUES (**IN NOMINAL DOLLARS**)

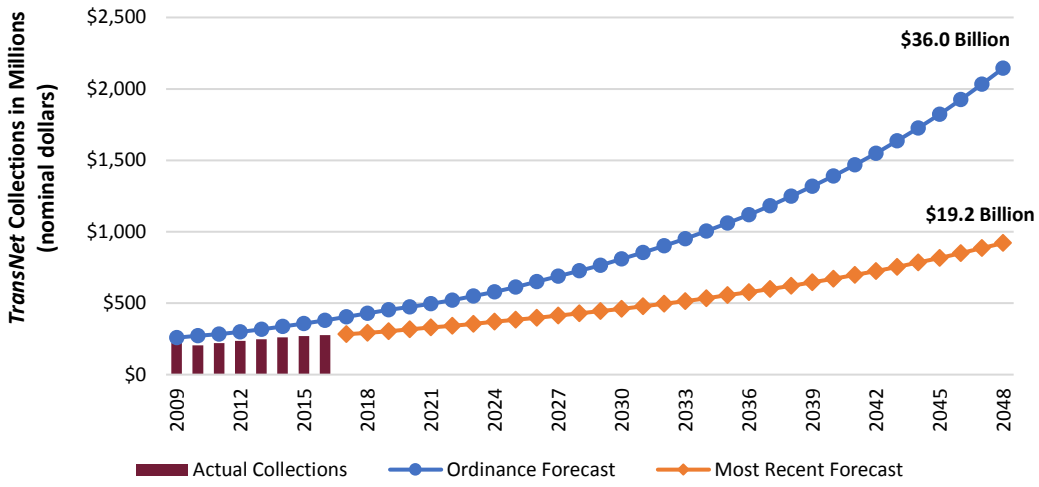
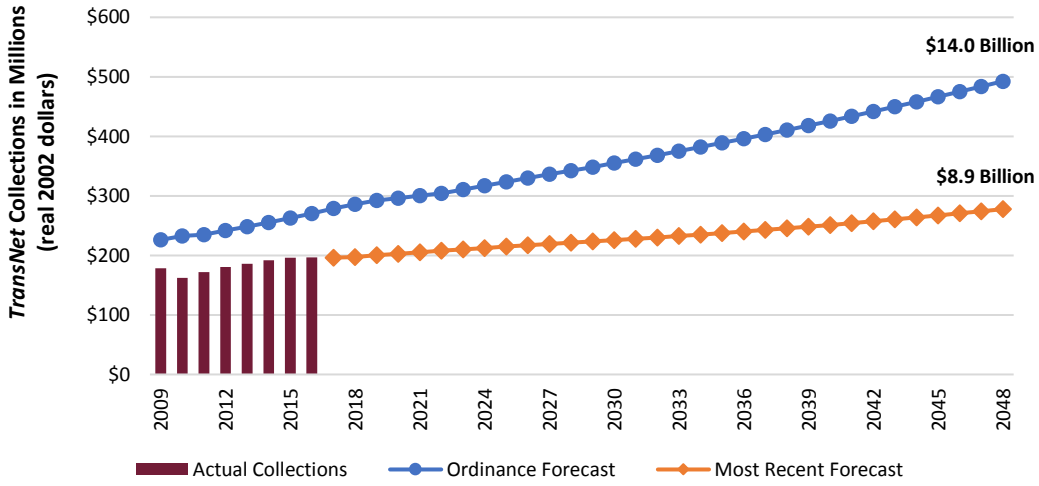


EXHIBIT 54. ESTIMATED AND ACTUAL *TRANSNET* REVENUES (**IN REAL 2002 DOLLARS**)



Source: Data provided by SANDAG.

While the 2002 revenue forecast is substantially higher than the most recent forecast, the difference is largely the result of the 2002 forecast's now-outdated assumptions of higher population and higher income growth as well as higher inflation rates for the nominal-dollar forecast. Updated assumptions regarding the

percentage of income spent on taxable items also result in lower revenues, as non-taxable spending on on-line purchases, housing, and health care have surged since 2002. It also is worth noting that the SANDAG Plan of Finance is revised annually, and relies on the most recent forecast of revenue, not on the 2002 forecast.

As one considers how *TransNet* collections impact SANDAG's ability to deliver the projects and services promised to voters, it is important to note that a disproportionate amount of forecasted *TransNet* revenues will be collected in the final years of the program, even when revenues are adjusted for inflation. Over the first 10 years of *TransNet*, the difference (in nominal dollars) between the initial Ordinance forecast and the 2016 forecast was $824 million, or -24.7 percent.[66] In the final 10 years of the 40-year *TransNet* Extension Ordinance, the difference between the initial Ordinance forecast and the 2016 forecast was $9.3 billion in nominal dollars—a decrease of 54.4 percent. Thus, the biggest impact was projected to occur in later years and affect the remaining projects unless other leveraged revenue sources are realized.

Similar to Comparison Areas, *TransNet* Forecast was Impacted by the Great Recession

Between the initial *TransNet* forecasts made in 2003 and the beginning of *TransNet* collections in April 2008, the United States and the world experienced one of the worst economic recessions in modern history. The Great Recession officially lasted from December 2007 to June 2009, and had a sizeable impact on sales tax revenue in the San Diego region and other regions. In fact, when compared with three other agencies that also had a voter-approved half-cent sale tax measure in place, SANDAG's experience with sales tax forecasts was like those of the other agencies—although the comparison areas had sales tax measures for shorter durations than *TransNet's* 40-year measure. As shown in Exhibit 55, all four agencies made revenues forecasts for their respective sales tax measures prior to the beginning of the Great Recession, began collecting sales tax revenue in the period around the Great Recession, and had to revise revenue forecasts within the last few years.

In each case, the most recent forecast was significantly lower than the initial forecast made prior to the beginning of the Great Recession. While SANDAG had the greatest percent change from the initial to most current forecast, it had the only sales tax measure that runs for 40 years. Thus, for comparison purposes, we analyzed and compared just the first 20 years of *TransNet* to the other agencies and found the *TransNet* decrease between forecasts was 32.3 percent—which was consistent with decreases observed in the 20-year forecasts for the Maricopa Association of Governments and Pima Association of Governments. Similarly, when looking at the first 30 years of *TransNet* collections to compare against others, the decrease between *TransNet* forecasts was 39.7 percent, which was less than the 41.6 percent reduction between forecasts made by the Orange County Transportation Authority for its 30-year sales tax collections.

[66] The 2016 forecast (known as the consensus forecast) includes actual collections through 2016 and forecasted collections for 2017 and 2018.

EXHIBIT 55. SALES TAX FORECAST COMPARISONS, SANDAG AND OTHER COMPARABLE AGENCIES

Organization	Sales Tax Collection Period	Initial Forecast Year	Forecast Updated	Initial Forecast (YOE $)	Current Forecast (YOE $) [1]	Variance
SANDAG (20-year) [2]	2009 - 2028 (20 Years)	2003	2016	$9.1 Billion	$6.2 Billion	-32.3%
Maricopa Association of Governments	2006-2026 (20 Years)	2004	2014	$14.3 Billion	$8.6 Billion	-39.9%
Pima Association of Governments	2007-2026 (20 Years)	2005	2013	$2.5 Billion	$1.7 Billion	-32.0%
SANDAG (30-Year) [2]	2010 - 2038 (30 Years)	2003	2016	19.0 Billion	$11.4 billion	-39.7%
Orange County Transportation Authority	2011-2041 (30 Years)	2005	2016	$24.3 Billion	$14.2 Billion	-41.6%
SANDAG	2009 - 2048 (40 Years)	2003	2016	$36.0 Billion	$19.2 Billion	-46.7%

Source: Data provided by SANDAG, PAG, and MAG. Publicly available data for OCTA.

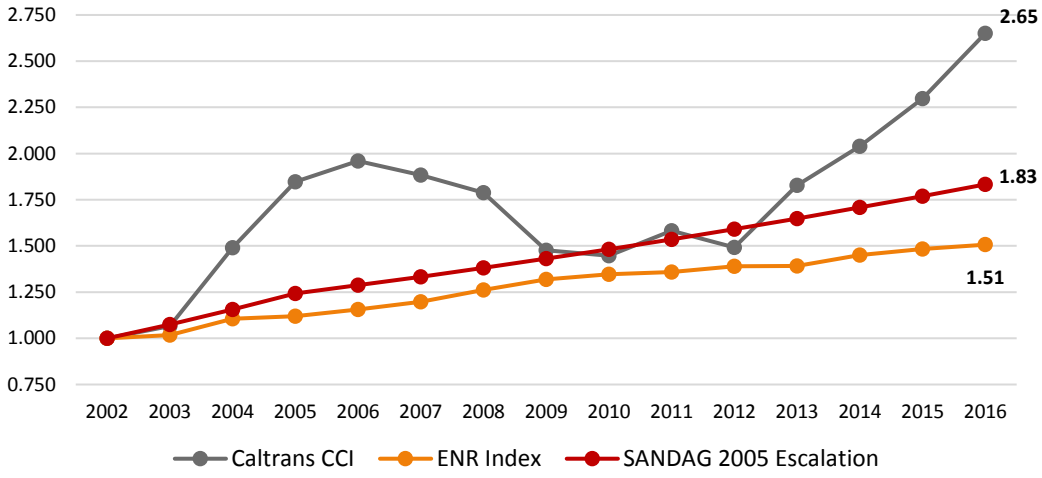
Note: [1] Current forecasts include actual collections through the year in which the forecast was updated.
[2] We examined SANDAG forecasts over the first 20 and 30 years, respectively, of the 40-year *TransNet* Extension Ordinance to provide comparisons to the 20 and 30-year collection periods for peer agencies shown in the table.

Cost Estimation Assumptions

Estimating the cost of projects, many of which will not begin construction for several years, was similarly difficult. Initial *TransNet* cost estimates were made before all project scopes had been defined, and then were escalated to future year dollars based on assumptions about inflation in construction costs. As projects move from initiation to final design, assumptions made during the initial estimate were refined and adjusted in subsequent POFs.

As part of the 2005 Plan of Finance, SANDAG commissioned a study to determine the appropriate rate at which to escalate current construction cost estimates to year of expenditure dollars. As shown in Exhibit 56, the SANDAG cost escalation methodology compared favorably to actual construction cost increases, as captured by the Caltrans Construction Cost Index (CCI) and the Engineering News Record Index (ENR).

EXHIBIT 56. COMPARISON OF SANDAG COST ESCALATION AND CUMULATIVE CONSTRUCTION COST INCREASES, 2002 TO 2016



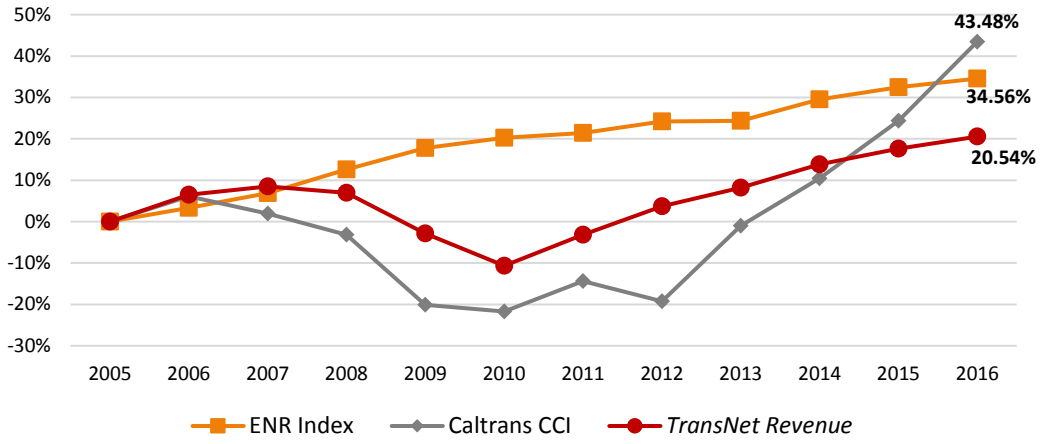
Source: 2005 Plan of Finance and data provided by SANDAG.

Further, SANDAG took a conservative approach to project costing in its initial 2005 Plan of Finance. Project costs were estimated in two ways—by escalating the original cost estimates to year-of-expenditure dollars and by estimating project costs based on expected scope. SANDAG used the higher of the two estimates for planning purposes.

While SANDAG's estimation process was reasonable, project costs continued to rise as shown in Exhibit 57 although costs dropped during the Great Recession resulting in additional state and federal stimulus funds and inexpensive costs of borrowing as well as the ability of SANDAG to complete more projects. Project cost increases were both the result of increases in actual construction costs and the result of updated cost estimates as projects move from preliminary design and engineering to construction. In fact, initial cost estimates were based on project scopes that were approximated with the information known at the time—as a result, project costs may continue to escalate as project scopes are more refined and developed.

Recent trends show that construction costs increased at a faster rate than *TransNet* revenues. As costs grow faster than revenues, SANDAG is challenged with identifying additional funding sources to cover the gap. Should this trend continue, it may become increasingly difficult to complete the portfolio of major corridor highway and transit projects within the 2048 horizon year given existing funding sources.

