San Diego Independent Taxpayer Oversight Committee

TransNet Performance Audit

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Submitted By:

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Executive Summary

In 2004, the San Diego voters renewed their commitment to the region's transportation improvement program by approving Proposition A, implemented through the TransNet Extension Ordinance (Ordinance), and continuing an existing half-cent transportation sales tax for an additional forty years. Although the measure became effective April 1, 2008, the San Diego Association of Governments (SANDAG) and its partners embarked on an ambitious program to accelerate certain major corridor highway construction and transit projects beginning in Fiscal Year 2005-2006. SANDAG estimated that costs for these early action program (EAP) projects slated for completion by 2015 will reach $5 billion.

With the TransNet program only in the infancy of its 40-year duration, it is premature to predict results and reach conclusions on ultimate project delivery efficiencies or the success of performance outcomes given that many projects are still in preliminary scoping and environmental phases. For most projects, complete information is often not available because these projects have not evolved from early development stages into design and construction phases where more defined results can be assessed. Thus, we focused largely on the overall structure, practices, and controls established by SANDAG and Caltrans to plan, implement, manage, monitor, and oversee the development and delivery of the early action projects. Successfully accomplishing these steps should lay the foundation for sustaining a viable 40-year transportation and transit development system. Our audit revealed that SANDAG and Caltrans have launched a solid network with appropriate oversight, fiscal control, program management, and project delivery practices, although we identified activities that could be enhanced at a program-wide as well as project-specific level.

In the sections that follow, we describe SANDAG and Caltrans efforts addressing the key elements of a successful program delivery listed below:

- Governance and Oversight
- Performance Monitoring and Accountability
- Fiscal Control and Budget Data
- Project Management and Delivery

A Robust Governance Structure is Employed, Although Oversight Could be Enhanced

Over the last three years, SANDAG has worked in conjunction with its transportation and transit partners to employ a robust framework with many critical elements to help achieve long-term project and program success. For instance, we found appropriate levels of governance and involvement from the SANDAG Board of Directors (Board), SANDAG Transportation Committee, and the Independent Taxpayers Oversight Committee (ITOC) that provide valuable and necessary oversight for key project costs and delivery practices. SANDAG's broad responsibilities and delivery methods have fostered an environment of collaboration that successfully crosses local jurisdictional and governmental borders to create synergies in the development of the region's transportation and transit projects. In part, this is demonstrated through SANDAG's use of corridor director positions in concert with

Caltrans allowing for heightened accountability through a cross-agency project management structure tracking projects from cradle to grave, as well as continuous monitoring over all corridor projects' schedules and costs.

However, better information could be provided to oversight bodies, including the ITOC, to assist in policy-setting, monitoring, and decision-making as current data provided does not capture full project history, critical prior budget actions, scope adjustments approved, project risks and benefits, or cumulative impact of past decisions made. Additional statistics related to project impact on travel time and congestion, as well as project performance in terms of schedule and budget adherence.

While Solid Management over TransNet Exists, Greater Performance Monitoring and Reporting Would Further Promote Accountability

In an effort to enhance transparency and promote accountability, SANDAG and Caltrans both utilize appropriate tools and employ reasonable processes to monitor the overall TransNet program as well as manage individual project performance. Throughout the highway and transit project efforts, SANDAG and Caltrans management foster a collaborative environment setting the tone emphasizing the coordinated flow of critical project data between the agencies, controls over budget and schedule adherence, and joint resolution of project dilemmas.

SANDAG and Caltrans apply numerous practices and automated tools to track budget and schedule data. For instance, detailed project budget and schedule data used by SANDAG and Caltrans project managers are consolidated through a "Dashboard" database that efficiently streamlines data collection and summarizes corridor, segment, and project status through the automatic integration of data gathered from disparate systems. Available for use by internal project teams as well as the general public, we found Dashboard data related to budgets, expenditures, and schedules to be generally reliable.

While the Dashboard provides a good framework for online reporting of project status, older budget and expenditure data included for certain projects may skew data and activities under the TransNet program. Additionally, some early projects are not included within the Dashboard data thus providing an incomplete picture of TransNet funded project activity. SANDAG should revisit the intent and vision of the Dashboard and determine how best to track and provide meaningful project results as well as consider other minor enhancements recommended by our audit.

Moreover, the TransNet program would benefit from incorporating challenging goals and targets for program outcomes and develop and track associated measures to assess efficiencies and effectiveness of efforts as part of a comprehensive monitoring system. Existing TransNet program goals could be more clearly defined through objectives linked to specific performance measures. In addition to adopting meaningful effectiveness measures, SANDAG should establish goals, strategies, and performance measures to track program and project delivery efficiency indicators related to meeting delivery milestones, staying within set ranges of cost estimates, and reducing support costs and overhead by predetermined

amounts. Results from these performance indicators should be made available to oversight entities, particularly the ITOC, Corridor Directors, and to the public.

Revenue and Cost Models are Practical, Yet Project Budget and Schedule Reprioritizations Should be Better Chronicled

Another critical component of a successful program is sound financial planning and controls over financial management. Our review revealed that SANDAG's Plan of Finance and debt structure model appear reasonable and are based on sound assumptions that provide and dedicate funding to complete the EAP projects as promised. Since accelerating funding for these projects, as of June 30, 2008, SANDAG has committed approximately $635 million in bonds and commercial paper financing. Moreover, SANDAG has well-positioned itself to maximize funding and is motivated in identifying potential revenue streams that could leverage sales tax revenue. Although the 40-year revenue forecast is difficult to predict with certainty at this time, such forecasts and cost projections appear reasonable. Further, budget projections are periodically revisited using actual results and adjusted as necessary in preparing future forecasts. For instance, since actual sales tax receipts have decreased in the last two years, SANDAG revised its short-term revenue projections downward, and is in the process of modifying its long-term funding forecasts.

However, the availability of sufficient funding is and is likely to remain a significant challenge to project completion. Toward this end, when the EAP projects were identified, the SANDAG Board effectively dedicated nearly all of federal, state, and local TransNet sales tax funds to the delivery of these projects. The governing and oversight bodies publically vetted and deliberated the decision and ultimately agreed the EAP projects would provide the most regional benefits—even at the risk that other TransNet projects may not be accomplished. As part of the biennial Regional Transportation Improvement Program process as well as the annual budget process, SANDAG and its transportation partners continually revisit and revise project budget, scope, and delivery schedules as part of regional planning and prioritization efforts. The continual reprioritization is consistent with its authority as the Regional Transportation Commissions and was reemphasized in the Ordinance.

With the ongoing reprioritization and budgetary movement of the various EAP project components, SANDAG should employ mechanisms to formally track the budget history of each corridor or segment outlined in the Ordinance as amended or updated during annual processes. Such tracking of evolutionary changes occurring over time would memorialize the early decisions and actions affecting a particular corridor or segment in a consolidated manner—as well as provide decision makers charged with program oversight with additional information to use when weighing options or alternatives presented to them for resolution. Currently, much of this information is available in a variety of forms such as the quarterly reports submitted to the ITOC and SANDAG Board as well as in project team meetings and other senior management reports; yet, no central repository or consolidated resource exists to easily account for funding or project scope changes made.

Project Delivery Methods are Sound, However Some Practices Could be Enhanced

Generally, SANDAG and Caltrans appear to have an adequate project management and oversight structure to review, update, and monitor projects to ensure sufficient cost controls and timely project delivery. Overall practices in place for project delivery are consistent with peers and industry best practices. However, SANDAG could benefit from formalizing its project delivery practices and procedures by memorializing Board policy direction into procedural implementation manuals to guide daily project activities, and by instituting uniform filing systems and automated tools for tracking project history files.

Because the TransNet program is in its infancy, many of the EAP projects are in preliminary scoping or early design stages. For instance, only four projects have begun construction. While not enough time has passed or efforts completed for us to draw conclusions on project performance, preliminary indications revealed that taxpayers are seeing early value for their investment. Our review of EAP project data between Fiscal Years 2006-2007 and 2008-2009 revealed that while several individual projects and segments have experienced budget overruns and schedule delays, the EAP projects generally appear to be on schedule and are currently meeting the TransNet authorized program budget of nearly $5 billion. Our review of the underlying detail behind budget overages by project phase revealed that generally project managers employed reasonable cost monitoring and project management techniques to timely address and mitigate project scope, schedule and cost changes, while minimizing the overall project cost overruns.

In addition to reasonably established timelines, proven construction cost estimate models, and techniques based on sound assumptions, solid processes are in place to monitor costs throughout a project's lifecycle in areas such as task order amendments and change order approvals. Our comparisons of bids to estimates for the 21 EAP project construction contracts issued over the past three years showed an average difference of only 2.2 percent for all contracts. Additionally, our review of key performance indicators for the EAP projects showed industry-acceptable low percentages of change orders as compared to contract amounts, and cost estimate variances within the acceptable norm. Although we found sound procedures were established to award and monitor consultant work, better documentation practices could be employed in reviewing and approving task order requests for time extension for those task order amendments we reviewed. Similarly, change orders issued over the last three years accounted for approximately 14 percent of amounts originally bid. While this percentage is higher than the 10 percent average in the construction industry, the difference between payments and the initial contract bid value was only 7.64 percent.

Moreover, lessons learned from previous projects are discussed and considered on an informal basis through weekly project development meetings and monthly corridor director meetings. However, project evaluation closeout forms used by Caltrans should be more consistently prepared and completed as each phase is completed on long-term projects rather than waiting until construction is final and all claims addressed—which extends several years. Other potential project improvement opportunities for TransNet project practices include consistently applying risk assessments and related mitigation plans, improving project performance reporting practices, and creating a comprehensive set of project development policies and procedures for transit projects.

Recommendations

Continuing the strong practices launched and momentum gained in the initial three-year period of the TransNet program, we have recommended 25 improvements and refinements to enhance the TransNet program. A complete list and discussion of each recommendation is provided in Chapter 5 of this report, with highlights summarized below:

- Develop high-level project summary documents, or "Report Card" to capture project detail relating to key project budget, schedule and scope changes;
- Standardize ITOC administrative documents, including meeting agendas and status reports used in the ITOC oversight and decision-making process;
- Revisit the intent and vision for the Dashboard to potentially include all TransNet projects as well as to refine existing data to ensure accuracy, complements, and clarity of data nuances;
- Define and clarify project and program performance goals and targets to measure program performance;
- Continue to regularly monitor and review the debt to revenue ratio and report status monthly to the ITOC;
- Establish a mechanism to link and track the Ordinance planned projects and amounts with current plans and budgets for all TransNet projects;
- Enhance current project management and delivery practices by ensuring post-evaluation forms are consistently used and completed for all projects after each project phase, as well as memorializing transit practices and uniform filing systems; and
- Ensure consistent implementation and reliance on best practices to tighten project delivery tools including risk assessment tools.

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Introduction and Background

With reports of traffic increasing and congestion growing at rates faster than highway construction and available transit services, the voters in San Diego County passed Proposition A in November 2004 calling for a continuation of the existing half-cent transportation sales tax for an additional 40-year period, from 2008 through 2048, to relieve traffic congestion, improve safety, and expand highways, transit, and local streets and services. This proposition, implemented through the San Diego Association of Governments (SANDAG) Board of Directors' adoption of the TransNet Extension Ordinance (Ordinance), paved the way for these local funds dedicated to transportation improvements to be leveraged through state and federal matching dollars for improving regional systems. SANDAG is designated as the Regional Transportation Commission responsible for major highway and transit projects and is ultimately responsible for implementing the Ordinance and TransNet projects.

TransNet Extension Ordinance of 2004

Recognizing the continued need for transportation and transit improvement projects, the SANDAG Board of Directors prepared and authorized the Ordinance and Expenditure Plan to expand upon the foundation and projects completed under the original TransNet program approved by voters in 1987. The Ordinance and Expenditure Plan, a legal document that formally enacts sales tax measures approved through the public voting process, provided for the implementation of the region's transportation improvement program and identified an estimated $14 billion for other transportation and transit improvement projects to be completed between 2008 and 2048. The Ordinance distributed funds as shown in Table 1.

Table 1: TransNet Distribution of Funds Over 40 Years (in millions, 2002 dollars)

Expenditure Plan Component	**Amount over 40 years**
Major Transportation Corridor Improvements	
-Freeway, Highway, and Transit Capital Projects	$5,150
-Project Specific Transit Operations	$1,100
-Freeway, Highway, and Transit Environmental Mitigation	$ 600
Local System Improvements	
-Local Street and Road Projects	$3,950
-Local Street and Road Projects Environmental Mitigation	$ 250
-Smart Growth Incentive Competitive Grant Program	$ 280
Transit System Improvements	
-Continuing Bus/Rail Support and Improvements (Senior/Disabled/Youth Transit Passes and Services)	$2,240
Congestion Relief Program	**$13,570**
Bicycle, Pedestrian and Neighborhood Safety Grant Program	$280
Administration (SANDAG)	$140
Independent Taxpayer's Oversight Committee (ITOC)	$10
Total TransNet Funding:	**$14,000**

Source: TransNet Extension Ordinance and Expenditure Plan, p.18

Specifically, the Ordinance targeted regional congestion relief projects with funding for environmental mitigation, bicycle and pedestrian safety, local streets and roadways, and smart growth initiatives, transit services. For instance, it specified that major transportation corridor capital projects receive approximately 49 percent, or $6.85 billion of estimated funds, while transit operation services and local system improvements were slated to receive $2.24 billion and $4.48 billion, respectively, over the 40-year life of the program. Within these allocations, the TransNet extension included $850 million for environmental mitigation and approximately $280 million in grants for smart growth incentives to be allocated on a regional competitive grant basis for local transportation infrastructure improvements.

Further, the Ordinance laid out 47 specific corridor projects that the SANDAG Board selected for inclusion in the TransNet Extension program (see Appendix A). Two percent of all available funds were earmarked for bicycle paths and facilities, pedestrian improvements, and neighborhood safety projects. The TransNet Extension Ordinance also allocates a portion of funds for senior, disabled, and youth discounted transit passes.

To ensure sales tax revenues are appropriately distributed to the designated entities and programs in accordance with Ordinance provisions, SANDAG has developed an internal system called Project TTRAK which automatically calculates the sales tax distribution in compliance with the Ordinance. Detailed allocations within Project TTRAK serve as subsidiary records to SANDAG's financial system providing a listing of revenues received that must be distributed to various programs and entities. Designated SANDAG staff reconciles and recalculates the TransNet revenue distribution amounts monthly for all entities and program categories.

The Ordinance also established the Independent Taxpayer Oversight Committee (ITOC) to provide enhanced levels of accountability and monitoring of program expenditures compliance with Ordinance provisions. Further, the Ordinance establishes the ITOC's responsibility for conducting triennial performance audits of SANDAG and other agencies involved in the implementation of TransNet-funded projects and programs to review project delivery, cost control, schedule adherence, and related activities.

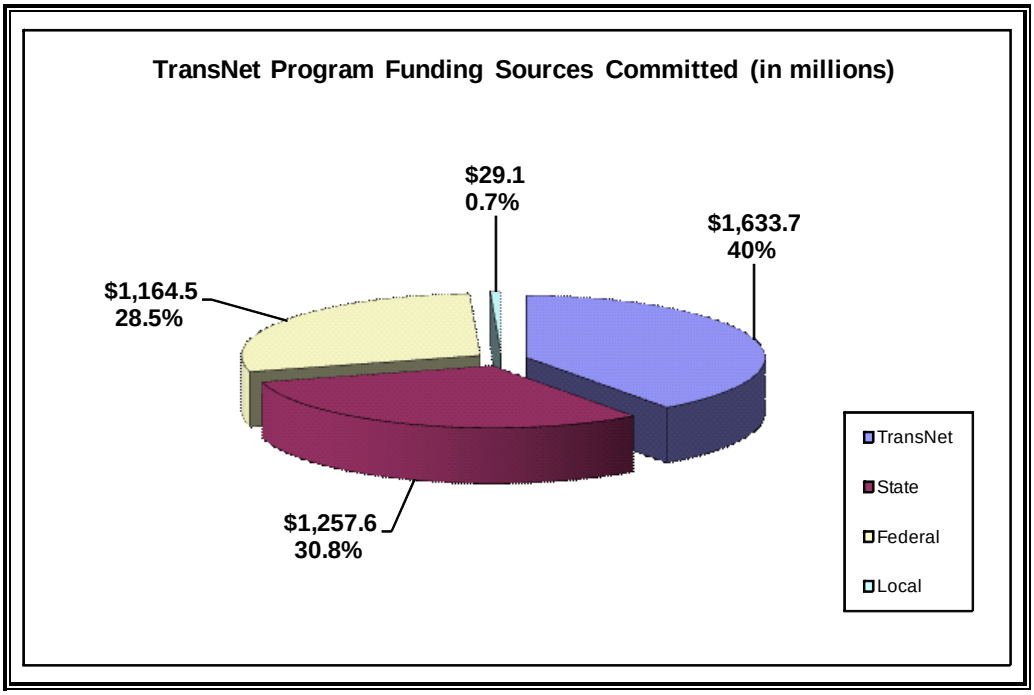
Sales Tax Revenues are Leveraged to Finance Projects

One tenet of the Ordinance is to leverage each TransNet dollar with a dollar from another funding source, such as the state gas tax or federal funds. Specifically, the Ordinance assumed that 50 percent of the costs of the major corridor projects would be covered by non-TransNet program sources such as state, federal, and other matching dollars. Some of the other funding sources used for TransNet EAP projects include:

- **Federal Funds—**Four separate federal programs relating to congestion mitigation and air quality improvement, high priority projects, regional surface transportation, and the safe, accountable, flexible, efficient transportation equity act.
- **State Funds—**Four primary state funding pools include state transportation improvement program, state highway operation and protection program, corridor mobility improvement account, and traffic congestion relief program.
- **Local Funds—**Various sources from local cities and districts.

Depending on the project, TransNet funds do not always constitute the majority of funding. For instance, for the EAP projects, TransNet monies comprise approximately 40 percent of the funding committed for those projects as shown in Figure 1.

Figure 1: TransNet Funding Sources Committed Through Fiscal Year 2008 (in millions)



Source: Dashboard web-based system at keepsandiegomoving.com (as of September 30, 2008)

SANDAG has Primary Responsibility over TransNet, Although Other Entities are Involved

Originally formed in 1966 as the "Comprehensive Planning Organization" and renamed in 1980, the San Diego Association of Governments (SANDAG) is a regional decision-making body consisting of 18-city agencies and the County of San Diego. Governed by a Board of Directors comprised of mayors, council members, and supervisors that represent each of the local jurisdictions. Supplementing the Board are advisory representatives from Imperial County, Caltrans, Metropolitan Transit System, North County Transit District, United States Department of Defense, San Diego Unified Port District, San Diego County Water Authority, Southern California Tribal Chairmen's Association, and Mexico's local consulate office. In addition to other committees, the Board is advised by its nine-person Transportation Committee on major policy-level matters related to transportation and provides oversight for many highway, transit, and other TransNet projects. The Board is assisted by a professional staff of executives, planners, engineers, and researchers.

As a result of the increased regional responsibilities assumed by SANDAG over the last seven years, it exercises broader authority and decision-making ability over the region's highway and transit development. According to SANDAG budget documents, SANDAG

holds the following related designations and responsibilities in the San Diego region among others:

- ✓ Council of Governments for the San Diego Region
- ✓ Metropolitan Planning Organization
- ✓ San Diego Regional Consolidated Agency
- ✓ Regional Transportation and Funding Allocation Agency
- ✓ San Diego County Regional Transportation Commission
- ✓ Congestion Management Agency
- ✓ Co-lead Agency for Air Quality Planning

With its multitude of roles, SANDAG has the authority to direct the use of greater levels of transportation funding in the San Diego region than do most other large regional transportation agencies in the State. For instance, as the designated Regional Transportation Commission, the SANDAG entity is charged with responsibility to implement, fund, and administer any regional transportation improvement program including those funded by countywide sales tax initiatives such as the 2004 TransNet Extension Ordinance. Yet, while the authority and administration over the TransNet Extension rests primarily with SANDAG, other key entities provide critical involvement and shared responsibilities over certain transportation development functions as outlined below:

- ✓ **Caltrans**
  For TransNet's major corridor capital projects, the Caltrans' San Diego District 11 Office works closely and collaboratively with SANDAG on projects to improve mobility in the region. The Ordinance includes language specifically establishing shared responsibilities between SANDAG and Caltrans for project development and management over local state highway projects. Further, all major decisions regarding project scope, budgets and timelines are to be agreed upon by both SANDAG and Caltrans. Although SANDAG may choose to outsource portions of the project delivery work, Caltrans is responsible by State statute for providing oversight of the projects relating to state highways to ensure that work is performed according to the standards established by the State of California. Under the TransNet program, SANDAG relies on Caltrans for the vast majority of highway project delivery work. Currently, Caltrans District 11 employs approximately 1,400 staff, of which approximately 800 are dedicated to TransNet highway transportation projects.

- ✓ **Metropolitan Transit System (MTS)**
  MTS is a California public agency that owns assets of the San Diego Trolley, Inc. and San Diego Transit Corporation and provides transit services for the central, south, northeast and southeast regions of San Diego County. It also owns San Diego and Arizona Eastern Railway. Overseeing operations is a 15-member board of directors with representation from the cities of San Diego, Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, Santee as well as the County. Currently, MTS staff participates on transit EAP projects providing planning insight and input into the transit networks MTS will operate once developed.

- ✓ **North County Transit District (NCTD)**
  NCTD is a regional transit operator that provides public transportation to Northern San Diego County through the BREEZE bus system, COASTER commuter rail service, SPRINTER light rail, and LIFT para-transit services. Its board of directors includes representatives from Carlsbad, Del Mar, Encinitas, Escondido, Oceanside, San Marcos, Solana Beach, and Vista as well as a county supervisor representing unincorporated areas of North County. In addition to managing the completion of the TransNet designated-SPRINTER light rail development project, NCTD provides transit planning input and advice to SANDAG on TransNet projects as needed.

- ✓ **City of San Diego**
  The City of San Diego Engineering and Capital Projects Department is responsible for a wide range of activities related to design, construction, and delivery of public improvement projects including local roadways. Based on the City's submission of a number of eligible local transportation improvement projects, SANDAG began distributing TransNet Extension sales tax revenue to the City in July 2008 for these projects. Additionally, the City of San Diego is involved in all Caltrans and SANDAG-administered highway and multi-modal projects that impact the City's use of land including local roads, existing transit lines, and other areas under the permit process as well as participates on the SANDAG regional Cities and County Transportation Advisory Committee.

- ✓ **County of San Diego**
  The County of San Diego's Department of Public Works maintains nearly 2,000 miles of roads in the county's unincorporated areas and is responsible for local traffic engineering, land development civil engineering review, design engineering, and construction management. Similar to the City, the County also submits its list of eligible local transportation improvements projects to SANDAG and receives distributions of the excise tax. Given the TransNet Extension distributions have only recently commenced in July 2008, the County has not yet seen any substantial funding. However, the County does provide advice and insight to SANDAG and Caltrans for the TransNet major corridor highway and transit projects surrounding connector roads, ramps, or permits needed. Regional perspective and input is also provided through the County's participation on SANDAG's Cities and County Transportation Advisory Committee.

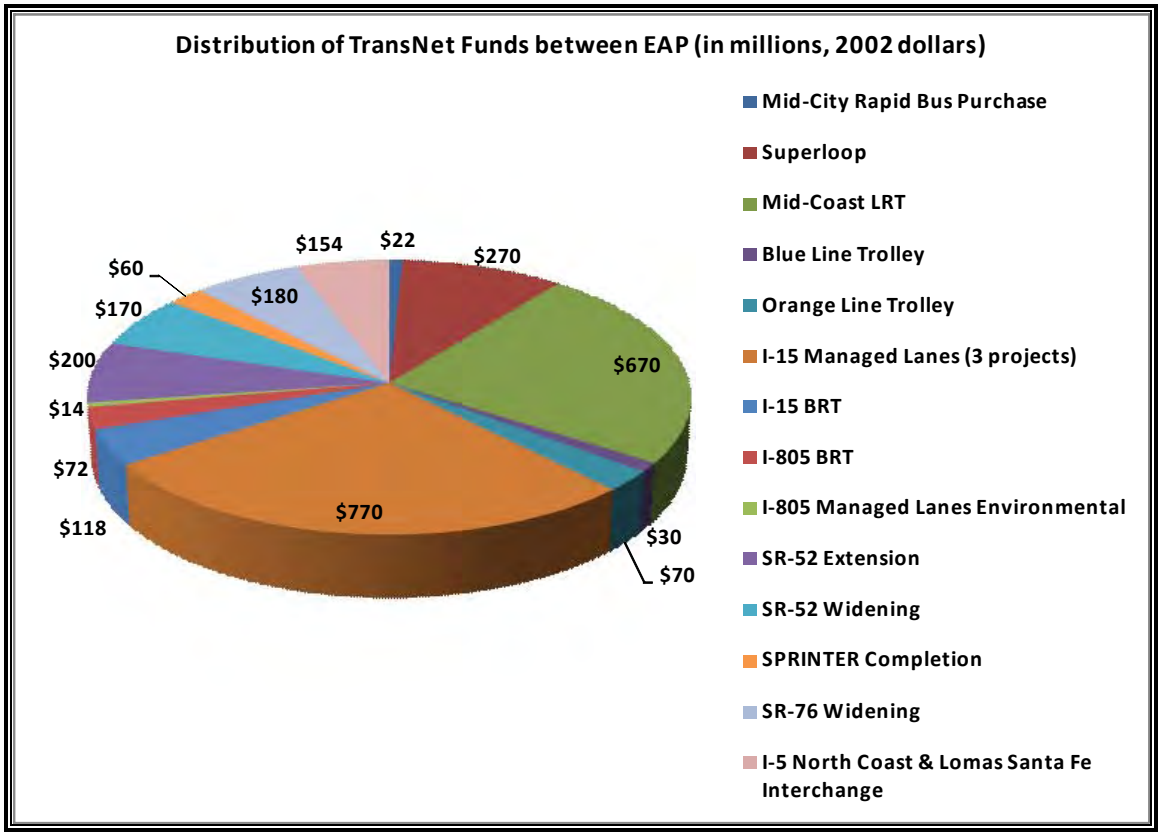
- ✓ **Independent Taxpayer Oversight Committee (ITOC)**
  The TransNet Extension Ordinance established an Independent Taxpayers' Oversight Committee (ITOC) to provide increased accountability for expenditures made under the TransNet program and ensure all voter mandates are carried out as required by developing recommendations for improvements to the financial integrity and performance of the program. Additionally, the ITOC oversees independent annual fiscal and compliance audits as well as triennial performance audits to ensure voter mandates are carried out in accordance with the Ordinance. The Ordinance further states that ITOC also serves as an independent resource to SANDAG.