EXHIBIT 57. CUMULATIVE CHANGE IN CONSTRUCTION COSTS AND *TRANSNET* REVENUES, 2005 TO 2016



Source: Revenue and cost data provided by SANDAG.

Capacity for Future Projects

While much was accomplished with the *TransNet* Extension since 2005, the program is still in the early phases of its lifecycle with another 30 years of tax collections and transportation improvements planned. Knowing with certainty whether sufficient resources will be available over the next 30 years is a challenging endeavor as many unknowns exist and the industry will change in ways that are difficult to predict at this stage in the *TransNet* Program life cycle. Since long-term forecasts are challenged with uncertainty, long-term transportation planning focused on reasonable expectations to deliver intended results.

Funds Needed for In-Progress and Not Started Projects

The 2017 Plan of Finance estimated $22.7 billion would be needed to complete the major corridor projects. As of June 30, 2017, there were 30 project segments in-progress as shown in Exhibit 58. Based on SANDAG *TransNet* Dashboard data, the current 30 project segments in-progress have a remaining budget of approximately $2.8 billion and are scheduled to be completed by 2027.

EXHIBIT 58. *TRANSNET* EXTENSION ORDINANCE PROJECTS IN-PROGRESS, AS OF 6/30/2017 [1]

#	Ordinance #	CIP #	Project Name	Remaining Budget [2]
1	45	1201507	SR 15 BRT: Mid-City Centerline Stations	$29,629,000
2	7, 45	1201514	Downtown Multiuse and Bus Stopover Facility	$44,411,000
3	7, 8	1201518	I-15 Mira Mesa Transit Station Parking Structure	$14,202,000
4	14	1280504	South Bay BRT	$85,733,400
5	5, 6	1280508	SR 94 Express Lanes I-805 to Downtown (Environmental)	$1,369,000
6	14	1280513	I-805/SR 94 Bus on Shoulder Demonstration Project	$30,398,885
7	3, 16	1280514	I-805/SR 15 Interchange	$1,466,394
8	9	1280515	I-805 South Soundwalls	$25,890,000
9	21	1200506	I-5/Genesee Interchange and Widening	$48,514,061
10	21	1200507	I-5/Voigt Drive Improvements	$8,337,000
11	21	1200508	I-5/Gilman Drive Bridge	$20,451,196
12	23	1257001	Mid-Coast Light Rail Transit (LRT)	$1,584,723,719
13	29	1200503	I-5/SR 56 Interchange	$6,510,396
14	26, 27	1200504	I-5 HOV Birmingham to Palomar	$377,793,000
15	31	1239803	Oceanside Station Pass-Through Track	$22,806,570
16	31	1239805	Poinsettia Station Improvements	$25,459,283
17	31	1239806	San Elijo Lagoon Double Track	$61,511,000
18	31	1239809	Eastbrook to Shell Double Track (Design)	$1,079,185
19	31	1239810	Carlsbad Village Double Track (Design)	$1,195,291
20	31	1239811	Elvira to Morena Double Track	$146,030,043
21	31	1239812	Sorrento to Miramar Phase 2 (Design)	$3,606,319
22	31	1239813	San Dieguito Lagoon Double Track and Platform (Design)	$1,744,931
23	31	1239814	COASTER Preliminary Engineering (Design)	$179,554
24	31	1239815	San Diego River Bridge	$82,046,427
25	31	1239816	Batiquitos Lagoon Double Track	$47,135,406
26	31	1239817	Chesterfield Drive Crossing Improvements	$6,129,047
27	32	1205201	SR 52 2ML: I-15 to SR 125 (Environmental)	$5,122,000
28	34	1212501	SR 94/SR 125 South to East Connector (Design)	$972,000
29	39	-	SR 67 Intersection Improvements at Dye Rd	Not applicable. [3]
30	47, 48	1390505	SR 905/125/11 Southbound Connectors	$67,927,644
			30 Projects, Total:	**$2,752,373,751**

Source: *TransNet* Dashboard (TransNettrip.com) and SANDAG data.

Note: [1] Segment in-progress could be at different project phases such as environmental, design, or construction and is part of a larger corridor. [2] Budget is in 2017 dollars. [3] Project did not use *TransNet* major corridor funds; rather $14 million of County of San Diego *TransNet* funds and $2 million of State SHOPP funds were programmed for this project.

Moreover, an additional $17.6 billion in projects outlined in the Ordinance have not yet started as shown in Exhibit 59. Those projects are planned to be completed by 2048 within the current timeframe of the San Diego Forward: The Regional Plan.[67] The remaining $2.3 billion relates to future efforts on the major corridors that have not yet been allocated to specific project segments.

EXHIBIT 59. *TRANSNET* EXTENSION ORDINANCE PROJECTS NOT YET STARTED, AS OF 6/30/2017

Summary Description	Ordinance #	Estimated Cost to Complete [1]
I-805 Corridor		**$7,473M**
I-805: Mission Valley Viaduct	11	
SR 52: I-15 to I-805	17	
HOV Connector: I-805 / SR 52 Interchange	18	
I-5 South Corridor		**$4,236M**
I-5: SR 905 to SR 54	19	
I-5: SR 54 to I-8	20	
I-5 North Corridor		**$3,273M**
HOV Connector: I-5 / I-805 Interchange	28	
FWY Connector: I-5 / SR 78 Interchange	30	
SR 94 / SR 125		**$1,873M**
SR 94: SR 125 to Steele Canyon Rd	35	
SR 94 / SR 125: I-805 to I-8	36	
SR 54 / SR 125		**$383M**
SR 54 / SR 125: I-805 to SR 94	38	
I-8 Corridor		**$80M**
I-8: Second St to Los Coches Rd	40	
SR 56		**$273M**
SR 56: I-5 to I-15	44	
Coronado Tunnel		**Not applicable**
SR 75 / SR 282 (Coronado Tunnel): Glorietta Blvd to Alameda Blvd [2]	46	Not applicable
Total Estimated Cost to Complete:		**$17,591M**

Source: *TransNet* Dashboard (TransNettrip.com) and San Diego Forward: The Regional Plan.

Note: [1] Estimated Cost is in 2017 dollars. [2] Coronado residents voted against the Coronado Tunnel project in June 2010. The project is no longer in the San Diego Forward: The Regional Plan.

[67] According to the San Diego Forward: The Regional Plan, projects were designated as planned for completion within 10-year decade windows such as by 2030, 2040, or 2050. While the San Diego Forward: The Regional Plan listed these projects as scheduled for completion by 2050, the *TransNet* Extension Ordinance sunsets by 2048.

Funding Remaining for *TransNet* Projects is Challenging and Uncertain

The past several decades revealed new funding sources were available to assist transportation agencies like SANDAG in fulfilling their transportation plans for a region as shown in Exhibit 60. Whether the federal government created programs to stimulate the economy through the American Recovery and Reinvestment Act or California voter-passed propositions securing bond funding, there were non-sales tax funding sources pledged over the years to support long-term capital construction.

EXHIBIT 60. PAST VOTER-APPROVED, STATEWIDE INITIATIVES OR FEDERALLY-APPROVED INFRASTRUCTURE PLANS

Source: SANDAG Board Meeting, October 27, 2017.

For instance, long-standing federal and state funding, such as Congestion Mitigation and Air Quality and State Transportation Improvement Program funds, have provided stable resources to the San Diego region for the past 25 years or longer. Although there was fluctuation in the past with some of these funds, SANDAG anticipates the funds will continue to provide a reliable source of funds to supplement *TransNet*. It is based on this historical practice that SANDAG has a strong degree of certainty that new funding sources will continue to materialize over the remaining 30 years of the *TransNet* Program. Moreover, SANDAG foresees that "a substantial portion of the funds available in the future will be competitive in nature, requiring initial investments in environmental and preliminary engineering activities to form a strategic, steady stream of competitive projects."

Road Repair and Accountability Act of 2017 (Senate Bill 1) Funding

One recent new funding source available to advance project implementation is the Road Repair and Accountability Act of 2017, commonly known as Senate Bill 1 (SB1). In April 2017, Governor Brown signed into law SB1 that is estimated to provide more than $5 billion annually in funding over the next decade for statewide transportation projects and programs. As one of the most broad-sweeping pieces of legislation passed over the last two decades, SB1 is split between state and local investments—through the authorization of an additional 12-cent gas tax as well as diesel taxes and other fees beginning in November 2017. Unlike other one-time state funded legislation in the past, SB1 provides a permanent source of funds through fuel taxes indexed to inflation to prevent erosion of its purchasing power.

Basically, SB1 included four programs for local street and road, solutions for congested corridors, trade corridor enhancement, and traffic congestion relief program—all of which could benefit the San Diego

region. While nearly two-thirds of the funds were dedicated to "Fix-It First" projects on the highway and local road system, SB1 also provided funding streams for public transit, active transportation, and multimodal solutions with a focus on expansion versus maintenance. According to SANDAG, the region has historically seen approximately 10 percent from these types of statewide funding measures. If similar results are achieved under the SB1 funding, an estimated $5.4 billion might be provided and available for SANDAG *TransNet* Major Corridor projects through 2048. In addition, SB1 is expected to provide approximately $540 million annually for SANDAG, Caltrans, transit, and local jurisdictions in the San Diego region. At this time, the California Transportation Commission is still developing program implementation guidelines for the trade and congested corridor competitive programs, in anticipation of issuing calls for projects in late 2017 or early 2018.

Similar to any long-term transportation funding such as *TransNet*, SB1 funding is based on revenue projections that may or may not realize actual collections of $5 billion annually; thus, the amount could increase or decrease over time—adding a level of uncertainly for future years' funding available to *TransNet*. Moreover, in September 2017, opponents of SB1 were collecting signatures for an initiative to ask the voters of California to repeal SB1 and the additional taxes placed upon them. Thus, this long-term funding option for SANDAG—and all other transportation entities across the state—could be in jeopardy.

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Chapter 6: Conclusion and Future Considerations

To solve a region's congestion and mobility challenges, transportation agencies like SANDAG have a variety of options. Some involve capacity-building approaches such as adding lanes to a freeway, widening streets, implementing a light rail system, or buying additional buses and adding routes. Other approaches focus on managing congestion and mobility to maximize throughput within the existing roadways using technology and multimodal coordination to optimize investments already made in a particular area. Additionally, newer concepts such as complete streets designed for safe and complete access for pedestrians, bike riders, motorists, and transit riders are rising in popularity over the last few years. Yet, there is no one solution or correct combination of strategies, projects, or programs for addressing a region's transportation needs.

Overall, much has been accomplished over the first 10-year period of the 40-year *TransNet* life cycle with approximately 61 percent of major corridor projects delivered or in-progress even though only one-quarter of the *TransNet* Program's time has elapsed. Along the way, SANDAG and its *TransNet* partners demonstrated great collaboration and cooperation, employed leading project management practices, and took advantage of financing opportunities as they have arisen.

As part of this 10-year look-back review, themes have emerged for consideration of the SANDAG Board of Directors in its capacity as the San Diego County Regional Transportation Commission as it looks forward to the next decade of the *TransNet* Program. In the sections that follow, we highlight a number of areas worthy of deliberation. More thorough analysis of the current *TransNet* Program along with specific recommendations will be conducted as part of the in-progress *TransNet* Triennial Performance Audit to be issued in 2018.

Further, Governor Brown signed into law Assembly Bill 805 (AB 805) in October 2017 making various changes to the governance and voting structure of SANDAG. With certain exceptions, all items before the SANDAG Board of Directors previously required a majority tally vote (one vote per member agency jurisdiction) and a majority of the weighted vote (based on population) of the member agencies present. As of January 1, 2018, AB 805 will change the weighted voting structure requiring a majority tally vote for action on any item. After a tally vote is taken, a weighted vote may be called to supersede the original action of the Board. The bill also allowed MTS and NCTD to seek voter approval of a half-cent sale transaction and use tax for public transit purposes, established an audit committee that reports directly to the SANDAG Board, and required SANDAG to develop an annual report that specifies funds spent on public transportation, outlines public transit needs, and recommends transit funding levels.[68]

Compounding the changes at the SANDAG Board of Directors level is the August 2017 retirement of the SANDAG Executive Director. While there was a solid structure in place with strong protocols to continue the accomplishments of *TransNet*, the next executive's dynamics could affect future operations and levels of collaboration.

[68] SANDAG Board of Directors 6/23/2017 Meeting Agenda Item No. 17-06-14 and SANDAG Executive Committee 8/18/2017 Meeting Agenda Item No. 17-08-3.

Improvements to Consider

When the *TransNet* Extension Ordinance was established, the SANDAG Board of Directors built in a requirement that each 10-year review evaluate performance and make recommendations for continued improvement over the 40-year program lifecycle. In the sections that follow, we offer areas for the SANDAG Board's consideration in the future.

- **Additional Accountability and Reporting from Local Streets and Road Program**

  While prior financial audits reported fiscal balances and allowability of costs for local street and road funding were generally compliant, prior performance audits reported a lack of data summarizing how *TransNet* funds were spent in terms of miles of new roadway or miles paved in addition to travel time and pavement condition. In recent years, local jurisdictions started providing a list of projects funded by *TransNet* and related financial data through an annual reporting vehicle to SANDAG; yet, this data was difficult to summarize and did not provide project accomplishment or output details. Thus, SANDAG continues to be challenged in demonstrating all the accomplishments and performance outcomes achieved through the allocation of *TransNet* funds to the Local Street and Road Program. Currently, SANDAG is working with the local jurisdictions through the Regional Transportation Improvement Program process to gather some additional data related to project accomplishments, but not performance such as level of delay on local roadways or pavement and bridge condition.