TransNet Early Action Program Projects

In 2005, statistical data indicated regional congestion was increasing, but the infrastructure to handle traffic was not being built fast enough to keep pace. To demonstrate its commitment towards immediate improvement of the region's transportation needs, SANDAG worked in close collaboration with Caltrans to accelerate the delivery of certain major corridor projects identified in the Ordinance. These accelerated EAP projects were initially selected following guidance established in the Ordinance and given priority as they remained uncompleted from the original ordinance in 1987 and under criteria established through the regional transportation improvement planning process. Additionally, during the ensuing three years, other projects were eligible to be added or accelerated as an early action project if they met similar criteria.

Yet, because sales tax revenues from the TransNet program could not be distributed until July 1, 2008, the SANDAG Board made a strategic decision to borrow against future revenues and leverage available state and federal funds by approving the sale of $135 million in commercial paper in 2006. SANDAG further increased its financing activities in the spring of 2008 by authorizing $600 million of long-term variable rate bonds. With the availability of funding through the early financing techniques employed, the SANDAG Board approved certain EAP projects, as shown in Figure 2, for accelerated delivery by 2015.

Figure 2: TransNet EAP Projects and Distribution of Project Funding



Source: TransNet Extension Ordinance and Expenditure Plan Analysis, March 2004; and Board actions as documented in meeting minutes between 2005 and December 2008

Most of the projects are in preliminary project phases of environmental or design. Given that the TransNet Extension program has just started its 40-year clock, only three main EAP projects have been completed or are nearing completion—namely the I-15 Middle segment, SPRINTER rail, and I-5 HOV lanes. Further, not all early action projects are related to development and construction of highway or transit systems—some are related to purchases of new buses, trolleys, and station improvements. In addition to the 17 projects identified as EAP projects, there are approximately 32 non-EAP projects also designated in the Ordinance as shown in Appendix A.

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Scope and Methodology

The TransNet Extension Ordinance established a requirement that ITOC conduct triennial performance audits of the agencies involved in the implementation of TransNet-funded projects. In August 2008, Sjoberg Evashenk Consulting, Inc. (SEC) was selected by the ITOC to conduct the first in a long series of triennial performance audits of TransNet-funded Early Action Program (EAP) projects. The period covered by this audit was July 2005 through June 2008, except where we needed to obtain contextual or underlying support data from periods prior to 2005 or more recent information to fully analyze project activities and practices.

The main audit objectives were to:

- Determine whether the organizational structure and operational processes allow for effective and efficient project delivery, cost control, and schedule adherence
- Identify process changes in contracting, construction, permitting, and other procedures that could improve the efficiency and effectiveness of the program
- Evaluate the efficiency and effectiveness of the ITOC, and adherence to bylaws
- Identify potential barriers to proposed changes and implementation challenges

Toward these goals, we assessed the underlying framework established over the last three years to guide the 40-year TransNet program by reviewing practices in the following areas:

- Governance and organizational structure;
- Program and project oversight;
- Financial management and modeling;
- Project and program development and progress monitoring;
- Program and project adherence to budgets and schedules;
- Technology and communication tools used;
- Existing program and project performance measures;
- Procurement and contracting practices; and
- Task order amendments and change order processes.

As part of understanding the environment and historical context of the TransNet program, we reviewed federal, state, and local laws and ordinances in addition to annual budgets, prior audits, fact sheets, online data, program management assessment conducted in 2005, and regional planning documentation and prioritization criteria including:

- Regional Comprehensive Plan of 2004 and 2007;
- Regional Transportation Congestion Improvement Plan of 2006 and 2008;
- Regional Transportation Improvement Program of 2006 and 2008;
- 2030 Regional Transportation Program of 2003 and 2007; and
- SANDAG's Capital Improvement Program and Overall Work Program for Fiscal Years 2006, 2007, 2008 and 2009.

To analyze and consider the full complement of challenges and successes surrounding the organizational and operational procedures in the development of the EAP projects, we researched similar programs, current best practices, and industry benchmarks as well as conducted a wide-range of interviews to ascertain perspectives, insights, options, and recommendations on the implementation of the TransNet program. Specifically, we met with over 60 transportation executives, officials, managers, staff, and stakeholders. For a complete listing of audit interviews conducted, refer to Appendix B of this report.

As part of assessing governance and oversight, we reviewed meeting agendas and minutes from the SANDAG Board of Directors, SANDAG Transportation Committee, and the ITOC including reports and data provided at these meetings over the last three years as well as memorandums of understanding, program handbooks and manuals, board policies, bylaws, organizational charts, status updates, quarterly reports, and annual reports. Using these documents, we analyzed roles and responsibilities, levels of communication and collaboration, communication of program status, depth and type of data provided to decision makers, and sufficiency of oversight inquiries. Additionally, we reviewed a mandated governance assessment report conducted by the State Legislative Analyst's Office in accordance with Senate Bill 1703. Moreover, we reviewed state and federal requirements and available audits conducted by the Bureau of State Audits, Federal Transit Administration, Federal Highway Administration, and contracted firms over transportation and transit activities.

To ascertain the adequacy of financial models, projections, and management over the TransNet program, we studied and analyzed pertinent documentation from various sources including SANDAG's financial records, modeling spreadsheets and databases, historic and prospective revenue projections and underlying assumptions, regression analyses, bond issuance documents and official statements, interest swap agreements, plans of finance, board status reports, and SANDAG Board meeting minutes. Similarly, we reviewed cost estimates and underlying supporting documents with assumptions and calculations. Additionally, we reviewed SANDAG's general ledger and subsidiary ledgers to recalculate sales tax distributions to ensure they complied with the Ordinance provisions.

Based on inquiries and documentary review, we assessed the project priority process used to identify the EAP projects as well as employed on a regular basis to change project budgets, modify schedules, accelerate or delay projects, or add projects to the TransNet program. Specifically, we reviewed the Ordinance, Board minutes and Board policies, TransNet Plan of Finance, regional transportation plans, capital improvement programs, and project meeting documentation.

To evaluate and assess program and project development, monitoring, control, and oversight, we analyzed policies and procedures, project delivery manuals, practices, and processes. Additionally, we selected a sample of projects from the 17 EAP projects to review for compliance with policies and procedures, adherence to budgets and schedule, monitoring and approval of activities, and reasonableness of approach. Because of the preliminary phases of several of the projects, data available was incomplete at this project stage. However, we reviewed and analyzed project specific documentation including, but not limited to—environmental documents and design plans; project team coordination meeting minutes;

detailed schedules and budgets; cost estimates and actual costs; contracts and change orders; task orders and amendments; payment vouchers for contractors and invoices for consultants; and resource staffing assignments.

We reviewed automated tools used to manage the TransNet program and individual projects against budgets and schedules. Specifically, we compared budgeted costs, actual expenditures, planned timelines, and actual completion dates displayed in the Dashboard with underlying Primavera and Microsoft Project program management scheduling tools as well as SANDAG's financial data recorded in its Integrated Financial and Administrative Solution (IFAS) and Caltrans' Transportation Accounting and Management System (TRAMS) financial system. Additionally, we calculated percentages of budgets exhausted against progress made on project tasks as well as analyzed how corridor directors and project managers used data from the Dashboard to manage projects.

To assess existing program and project performance measures, we conducted inquiries of SANDAG and Caltrans staff as well as reviewed SANDAG's State of the Commute report from 2005, Caltrans' Performance Measurement report from 2007, and the State of Virginia's Transportation Accountability Commission 2008 report. Further, we reviewed data tracked and reported through the University of California, Berkeley's on-line Performance Measurement System (PeMS). We compared the TransNet measures used against those employed by other entities, general best practices, and trends in the industry.

Additionally, we evaluated SANDAG's and Caltrans' contracting and procurement practices through a review of contracting and procurement manuals, board policies and directives, project file documents, competitive proposal documents, bid summaries, contracts, agreements, task orders and scopes of work, change request documents, invoices, payment vouchers, and contractor evaluation. Further, we selected a sample of task order amendments and construction contract change orders to assess the controls over the contract modifications, budget and schedule adjustments, consultant and contractor monitoring and performance evaluations.

Finally, we attempted to compare the TransNet program practices and protocols against other like entities in terms of size, population, and urban focus. As such, we identified transit and transportation entities in the following to compare San Diego against—Los Angeles, Orange, San Jose, San Francisco, and Sacramento, California as well as entities in Arizona, Washington, and Virginia. However, we were not able to obtain full and complete data; thus, only limited comparisons could be drawn.

We conducted this audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. The audit findings and conclusions were presented and discussed with representatives of SANDAG, Caltrans, and the ITOC prior to completion of the audit. Management comments were considered and incorporated into the report as appropriate.

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Chapter 1:
A Robust Governance Structure is Employed, Although Oversight Practices Could be Enhanced

Since 2005 when the early action program (EAP) projects of the TransNet Extension Ordinance (Ordinance) were launched, the program has enjoyed a strong framework in place to vision and guide direction over the Ordinance major corridor projects. Building upon the responsibilities outlined in the Ordinance, SANDAG and its partners have established a structure to guide the planning, development, implementation, management, and monitoring of the TransNet program. Specifically, the program employs elements consistent with industry best practices such as the following:

- Employing governance and oversight for the ongoing and frequent review of progress made towards achieving goals and objectives and timely decision-making process to effect changes to program management and administration when necessary.
- Using written plans, agreed-upon approaches, and memorandums of understanding to define and clarify roles and responsibilities for management principles and decision-making parties involved in the TransNet program.
- Establishing a joint agency management structure to implement and monitor project development, delivery, and performance and be accountable for project schedule and cost.

Functioning under the guidance of the San Diego Association of Governments (SANDAG) Board of Directors (Board) and its Transportation Committee as well as oversight of the Independent Taxpayer Oversight Committee (ITOC), the governance and management structure established for the Ordinance has operated with concurrence over the first three years of the program. The structure affords open and ongoing collaboration and communication amongst all players between the governing board, SANDAG Transportation Committee, SANDAG executive and project teams, and external partners at Caltrans, Metropolitan Transit System (MTS), and North County Transit District (NCTD). Critical program and project-level detail related to costs, schedule, and scope are fully discussed and vetted at all levels, and alternatives and decisions are regularly deliberated. With transparency and accountability as key tenets and driving forces behind the TransNet program, SANDAG appears to have practices in place over its EAP projects to ensure those concepts remain clearly in focus.

Operating under written plans and formal memorandums of understanding, SANDAG and its partners have defined roles and responsibilities to accomplish region-wide goals that include conflict resolution practices designated to ensure challenges and obstacles are promptly vetted and resolved to keep projects moving forward. For instance, memorandums of understanding between SANDAG and Caltrans for the joint development of highway construction projects as well as between SANDAG and regional transit operators guiding transit development projects provide the relationship framework. Supplemental written plans further define project team member roles and activities, cross-jurisdictional project team reporting relationships, and conflict resolution procedures.

Moreover, SANDAG uses an innovative corridor director structure steering its transportation construction relationship with Caltrans that holds individuals accountable for managing multi-disciplinary teams of experts with the expectation that projects are ultimately delivered on budget and on schedule.

While independent oversight is exercised by state and federal agencies as well as external private firms that conduct reviews and audits of administrative, operational, and project delivery practices, other local bodies also maintain a watchful eye over the TransNet program and individual projects. Specifically, the SANDAG Board, SANDAG Transportation Committee, and the ITOC conduct critical reviews and deliberations of EAP project activities and the use of funds for these projects. We have, however, identified areas where enhanced information would provide decision makers, including the ITOC, with better tools to deliberate project items, weigh and make decisions, and strengthen its oversight role. For example, information related to individual project history, critical prior budget actions and scope adjustments approved, or cumulative impact of past decisions made could enhance oversight practices. Additionally, data related to project financing, risks, and benefits could be provided through a "Report Card" type concept that is employed by others in the transportation industry. Moreover, oversight bodies could better monitor the overall TransNet program with access to statistics related to project impact on travel time and congestion as well as project performance in terms of schedule and budget adherence.

Board and Transportation Committee Are Involved in Decision Making

From the inception of the TransNet program, the SANDAG Board has been designated as the final arbitrator in regional issues and continues to be appropriately involved in active governance and approval of program activities. Specifically, changes to project scope, schedule, budget and any other amendments to project concept as outlined in the SANDAG long-range and short-range regional transportation plans, are reviewed and approved by the Transportation Committee and the SANDAG Board. Based on interviews and reviews of Board meeting minutes, it appears that the Board is appropriately involved in its governance of the TransNet program and does not appear to provide "rubber-stamp" approvals. Moreover, acting in its capacity as an oversight and policy-advisory committee to the SANDAG Board, the SANDAG Transportation Committee engages in significant discussions of key aspects on project planning and funding priorities with committee members and considers public input before forwarding its recommendations to the Board for a formal approval.

Under provisions of the original 1987 TransNet Ordinance and its enabling legislation, the SANDAG Board, in its capacity as the Regional Transportation Commission, is authorized to allocate revenues derived from the excise tax per the terms of the ballot measure and consistent with the Regional Transportation Plan. As part of this role, the Board must approve an expenditure plan for all excise tax revenues that includes statutory provisions and a number of major capital corridor projects with road construction, highway improvements, and transit elements—a responsibility that continued with the passage of the TransNet Extension Ordinance in 2005. Since the voters extended the excise tax, SANDAG has collaborated with local jurisdictions and transportation partners to identify and refine specific projects and programs to be included in the plan. Nonetheless, the Board ultimately makes

the final decision to move forward with a plan as well as maintains the authority for any amendments to that plan or changes to the overarching vision of the TransNet program.

Decisions appear to be made and input considered at both an overall TransNet program level as well as at the individual project level. SANDAG and its partners routinely provide the Board with program and project information related to cost, scope, and schedule to enhance the process. For instance, data such as project updated budgets, environmental impact studies and related air capacity conformity analysis are presented to the Transportation Committee for incorporation into the Regional Transportation Plan. Also, we found that various parties pose rigorous questions relating to the impact of time delays on project budgets, underlying reasons for recurring requests for additional funding, and project management approach that serve to vet issues and assist in maximizing cost savings and ensuring cost efficiencies in project delivery. Appropriate elements seem to be considered as additional requests and inquiries are made of the Corridor Directors, Caltrans, and SANDAG executives participating in these meetings. Moreover, the SANDAG Transportation Committee and the ITOC often request additional information to explain reasons for augmented project funding and project-specific matters to attain a better understanding of the underlying issues and make fully informed decisions. Further, several options are typically reviewed and project additional costs and desired scope changes may be scaled up or down. Thus, we found a deliberative and thoughtful process is employed to allow the many alternatives and impacts to be considered—yet, it is too early in the TransNet program to conclude with certainty the quality of the oversight on ultimate outcomes.

SANDAG Board
has the authority to:

- Approve TransNet expenditures
- Reprioritize TransNet projects consistent with the Regional Transportation Plan

Similarly, the SANDAG Transportation Committee, in its role to advise the SANDAG Board on major policy-level matters related to transportation, is also heavily involved in the TransNet program with its assistance in the preparation of the Regional Transportation Plan and making ongoing recommendations to the Board relating to key project scope, budget and schedule changes. During its monthly meetings, the Committee asks probing questions of SANDAG and its partners as part of the Transportation Committee's governance over the timely and on-budget completion of projects. For instance, the reallocation of funds between different project phases on the SR-76 project and mitigating the budget shortfall due to a statewide shortage of funding from the State Transportation Improvement Program was considered with respect to the risks and potential impact on the overall TransNet EAP project delivery schedule and budget. Specifically, budgeted dollars for the SR-76 right-of-way were reallocated to the SR-76 Middle segment to augment the project budget and accommodate the environmental studies needs.

Other SANDAG committees also provide information and recommendations to the Board. One committee, the Regional Planning Committee, provides data and details related to needs assessment, plans, transportation goals, financing, and design components of the entire region that can be considered by the Board against the framework of the TransNet program.

Similarly, the Public Safety Committee advises the Board on matters related to public safety through collaboration, information sharing, effective technology, monitoring, and assessment.

ITOC Efforts fulfill its Oversight Role

Established in 2005 as part of the Ordinance, the ITOC was created to oversee the TransNet program and ensure activities are carried out in accordance with the Ordinance. The ITOC members, screened and selected based on specific professional expertise delineated in the Ordinance, have the following responsibilities:

- Provide an increased level of accountability for expenditures under TransNet Extension;
- Ensure all voter mandates are carried out as required in the TransNet Ordinance;
- Assist SANDAG in the implementation of TransNet projects and programs through professional expertise offered by ITOC members;
- Report to the SANDAG Board with regard to program and project delivery, and overall performance;
- Rely on project/program data furnished by SANDAG, and strive to improve the reliability of data, to improve the analytical and modeling processes;
- Facilitate a cooperative and productive working relationship between the ITOC and SANDAG implementation team;
- Assist SANDAG in finding opportunities to advance technologies and transportation developments; and
- Provide general oversight in terms of monitoring project schedules, refining TransNet performance measures, and assisting SANDAG in evaluating transportation system performance.

Since its inception, the ITOC has made significant achievements in fulfilling its defined responsibilities and provided much oversight of the TransNet program. For instance, operating under a set of by-laws to govern its oversight process, ITOC has implemented a well-developed meeting structure to support its project review and decision-making process. ITOC routinely receives a multitude of data and information from SANDAG and its transportation partners related to project specific activities, budget, scope and schedule updates, as well as financing information. Frequently, the ITOC members submit questions and concerns to specific SANDAG staff that relate to the members' technical expertise and experience. For example, one ITOC member with environmental and engineering expertise requested supplemental information on the TransNet environmental mitigation program. SANDAG staff work diligently to address such requests from the ITOC.

Our observations of ITOC meetings and review of meeting minutes found the ITOC members pose appropriate questions and engage in meaningful discussions, such as inquiring as to effect of proposed budget and schedule changes on the overall EAP project delivery schedule when reviewing proposed project funding or bridge loans. As such, the ITOC's

allegiance to the public's trust and its commitment to work with SANDAG and partners in meeting TransNet goals over the last three years appears steadfast. However, it is reasonable that some inherent conflicts might arise as the ITOC's focus remains on TransNet only whereas the various approved projects also fulfill larger regional needs and goals.

SANDAG's Broad Responsibilities Afford Regional Focus and Collaboration from Regional Partners

Unlike many of its local government peers, SANDAG's authority is broad and includes several responsibilities outside of the transportation realm. While other regions have governmental entities carrying out similar transportation and regional planning duties as SANDAG, these responsibilities are typically distributed among multiple organizations. For instance, operating under several of its other designations as described in the Introduction of this report, SANDAG also makes regional transportation decisions based on quality of life factors, traffic safety, and smart growth concepts. Similarly, in its role as the Regional Transportation Commission, SANDAG is charged with administering the TransNet Extension Program and is entrusted with the following related transportation and transit responsibilities that allow for broader levels of planning and funding of regionally significant projects:

- Transit planning, programming, project development, and construction;
- Allocation of expenditures of federal transportation revenues as the metropolitan planning organization;
- Adoption of a congestion management plan as the congestion management agency;
- Plan and program of funds as the regional transportation agency; and
- Determination of the conformity of transportation plans with air quality plans as co-lead agency for air quality planning.

Originally formed in 1966, as the "Comprehensive Planning Organization" and in 1980 renamed SANDAG, the organization was charged with oversight and coordination of long-range transportation and regional planning across the urban area. In subsequent years, its responsibilities were broadened to include roles in areas such as transportation funding, transportation construction, and transit development—thus, forming a more complex entity. For instance, SANDAG's role in planning and development of the transit transportation projects has changed significantly over the last several years. Specifically, in 2003, Senate Bill 1703 transferred responsibilities for transit planning, programming, development, and construction from the North County Transit Development Board and the Metropolitan Transit System to SANDAG.

Additional responsibilities were granted to SANDAG under the TransNet Ordinance that further provided and defined general roles and responsibilities over highway transportation planning, implementation, delivery, management and oversight. For instance, for major capitol corridor projects such as those defined in the early action program, SANDAG has authority to establish project eligibility criteria for funding under the Ordinance and must ensure that all TransNet projects are consistent with its near-term Regional Transportation

Improvement Plan and the longer-range Regional Transportation Plan—both plans that are ultimately approved by the SANDAG Board. As part of its authority, SANDAG approves project schedules and budgets and can amend the Ordinance expenditure plan, budgets, and priorities as needed to maximize federal, state, and local transportation funding for the region. This responsibility includes the ability to exchange or loan funds to augment the Regional Transportation Plan and ensure project delivery for the benefit of the region.

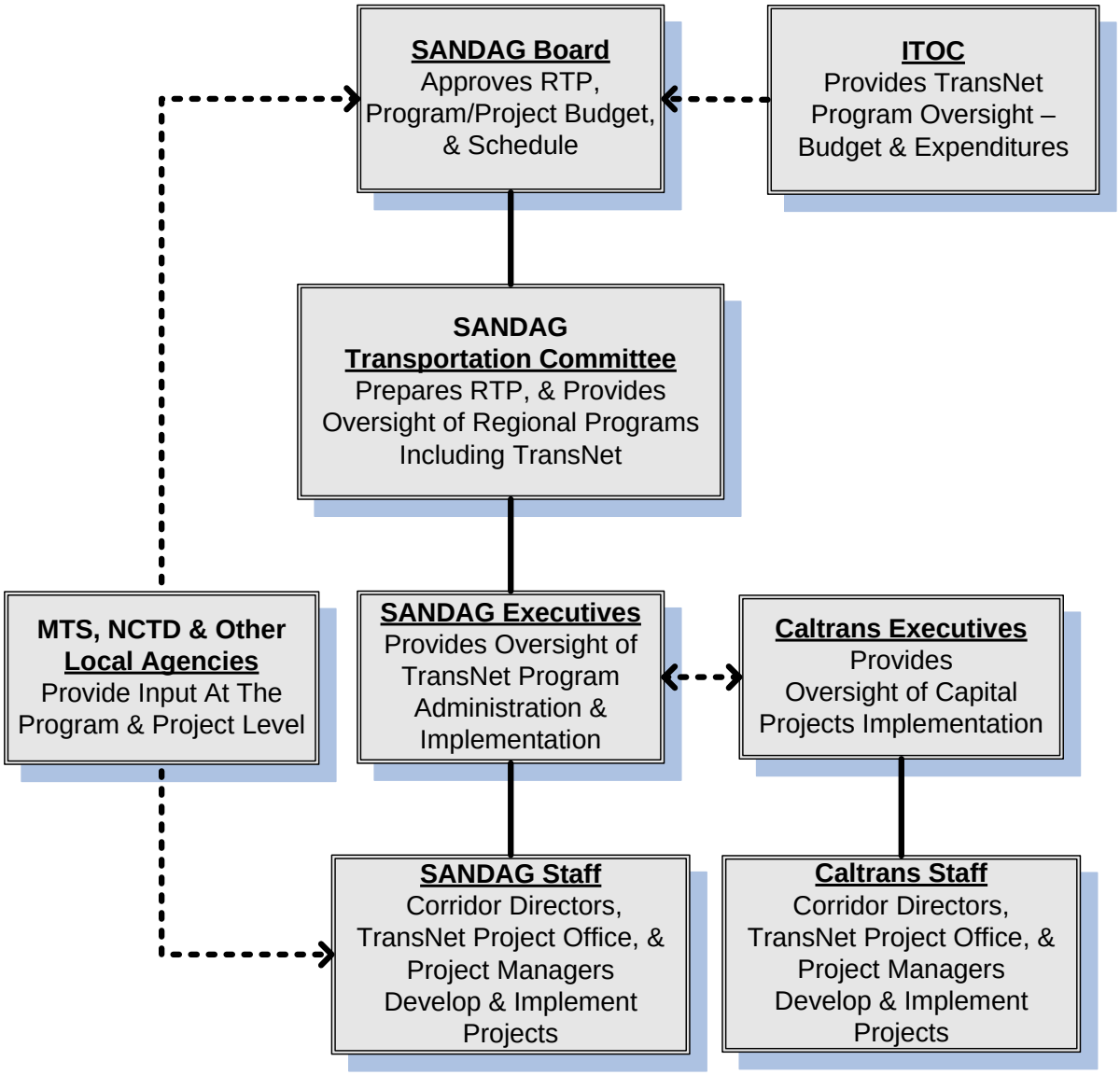
Because of its far reaching responsibilities over both planning ***and*** funding for both transportation ***and*** transit projects, unlike many of its local government peers, SANDAG is in the position to more easily encourage collaboration among its regional partners and, ultimately, make the final decision on initiating and completing regional projects. While coordinating its different roles and responsibilities can be challenging, this broad exposure affords SANDAG opportunities to consider and assist in the design of programs that envelop various projects that coordinate and accomplish several region-wide goals simultaneously. As a 2006 Legislative Analyst Office Report concluded, SANDAG has a greater ability to consider a wider range of options such as highway expansion, transit, or managed lanes in its allocation of funding and can "weigh service needs throughout its region." This ability is of further value when factors such as San Diego population growth and continued geographic dispersion of employment and housing increase the complexity of commute patterns and demand more transportation flexibility and options. Moreover, due to the SANDAG Board and staff having a broader set of responsibilities, the State Legislative Analyst's Office also believes it is better able to detect linkages among policies and pursue multiple objectives simultaneously—a feature benefiting the Regional Transportation Improvement program goals, and ultimately the TransNet Extension Ordinance provisions as well.

As demonstrated throughout the documents we reviewed and persons interviewed, major decisions on policies and projects are studied carefully by SANDAG and Caltrans staff with frequent and significant input from other transportation partners and stakeholders. Moreover, the Legislative Analyst's Office found that SANDAG operates in a deliberative fashion placing emphasis on resolving disagreements and attempting consensus before issues reach the full governing board.

Defined Roles and Responsibilities Foster Collaboration

Given its position in the region's transportation and transit development projects, SANDAG in conjunction with the Ordinance, has created a framework for the definition of roles and responsibilities amongst the key transportation associates to plan, develop, implement, and deliver TransNet projects. For instance, acknowledging Caltrans' role in highway projects, the Ordinance establishes a shared responsibility in that all state highway improvements, including project development and overall project management, shall be a joint responsibility of Caltrans and SANDAG. It further stipulates that all major decisions regarding project concept, scope, location, budgets and timelines are to be agreed upon by both SANDAG and Caltrans. For transit projects, although SANDAG is responsible for delivery of the transit component of TransNet projects, local transit operators MTS and NCTD are also involved in the planning of transit projects and work closely with SANDAG on project delivery to ensure an effective network will be sustainable once in operation. The oversight structure is depicted in Figure 3.

Figure 3: TransNet Program Oversight Structure



Guiding the involvement of the different and unique government entities are several master agreements and memorandums of understandings (MOUs) between SANDAG and each entity. For instance, one master agreement and subsequent supplemental agreements discuss the sharing of roles and responsibilities between the State (Caltrans) and the Transportation Commission (SANDAG) including the provisions surrounding project preliminary, development, and oversight services, the creation of a new project delivery structure, and establishment of director positions and their specific responsibilities for timelines and budgets, as well as an outline of the scope of work agreed upon for the EAP projects. Additionally, there are project specific MOUs that are created between SANDAG and primarily Caltrans that contain more granular detail of responsibilities and tasks in addition to cooperative agreements over the street and highway areas that involve multiple jurisdictions.