- **Local Street and Road 70/30 Split Definition**

  The *TransNet* Extension Ordinance requires that at least 70 percent of the revenues provided for the Local Street and Road Program be spent on congestion relief projects and no more than 30 percent spent on maintenance projects—commonly known as the "70/30 Split Rule." Examples of each category are shown in Exhibit 61. While SANDAG Board Policy No. 031: *TransNet Ordinance and Expenditure Plan Rules* provided a mechanism for local agencies to request an exemption to the 30 percent maintenance limitation with justification, some local jurisdictions felt that the process was cumbersome.

EXHIBIT 61. EXAMPLES OF LOCAL STREET AND ROAD 70/30 SPLIT RULE DEFINITIONS

Congestion Relief (70%)	Maintenance (30%)
New or widened roads and bridges	Lane removal for bikes
Pavement overlay **1-inch thick or greater**	Pavement overlay **less than 1-inch**
Bridge retrofit	Bridge replacement for aesthetic purposes
New traffic signals or upgrades	Traffic signal replacement or software
Pedestrian crossings and lighting	Light bulb replacement

Source: *TransNet* Ordinance and Expenditure Plan Implementation Guidelines, June 23, 2006.

Past audits and interviews with local jurisdictions revealed that local cities have felt somewhat restricted by these definitions established in 2006.[69] Some jurisdictions felt they must wait until a roadway deteriorated to meet eligibility definitions as a 70 percent congestion relief project. Recently passed SB1 legislation is likely to help in this area by providing nearly $1.5 billion to local jurisdictions for maintenance needs. This influx of funds will certainly go far in rebuilding the region's roadway infrastructure, but there could still be areas that have greater maintenance needs while having fewer capital projects that meet the current *TransNet* congestion relief definitions. To allow local jurisdictions more flexibility on how to best spend *TransNet* monies on local project needs, the SANDAG Board of Directors may want to consider modifying the definitions or changing the 1-inch requirement for pavement overlays.

- **Regionwide Allocations for Performance Tracking and Reporting**

  To assist the *TransNet* Program in the efficient use of resources to achieve the best outcomes from transportation planning efforts, the SANDAG Board of Directors may want to consider allocating *TransNet* funds, or other funds, for enhanced performance tracking, analysis, and reporting at the regional level. While SANDAG used data from external databases to capture and report on commutes on highway corridors and transit routes in its annual State of the Commute reports, there was limited performance metrics available in other *TransNet* areas. Thus, if the SANDAG Board of Directors wants to better capture, track, analyze, and report more fully on the taxpayer's return on investment from all areas within the *TransNet* initiative, more staff time and/or monetary resources are likely needed.

  For instance, performance data was limited for the Local Street and Road Program discussed in an earlier section of this report. Such data limitations were partly due to the challenges of mining data from the 19 local jurisdictions—some of which may not have mechanisms to capture performance data. However, the recent availability of new private sector data sources and improved analytic tools provides opportunities for SANDAG to track and analyze local street and road performance if funds are allocated for this effort. The private sector data provides better information for arterial streets based on global positioning system data, and has enabled other agencies like SANDAG to analyze travel time reliability, budget time, and congestion. Additionally, there is limited performance data available to taxpayers for the EMP as well. While a portal exists for land managers and research scientists to track and analyze large complex volumes of habitat monitoring data, it would require significant effort and the assistance of technical experts to synthesize the data and present it in a scientifically valid, yet simplified, way for taxpayers to gauge the overall health of the preserved areas.

  Moreover, federal funding sources added specific requirements to capture and report on performance. Specifically, the Moving Ahead for Progress in the 21st Century (MAP-21) Act of 2012 as continued under the Fixing America's Surface Transportation (FAST) Act of 2015 established performance requirements and targets in certain areas—safety; pavement and bridge condition; system, freight, and congestion mitigation and air quality; and asset management. While there is a long implementation period for the performance indicators, compliance may require additional staff

[69] *TransNet* Triennial Performance Audit, 2015, pages 34-37.

time and significant resources. As such, extra resources may be needed to gather and track data, analyze what the data means, correlate the results with other impacting factors, and determine how the data influences future planning and project activities.

- **Investment for Technology to Manage Transportation Network**

  Over the last decade, SANDAG invested in technology solutions that used existing infrastructure and leveraged under-used capacity across modes of transportation. With many transportation projects completed and emerging philosophies related to complete streets and sustainable communities, the SANDAG Board may want to focus additional resources on managing congestion and mobility within the existing roadways through the use of similar technology and multimodal coordination to optimize capacity-building investments already made. This technology, known as intelligent transportation systems, build upon conduit, sensors, wireless devices, cellular, and electronics, and allow agencies to actively manage traffic and make real-time decisions to influence traveler behavior. Strategies available using these tools include, but are not limited to, advanced local street signal timing and coordination, adaptive freeway ramp metering, dynamic lane reversal, emergency and transit signal priority, bus-only shoulder lanes, and bus queue jumping.

  A great example of this use is SANDAG's Integrated Corridor Management system being piloted since 2013 on the I-15 along with local partners in Caltrans, MTS, and the cities of Escondido, Poway, and San Diego. Covering a 20-mile section, this project uses intelligent transportation system technology to forecast traffic across multiple freeway, surface streets, and transit networks along with recommended actions to manage anticipated congestion and guide drivers around incidents with the least amount of impact. As part of the project, SANDAG and Caltrans used variable messaging signs to guide motorists around freeway incidents and suggest alternate routes through surface streets. The mobile 511 application provided maps with current traffic conditions, incident and construction notices, and transit arrival times. Reported benefits involve daily travel time savings of more than 1,400 person hours of travel. While the mobile 511 application was discontinued in October 2017, the information was available on the 511sd.com website.

  While SANDAG employed intelligent transportation system technology and tools on *TransNet* projects and has planned goals to implement more strategies, future regional needs may dictate a heavier emphasis on the expanded use of this technology and tools rather than capacity-building construction projects.[70] As *TransNet* progresses into the next decade, implementing experts and leadership need to consider whether other technology solutions in certain congested corridors might solve the region's transportation challenges better than the remaining projects initially envisioned in 2004 when the *TransNet* Ordinance passed. Realizing and implementing such initiatives requires leadership's buy-in and additional dedicated funding from *TransNet* or other sources.

[70] The 2015 San Diego Forward: The Regional Plan, page 151, stated goals such as expanding regional communication network, developing a regional Transportation Systems Management and Operational Strategy for agencies to work together across jurisdictional boundaries to improve signal coordination and implement a state of the art Transportation Demand and Systems Management programs to provide more mobility choices and enable the transportation system to function more effectively.

- **EMP and the Local Mitigation Bank**

  Over the first decade of the EMP, significant progress was made to acquire lands to mitigate impacts of construction projects and begin restoration activities. However, while the local mitigation bank was an innovation created in 2008 to set aside funds for local agencies use to pay for direct mitigation costs of local transportation projects, the bank was significantly underused over the last decade. Other than $12.8 million spent acquiring 370 acres, there was not much demand or interest in the local mitigation bank. Local jurisdictions reported their projects did not need mitigation for biological impacts or that project impacts were paid by developers as part of new developments. Thus, more than $187 million remained unused. Although only the first decade has expired in the *TransNet* lifecycle and future projects may need local mitigation, the SANDAG Board of Directors could closely monitor this part of the Ordinance and consider combining the local projects with regional projects to maximize the effective use of funds within the EMP. While the SANDAG Board of Directors may have some flexibility in this area, it will need to stay within the limits presented in the Ordinance.

- **Mix of Future *TransNet* Projects**

  Given how technology changed the transportation landscape over the last decade, SANDAG must continually reevaluate whether the portfolio of projects remaining to be completed are the best mix for achieving congestion relief and the other goals of the *TransNet* Program. Different types of projects may be needed to retrofit existing infrastructure to support technological advancements such as designated lanes to accommodate autonomous vehicles or charging stations for electric vehicles.

  For instance, over the most recent five years, there were extensive studies, research, and information concerning autonomous vehicles and how transportation planning agencies should react. Benefits cited include reduced traffic, parking needs, accidents, and emissions in addition to calling for a potential change in the mix and usage of public transportation.[71] However, there is still great uncertainty and wide ranges of probability on how soon these vehicles will become commonplace and how they affect roadway design and construction and public transit demand. For instance, the U.S. DOT recently released a Federal Automated Vehicle Policy to accelerate deployment, and expects a "tiered roll-out" of autonomous vehicles over the next decade. Yet, according to a September 2017 report by the Victoria Transport Policy Institute, researchers predicted that autonomous vehicles will not become mainstream and affordable until the 2040 to 2060 decade periods—or longer depending on if motorists resist such vehicles or when they are affordable to lower-income households.[72] As stated in a 2015 Deloitte Insights report, "no one knows the full scope and magnitude of the changes that are to come, what they entail, or how they will evolve."

  Thus, transportation entities like SANDAG must vigilantly monitor this trend as part of long-term planning to understand impacts to the transportation network. While the technology could be

[71] Deloitte Insights: The Future of Mobility, 9/24/2015.
[72] Victoria Transport Policy Institute, Autonomous Vehicle Implementation Predictions: Implications for Transport Planning, Todd Litman, 9/8/2017, pages1 through 3.

practical for more wide-spread implementation in the near-term, there are public policy issues that government transportation entities must consider such as access for people if public transit services decline and the degree to which they are harmed. Regardless, if autonomous vehicles become commonplace, SANDAG must be nimble in its decisions on the design, operation, and supply of roadways, public transit, and active demand traffic management practices and employ planning efforts that avoid building expensive infrastructure that may soon become obsolete.[73]

[73] ITF Transport Outlook 2017.

Appendix A. Detailed Methodology Employed on Review

Sjoberg Evashenk Consulting Inc. (Sjoberg Evashenk), was contracted by the SANDAG Board of Directors, acting as the San Diego County Regional Transportation Commission, to conduct the "look-back" component of the independent 10-year review of the performance of the overall *TransNet* Program through June 30, 2017, as well as to evaluate program and project results since 2005—the inception of the *TransNet* Early Action Program. In conducting the review, Sjoberg Evashenk was asked to use existing materials and documentation. Additionally, Sjoberg Evashenk was asked to make recommendations in the form of preliminary options and alternatives for consideration by the SANDAG Board of Directors. These preliminary options are to be considered as part of the "look-forward" component to be conducted separately under the upcoming 2019 Regional Plan to make improvements over the subsequent 10 years and throughout the remainder of the measure. Specifically, Sjoberg Evashenk considered the following:

1. **Evaluation of the performance of the overall program to date by:**
   - Determining whether the allocation of funds for each purpose as provided in Section 4 of the Ordinance will be maintained over the duration of the measure.
   - Providing an analysis of projects completed and underway, what projects remain to be completed, the estimated cost to complete those projects, and the revenues expected to be available over the life of the program.
   - Evaluating use of debt to accelerate projects.
   - Evaluating the leveraging of *TransNet* with state/federal/other matching funds.
2. **Evaluation of the financial capacity of the sales tax revenue to continue implementation of the *TransNet* Extension Ordinance including**:
   - Review of the transition to a pay-as-you-go approach from the EAP format of advancing future sales tax funds through the issuance of bonds.
   - Identification of fiscal challenges and opportunities in implementing the remaining projects and programs under the Ordinance.
   - Evaluation of current project and program revenue assumptions, impact of changes in project scope and construction costs.
3. **Identification of any external policy and/or regulation changes at the local, state, and /or federal levels that may require consideration, such as**:
   - Reporting requirements established through the implementation of the transportation authorization MAP-21 and continued under FAST Act established by USDOT.
   - Funding opportunities established through recent initiatives such Senate Bill 1 or other future funding opportunities or constraints.
   - Potential impact of disruptive transportation technologies.[74]

[74] Disruptive technologies refer to innovations that may be considered unproven or relatively unknown (e.g., autonomous vehicles), creating a new market and eventually disrupting an existing market thereby displacing and ultimately supplanting existing technologies.

Subsequent to the SANDAG Board accepting the report on January 26, 2018, SANDAG staff provided additional information to Sjoberg Evashenk, which necessitated changes to Chapter 5 text and exhibits 52, 53, 54, and 55, and Chapter 6, p. 83 related to the number of EMP acres acquired.