Combined, these written documents provide a solid albeit complex basis from which each entity operates within the TransNet network that designates accountability and responsibility of each. We found the MOU documents to be clear and contain a sufficient level of detail to guide actions. To address instances of disagreement or dispute resolution, SANDAG created a written conflict resolution plan outlining the protocol for resolution. Specifically, once a conflict is identified at the project level, the plan requires discussion among project staff; if unresolved, the conflict may then be elevated through additional levels including project manager, corridor director, executive management, the Transportation Committee and ultimately the SANDAG Board. To avoid the elevation of issues to the Transportation Committee or even Board level, SANDAG and Caltrans have instituted informal meetings where the Executive Management team, Corridor Directors, and project managers meet after work hours to renegotiate issues and diligently seek consensus. These meetings are on an ad-hoc basis in addition to other regularly scheduled project meetings. Over these initial years of the ordinance, the plan appears to work as intended in resolving disagreements.

With just three years into the TransNet program, we found an apparent true sense of communication, collaboration, and commitment among parties afforded through not only the written agreements established, but also through standard practices employed designed to seek buy-in and agreement of project team members and oversight players. The processes employed call for involvement of external entities at critical points; for instance, entities such as MTS and NCTD are involved at the global planning and strategic level as well as participation as members on individual project development teams as needed.

Part of making the TransNet program a success is ensuring that all parties are working well together and issues impeding effective cooperation are promptly resolved. An ongoing and inherent challenge for TransNet remains maintaining open communication between all project stakeholders and addressing and resolving issues as they arise and in a timely manner. For instance, factors such as the variability of available funding, construction price fluctuation, or depressive market conditions make the need for close communication and collaboration essential to address project delivery. We found that frequent communications occur between and amongst SANDAG management and its transportation partners, project staff on individual teams, and the ITOC and the Board to coordinate and seek buy-in of changed approach to cope with such economic changes.

Executive management from all entities meets formally and informally with project team members and Corridor Directors to ensure communication is unrestricted and collaboration is ongoing. Yet, there appears to be an appropriate balance between staying involved and avoiding micro-managing the project team. The communication structure in place seems to avoid potential disconnects between staff and management as well as between management and the Board with all team members brought into decisions at the appropriate point and level. Moreover, many staff involved with the TransNet program have previously worked with several of the agencies involved and, thus, have a common understanding of various organizational cultures and business practices that facilitates the day-to-day staff interactions. Several MTS and NCTD developers now work at SANDAG as part of the legislatively mandated transfer of responsibilities and a number of high-level SANDAG employees are former Caltrans employees.

SANDAG and Caltrans Relationship Creates Synergies

The successes and track record of the original TransNet seem to have set the stage for the unique partnership between SANDAG and Caltrans that continues today at the onset of the TransNet Extension Ordinance—a much larger scale and scope program. Over the years, SANDAG has hired several key design and construction management executives who previously worked for Caltrans; thus, bringing on intimate experiences and systems knowledge that becomes critical in delivering projects that are often co-delivered by SANDAG and Caltrans. Management and staff from both agencies operate as a cohesive team focused on a shared goal, rather than exercising parochial decisions benefiting one entity over another. This synergy seems related both to the specific entrepreneurial spirit of the individuals involved as well as to practices developed to guide delivery of the program.

While the California Public Utilities Code mandates that the Caltrans San Diego District 11 coordinate with SANDAG for all projects where the entities have common planning or programming responsibilities, SANDAG could enlist other public or private contractors to undertake project development activities. This state and local commitment and enduring relationship was formalized in the 2005 Ordinance that states all state highway projects, including project development and overall project management, are determined as a "joint responsibility of Caltrans and the Commission." For instance, within the TransNet program, all major decisions regarding project scope, budgets, and timelines are agreed upon by both SANDAG and Caltrans before moving forward to seek Board approval. Alternatively, our reviews of the similar regional transportation programs, such as the Arizona Department of Transportation's regional transportation sales tax program, show that other regional programs outsource much of the highway construction to private consultants, whereas the existing SANDAG delivery model involves heavy reliance on the Caltrans construction expertise in project delivery. This reliance appears to create a synergy between the entities and a strong collaborative environment with other regional transportation partners.

Generally, the Caltrans and SANDAG management work closely together in coordinating efforts on TransNet projects. There are frequent formal and informal meetings among staff at both entities and at various executive and project management levels that provide multiple opportunities for exchange of information, ideas, and problem solving. Formal meetings are documented with action items and records of agreements reached. Although the vast majority of design and construction on the current EAP projects has been delivered by Caltrans project managers, SANDAG also employs design and construction staff. Together, the two entities strive toward achieving TransNet goals by following similar project management techniques and approaches.

Corridor Director Structure Enhances Accountability

Over the last three years, a key component of the TransNet project delivery strategy is a concept using Corridor Directors responsible for the development, implementation, and delivery of projects located within a defined freeway corridor. While the TransNet program requires the collaboration of many individuals and entities with varying levels of authority and project involvement, each Corridor Director is charged with ultimate accountability to ensure the project is delivered per the scope, within budget, and on schedule.

Our review revealed that the Corridor Director approach employed helps streamline coordination of efforts among various project managers and functional teams and other municipal entities on a given corridor. For example, the Corridor Director on the I-15 corridor serves as a single point contact for Caltrans and SANDAG project managers and staff. While the I-15 highway project has a transit component, SANDAG has a Transit Project Manager who reports to the Caltrans Corridor Director to ensure closer monitoring and oversight of all projects within the corridor. Detailed and specific responsibilities of Caltrans Corridor Directors and Transit Project Managers are outlined in the joint SANDAG-Caltrans supplemental amendment to its Master Agreement guiding TransNet projects. Currently, three of the four Corridor Directors are Caltrans district employees and one is employed directly with SANDAG.

The performance of Corridor Directors is motivated by higher salaries subsidized by SANDAG. Specifically, provisions of the position include a salary step increase financed by SANDAG based on an annual performance evaluation. The evaluation form has a self-assessment feature along with opportunities for SANDAG's Mobility Director to document areas for improvement. Executives from both SANDAG and Caltrans review Corridor Directors' performance and provide feedback in management areas such as:

- Controlling costs and economical utilization of staff time, resources, and equipment;
- Developing and maintaining resource-loaded project schedules and meeting milestones;
- Coordinating team member roles and responsibilities and communicating objectives clearly;
- Identifying issues that can affect deadlines, scope, or budget and resolving them timely; and
- Ensuring plans are effectively carried out.

Included in the reporting structure for monitoring EAP project deadlines and budget schedules, TransNet project management and functional teams from both entities convey project status directly to the Corridor Directors empowered to make binding decisions regarding the project activities which facilitate timely and efficient progress of projects. This single point of responsibility structure appears to be good business practice, particularly combined with the high level of cooperation and coordination of efforts among the Caltrans and SANDAG project managers and executive team. Further, a consistent flow of communication between the Corridor Directors and executive management teams at SANDAG and Caltrans through weekly, monthly, and quarterly meetings and written reports allows for adequate review of issues and proactive issues resolution approach.

Over the past decade, national trends in the transportation industry have moved more toward integrated approaches to transportation solutions, both as they relate to the inclusion of various stakeholders in project development, as well as with regard to the phases of project development. Specifically, we found that SANDAG's Corridor Director structure conforms to a significant degree to two of the industry's best practices—cradle-to-grave or single-point project management, and the integration of various disciplines and stakeholders in project

development and management. Having a single person, or team of persons, responsible for managing the project from inception to completion results in improved understanding of total costs and impacts of proposed projects, and enables timely tracking of concurrent activities and monitoring of project schedule.

TransNet Program Overseen at the State, Federal, and Local Levels

All TransNet funded projects undergo standard programming, budgeting, and prioritization cycles as part of the regional short-term and long-term transportation planning processes mandated by State and Federal statute. Specifically, the TransNet project programming documents prepared by SANDAG staff in coordination with local entities and reviewed by the SANDAG governing board and transportation committee at least annually and incorporated into the following transportation plans to meet various state and federal statutory requirements:

- SANDAG annual Capital Improvement Program
- Local five-year Regional Transportation Improvement Plan
- State five-year State Transportation Improvement Plan
- Federal four-year Federal Statewide Transportation Improvement Program (FSTIP) and Federal Transportation Improvement Plan
- Local 30-year Regional Transportation Plan
- Local Regional Short-Range Transit Plan

The project programming process requires various levels of careful preparation, management, and administrative oversight by SANDAG and its local jurisdictional partners to meet state and federal provisions prior to receiving funding authorization. Many of these requirements demand project elements with typical internal controls, effectiveness in outcomes, quality products and practices, and solid business practices. For instance, state and federal funding for programs related to regional surface transportation and traffic congestion relief include requirements related to traffic congestion studies, air quality conformance, tracking and reporting of allowable activities and expenditures, and public notice of planning document amendments to name a few provisions—all features that promote greater accountability.

Because all TransNet transportation and transit projects are funded through a combination of state, federal, and local excise tax sources, project activity is subject to oversight and audits from state and federal entities to ensure money is spent in accordance with funding provisions and projects are carried out as prescribed in state and federal legal requirements. For instance, federal funded projects are subject to periodic reviews by the Federal Transit Administration and the Federal Highway Administration as well as required to undergo independent annual financial audits. Additionally, as part of its funding allocation process, the California Transportation Commission reviews project data including support costs and changes to project costs, scope, and schedule as reported by SANDAG and Caltrans.

Moreover, both SANDAG and Caltrans are subject to internal and external audits of operations, project delivery, and program expenditures. The various audit requirements are described as follows:

- **Federal Transit Administration**—Recipients of federal transit grants must obtain annual audits to assure grant funded projects are delivered in accordance with federal requirements. On a triennial basis, the Federal Transit Administration audits the grantee on their performance on planned project implementation and compliance with statutory and administrative requirements.
- **Federal Highway Administration**—This federal identity mandates recipients of Transportation Infrastructure and Innovation Act funding to acquire annual financial audits that are reviewed by the federal team.
- **SANDAG Internal Audits**—Established in 2007, the Internal Audit function performs reviews on an as-needed basis as well as under an annual defined audit plan. During Fiscal Year 2007-2008, the Auditor reviewed pre-contract award activities, task order solicitation processes, and project specific financial activity.
- **Caltrans Internal Audits**—Caltrans' Audits and Investigations Division reviews SANDAG's Indirect Cost Allocation annually, as well as conducts internal audits of the Caltrans San Diego district's internal controls over local procurement practices and use of state, federal, or local funding streams.
- **Bureau of State Audits**—Responsible for the Single Audit of California, the Bureau of State Audits review encompasses Caltrans' compliance with federal program provisions over activities such as land acquisition practices, right of way, indirect costs, resident engineer activities, procurement and contracting, use of transit equipment and facilities, and allowable activities and project expenditures.
- **Annual Financial Audits**—Contracted by the ITOC, annually an external Certified Public Accounting firm conducts a financial statement audit of SANDAG that includes reviews of financial activity, operational internal controls, and separation of duties.
- **Triennial Performance Audits**—Under provisions of California Public Utilities Code, SANDAG is subject to a triennial independent performance audit of its role administering state transportation development act funds as the regional transportation planning agency. These audits evaluate the effectiveness and efficiency of SANDAG with respect to transportation planning and regional coordination, fund administration and management, grant applications, and claimant oversight. Additionally, the ITOC contracts for a separate triennial performance audit of the TransNet program.
- **Periodic Local Audits**—SANDAG is also subject to other periodic audits. For instance, in March 2008, the County of San Diego Office of Audits and Advisory Services conducted a Grand Jury Audit of SANDAG's internal control over the TransNet program grants and whether TransNet program administration was properly designed and implemented.

Thus, throughout a project's lifecycle, state and federal staff will audit, review, question, and investigate SANDAG's and Caltrans' practices, delivery, and expenditures. While these

inquiries may not be isolated specific to local TransNet sales tax funding, the oversight of transportation and transit development projects would encompass TransNet funded projects. In addition to the annual financial audit of TransNet overseen by ITOC as well as the triennial TransNet performance audit process, the activities and performance of SANDAG and Caltrans are being overseen and reviewed at various levels.

To ensure that the ITOC stays informed and abreast of all related audits in progress and completed, SANDAG and Caltrans could provide status updates outlining existing audit requirements, scope of audit work, results of audit efforts, corrective actions planned or taken, and outstanding findings and unresolved issues as they relate to the TransNet program.

Management Reports Would Strengthen Oversight and Enhance Decision Making for All Partners

As part of its program practices and focus on transparency, SANDAG and other regional transportation and transit entities routinely prepare and provide vast amounts of detailed data, reports, and graphs describing individual project status of expenditures, schedule, scope, tasks, and issues. At monthly meetings, these oversight groups receive a multitude of data and graphics discussing project funding, budget amendments, finance status, and right-of-way acquisition approaches to maximize resources. While this wide array of detailed, competent, and reliable project data is valuable, the vast volume and breadth of these materials makes assimilating and using such information challenging especially for advisory board members. SANDAG could assist by gathering such raw data and converting it into management reports for the Board, Transportation Committee, and ITOC to aid decision making. Specifically, additional data needed by management includes the following:

- ✓ Project and Program "Report Cards"
- ✓ Performance Indicators and Targets
- ✓ Financial History and Status Data
- ✓ Administrative Tracking Tools

While ITOC does not have a direct role to manage TransNet projects, its responsibilities as outlined in the Ordinance suggest that it continuously review and track TransNet performance progress and recommend ways to improve program effectiveness and efficiency—responsibilities that could also be implied to the SANDAG Board and Transportation Committee. The ITOC relies on the information provided by SANDAG staff related to project performance; thus, the quality and type of information made available to the ITOC is critical to reaching sound decisions with meaningful impact on program performance monitoring. Although the ITOC had to rely extensively on SANDAG staff during its formation, it should now determine the type of data it needs to provide appropriate oversight. Building upon the examples of management data we believe is important for those charged with program oversight, the ITOC should identify the requisite information it would like to see from SANDAG and project partners within reason. Moreover, the ITOC should identify and select the specific individuals or other entities to provide them with regular status reports and data.