To meet the objectives, Sjoberg Evashenk performed the following tasks:

- Researched and assessed the *TransNet* Extension Ordinance as well as pertinent past federal and state laws affecting *TransNet* and implementing agencies related to areas such as fiscal or funding, construction and contracting, environment, roads and transit, and labor.
- Gathered and reviewed a wide breadth of data and information to summarize performance since 2005 including financial audits, performance audits, Federal Transit Administration audits, Transportation Development Act audits, San Diego Forward: The Regional Plan, Coordinated Plan, Regional Bikeway Plan, fact sheets, maps, and documents as well as data included in electronic spreadsheets or databases such as the *TransNet* Story Map, Dashboard, and ProjectTrak.
- Attempted to identify a complete universe of *TransNet* capital construction projects planned in the *TransNet* Ordinance and determine project status.
    - Reconciled the 48 Ordinance-level major corridor construction projects with corresponding capital improvement program (CIP) budget-level projects (highway and transit), and determined project status using a variety of data sources including the *TransNet* Dashboard, Story Map, and internal documents provided by SANDAG.
    - Identified the universe of CIP-level Bike Early Action Program (EAP) project segments using the Regional Bikeway Plan, *TransNet* Dashboard, and SANDAG fact sheets, as well as determined project status.
    - Attempted to identify a list of completed Local Street and Road Program and Bike/Pedestrian projects using ProjectTrak, data from certain local jurisdictions, and internal SANDAG spreadsheets.
- For the 48 Ordinance-level major corridor construction projects with corresponding capital improvement program (CIP) budget-level projects (highway and transit), prepared a listing showing project status, budgeted amounts, expenditures to date, and remaining costs. Budget data was taken from the *TransNet* Ordinance Forecast, the 2005 Plan of Finance, and 2017 capital improvement program budgets for individual projects. Actual expenditures as of June 30, 2017 was captured from the *TransNet* Dashboard, and remaining cost to complete was captured from the 2017 Plan of Finance.
- Additionally, for each of the completed CIP-level major corridor construction projects, gathered and analyzed project output data (such as number of lane miles, transit stations, etc.) using the *TransNet* Dashboard, Story Map, project fact sheets, and internal documents provided by SANDAG.
- Captured, trended, and summarized performance outcomes and indicators using SANDAG State of Commute reports, SANDAG Performance Monitoring Reports, transit metrics from the Coordinated Plan, and other sources including the Texas A&M Transportation Institute Urban Mobility Report, Caltrans State of Pavement reports, and California Statewide Local Street and Road Needs Assessment. External databases were used including the Caltrans' Performance Monitoring System (PeMS), California Highway Patrol's Statewide Integrated Traffic Records

System (SWITRS), National Transportation Atlas Database (NTAD), federal Urban Integrated National Transit Database (NTD), and United States Census American Community Survey (ACS) data.

- We compared the San Diego region's performance with selected comparable areas and peers.
    - For comparisons on congestion performance indicators (commute time and commute share by mode), we used US census data to select the nearest two Urbanized Zone Areas (UZA) with populations greater than the San Diego UZA and the nearest three UZAs with populations less than the San Diego UZA (to arrive at a total of 5 comparison areas). That effort identified Seattle, Washington, and San Francisco–Oakland, California, UZAs as the two comparison areas with populations greater than the San Diego UZA. The three comparison areas with populations less than the San Diego UZA were Tampa–St. Petersburg, Florida; Riverside–San Bernardino, California; and Las Vegas–Henderson, Nevada. When selecting the areas with populations less than San Diego, further considerations were taken in regards to proximity to San Diego, centers of tourism, climate, and coastal areas. For example, the Minneapolis–St. Paul, Minnesota, UZA had a population closer to the San Diego UZA than the Tampa–St. Petersburg, Florida UZA, yet we did not use the locale because of differences in climate; specifically, the impact that snow and ice have on the transportation system which is not experienced in San Diego.
    - For comparisons on safety performance indicators (collision data), data was only available by California county (not Urbanized Area), so comparison counties were selected to best align with the UZAs chosen as described above for the congestion performance indicators. Thus, we selected San Francisco and Alameda counties to align with the San Francisco–Oakland UZA; Riverside and San Bernardino counties for the Riverside–San Bernardino UAZA; and San Diego County to align with the San Diego UZA.
    - For comparisons on pavement condition (Pavement Condition Index), data was available by California transportation districts, so comparison districts were selected to best align with the areas chosen as described above for the congestion performance indicators. Thus, we selected District 2 to align with the San Francisco–Oakland UZA; District 8 for the Riverside–San Bernardino UZA; and District 11 for the San Diego UZA.
    - For comparisons on bridge condition (National Bridge Inventory), data was available by US counties so comparison counties were selected to best align with the areas chosen as described above for the congestion performance indicators. Thus, we selected San Francisco and Alameda counties to align with the San Francisco–Oakland UZA; Riverside and San Bernardino counties for the Riverside–San Bernardino UZA; San Diego County to align with the San Diego UZA; and King County for the Seattle, Washington, UZA.
    - For transit performance comparisons, peers were selected using transit agencies identified using the Integrated National Transit Database Analysis System based on a variety of service characteristics and urban area characteristics, such as urban population, total vehicle miles, operating budget, population density, and annual delay per traveler.
    - Trended performance outcomes for vehicle miles traveled, commute time, hours of delay, annual safety statistics (fatalities per 100 million vehicle miles of travel, number of bicyclists and pedestrians injured or killed, and total number of collisions), pavement condition, bridge condition, commute mode share, ridership, on-time performance, farebox

recovery, preventable accidents, operating expenses, and seat utilization. Given that most data comes from data from external agencies, we did not validate performance data available.

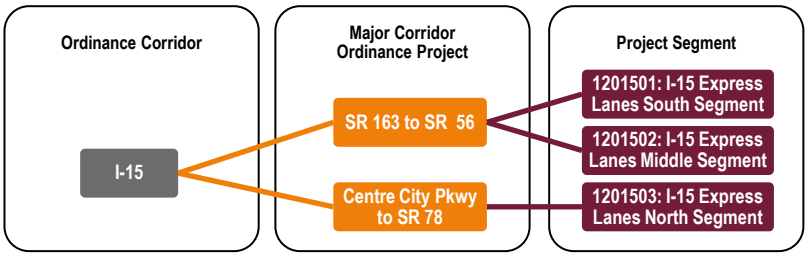
- Reviewed and highlighted pertinent environmental reports and documents, including EMP Memorandum of Agreement between SANDAG and wildlife agencies, EMP policies and guidelines, strategic plans and objectives, EMP status reports, discussion memos to decision makers, and SANDAG Board decisions to identify status or accomplishments of the EMP. Assessed the status and transition from a planning and acquisition focus to implementation and what habitats have been restored or conserved as well as species protected. Additionally, summarized progress made related to measuring performance and communicating results to the public.
- Researched the various types of alternate modes (pedestrian, bike) funded through the transportation demand management program, grants, Bike EAP, and at the local level to identify level of investment, where possible.
- Researched and identified multimodal efforts related to Active Transportation Demand Management through the integrated corridor management projects, transportation system management program (traveler info and ramp metering), intelligent transportation, and autonomous vehicle test beds.
- Reviewed applicable SANDAG Board meeting minutes, available grant program audit reports, program assessment reports, reviews, and SANDAG internal grant tracking spreadsheets for each *TransNet* grant program as well as progress reports detailing grant activities conducted, subsequent outcomes of those activities, grant funding amounts by project, and the status of the grant funded projects (completed or in-progress).
- Assessed and compared SANDAG's practices with others in industry related to plans of finance, debt versus pay-as-you-go, financing through similar half-cent sales tax measures, levels of leveraged funding, and method for forecasting sales tax revenues.
- Identified a group of peer agencies that had a similar structure to SANDAG and had enacted or extended a half-cent retail sales tax around the same time as the *TransNet* Extension Ordinance and compared peer sales tax activity with *TransNet*'s sales tax revenues, revenue forecasting practices, leveraging, and use of bond debt.
- Reviewed revenue projections and underlying assumptions, and compared past forecasts to actual collections for *TransNet* and other funding sources. Evaluated whether sources fluctuated.
- Analyzed cost estimates and underlying assumptions, and summarized expectations with actual results for pertinent cost indicators such as construction (including labor), steel, and asphalt.
- Compared funds provided by debt versus *TransNet* only revenues to determine the number of projects that have been accelerated. Additionally, compared initial projects promised including cost estimates in first 10 years of *TransNet* with actual costs and completed projects and evaluated the likelihood of completing planned *TransNet* projects given progress to date.

Appendix B. *TransNet* Project Listing and Status

Using the *TransNet* Extension Ordinance, *TransNet* Dashboard, major corridor program status table, and Plan of Finance documents provided by SANDAG, the status of the 48 major corridor capital construction projects by *TransNet* Extension Ordinance category and capital improvement project (CIP) number is summarized in Exhibit 63 that follows. As of June 2017, of the 48 major corridor capital construction projects, 33 percent are completed and 28 percent are currently in-progress. To-date, SANDAG reported program costs of nearly $4.4 billion and estimates approximately $22.7 billion in remaining expenditures to complete all projects planned when voters passed the *TransNet* Ordinance.[75]

Due to the complex nature of the information, the Exhibit 62 below provides additional clarification to the status of data subsequently presented in Exhibit 63.

EXHIBIT 62. CLARIFICATION FOR *TRANSNET* PROJECT LISTING AT EXHIBIT 63

Exhibit Area	Description
General	All budget and expenditures amounts shown are unaudited.
Ordinance Number	▪ Numbered 1 to 48—representing the 48 major corridor projects from the 2004 *TransNet* Extension Ordinance passed by voters. ▪ EAP (Early Action Program)—19 original project segments from the *TransNet* Extension Ordinance that the SANDAG Board of Directors designated to be completed during the first 10 years of the program. Subsequent EAP project segments were approved by the SANDAG Board of Directors consistent with the *TransNet* Extension Ordinance.
Project/Segment Name	▪ 3 layers—corridor, major corridor project, and project/segment as follows: ✓ **Ordinance Corridor: 15 corridors** per the *TransNet* Extension Ordinance. ✓ **Major Corridor Ordinance Project: 48 major corridor projects** per the *TransNet* Extension Ordinance. ✓ **Project Segment: 78 project segments to date.** Project segments are shown with a seven-digit number that represents the project's CIP (capital improvement program) budget number. Only completed and in-progress projects have a CIP. Example for I-15 Corridor:  Note: The I-15 stretch between SR 56 and Centre City Pkwy was built as the I-15 Express Lanes Middle Segment. ▪ Unallocated [Ordinance Corridor Name]: Amounts per the 2005 Plan of Finance and 2017 Plan of Finance. Illustrates budgets and expenditures not yet allocated to specific projects or segments, but available for future projects on the Ordinance Corridor.

[75] The 2017 Plan of Finance provided a remaining expenditure estimate range of $20.8 billion to $25.4 billion. The $22.7 billion represents the mid-point estimate.

Exhibit Area	Description
Segment	The 48 initial *TransNet* Ordinance projects resulted in 78 individual project segments as of June 30, 2017. This number will grow as new project segments are started. Some projects support multiple corridors, but were only counted once to arrive at the grand total of 78 project segments.
Status	▪ General: Project segments where only a study was completed are shown because expenses were incurred, but were not counted as a completed project segment. ▪ Project Completed & Open-to-Traffic: At the 48 project level, check (✓) marks represent fully completed segment while percentages represent the portion of the segment that is completed. ▪ In-Progress: Project segments could be in various stages—environmental, design, or construction. ▪ Future: Project or project segments have not started and have not incurred expenses.
Budgets	▪ General: Due to rounding, some budget figures do not roll-up to the exact dollar figure. ▪ Ordinance Estimate: In 2002 dollars. Amounts per the *TransNet* Extension Ordinance. Data only available at ordinance corridor and major corridor ordinance project level. ▪ Ordinance Escalated to Year Open: Shown for completed project segments only to allow for comparison of 2002 Ordinance cost estimates to costs at time of completion using U.S. Bureau of Labor Statistics CPI data for the San Diego Region. ▪ 2005 POF Estimate: In 2005 dollars. Amounts per the 2005 Plan of Finance available for the original EAP project segments only. ▪ 2005 POF Escalated to Year Open: Shown for completed EAP project segments only to allow for comparison of 2005 budgets per the POF to the budget at time of project completion using U.S. Bureau of Labor Statistics CPI data for the San Diego Region. ▪ Project CIP Budget: CIP Budget as of June 30, 2017 from *TransNet* Dashboard for in-progress project segments only.
Expenditures	▪ General: Due to rounding, some expenditure figures do not roll-up to the exact dollar figure. ▪ Expenditures through July 2017: Project expenses as reported in the *TransNet* Dashboard and are inclusive of both SANDAG and Caltrans project expenditures. Due to timing, SANDAG expenditures include expenditures through August 2017, while Caltrans expenditures run through July 2017. ▪ Variance: Only calculated for completed projects by subtracting current expenditures from the 2005 POF Estimate (escalated to year open). ▪ Estimated Cost to Complete: Amounts per 2017 Plan of Finance at the Ordinance Corridor and Major Corridor Ordinance level only. Amounts are shown in year of expenditure dollars (YOE).