A Report Card Feature Could Provide a Quick Snapshot of Project Status

For instance, SANDAG could provide a one-page high level summary, or "Report Card," on each transportation project describing project budget and schedule by phase, project performance measures, financial assumptions and highlights of project changes to scope, schedule and cost. Other transportation entities provide similar project status reports to their oversight entities; for instance, the Nevada Department of Transportation provides a one-page summary for each project as shown in Figure 4, describing elements such as:

- Project scope and description
- Schedule, highlighting major milestones and progress toward each
- A "What's Changed Since Last Update" feature in terms of scope, schedule, and cost
- Project benefits which tie to region-wide performance measures such as improving travel times, land use, and environmental mitigation efforts as well as progress toward meeting the goals
- Cost ranges for project showing acceptable or planned ranges for each project phase, including engineering, right-of-way, constructions, and total anticipated project costs
- Project risk, including potential price escalation and construction delays
- A "Financial Fine Points" section describing financial assumptions on an existing project

Providing similar summarized data for the ITOC and other decision makers into a "Report Card" would help in assimilating the disparate details into a quick snapshot of individual projects in a centralized location that could be combined and viewed for the TransNet program in its entirety. In addition to the data suggested on the Report Card example in Figure 4, valuable management data that should be provided includes budget-to-actual detail, project funding sources, and project performance indicators as discussed in the next section. After considering project specific details as they do now, the ITOC and others could monitor multi-faceted project activities and decisions against the higher-level project blueprint. Thus, the ITOC and other oversight bodies should work with SANDAG to identify the desired information to be included to provide a valuable resource and tool to better fulfill oversight responsibilities.

While SANDAG prepares and distributes quarterly reports to the ITOC and other oversight bodies in accordance with the Ordinance that summarizes status of TransNet projects and provide some Report Card-type elements, our review revealed that the level of project detail is incomplete and insufficient to evaluate cumulative effects of project budget and schedule changes or identify possible trends or reoccurring issues. Several projects included on the reports, such as the SR-52 high occupancy vehicles and managed lanes project, did not identify projected completion dates or project schedule status. Moreover, although project documentation indicated the project was shelved and funding was reallocated to a different SR-52 project, the quarterly report did not summarize the evolution from the Ordinance through project decisions made over the last three years to the current project budgets in place. SANDAG should work its oversight bodies and provide on-going and historic budget information for projects included in the TransNet program that summarize key project-

specific decisions made that impact or revise scope, funding, or schedule. This data would better allow those charged with oversight to track current program status with original Ordinance direction.

Figure 4: Example of a "Report Card" Format Used in Nevada

I-15 North – Phase 1
I-15/US-95/I-515 Interchange to Craig Road

Project Sponsor:
Project Manager:

Project Description:

- This is the first phase of the I-15 north corridor improvements between US 95 and Apex interchange.
- Widen I-15 from six lanes to ten lanes form US-95 to Lake Mead Boulevard, including re-alignment of on and off ramps for the US-95, Washington and D Street Interchanges.
- Widening of I-15 to eight lanes from Lake Mead Boulevard to Craig Road.
- Reconfigure the Lake Mead Boulevard Interchange.
- A new connection road linking D Street and F Street between I-15 and Bonanza Road.

Schedule:

Planning: Complete

Environmental Clearance: Complete

Final Design: 2007-2008

Construction: 2008-2010

Project Cost Range (Construction Level Estimates):

Engineering:	$5.1 million
Right-of-Way:	$1.2 to $5.1 million
Construction:	$252 million
Total Project Cost:	$258 - $263 million

Project Benefits:

- Increase capacity to accommodate projected local and interstate traffic to year 2030
- Decrease congestion
- Reduce travel times
- Improve access to areas planned for development in North Las Vegas
- Improve freeway operations with full freeway-to-freeway connectivity
- Improve safety

What's Changed Since Last Update?

- Scope – No change
- Schedule – No change
- Cost – No change

Project Risks:

- Project delivery by Design Build Method, unique to the Department
- Close coordination to incorporate City of North Las Vegas projects.
- July 14, 2008 lanes will be reduced from 3 to 2 each way between the Spaghetti Bowl and Lake Mead.

Financial Fine Points:
Total Expended: $95 Million
Funding Source Breakdown

- $114 Million State General Funds, $72 Million State Funds
- $6.5 Million STP
- $22 Million Minimum Guarantee
- $25 Million Federal Earmark
- $17 Million NHS, $7 Million Public Lands Highway Discretionary
- Inflation escalation (4%) is to 2009, approximate midpoint construction.

% Design Complete 0 50 100

% Construction Complete 0 50 100

October, 2008

NEVADA DOT

Source: Nevada Department of Transportation

Overall, the data elements key to a Report Card are currently available in a variety of disparate project files, reports, and locations throughout SANDAG and Caltrans—as a result, compiling the detailed project information into a Report Card format should not prove overly burdensome.

Project Performance Statistics should be Tracked and Communicated

Additionally, data reflecting key project milestones and performance statistics could be summarized or put into matrices for tracking period-to-period for the program overall, as well as at a corridor or segment level. These key milestones may include schedule adherence and budget status on projects by phase and key performance goals and target milestones for the year. By establishing and consistently reporting these simple project delivery indicators, the ITOC members could better evaluate program accomplishments from a global position as well as at a more detailed perspective for projects as necessary. Further, summaries of project status reports, including budget and schedule targets compared to actual performance, could be provided on an ongoing and updated basis allowing the ITOC to monitor overall program adherence to the Ordinance and assess the overall program impact from compiled project budget and schedule deviations. Such statistics could better allow oversight bodies to filter through the multitudes of detailed data currently provided and make oversight decisions based on ultimate TransNet goals such as cost-effective congestion mitigation rather than getting diverted on decisions at the project activity level.

ITOC members indicate interest in receiving such management information such as program summaries as evidenced by a recent request to have a comparison between budgeted costs per the Ordinance with project expenditures to date that could be placed in ITOC's annual report. Trending this data as well as developing and tracking robust performance data could assist various interested parties in identifying schedule and budget changes as well as allow tracking of such activities throughout the year. Moreover, SANDAG should develop specific program-wide performance measures that would help underscore SANDAG's progress towards meeting program objectives such as levels of reduced congestion, project cost per mile, and percentage of projects completed on time and on budget. Adopting meaningful performance measures would help create greater transparency and visibility among responsible Caltrans and SANDAG parties in charge of program implementation strategy. Improvements to performance measures and summary data that could enhance accountability are discussed in more depth in Chapter 2 of this report.

Existing SANDAG information technology systems currently capture key project and program data, including major capital construction schedules, budgets and actual expenditures. Coordinating and tracking this from project cradle-to-grave at a high level would provide valuable budget to actual comparisons that would reflect original milestones and revised schedules.

Financial History and Status Information is also Needed

In addition to project specific Report Card data, budgets, actual expenditures, and cost efficiency performance indicators, we believe oversight would be enhanced by providing management data related to the history or evolution of a project's budget over time that could

be used to track key project changes in scope, schedule and budgets. Because of the frequent movement and reprioritization of projects and sub-projects to accommodate funding constraints, a document summarizing changes made against original Ordinance projections would assist with oversight. A more detailed discussion of this document is presented in Chapter 3 of this report.

Moreover, to assist the ITOC and other oversight entities in monitoring whether TransNet revenues are appropriately spent and tracking how projects are performing, it would be valuable for the ITOC to receive quarterly data related to sales tax revenues collected during the quarter, collected to date, and amounts distributed to the various Ordinance projects (e.g. major capitol corridor I-805), programs (e.g. bicycle projects), and entities (e.g. individual cities' local road projects). Although our audit found that SANDAG diligently tracked sales tax revenues expected and received as well as appropriately distributed the revenues in accordance with Ordinance provisions, it currently does not provide that data to the ITOC.

Better Administrative Tools Could Enhance Decision Making

Combined with the multitude of detailed information provided, the additional Report Card and performance measure data should also be tracked and managed on a quarterly and annual basis. To assist the ITOC and other entities, the project specific Report Card or other management data could be summarized monthly and annually to identify trends or issues. Comparisons between years could provide tools for stronger oversight through the use of these overarching indicators of TransNet program progress and success as well as serve as the framework against which the ITOC could weigh individual project activity decisions to be made.

As the TransNet program continues to launch other Ordinance features including smart growth, environmental mitigation, and grant programs, useful tools to track data and decisions will become more critical. To better track ITOC decisions or issues resulting from monthly discussions, one or more matrices summarizing items resolved as well as those action items carried forward to subsequent meetings could be developed and maintained as part of the monthly meeting minute format. With owners assigned as well as timeframes for completion, action items could be tracked and progress updated at subsequent meetings. The administrative tool memorializes prior months' discussions, decisions, and oversight provided into a convenient table that can be referenced and shared with new ITOC members as they join the committee. Other tracking documents could be implemented that would assist the ITOC in tracking outstanding concerns or issues and monitoring resolution. Each ITOC member currently tracks prior dilemmas or decisions on an individual basis or through the review of past meeting minutes.

Additionally, at monthly meetings, standard agenda categories could be established to ensure all critical TransNet areas receive the oversight focus needed in addition to project-specific activities. Suggested categories could include those presented in Figure 5.

Figure 5: Suggested ITOC Agenda Areas

1. **Sales Tax Revenue Collection and Distribution**
   - ✓ TransNet dollars collected and spent
   - ✓ Quarterly and To-Date Collections
2. **TransNet Program-wide Areas of Interest**
   - ✓ Budget & Updates
   - ✓ Other Funding Sources Available for Projects
   - ✓ Regional Transportation Plan Items
   - ✓ Program Performance Statistics
   - ✓ Budget History Documentation & Discussion
   - ✓ Plan of Finance Updates
3. **TransNet Major Corridor EAP Project Status**
   - ✓ Project Report Card
   - ✓ EAP Project Performance Statistics
   - ✓ Funding Recommendations Needed
4. **Status of Other TransNet Programs and Projects**
   - ✓ Bicycle, Pedestrian & Neighborhood Safety Program
   - ✓ Smart Growth Incentive Program
   - ✓ Local Cities and County Projects
   - ✓ Recommendations Needed
5. **Audit Updates**
   - ✓ Internal Audits
   - ✓ Annual Compliance Audit
   - ✓ Triennial Performance Review
   - ✓ Other On-Going External Audits
6. **Other Business**

Moreover, the ITOC may want to establish protocols providing specific time allocations allowing for adequate deliberation prior to decisions rendered for the more critical areas with high-dollar or high-profile impacts.

Chapter 2:
While Solid Management over TransNet Exists, Greater Performance Monitoring and Reporting Would Further Promote Accountability

Although efforts on the Ordinance have only been underway for a little more than three years, SANDAG and its partners have already implemented many solid controls and practices to help ensure the delivery of major corridor highway and transit projects promised on schedule and on budget. Specifically, SANDAG has demonstrated through the TransNet Extension program activities:

- An accountable environment set by management's "tone at the top;"
- Defined tools and processes to monitor program and project development, performance, and results; and
- A robust public accountability structure reporting on project results, including progress made on freeway segments and budget to actual expenditure comparisons that are available online for public view.

Throughout all highway and transit project efforts, management attitudes and actions at both SANDAG and Caltrans have created a culture providing a coordinated flow of information between and within SANDAG and Caltrans for overseeing program-wide finances and administration, consistent communication and information sharing between executive management teams at SANDAG and Caltrans, deliberative processes employed to consider critical elements, and staff openness to continual improvements and constructive criticism. Executive management's "tone at the top" embodies practices encouraging review, controls, justification, buy-in, and accountability of actions and outcomes.

To assist in controlling overall program as well as individual project performance, SANDAG and Caltrans utilize several processes and automated tools to track budgeted costs and schedule data against actual results. Moreover, reliable management information is provided through the use of automated schedule software that tracks individual tasks, effort, and milestones for all projects at the discrete task level as well as for the critical path elements. Financial systems, databases, and spreadsheets following a common project numbering scheme between SANDAG and Caltrans systems provide critical budget and expenditure data to monitor project performance.

Project data from SANDAG and Caltrans is consolidated through a data warehouse concept created by SANDAG that efficiently streamlines data collection by interfacing with individual systems to summarize program and project status. This database, known as the Dashboard, is an automated project budget, schedule, and progress reporting tool used by internal project teams and members of the public as well. Not only is the Dashboard used to track schedule progress and budget to actual expenditures, but it also increases transparency and controls with the public's availability to performance data and their need to ensure project decisions are prudent, justifiable, and in the public's best interest.

Generally, financial and schedule related data maintained in the Dashboard is reliable and supported by underlying source documentation. Yet, our review also found that while the Dashboard provides a good framework for online reporting of project status, older budget and expenditure data included for certain projects may skew data. Additionally, while SANDAG designed the Dashboard to function as an integrated budget and schedule tool where EAP project performance and progress could be monitored, not all early projects are included within the Dashboard data. Thus, SANDAG should revisit its intent and vision for the Dashboard to determine whether it should report on all Ordinance programs such as non-capital construction projects including transit operator funds and environmental mitigation efforts. Other enhancements could be made to the Dashboard including defining and consistently applying percent of completion estimations as well as summarizing some performance indicators that could be used to monitor progress—such as percent-of-work completed compared to expenditures to date or percent of support costs to capital construction.