EXHIBIT 63. STATUS OF MAJOR CORRIDOR CAPITAL PROJECTS AS INCLUDED IN THE *TRANSNET* EXTENSION ORDINANCE

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
I-15 Corridor						**$1,400M**	**-**	**$1,893M**	**-**	**-**	**$1,217M**	**-**	**$1,399M**
1	**I-15: SR 163 to SR 56**		✓	-	-	**$220M**	**$286M**	**$423M**	**$482M**	**-**	**$820M**	**-$338M**	
EAP	1201501: I-15 Express Lanes South Segment	1	2011	-	-	-	-	$332M	$380M	-	$330M	$50M	Projects Complete
EAP	1201502: I-15 Express Lanes Middle Segment [1]	2	2009	-	-	-	-	$72M	$79M	-	$464M	-$385M	
EAP	1201504: I-15 FasTrak®	3	2009	-	-	-	-	$20M	$23M	-	$26M	-$3M	
2	**I-15: Centre City Pkwy to SR 78**		✓	-	-	**$120M**	**$156M**	**$179M**	**$208M**	**-**	**$183M**	**$25M**	

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
EAP	1201503: I-15 Express Lanes North Segment	4	2012	-	-	-	-	$179M	$208M	-	$183M	$25M	Projects Complete
EAP	1201504: I-15 FasTrak®		2012	-	-	-	-	-	-	-	-	-	
3	**I-15: SR 94 to SR163**		-	✓	-	**$200M**	-	-	-	-	**$16M**	-	**$1M**
	1280514: I-805/SR 15 Interchange	5	-	✓	-	-	-	-	-	$18M	$16M	-	-
4	**HOV Connector: I-15 / SR 78**		-	✓	-	**$200M**	-	-	-	-	**$1M**	-	-
	1207802: I-15/SR 78 HOV Connectors (Study only)		-	-	-	-	-	-	-	$0.1M	$1M	-	-
5	**HOV Connector: I-15 / SR 94**		-	✓	-	**$150M**	-	-	-	-	**$21M**	-	-
	1280508: SR 94 Express Lanes I-805 to Downtown	6	-	✓	-	-	-	-	-	$23M	$21M	-	-
6	**SR 94: I-5 to I-15**		-	✓	-	**$80M**	-	-	-	-	-	-	-
	1280508: SR 94 Express Lanes I-805 to Downtown		-	✓	-	-	-	-	-	-	-	-	-
7	**BRT Route 610: via I-15 / SR 94 (Now Route 235)**		**75%**	**25%**	-	**$370M**	-	**$130M**	-	-	**$173M**	-	**$118M**
EAP	1201505: I-15 BRT Stations – Rancho Bernardo, Sabre Springs, and Del Lago	7	2009	-	-	-	-	$63M	$69M	-	$49M	$20M	Projects Complete
EAP	1201506: I-15 Mira Mesa DAR & BRT Station	8	2014	-	-	-	-	$58M	$70M	-	$54M	$16M	
EAP	1201508: I-15 Bus *Rapid* Transit	9	2014	-	-	-	-	-	-	-	$34M	-	
	1201509: Downtown BRT Stations	10	2016	-	-	-	-	-	-	-	$17M	-	
EAP	1201512: I-15 BRT Sabre Springs Parking Structure	11	2014	-	-	-	-	$9M	$11M	-	$14M	-$3M	
EAP	1201514: Downtown Multiuse and Bus Stopover Facility	12	-	✓	-	-	-	-	-	$46M	$2M	-	-
	1201515: Clairemont Mesa Blvd BRT Stations (Study only)		-	-	-	-	-	-	-	-	$1M	$1M	-
	1201516: I-15 BRT Station Enhancements	13	2014	-	-	-	-	-	-	-	$0.1M	-	Project Complete
	1201518: I-15 Mira Mesa Transit Station Parking Structure	14	-	✓	-	-	-	-	-	$15M	$1M	-	-
8	**BRT Route 470: via I-15 / Mira Mesa Blvd (Now Route 237)**		**50%**	**50%**	-	**$60M**	-	-	-	-	**$3M**	-	-
	1201511: Mira Mesa Blvd BRT Priority Treatments	15	2015	-	-	-	-	-	-	-	$3M	-	Project Complete
	1201518: I-15 Mira Mesa Transit Station Parking Structure		-	✓	-	-	-	-	-	-	-	-	-
	Unallocated I-15		-	-	-	-	-	**$1,162M**	-	-	-	-	**$1,279M**
I-805 Corridor						**$2,100M**	-	**$2,679M**	-	-	**$514M**	-	**$7,473M**
9	**I-805: SR 905 to SR 54**		**50%**	**25%**	**25%**	**$150M**	-	**$10M**	-	-	**$40M**	-	-
EAP	1280501: I-805 South – 4 Express Lanes	16	2011	-	-	-	-	$10M	$12M	-	$28M	-$16M	Projects Complete
	1280510: I-805 South – 2 HOV and DAR		2017	-	-	-	-	-	-	-	-	-	
	1280515: I-805 South Soundwalls	17	-	✓	-	-	-	-	-	$38M	$12M	-	-
10	**I-805: SR 54 to I-8**		**25%**	-	**75%**	**$450M**	-	-	-	-	**$159M**	-	**$356M**
EAP	1280501: I-805 South – 4 Express Lanes		2011	-	-	-	-	-	-	-	-	-	Projects Complete

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
	1280510: I-805 South – 2 HOV and DAR	18	2017	-	-	-	-	-	-	-	$159M	-	
11	**I-805: Mission Valley Viaduct**		**-**	**-**	✓	**$250M**	**-**	**-**	**-**	**-**	**-**	**-**	**$1,390M**
12	**I-805: I-8 to I-5**		**25%**	**-**	**75%**	**$380M**	**-**	**$7M**	**-**	**-**	**$204M**	**-**	**$869M**
EAP	1280503: I-805 North 4 Express Lanes	19	2010	-	-	-	-	$7M	$8M	-	$12M	-$4M	Projects Complete
	1280505: I-805 HOV/Carroll Canyon DAR	20	2014	-	-	-	-	-	-	-	$94M	-	
	1280511: I-805 North: 2 HOV Lanes	21	2016	-	-	-	-	-	-	-	$99M	-	
13	**I-805 / SR54 Interchange Improvements**		✓	**-**	**-**	**$10M**	**$12M**	**-**	**-**	**-**	**$15M**	**-**	**-**
	1280506: I-805 E Street Auxiliary Lane	22	2009	-	-	-	-	-	-	-	$15M	-	Project Complete
14	**BRT Route 628: via I-805 / I-15 / SR 94 (Now known as South Bay *Rapid*)**		**75%**	**25%**	**-**	**$500M**	**-**	**$106M**	**-**	**-**	**$96M**	**-**	**$178M**
EAP	1280501: I-805 South – 4 Express Lanes		2011	-	-	-	-	-	-	-	-	-	Project Complete
EAP	1280504: South Bay BRT	23	-	✓	-	-	-	$106M	-	$119M	$34M	-	-
	1280510: I-805 South – 2 HOV and DAR		2017	-	-	-	-	-	-	-	-	-	Project Complete
	1280512: I-805 Imperial BRT Station (Study only)		-	-	-	-	-	-	-	-	$1M	-	-
	1280513: I-805/SR 94 Bus on Shoulder Demonstration Project	24	-	✓	-	-	-	-	-	$31M	$1M	-	-
	1201513: South Bay BRT Maintenance Facility	25	2014	-	-	-	-	-	-	-	$60M	-	Project Complete
15	**SR 94: I-805 to I-15**		**-**	✓	**-**	**$70M**	**-**	**-**	**-**	**-**	**-**	**-**	**$176M**
16	**BRT Route 680: via I-805 / I-15 / SR 52**		**-**	✓	**-**	**$70M**	**-**	**$70M**	**-**	**-**	**-**	**-**	**$55M**
	1280514: I-805/SR 15 Interchange		-	✓	-	-	-	$70M	-	-	-		-
17	**SR 52: I-15 to I-805**		**-**	**-**	✓	**$70M**	**-**	**-**	**-**	**-**		**-**	**-**
18	**HOV Connector: I-805 / SR 52 Interchange**		**-**	**-**	✓	**$150M**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
	Unallocated I-805		**-**	**-**	**-**	**-**	**-**	**$2,485M**	**-**	**-**	**-**	**-**	**$4,448M**
I-5 South Corridor						**$1,893M**	**-**	**$2,437M**	**-**	**-**	**$918M**	**-**	**$4,236M**
19	**I-5: SR 905 to SR 54**		**-**	**-**	✓	**$130M**	**-**	**-**	**-**	**-**	**-**	**-**	**$140M**
20	**I-5: SR 54 to I-8**		**-**	**-**	✓	**$600M**	**-**	**-**	**-**	**-***	**-**	**-**	**-**
21	**I-5: I-8 to I-805**		**25%**	**75%**	**-**	**$193M**	**-**	**-**	**-**	**-**	**$88M**	**-**	**$535M**
	1200505: I-5/I-8 West to North Connector Improvements	26	2015	-	-	-	-	-	-	-	$16M	-	Project Complete
	1200506: I-5/Genesee Interchange and Widening	27	-	✓	-	-	-	-	-	$116M	$68M	-	-
	1200507: I-5/Voigt Drive Improvements	28	-	✓	-	-	-	-	-	$12M	$3M	-	-
	1200508: I-5/Gilman Drive Bridge	29	-	✓	-	-	-	-	-	$21M	$0.1M	-	-
22	**Route 500 (Blue Line Trolley) Improvements [2]**		**87.5%**	**12.5%**	**-**	**$270M**	**$370M**	**-**	**-**	**-**	**$570M**	**-**	
	1210010: Orange and Blue Line PM	30	2015	-	-	-	-	-	-	-	$19M	-	Projects Complete
	1210020: Blue Line Crossovers and Signals	31	2013	-	-	-	-	-	-	-	$41M	-	

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
	1210030: Blue Line Station Rehab	32	2015	-	-	-	-	-	-	-	$131M	-	
	1210040: Orange and Blue Line Traction Power Substations	33	2014	-	-	-	-	-	-	-	$29M	-	
	1210050: Orange and Blue Line Communications System	34	2015	-	-	-	-	-	-	-	$6M	-	
	1210070: Orange and Blue Line Platforms	35	2013	-	-	-	-	-	-	-	$69M	-	
	1210080: Low Floor LRT Vehicles	36	2014	-	-	-	-	-	-	-	$275M	-	
23	**Route 570 (MidCoast)**		**-**	**✓**	**-**	**$670M**	**-**	**$914M**	**-**	**-**	**$229M**	**-**	**$1,395M**
EAP	1257001: Mid-Coast Light Rail Transit (LRT)	37	-	✓	-	-	-	$914M	-	$1,814M	$229M	-	-
24	**Route 634 (*SuperLoop*) (Now known as Routes 201, 202, and 204)**		**✓**	**-**	**-**	**$30M**	**$39M**	**$52M**	**$61M**	**-**	**$31M**	**$30M**	**$56M**
EAP	1041502: *SuperLoop*	38	2012	-	-	$30M	$39M	$52M	$61M	-	$31M	$30M	Project Complete
	Unallocated I-5 South		**-**	**-**	**-**	**-**	**-**	**$1,472M**	**-**	**-**	**-**	**-**	**$2,109M**
I-5 North Corridor						**$1,670M**	**-**	**$2,060M**	**-**	**-**	**$464M**	**-**	**$3,273M**
25	**I-5 / I-805 Merge**		**25%**	**-**	**75%**	**$30M**	**$41M**	**$37M**	**$45M**	**-**	**$73M**	**-**	**$59M**
EAP	1200501: I-5 North Coast – 4 Express Lanes	39	2015	-	-	$30M	$41M	$37M	$45M		$73M	-$28M	Project Complete
26	**I-5: SR 56 to Leucadia Blvd**		**25%**	**37.5%**	**37.5%**	**$400M**	**-**	**$60M**	**-**	**-**	**$164M**	**-**	**$700M**
EAP	1200501: I-5 North Coast – 4 Express Lanes		2015	-	-	-	-	-	-	-	-	-	Project Complete
EAP	1200502: I-5 HOV Extension & Lomas Santa Fe Interchange	40	2009	-	-	-	-	$60M	$66M	-	$67M	-$1M	Project Complete
	1200504: I-5 HOV Birmingham to Palomar	41	-	✓	-	-	-	-	-	$370M	$97M	-	-
27	**I-5: Leucadia Blvd to Vandegrift Blvd**		**25%**	**37.5%**	**37.5%**	**$370M**	**-**	**-**	**-**	**-**	**-**	**-**	**$791M**
EAP	1200501: I-5 North Coast – 4 Express Lanes		2015	-	-	-	-	-	-	-	-	-	Project Complete
	1200504: I-5 HOV Birmingham to Palomar		-	✓	-	-	-	-	-	-	-	-	-
28	**HOV Connector: I-5 / I-805 Interchange**		**-**	**-**	**✓**	**$180M**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
29	**FWY Connector: I-5 / SR 56 Interchange**		**-**	**✓**	**-**	**$140M**	**-**	**-**	**-**	**-**	**$12M**	**-**	**$80M**
	1200503: I-5/SR 56 Interchange	42	-	✓	-	-	-	-	-	$19M	$12M	-	-
30	**FWY Connector: I-5 / SR 78 Interchange**		**-**	**-**	**✓**	**$150M**	**-**	**-**	**-**	**-**	**-**	**-**	**$48M**
31	**Route 398 (COASTER) / BRT Route 472 Improvements**		**31.3%**	**68.7%**	**-**	**$400M**	**-**	**-**	**-**	**-**	**$214M**	**-**	**-**
	1239801: Sorrento to Miramar Phase 1	43	2014	-	-	-	-	-	-	-	$45M	-	Project Complete
	1239803: Oceanside Station Pass-Through Track	44	-	✓	-	-	-	-	-	$28M	$5M	-	-
	1239804: Carlsbad Double Track	45	2012		-	-	-	-	-	-	$20M	-	Project Complete
	1239805: Poinsettia Station Improvements	46	-	✓	-	-	-	-	-	$29M	$3M	-	-

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
	1239806: San Elijo Lagoon Double Track	47	-	✓	-	-	-	-	-	$73M	$11M	-	-
	1239807: Sorrento Valley Double Track	48	2015	-	-	-	-	-	-	-	$31M	-	Projects Complete
	1239808: Tecolote to Washington Crossovers	49	2013	-	-	-	-	-	-	-	$9M	-	
	1239809: Eastbrook to Shell Double Track	50	-	✓	-	-	-	-	-	$7M	$6M	-	-
	1239810: Carlsbad Village Double Track	51	-	✓	-	-	-	-	-	$4M	$3M	-	-
	1239811: Elvira to Morena Double Track	52	-	✓	-	-	-	-	-	$193M	$46M	-	-
	1239812: Sorrento to Miramar Phase 2	53	-	✓	-	-	-	-	-	$11M	$7M	-	-
	1239813: San Dieguito Lagoon Double Track and Platform	54	-	✓	-	-	-	-	-	$9M	$8M	-	-
	1239814: COASTER Preliminary Engineering	55	-	✓	-	-	-	-	-	$1M	$0.1M	-	-
	1239815: San Diego River Bridge	56	-	✓	-	-	-	-	-	$94M	$12M	-	-
	1239816: Batiquitos Lagoon Double Track	57	-	✓	-	-	-	-	-	$53M	$6M	-	-
	1239817: Chesterfield Drive Crossing Improvements	58	-	✓	-	-	-	-	-	$6M	$0.1M	-	-
	1143800: Encinitas Grade Separation Pedestrian Crossing	59	2013	-	-	-	-	-	-	-	$6M	-	Project Complete
	Unallocated I-5 North		**-**	**-**	**-**	**-**	**-**	**$1,963M**	**-**	**-**	**-**	**-**	**$1,596M**
SR 52						**$410M**	**-**	**$498M**	**-**	**-**	**$499M**	**-**	**$295M**
32	**SR 52: I-15 to SR 125**		**50%**	**-**	**50%**	**$170M**	**-**	**$210M**	**-**	**-**	**$43M**	**-**	**$56M**
EAP	1205201: SR 52 2 ML – I-15 to SR 125	60	-	✓	-	-	-	$192M	-	$12M	$7M	-	-
EAP	1205202: SR 52 Widening	61	2011	-	-	-	-	$18M	$21M	-	$36M	-$15M	Project Complete
33	**SR 52: SR 125 to SR 67**		**✓**	**-**	**-**	**$240M**	**$309M**	**$288M**	**$331M**	**-**	**$456M**	**-$125M**	**-**
EAP	1205203: SR 52 Extension	62	2011	-	-	-	-	$288M	$331M	-	$456M	-$125M	Project Complete
	Unallocated SR 52		**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**$239M**
SR 94 / SR 125						**$620M**	**-**	**$765M**	**-**	**-**	**$8M**	**-**	**$1,873M**
34	**FWY Connector: SR 94 / SR 125 Interchange**		**-**	**50%**	**50%**	**$110M**	**-**	**-**	**-**	**-**	**$8M**	**-**	**$1,472M**
	1212501: SR94/SR125 South to East Connector	63	-	✓	-	-	-	-	-	$11M	$8M	-	-
35	**SR 94: SR 125 to Steele Canyon Rd**		**-**	**-**	**✓**	**$90M**	**-**	**-**	**-**	**-**	**-**	**-**	**$194M**
36	**SR 94 / SR 125: I-805 to I-8**		**-**	**-**	**✓**	**$350M**	**-**	**-**	**-**	**-**	**-**	**-**	**$206M**
37	**Route 520 (Orange Line Trolley) Improvements**		**✓**	**-**	**-**	**$70M**	**$95M**	**-**	**-**	**-**	**-**	**-**	
	1210010: Orange and Blue Line PM		2015	-	-	-	-	-	-	-	-	-	Projects Complete
	1210020: Blue Line Crossovers and Signals		2013	-	-	-	-	-	-	-	-	-	
	1210040: Orange and Blue Line Traction Power Substations		2014	-	-	-	-	-	-	-	-	-	
	1210050: Orange and Blue Line Communications System		2015	-	-	-	-	-	-	-	-	-	

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
	1210070: Orange and Blue Line Platforms		2013	-	-	-	-	-	-	-	-	-	
	1210080: Low Floor LRT Vehicles		2014	-	-	-	-	-	-	-	-	-	
	Unallocated SR 94 / SR 125		-	-	-	-	-	$765M	-	-	-	-	-
SR 54 / SR 125						$140M	-	$173M	-	-	-	-	$383M
38	**SR 54 / SR 125: I-805 to SR 94**		-	-	✓	$140M	-	-	-	-	-	-	$383M
	Unallocated SR 54/ SR 125		-	-	-	-	-	$173M	-	-	-	-	-
SR 67						$240M	-	$296M	-	-	-	-	$994M
39	**SR 67: Mapleview St to Dye Rd**		-	25%	75%	$240M	-	-	-	-	-	-	$994M
	SR 67 Intersection Improvements at Dye Rd [3]	64	-	✓	-	-	-	-	-	-	-	-	-
	Unallocated SR 67		-	-	-	-	-	$296M	-	-	-	-	-
I-8 Corridor						$30M	-	$37M	-	-	-	-	$80M
40	**I-8: Second St to Los Coches Rd**		-	-	✓	$30M	-	-	-	-	-	-	$80M
	Unallocated I-8		-	-	-	-	-	$37M	-	-	-	-	-
SR 78						$700M	-	$864M	-	-	$90M	-	$2,332M
41	**SR 78: I-5 to I-15**		25%	75%	-	$500M	-	-	-	-	$25M	-	$544M
	1207801: SR 78 HOV/Managed Lanes (Study only)		-	-	-	-	-	-	-	$2M	$2M	-	-
	1201510: SR 78 Nordahl Road Interchange	65	2012	-	-	-	-	-	-	-	$23M	-	Project Complete
42	**Route 399 (SPRINTER) / BRT Route 471 Improvements**		✓	-	-	$200M	$245M	-	-	-	$65M	-	$428M
	1230001: SPRINTER: Single Track	66	2008	-	-	-	-	-	-	-	$65M	-	Project Complete
	Unallocated SR 78		-	-	-	-	-	$864M	-	-	-	-	$1,360M
SR 76						$180M	$258M	$342M	$416M	-	$306M	$110M	$2M
43	**SR 76: Melrose Dr to I-15**		✓	-	-	$180M	$258M	$342M	$416M	-	$306M	$110M	$2M
EAP	1207602: SR 76 Middle	67	2012	-	-	-	-	$195M	$227M	-	$162M	$65M	Projects Complete
EAP	1207606: SR 76 East	68	2017	-	-	-	-	$147M	$189M	-	$145M	$44M	
SR 56						$100M	-	$123M	-	-	-	-	$273M
44	**SR 56: I-5 to I-15**		-	-	✓	$100M	-	-	-	-	-	-	$273M
	Unallocated SR 56		-	-	-	-	-	$123M	-	-	-	-	-
Mid-City to Downtown						$90M	-	$111M	-	-	$72M	-	$55M
45	**BRT Showcase Route 611: via El Cajon Blvd & Park Blvd (Now known as Mid-City Rapid Route 215)**		50%	50%	-	$90M	-	-	-	-	$72M	-	$55M
	1240001: Mid-City *Rapid* Bus	69	2014	-	-	-	-	-	-	-	$41M	-	Project Complete
EAP	1201507: SR 15 BRT – Mid-City Centerline Stations	70	-	✓	-	-	-	$63M	-	$61M	$32M	-	-
EAP	1201514: Downtown Multiuse and Bus Stopover Facility		-	✓	-	-	-	-	-	-	-	-	-
	Unallocated Mid-City / Downtown		-	-	-	-	-	$111M	-	-	-	-	-
Coronado Tunnel						$25M	-	$25M	-	-	-	-	-
46	**SR 75 / SR 282 (Coronado Tunnel): Glorietta Blvd to Alameda Blvd**		-	-	✓	$25M	-	-	-	-	-	-	-

Ordinance Number	Project/Segment Name	Segment	Status			Budgets					Expenditures		
			Project Completed & Open-to-Traffic	In-Progress	Future Project	Ordinance Estimate (2002 Dollars)	Ordinance-Escalated to Year Open	2005 POF Estimate (2005 Dollars)	2005 POF-Escalated to Year Open	Project CIP Budget	Expenditures through July 2017	Variance (2005 POF Escalated minus Expenditures)	Estimated Cost to Complete (Escalated to YOE $)
	Unallocated Coronado Tunnel		-	-	-	-	-	$25M	-	-	-	-	-
	Border Access Improvements					$25M	-	$25M	-	-	$198M	-	-
47	**Border Access Improvements**		85%	15%	-	$25M	-	-	-	-	$198M	-	-
	1201101: SR 11 and Otay Mesa East Port of Entry	71	2016	-	-	-	-	-	-	-	$138M	-	Projects Complete
	1300601: San Ysidro Intermodal Freight Facility	72	2016	-	-	-	-	-	-	-	$39M	-	
	1300602: South Line Rail Freight Capacity	73	2016	-	-	-	-	-	-	-	$46M	-	
	1390501: SR905 – I-805 to Britannia Blvd	74	2012	-	-	-	-	-	-	-	$82M	-	
	1390502: I-805/I-905 Connectors	75	2012	-	-	-	-	-	-	-	$18M	-	
	1390504: SR 905/125/11 Northbound Connectors	76	2016	-	-	-	-	-	-	-	$11M	-	
	1390505: SR 905/125/11 Southbound Connectors	77	-	✓	-	-	-	-	-	$69M	$1M	-	-
	Unallocated Border Improvement		-	-	-	-	-	$25M	-	-	-	-	-
	SR 125					-	-	-	-	-	-	-	-
48	**SR 125: SR 905 to SR 54**		75%	25%		n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	3312100: South Bay Expressway (Toll Road Purchase) [4]	78	2011	-	-	-	-	-	-	-	-	-	-
	1390504: SR 905/125/11 Northbound Connectors		✓	-	-	-	-	-	-	-	-	-	-
	1390505: SR 905/125/11 Southbound Connectors		-	✓	-	-	-	-	-	-	-	-	-
	15 Ordinance Corridor Grand Total		-	-	-	$9,623M	-	$12,328M	-	-	$4,391M	-	$22,667M
	Project Status at 48 Ordinance Level		33%	28%	39%	-	-	-	-	-	-	-	-

Note:

[1] Total expenditures for the I-15 Express Middle Segment include expenditures incurred under the initial *TransNet* Program. The project budget reflects the portion of the project or project segment that was to be funded by the *TransNet* Extension.

[2] While all the Blue Line Trolley Improvements have been completed and the services are open to the public, some additional work on the project is still in-progress.

[3] Project did not use *TransNet* major corridor funds; rather $14 billion of County of San Diego *TransNet* funds and $2 billion of State SHOPP funds were programmed for this project.

[4] The SR 125 Toll Road was purchased for $342 million in 2011 using *TransNet* funds with the intent to recover the expense through toll revenues.

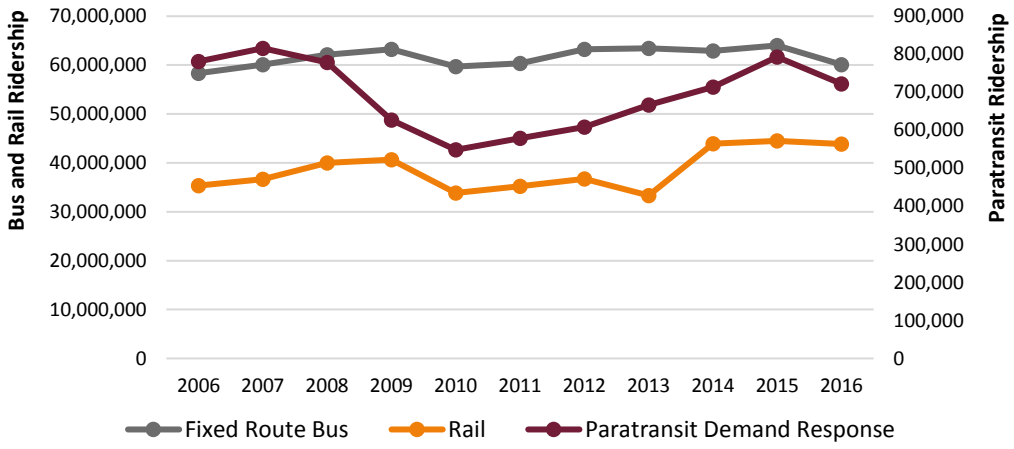
Appendix C. Additional Systemwide Transit Performance Metrics

Typical of its industry, there was a lot of transit performance data available and reported for the San Diego region—systemwide, by operator, by route, and by *TransNet*-only funded routes. While this data was generally available on the websites of MTS and NCTD as well as through SANDAG's Coordinated Plan, we also captured some of the more typical performance metrics for the San Diego region as a whole since 2006 using federal National Transit Database information. Data was self-reported by the transit operators and was not validated as part of this review; although the operators have undergone triennial performance audits by external parties where the data is subject to audit. Additionally, the methodology for reporting data since 2006 may vary due to changes in classifications of rail (light rail, commuter rail, or hybrid rail) or type of bus as well as vary due to routes starting or stopping service over the time period examined.