Finally, SANDAG could enhance accountability and transparency by incorporating concrete performance goals and targets to measure project outcomes as well as performance efficiencies into a defined performance monitoring system. While SANDAG has established general goals as part of its Regional Mobility Plan and regional transportation plans that it is starting to track through its performance monitoring system, TransNet program goals could be more clearly defined through objectives linked with specific performance measures. For instance, a broad goal to "improve mobility" could be redefined by an objective "to increase transit ridership by 10 percent by 2010."

In addition to more clearly defined effectiveness measures, SANDAG should establish goals, strategies, and performance measures to track program and project delivery efficiency indicators related to hitting targets on meeting delivery milestones, staying within certain percentages of cost estimates, and reducing support costs and overhead by set amounts. We believe that setting meaningful goals and tracking performance against those goals can help highlight potential areas in need of improvement, hold project owners accountable and economical, and demonstrate performance to the public. Once program-wide performance data is collected by SANDAG, it should be made available to Corridor Directors and their project management team as well as communicated to governance boards and the ITOC.

Management Structure and Tone Provides Coordination and Control

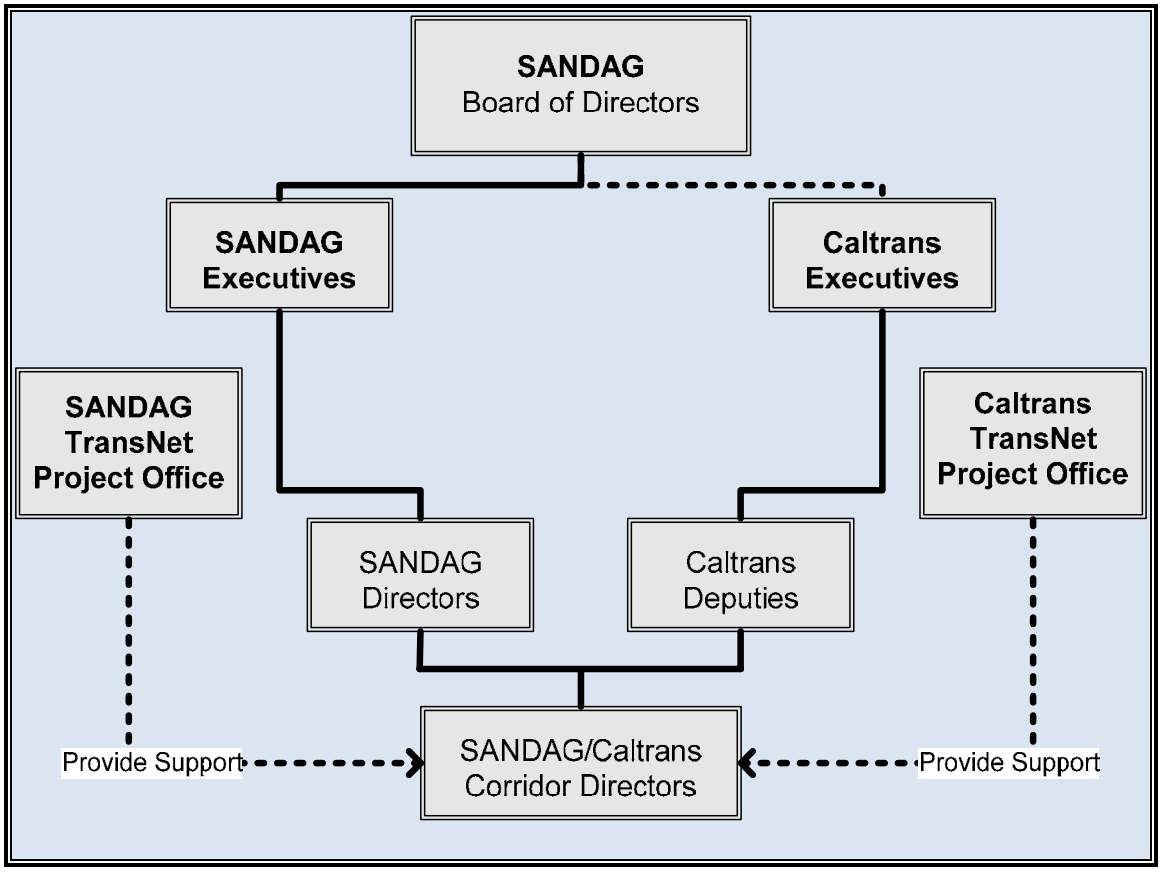
To guide and manage TransNet program and project delivery over the EAP major corridor capital highway and transit projects, SANDAG has created an effective structure between its own executive management, internal SANDAG program officers, and Caltrans executives and managers that demonstrates control and coordination over activities and information.

Specifically, the Executive Directors from both SANDAG and Caltrans empowered each project team member to make appropriate decisions, based on assigned responsibilities and authority provided, and operate under a documented conflict resolution process to address and elevate any project issue that cannot be solved at a low level. Another designated SANDAG employee, the TransNet Program Manager (Program Manager), is

responsible for managing and coordinating the efforts of various entities involved with planning, development, and implementation. On both an informal and formal basis, the Program Manager regularly communicates and coordinates with SANDAG executives on program and project implementation status. Standard meetings are held on a monthly and quarterly basis, as well as more informally as needed, to share actual performance against budgeted plans and discuss project detail with other functional departments in SANDAG such as Finance and Mobility Management and Project Implementation.

Because SANDAG and Caltrans practice a cooperative and coordinated "tone at the top," both agencies work well together to create solid budgets and schedules, obtain adequate buy-in and approvals, and require strict record-keeping to document staff decisions made and related justifications. Because of the far reaching regional approach to the transportation planning and project implementation that permeates the SANDAG organization, Caltrans is a fully vetted partner in programming and executing the Regional Mobility Plan. Additionally, as shown in Figure 6, the TransNet program also operates two Project Offices—one at SANDAG and one at Caltrans—both syncing efforts in coordinating the flow of information between the entities to oversee program-wide finances and administration.

Figure 6: Program Management Structure



Specifically, each TransNet Project Office Manager is responsible for developing and implementing tools and techniques to monitor the program-wide budget and schedule as well as report progress and delays to executive management, SANDAG Transportation Committee, and the ITOC. In this role, the TransNet Project Offices work closely with

Corridor Directors and individual project managers to track project budgets and ensure that all resources necessary as identified by the Corridor Directors are available at the program and project levels. Staff from these offices participates on and support individual project teams in weekly meetings where information on budget and schedule is discussed, as well as program-wide meetings with SANDAG executives and functional staff from other SANDAG departments. These frequent meetings provide additional controls whereby management can review underlying data, buy-into project approaches, and provide approvals where necessary.

While executive management is closely involved in overseeing and guiding the program, management also relies on a Corridor Director approach for ultimate accountability and management of individual project delivery. This approach streamlines coordination of efforts among the various project managers and functional teams as well as with the other municipal entities and consultants working on a given corridor. Each of the five Corridor Directors functions as a central point of responsibility and contact for projects along a particular corridor and together provide a high level of cooperation and coordination between the directors, their project managers, and the executive team. Frequent daily communications and both weekly and monthly project development team meetings are part of the project delivery framework provide on-going project status updates, deliberation of practical approaches to ensure projects stay on schedule and on budget, and open communication for solutions to mitigate issues when they do arise.

Management Controls in Place Include:

- Close Executive Level Oversight
- Consistent Communication and Flow of Information
- Frequent Team Meetings to discuss Issues and Approach
- Written Conflict Resolution Protocols Followed
- Automated Tracking and awareness of Project Costs, scope, and Milestones
- Culture open to Continuous Improvement

Further, there is a consistent flow of communication and coordinated information between executive management teams at SANDAG and Caltrans through weekly, monthly, and quarterly meetings in addition to written reports allowing for review of issues and a proactive issue resolution approach. Additionally, there are weekly project development team meetings that include project managers, Corridor Director, project consultants, and Project Office representatives from SANDAG and Caltrans in addition to weekly team meetings between project managers and functional managers regarding areas such as environmental, right of way, or design matters. Control features of these meetings include management's review of budget and schedule status, involvement in evaluating contract selection, monitoring of project tasks, and approval of project activities. More informal meetings are held with Caltrans and SANDAG executive and management staff on an as needed basis to discuss and resolve any project issues as they arise. Thus, several controls are in place to ensure management is aware of budget and schedule issues to direct the quality of project activities.

As part of the tone at the top and collaborative spirit embraced on the TransNet program, we found that both SANDAG and Caltrans appear focused and open to continual improvements and constructive criticism. For instance, in 2005, SANDAG and Caltrans jointly embarked on an initiative to have an external consultant conduct an analysis of existing processes

currently in place at the two entities. Several recommendations were made to better ensure the successful delivery of the TransNet program. Specifically, the consultant prioritized and recommended actions in areas including organization structure, scope and cost estimates, external reporting system, project expenditures, schedule management, quality assurance and quality control including value analysis, earned value, and document control.

In the two years since the completion of the external consultant's review, SANDAG and Caltrans have made significant progress to incorporate nearly all of the recommendations—many of which required considerable efforts and innovation to secure buy-in of approach and implementation. For instance, the assessment suggested the entities alter their typical project delivery organization structure into the new corridor director approach that currently is employed. Additionally, SANDAG and Caltrans defined roles and responsibilities for all TransNet related staff and documented a formal decision-making process outlining a change management and conflict resolution framework.

SANDAG implemented another noteworthy accomplishment in 2006 with the development and application of the "Dashboard" web-based concept that offers on-demand access to summary snapshots of the TransNet program, corridors, and segments related to budget, cost, schedule, progress, and status. In conjunction with an external vendor, SANDAG designed this system for increased public transparency as well as use by internal project managers in their project level oversight to help identify potential risks and needed changes to budget, scope, or schedule. SANDAG and Caltrans also embraced a recommendation to use an automated middleware solution to translate the different scheduling tools used by the entities—Primavera and Microsoft Project—onto a common platform allowing for cross-project integration and analysis. Additionally, both entities created a shared project numbering system to map financial data from Caltrans' accounting system and SANDAG's fiscal system into a consolidated project number and incorporated into the Dashboard.

Moreover, previously implemented recommendations are now being reassessed and enhanced to provide additional levels of value to the program framework. As part of its reassessment, SANDAG should revisit 2005 recommendations made, but not yet incorporated into TransNet. For instance, one recommendation we believe has merit relates to the need for document control and using automated tools. Applying a "data warehouse" concept for controlling and sharing all critical project data would be useful to track key project performance indicators and serve as a data repository system containing information to assist in the project planning in the future. Additionally, SANDAG and Caltrans should continue working together to improve the Dashboard system functionality ensuring that meaningful and reliable data are gathered as part of the daily management processes.

Automated Tools and Practices Improve Management and Assist in Monitoring Project Performance

Similar to other transportation development entities, both SANDAG and Caltrans rely on automated tools to track and analyze budget and schedule data to manage TransNet projects. For fiscal information, SANDAG relies on its Integrated Financial and Administration Solution (IFAS), while Caltrans mines its data using its Financial Data to Oracle (FIDO)

intermediary to interface with its Transportation Accounting and Management System (TRAMS) accounting system. Both databases provide real-time project level fiscal data that project managers use to monitor project costs. Additionally, project managers use industry standard automated project management scheduling tools—either Primavera or Microsoft Project—to track and manage project phases, critical path, sub-project tasks, and milestones. Thus, while TransNet projects are delivered collaboratively by SANDAG and Caltrans with project management teams at both controlling various fiscal and schedule aspects of a larger project, the two entities employ slightly different or unique project management, data recording, and reporting tools. Recognizing that these differing tools could potentially cause difficulties in sharing electronic project data, SANDAG contracted with an outside consultant who developed the Dashboard system to achieve efficiencies and compile the TransNet project data from both entities.

Monthly, project fiscal and schedule data are consolidated into the Dashboard—online viewers can access the data warehouse to obtain budgets, actual costs, schedules, and key milestones at the TransNet program, corridor, and segment level. Data from each entity is extracted via a custom-developed automated interface that uploads information into the Dashboard, thereby reducing the need for manual preparation of reports to summarize activity by project.

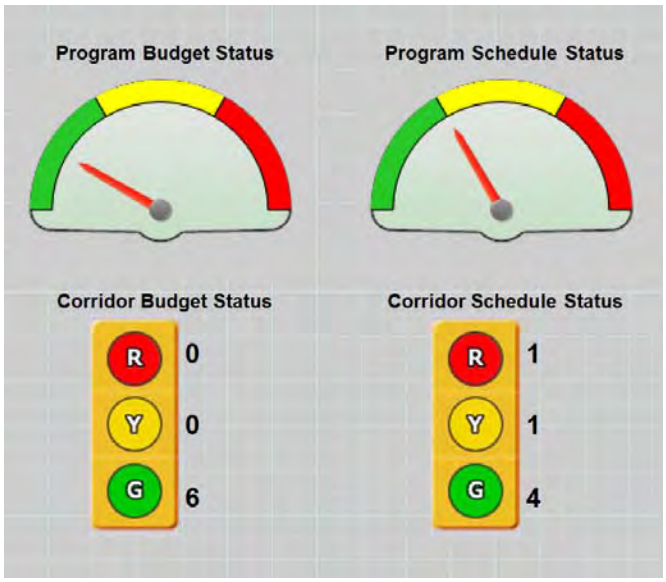
Although the Dashboard provides the public information at the overall program level, by corridor level, or at the individual segment level, the Dashboard also contains an internal project team feature allowing users to drill down into detailed expenditure data at a project level or pull up detailed Primavera schedules for a project to better understand summarized results. For instance, while the public will see an expenditure amount for design, internal users can get more specificity such as design costs broken into individual project elements such as consultant charges, project management expenditures, and permit fees. Thus, the Dashboard allows project managers to access consolidated TransNet project data from various entities and sources in one single database; record project events and milestones as they occur; update budget and schedules as necessary; identify remaining time and budget on projects; and provide funding information updates.