Ridership

Transit ridership across all modes increased 11 percent from 94.5 million riders in 2006 to 104.7 million riders in 2016, as shown in Exhibit 64. Similar to national trends, ridership declined in the last year.

EXHIBIT 64. SAN DIEGO SYSTEMWIDE RIDERSHIP BY MODE, 2006 TO 2016

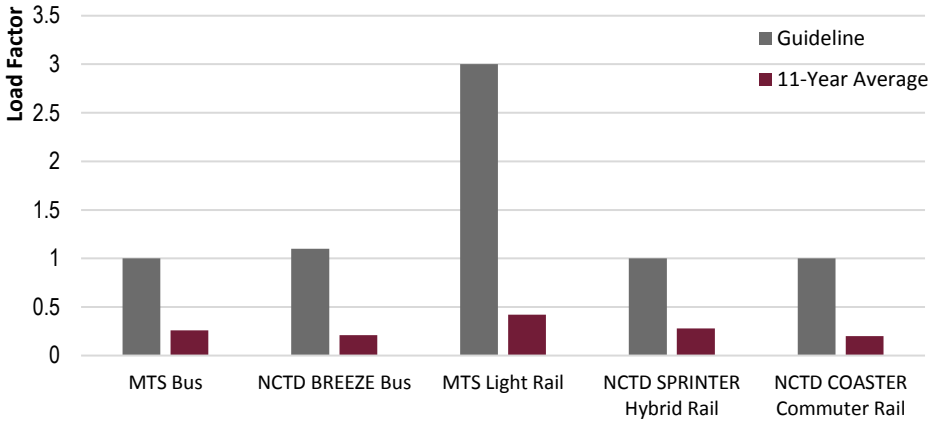


Source: http://ftis.org/ Urban Integrated National Transit Database, NCTD and MTS 2016 Performance Reports, and MTS and NCTD Form C for the 4th Quarter 2008 as provided by SANDAG.

Load Performance

This indicator relates to seat utilization and tracks the percent of seats occupied. Since 2006, both MTS and NCTD fixed route bus load factors were within the guidelines established by SANDAG each year. As shown in Exhibit 65, 11-year average weekday load factors for each mode were within established guidelines. Higher load factors over suggested guidelines indicated overcrowding on buses, trains, and paratransit vans, while a load factor lower than guidelines indicated seats were available.

EXHIBIT 65. AVERAGE WEEKDAY LOAD FACTOR BY MODE AND SERVICE: GUIDELINE VS. 11-YEAR AVERAGE, 2006 TO 2016



Source: SANDAG Performance Monitoring Data.
Note: The SPRINTER began service in 2008.

On an annual basis, average weekday load factors were within guidelines, but on the low end—this means seats were available as shown in Exhibit 66.

EXHIBIT 66. AVERAGE WEEKDAY LOAD FACTOR BY MODE AND SERVICE, 2006 TO 2016

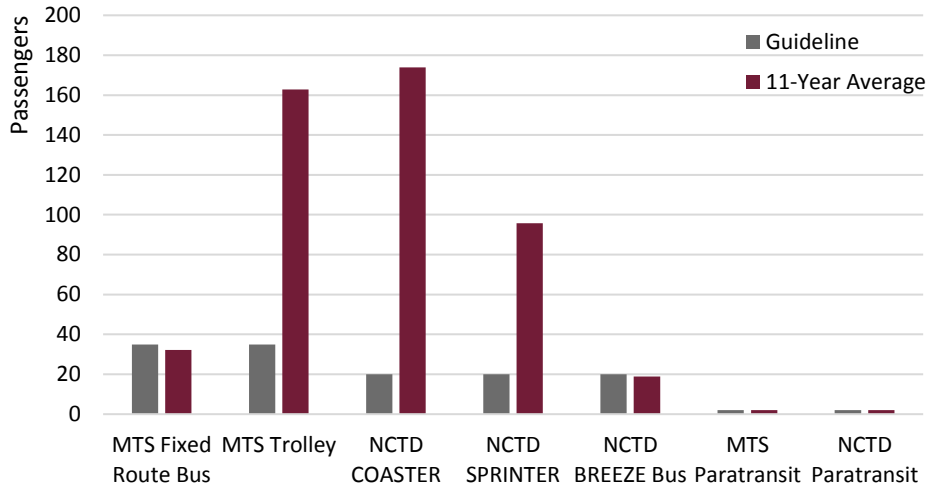
Mode and Service	Guideline	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fixed Route												
MTS Bus	1.00	0.27	0.24	0.25	0.24	0.26	0.27	0.28	0.27	0.28	0.27	0.27
NCTD BREEZE Bus	1.10	0.24	0.23	0.20	0.21	0.19	0.19	0.22	0.18	0.22	0.20	0.20
Rail												
MTS Light Rail	3.00	0.43	0.44	0.42	0.47	0.43	0.39	0.39	0.41	0.41	0.44	0.41
NCTD SPRINTER Hybrid Rail [1]	1.00			0.32	0.31	0.33	0.34	0.23	0.25	0.25	0.25	0.27
NCTD COASTER Commuter Rail	1.00	0.23	0.24	0.23	0.17	0.18	0.20	0.21	0.20	0.20	0.20	0.19

Source: SANDAG Performance Monitoring Data.
Note: [1] The SPRINTER began service in 2008.

Passengers per Revenue Hour

Another measure of the productivity of a transit vehicle is passengers per revenue hour. From 2006 to 2016, the 11-year average of rail and paratransit performance consistently met or exceeded the established guidelines for passengers per revenue hour. Conversely, both MTS Bus and NCTD BREEZE Bus did not always meet established guidelines, as shown in Exhibit 67. Additionally, it is important to note that data for MTS Trolley, NCTD COASTER and NCTD SPRINTER for 2006 through 2010 were reported in car hours, while data for 2011 through 2016 were reported in train hours.

EXHIBIT 67. COMPARISON OF 11-YEAR AVERAGE SYSTEMWIDE PASSENGERS PER REVENUE HOUR BY MODE TO ESTABLISHED GUIDELINES, 2006 TO 2016



Source: SANDAG Performance Monitoring Data.

Note: The SPRINTER began service in 2008.

Looking at passenger per revenue hour on an annual basis between 2006 and 2016, rail and paratransit services consistently met or exceeded established guidelines for passengers per revenue hour in each of the 11 years where data was available. Conversely, MTS Bus did not meet established guidelines in any of the years and NCTD BREEZE bus, as shown in Exhibit 68.

EXHIBIT 68. ANNUAL SYSTEMWIDE PASSENGERS PER REVENUE HOUR BY MODE, 2006 TO 2016

Mode and Service	Guideline	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fixed Route												
MTS Bus	35	28	28	29	31	31	33	34	33	32	31	28
NCTD BREEZE Bus	20	20	20	20	21	20	20	20	19	19	17	16
Rail												
MTS Light Rail	35	72	81	86	90	71	184	188	151	228	233	230
NCTD SPRINTER Hybrid Rail	20			106	78	94	98	97	111	108	118	113
NCTD COASTER Commuter Rail	20	50	52	54	45	41	208	209	234	247	235	225
Paratransit Demand Response												
MTS Access Paratransit	2	2	2	2	2	2	2	2	2	2	2	2
NCTD LIFT Paratransit	2	2	2	2	2	2	2	2	2	2	2	2

Source: SANDAG Performance Monitoring Data.

Note: The SPRINTER began service in 2008.

Headway (Frequency of Service)

According to SANDAG's most recent transit Coordinated Plan, the MTS and NCTD minimum peak service headway goals were 15 minutes for buses, 15 to 30 minutes for light rail, and 40 minutes for commuter rail. Data revealed neither MTS nor NCTD met headway goals for fixed route bus. Funding limitations impacted both agencies' ability to meet headway goals. Conversely, both entities met headway goals for rail. For

instance, the 10-year average headway for MTS light rail was approximately 11 minutes—well below the 15 to 30 minute goal as shown in Exhibit 69.

EXHIBIT 69. SYSTEMWIDE AVERAGE HEADWAY (IN MINUTES): GOAL VERSUS 10-YEAR AVERAGE, 2006 TO 2016

Mode and Service	Goal	10-Year Average (2006-2016)
Fixed Route		
MTS Commuter Bus [1]	15	18
MTS and NCTD Bus [2]	15	27
Rail		
MTS Light Rail	15-30	11
NCTD SPRINTER Hybrid Rail [1]	15-30	30
NCTD COASTER Commuter Rail	40	31

Source: http://ftis.org/ Urban Integrated National Transit Database

Note: [1] MTS Commuter Bus began operation in 2011 and NCTD SPRINTER began service in 2008.
[2] Average headway was not reported for Fixed Route in the 2015 NTD Reporting Year.

As shown in Exhibit 70, average annual headway results for each mode were fairly consistent over time for rail, while fixed route showed more fluctuation between 2006 and 2014.

EXHIBIT 70. ANNUAL SYSTEMWIDE AVERAGE HEADWAY (IN MINUTES), 2006 TO 2015

Mode and Service	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Fixed Route	**35**	**35**	**26**	**24**	**27**	**23**	**23**	**21**	**23**	
MTS Commuter Bus [1]						18	16	15	21	
MTS and NCTD Bus [2]	35	35	26	24	27	25	24	23	23	
Rail	**20**	**20**	**23**	**23**	**24**	**24**	**24**	**25**	**24**	**24**
MTS Light Rail	10	11	11	10	11	11	11	13	11	11
NCTD SPRINTER Hybrid Rail [1]			29	30	30	30	30	30	30	30
NCTD COASTER Commuter Rail	30	29	30	30	31	31	31	31	31	31

Source: http://ftis.org/ Urban Integrated National Transit Database.

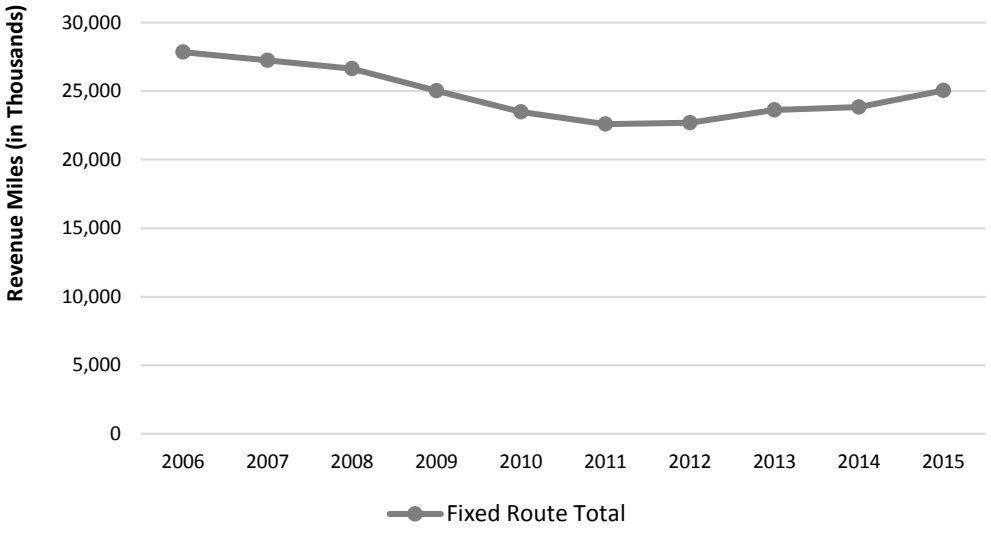
Note: [1] MTS Commuter Bus began operation in 2011 and NCTD SPRINTER began service in 2008.
[2] Average headway was not reported for Fixed Route in the 2015 NTD Reporting Year.

Revenue Miles

Countywide transit revenue miles (miles traveled when in service and available to carry passengers) across all modes of transit increased from 41.6 million miles in 2006 to 42.7 million miles in 2016—an 11 percent growth.

- **Fixed Route Bus** revenue miles decreased 10 percent from 27.8 million miles in 2006 to 25 million miles in 2015 as shown in Exhibit 71. Changes in total revenue miles were impacted by the number of routes offered, span of service, and frequency of service.

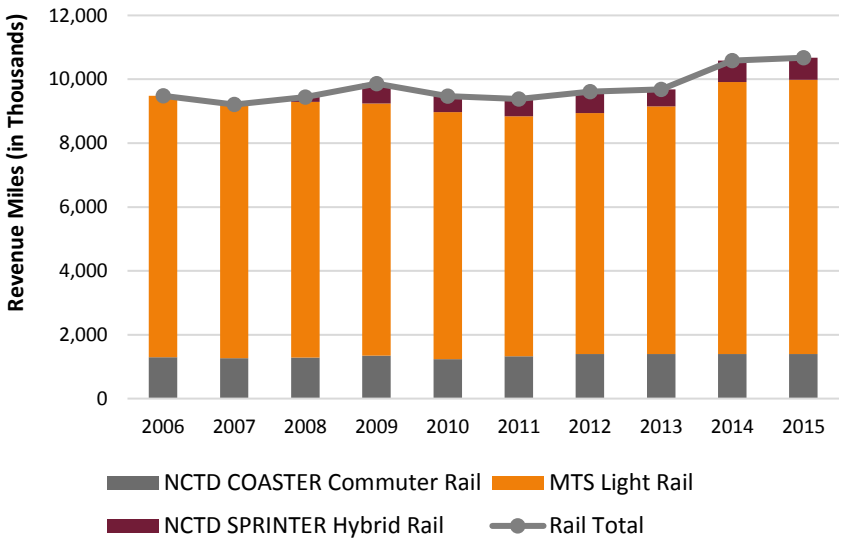
EXHIBIT 71. SYSTEMWIDE FIXED ROUTE REVENUE MILES, 2006 TO 2015



Source: http://ftis.org/ Urban Integrated National Transit Database.
Note: Vanpool not included as it is not funded by *TransNet*.

- **Rail** revenue miles (including commuter rail, light rail, and hybrid rail) experienced growth of approximately 12.6 percent increasing from 9.5 million miles in 2006 to 10.7 million miles in 2015 as shown in Exhibit 72. Mostly, the increase was attributed to the start of NCTD's SPRINTER service in 2008, MTS' Vintage Silver Line beginning service in 2011, and MTS' Green Line service expansion in 2012—thus, most of the systemwide rail revenue miles was attributed to MTS Light Rail operations.

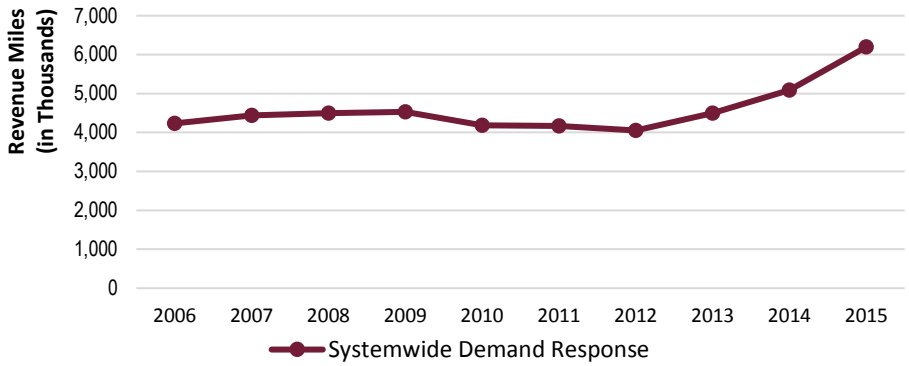
EXHIBIT 72. SYSTEMWIDE RAIL ANNUAL REVENUE MILES BY SERVICE, 2006 TO 2015



Source: http://ftis.org/ Urban Integrated National Transit Database.

- **Paratransit** revenue miles increased from approximately 4.2 million miles in 2006 to 6.2 million miles in 2015—an increase of more than 47 percent as shown in Exhibit 73. Thus, usage of paratransit services significantly grew over the 10-year period.

EXHIBIT 73. SYSTEMWIDE PARATRANSIT DEMAND RESPONSE REVENUE MILES, 2006 TO 2015



Source: http://ftis.org/ Urban Integrated National Transit Database and MTS and NCTD Form C for 4rd Quarter 2008 as provided by SANDAG.

Farebox Recovery

The farebox recovery ratio is the percent of operating expenses covered by fare revenue. A higher farebox recovery ratio indicates a greater percent of the operating costs are covered by fare revenue and provides increased financial stability. Farebox recovery ratios remained relatively stable from 2006 to 2016, as shown in Exhibit 74. With the exception of certain individual years, annual farebox recovery ratios remained above established guidelines for each mode of transit.

EXHIBIT 74. SYSTEMWIDE FAREBOX RECOVERY BY MODE AND SERVICE, 2006 TO 2016

	Guideline	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fixed Route Bus												
MTS *Rapid* Express	20.0%		32.0%	45.2%	50.7%	60.4%	50.1%	46.4%	46.6%	43.4%	52.3%	52.4%
MTS Bus	31.9%	32.7%	33.6%	33.9%	39.4%	37.4%	34.8%	37.2%	36.3%	36.5%	35.5%	34.4%
NCTD BREEZE Bus	18.8%	21.4%	21.3%	19.4%	20.6%	19.9%	20.0%	20.7%	21.4%	19.6%	19.4%	16.4%
Rail												
MTS Light Rail	31.9%	50.8%	49.0%	53.6%	57.2%	53.9%	51.2%	55.2%	53.6%	56.1%	56.3%	54.4%
NCTD SPRINTER[1] Hybrid Rail	18.8%			10.7%	15.1%	16.3%	18.3%	19.2%	15.4%	18.3%	18.6%	17.8%
NCTD COASTER Commuter Rail	18.8%	37.6%	35.8%	39.3%	42.4%	40.0%	39.4%	39.5%	37.3%	38.9%	35.9%	40.0%
Paratransit Demand Response												
MTS Access Paratransit	10.0%	17.8%	16.2%	15.1%	14.8%	15.8%	13.8%	12.2%	13.4%	13.1%	13.7%	12.9%
NCTD LIFT Paratransit	10.0%	13.0%	11.6%	10.8%	12.9%	12.8%	13.5%	15.7%	14.1%	11.9%	9.2%	8.9%

Source: SANDAG Performance Monitoring Data.

Note: The SPRINTER began service in 2008 and was re-classified from light rail to hybrid rail in 2011.

Peer Comparisons

In the following sections, we provide a comparison of San Diego County systemwide performance by mode to national peers. Generally, San Diego out-performed the combined peer average for each of the three modes reviewed: fixed route bus, light rail, and hybrid rail, as shown in Exhibits 75, 76, and 77.

Over the past nine years, from 2006 to 2015, the San Diego County area generally performed better than the 10-peer average for three of the five metrics, as shown in Exhibit 75.

EXHIBIT 75. SYSTEMWIDE FIXED ROUTE BUS PERFORMANCE COMPARED TO 10 NATIONAL PEERS, 2006 TO 2015 [76]

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2006	San Diego	33.4%	$5.95	$2.70	14.29	2.4
	10-Peer Average	16.9%	$7.40	$3.85	17.90	2.0
2007	San Diego	32.1%	$5.99	$2.87	12.26	2.2
	10-Peer Average	18.2%	$7.77	$3.91	18.90	2.1
2008	San Diego	28.0%	$6.62	$3.03	12.47	2.4
	10-Peer Average	19.3%	$8.15	$4.18	18.32	2.1
2009	San Diego	40.3%	$6.76	$2.91	12.59	2.5
	10-Peer Average	20.3%	$8.29	$4.25	17.82	2.1
2010	San Diego	34.0%	$7.25	$3.61	9.67	2.3
	10-Peer Average	19.0%	$8.62	$4.81	16.09	2.0
2011	San Diego	35.3%	$7.26	$3.01	11.92	2.7
	10-Peer Average	20.3%	$8.92	$4.51	16.14	2.1
2012	San Diego	35.9%	$7.56	$3.01	12.15	2.8
	10-Peer Average	18.8%	$9.15	$6.13	14.81	2.0
2013	San Diego	37.1%	$7.55	$3.06	11.40	2.7
	10-Peer Average	20.3%	$9.16	$5.55	14.53	2.0
2014	San Diego	34.9%	$7.45	$3.12	11.40	2.6
	10-Peer Average	18.8%	$9.46	$5.34	14.46	2.0
2015	San Diego	33.3%	$7.40	$3.25	9.62	2.5
	10-Peer Average	18.1%	$9.44	$5.30	14.28	2.0

Source: http://ftis.org/ Urban Integrated National Transit Database.
Green = San Diego performed better than peers. Red = San Diego performed worse than peers.

For instance, the San Diego County area consistently exhibited a higher farebox recovery ratio then its peers; in 2015, the San Diego systemwide fixed route farebox recovery ratio was 33.3 percent compared to the 18.1 percent 10-peer average. This indicates a higher percent of the operating costs were covered by fare revenue in San Diego than in peer regions. Conversely, San Diego systemwide performance related to

[76] 10 peers selected that operated similar service include Dallas (DART), Denver (RTD), Los Angeles (LACMTA), Minneapolis (Metro Transit), Orange (OCTA), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA).

passenger trips per service area capita was not as strong as peers. For example, the passenger trips per service area capita in 2015 was 9.62 in San Diego, compared to the 14.28 peer average, meaning that service was used less by residents in San Diego than in peer regions.

Similarly, the San Diego systemwide light rail generally outperformed the 9-peer average for the metrics reviewed, as shown in Exhibit 76.

EXHIBIT 76. SAN DIEGO SYSTEMWIDE LIGHT RAIL PERFORMANCE COMPARED TO 9 NATIONAL PEERS, 2006 TO 2015 [77]

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2006	San Diego	50.8%	$6.73	$1.63	16.09	4.14
	9-Peer Average	30.0%	$12.24	$3.30	10.28	4.10
2007	San Diego	49.0%	$7.05	$1.59	15.81	4.42
	9-Peer Average	28.9%	$11.44	$3.06	11.02	4.03
2008	San Diego	32.4%	$27.16	$5.78	8.90	4.71
	9-Peer Average	31.7%	$11.97	$3.09	10.95	4.08
2009	San Diego	31.4%	$15.88	$4.23	9.61	4.12
	9-Peer Average	29.2%	$12.86	$3.29	12.97	4.02
2010	San Diego	35.3%	$16.75	$4.02	9.02	4.09
	9-Peer Average	28.7%	$13.63	$3.57	16.81	4.03
2011	San Diego[1]	57.4%	$8.03	$1.91	16.13	4.20
	9-Peer Average	31.7%	$13.25	$3.52	17.56	4.01
2012	San Diego	55.6%	$8.39	$1.94	16.66	4.33
	9-Peer Average	32.8%	$12.93	$3.40	18.32	3.99
2013	San Diego	53.6%	$8.55	$2.23	13.39	3.83
	9-Peer Average	34.6%	$13.12	$3.63	18.83	3.82
2014	San Diego	56.1%	$8.41	$1.80	17.89	4.66
	9-Peer Average	30.5%	$13.74	$3.91	19.20	3.73
2015	San Diego	56.3%	$8.50	$1.82	16.28	4.66
	9-Peer Average	29.9%	$14.06	$4.07	19.48	3.71

Source: http://ftis.org/ Urban Integrated National Transit Database.

Note: In 2011 the SPRINTER was re-classified as Hybrid Rail.

Green = San Diego performed better than peers. Red = San Diego performed worse than peers.

From 2006 to 2015, San Diego showed improved performance, with Light Rail farebox recovery ratio increasing from 50.8 percent in 2006 to 56 percent in 2015 compared to the 9-peer average that remained constant at 30 percent. In addition, passenger trips per revenue mile increased from 4.14 in 2006 to 4.66 in

[77] 9 peers selected that operated similar service include Dallas (DART), Denver (RTD), Los Angeles (LACMTA), Minneapolis (Metro Transit), Phoenix (RPTA), Portland (TriMet), Sacramento (RT), Salt Lake (UTA), and Santa Clara (VTA).

2015, while the 9-peer average declined over the same period from 4.1 to 3.71. With the exception of 2006 and 2007, the 9-peer average passenger trips per capital performed better than San Diego each year.

The NCTD SPRINTER is one of four hybrid rail systems in the nation. Since its reclassification from light rail to hybrid rail in 2011, San Diego has out-performed the three-peer average for each metric reviewed as shown in Exhibit 77. The NCTD SPRINTER reported a higher number of passenger trips per revenue mile, higher farebox recovery ratio, and lower operating costs per revenue mile and passenger trip. These indicators measure the financial stability, efficiency of service, and service utilization.

EXHIBIT 77. NCTD SPRINTER HYBRID RAIL PERFORMANCE COMPARED TO 3 NATIONAL PEERS, 2011 TO 2015 [78]

Year	Region	Farebox Recovery Ratio	Operating Expense per Revenue Mile	Operating Expense per Passenger Trip	Passenger Trips Per Service Area Capita	Passenger Trips Per Revenue Mile
2011	San Diego [1]	18.3%	$24.07	$5.87	2.6	4.1
	3-Peer Average	8.3%	$40.26	$17.35	0.3	2.3
2012	San Diego	19.2%	$20.72	$5.71	2.7	3.6
	3-Peer Average	11.5%	$38.29	$16.09	0.3	2.4
2013	San Diego	15.5%	$27.75	$7.36	2.2	3.8
	3-Peer Average	12.8%	$39.92	$14.69	0.4	2.7
2014	San Diego	18.4%	$22.23	$5.89	3.0	3.8
	3-Peer Average	11.7%	$41.64	$15.28	0.4	2.7
2015	San Diego	18.6%	$23.50	$5.83	3.3	4.0
	3-Peer Average	10.4%	$40.12	$14.85	0.4	2.7

Source: http://ftis.org/ Urban Integrated National Transit Database.

Note: [1] In 2011 the SPRINTER was re-classified as Hybrid Rail.

Green = San Diego performed better than peers. Red = San Diego performed worse than peers.

[78] Only 3 other transit entities operated similar service and were used as peers—these include Capital Metropolitan Transportation Authority, New Jersey Transit Corporation, and Tri-County Metropolitan Transportation District of Oregon.