Dashboard Concept also Enhances Focus on Accountability

Using a concept employed by the State of Virginia, SANDAG's "Dashboard" not only provides transparency to the public, but also promotes greater accountability within its organization. This interactive tool allows the public to obtain timely information about corridor or individual project status, budgets, and schedules at a level of detail commensurate with their personal interest. Generally, the vision and goals of the Dashboard system are two-fold—to provide current information on TransNet projects to the public and to develop an internal project management tool in a variety of project functions. The Dashboard consolidates data from various sources, records project events and milestones as they occur, and identifies remaining resources including time and budget needs to deliver the projects.

One of the Dashboard's central features is a project performance indicator tool divided into three distinct colors or sections—green, yellow, and red. If a TransNet project is over-budget by 10 percent or unlikely to meet schedule milestones, the dashboard arrow in the particular

gauge will be in the yellow zone. Budget variances greater than 20 percent or missed schedule deadlines would change the indicator to red. If all project indicators are on target, the indicator will register in the green zone.



Generally, these project performance indicators provide a quick view of status and highlight where budgets or key milestones appear to be in jeopardy. Yet, our review found that project managers, corridor directors, and Executive Management were aware of project status and risks well before the data appeared in the Dashboard.

Another project performance indicator maintained in the Dashboard shows project phases in a "donut" graphic. Clicking on the graphic provides data on the percent of expenditures incurred compared to the percent of project completion. When the expenditures exceed the expected amount for the percentage of completion, a different dashboard indicator turns yellow or red depending on the amount of discrepancy. These features may also serve as valuable project monitoring tools for both project managers and executives overseeing TransNet from a more global perspective. Presenting this type of data on the public Dashboard site provides another layer of accountability in that all project development deliverers are aware that they need to justify overruns and delays.

Another section of the Dashboard provides cash flow data that depicts budgeted or anticipated expenditures as compared to actual expenditures to-date at the program-wide, corridor, or segment level, depending on view selected by the user. Expenditures are summarized by project development phase including environmental, design, right-of-way, and construction. This area in the Dashboard also presents data on the financing plan, with details of projected state, federal and local revenues planned for the life of a specific segment.

While the information residing in the Dashboard system may help the ITOC and other decision-makers in tracking project progress and other critical program-wide data, we believe these data should be better summarized and presented to the ITOC on a regular basis. For example, the Dashboard data could be utilized to prepare a "Report Card" type summary by project, as described in Chapter 2. Another Dashboard section relays information on emerging trends, risks, and issues surfacing from the construction industry that could impact the cost, schedule, or scope of a project. Data provided could be used to identify key industry trends, explain reasons for industry-wide construction cost increases, or highlight scarce supply of the construction materials, for example.

Expenditure and Schedule Data in Dashboard is Generally Current, Reliable, and Complete

Keeping detailed cost and schedule information for the multitude of projects in the Dashboard current and up-to-date is certainly a challenge. Yet, we found that most of the data presented is current for the previous month and is reliable in that it traces back with underlying fiscal system data and Primavera schedule data.

Generally, Dashboard data is 30-days old as it is automatically uploaded at the end of each subsequent month period using a middleware interface. Specifically, the data transfers occur with a one month lag between the "real-time" expenditure data and the accounting reporting cycle for a closed month. Budget fiscal data is loaded into the Dashboard when the SANDAG Board approves new budgets for the TransNet projects. Actual expenditure updates occur automatically via an interface that downloads expenditure data from the SANDAG and Caltrans accounting systems. Budget and actual schedules are uploaded using a Primavera Electronic Scheduling Utility Tool that collects project schedule data from both SANDAG and Caltrans. Some SANDAG managers use Microsoft Project for scheduling and must forward their schedule information to the TransNet Project Office for manual entry into the interface before uploading the schedule into the Dashboard.

In addition to the timely data reported through the Dashboard, our review revealed that the tool's expenditure and schedule data is generally reliable based on source system information. Using an internal view feature, we traced a sample of September 2008 Dashboard project expenditures and schedules into the underlying data contained in SANDAG's and Caltrans' financial systems and project management systems and found no material variances—although some discrepancies existed. Additionally, cost data uploaded into Dashboard is reconciled by accounting staff at SANDAG and Caltrans prior to the monthly interface and upload process. For instance, staff at Caltrans review expenditure data against staff timesheets and invoices for reasonableness and reconcile data to be imported against Caltrans Headquarters data as part of its monthly reconciliation and closing process. Similarly, SANDAG accounting data is reconciled and posted by mid-month of the subsequent month. Both SANDAG and Caltrans data is also subject to financial audits conducted annually by external auditors that assess the appropriateness of transactions, recoding of expenditures, controls in place, and general accuracy and reliability of financial data. Moreover, both SANDAG and Caltrans TransNet Project Office staff monitors the monthly data transfers and updates to ensure accuracy and reliability.

Improvements Could Increase Dashboard's Functionality and Value

While SANDAG's Dashboard is a very robust system, the tool could become more valuable by incorporating some slight modifications to address items related to data consistency and related budget data, inclusion of all projects, budget and schedule history, and performance indicators as described in more detail below. As the Dashboard continues to evolve, SANDAG should revisit its overall vision and goal of the system and determine whether it is intended to be an "in-progress" tool for only current projects or should be a comprehensive historical data warehouse for the 40-year duration of the TransNet Extension Ordinance.

Once that direction is determined, the resulting vision should dictate the specific approach employed to address the following items revealed by our audit:

- ***Costs incurred prior to the 2005 Ordinance are included in the Dashboard***
  While designed to provide information on the EAP projects identified after the 2005 Ordinance, our review identified at least five projects that reflected expenditures and schedules incurred before the Extension Ordinance was effective. For example, the Mid-Coast Light Rail transit project started in the 1990s and was incorporated into the Ordinance as it remained uncompleted in 2005. Instead of the Dashboard presenting expenditures incurred only after the launch of the Ordinance, data for this project reflects costs reaching back to 1997. While such expenditures relate to the project, including these costs may misrepresent costs incurred under the Extension Ordinance. Similarly, other projects started prior to 2005 also reflect expenditure data from earlier periods as well. SANDAG's current approach shifts a project's entire cost history into the Dashboard when the project transitions into the TransNet program resulting in distorted total program costs.

  Even though some projects were already in development prior to 2005 and were carried-forward, only the budgets and costs of the remaining work to be completed should be included under the TransNet program to reflect a more accurate picture of TransNet activity. However, because past expenditures are automatically included in the Dashboard through the simplified annual budget upload, it would be more cumbersome to separate out the pre-2005 expenditures prior to upload. Rather, SANDAG could consider adding an explanatory note to better explain the data or isolate and remove the pre-2005 expenditures to more accurately reflect the TransNet Extension Program costs.

- ***Historic schedule data could easily be disclosed***
  Currently, TransNet project schedules are generally incorporated into the Dashboard based on the underlying detail maintained in the Primavera system. Whenever an authorized and approved schedule revision occurs, Dashboard will reflect an updated "current plan" for the schedule effectively replacing the prior information. As a result, the Dashboard data does not provide a complete picture of a project's evolution. According to the Dashboard system developer, the system is designed to keep track of the original baseline schedule regardless of the subsequent revisions—thus, still includes the historic data currently. SANDAG should develop the Dashboard to report the key schedule changes that occur over the course of each project.

- ***Percent of completion data is not accurate or complete***
  While most Dashboard data is reliable, estimates of percent of project completion do not seem accurate. When we attempted to verify the percent of completion shown in the Dashboard with underlying project manager information, we found errors and discrepancies. In some instances, the percent of completion was not tracked for each project phase—specifically, in the areas of administration and right-of-way support, the Dashboard did not always reflect actual completion data even when expenditures were incurred. Rather, these categories were often marked with a "not applicable" in the percent complete category. As such, SANDAG should ensure assumptions and

definitions behind percent of completion calculations are clearly and consistently communicated if this data provided by project managers is deemed important for the Dashboard reporting. Moreover, the SANDAG TransNet Project Office could monitor these indicators for reasonableness and accuracy.

- ***Clarifications are needed on whether all EAP projects should be included***
  Although most of the major corridors EAP projects are reflected in the Dashboard, not all projects designated as EAP are included. Specifically, project specifics related to the SPRINTER project that was added in 2007, Mid-City rapid transit bus, and the orange and blue lines of the trolley are not currently reflected in the Dashboard. While these transit projects may have different project delivery structures, each has budget and cost data that could be tracked, reported, and made transparent to the public. Moreover, as other non-EAP projects or programs commence such as the Environmental Mitigation Program, the Dashboard could reflect the project and related cost and schedule data in some form. According to SANDAG's TransNet Project Office, management discussions have occurred surrounding the best approach to use for these inclusions. According to management, SANDAG is planning to launch a data reporting component for the Environmental Mitigation Program in Dashboard early in 2009.

- ***Trends, risks, and issues could be updated***
  Additional data in the Dashboard provides narrative description of the trends, risks, and issues identified by corridor directors or their designated representatives related to a specific corridor or segment. We were informed that some of the intent behind this feature was to describe the overarching issues facing the construction industry and help in understanding of the construction price increase circumstances surrounding the escalating project cost issues in the early 2000s. However, most of the narrative in the Dashboard is not kept current, with data not updated since 2006. Thus, SANDAG should reassess the need and use of this narrative data and either ensure full and timely completion of project specific data or eliminate the section and capture and report data through a different venue.

- ***Data should be used to measure and track performance against targets***
  With the breadth of valuable project data contained within the Dashboard, SANDAG should use the information to develop performance measures related to project efficiencies. For instance, data currently exists that could be translated into statistics such as "percent of project costs within 10 percent of budget" or "percent of projects within 2 months of schedule" or other meaningful measures and monitored as part of a robust performance measurement system.

Performance Outcome Goals should be Established

When TransNet projects were considered during regional transportation planning processes, potential project impacts were considered against overarching outcome goals for mobility, accessibility, reliability, efficiency, and environmental sustainability. With travel outcomes affected by many factors such as demographics, economy, and work patterns, SANDAG has begun developing a baseline system to benchmark progress towards meeting these

overarching goals on an annual basis. Our audit efforts reveal several enhancements that should be incorporated into measures of performance for a more competent and robust system. Importantly, the system should set clear and specified goals, establish clearly defined targets, measure project effectiveness, and be tailored to the TransNet program.

Currently, SANDAG uses data captured in the web-based Performance Measurement System (PeMS), jointly developed by the State of California and the University of California at Berkeley (UC Berkeley) to monitor the region's freeway system. In-pavement and above-ground automated detection devices transmit data related to traffic speed and volume to the PeMS online performance monitoring analysis application. SANDAG Technical Services combines the PeMS information with data collected from other sources such as daily transit ridership counts from the NCTD and MTS operators to analyze and evaluate traffic volume, travel times, and transit usage. SANDAG also gathers other data and performance measures from other local jurisdictions as part of its Congestion Management Program. Working with Caltrans and UC Berkeley, SANDAG has begun tracking outcome measures such as:

- Hours of traffic delay
- Daily accidents and fatalities
- Cost per trip traveled
- Daily vehicle miles traveled

These performance indicators are beginning to be tracked in particular for the SANDAG "Regional Comprehensive Plan Annual Performance Monitoring Report." Most of the data analyzed and reported by SANDAG in December 2008 covering the 2007 year was focused on the Regional Transportation Plan versus impacts of the TransNet program specifically. Nonetheless, such measures are valuable and as the data becomes available, SANDAG should use it to calculate month-to-month and annual changes to identify trends and patterns. The data could also be correlated with various project completion dates to identify potential impacts derived from the TransNet projects within specific corridors.

More detailed corridor monitoring was envisioned in a 2005 State of the Commute report issued by SANDAG that discussed performance indicators developed jointly with other project partners— Caltrans, MTS, and NCTD— related to improving mobility, expanding freeway capacity, and managing roadway demand. Yet, the one-page document only provided a nexus between "travel time" and certain corridors; specifically, the document depicted "hours saved per person" for three of the six TransNet major corridors. Other indicators were presented for hours of travel, traffic delays, and vehicle trips, but this data was summarized by year and not available at a corridor or project level.

While SANDAG has set some general goals as part of its Regional Mobility Plan and regional transportation plans, TransNet goals could be more clearly defined through objectives and linked with specific performance measures. For instance, a broad goal to "improve mobility" could be defined by an objective "to increase transit ridership by 10 percent by 2010." Measures tracking ridership numbers by line or route could be maintained and compared against TransNet projects. In delivering regional capital construction projects, Caltrans has linked its effectiveness goals with specific objectives as part of its entity-wide Caltrans Performance-Based Management System. For instance, to track outcomes related to a mobility goal to maximize transportation system performance and accessibility, Caltrans has set an objective to "by 2012, reduce daily vehicle hours of delay by 30,000 hours

throughout the transportation system." While these objectives and data measured are not set specifically for the TransNet program, data from the San Diego Caltrans District 11 operations feeds into the entity-wide tracking system that could be mined and provided to SANDAG in its development for a system specific to the TransNet program.

Other potentially useful data captured and models developed by Caltrans include a California Life-Cycle Benefit/Cost Analysis Model that SANDAG used in the past to estimate benefits of advancing the EAP projects. This model considered benefit categories such as travel time savings, accident reduction benefits, reduced vehicle operating costs, and reduced emissions—all potential outcomes and benefits to be realized directly by San Diego residents. We believe SANDAG should incorporate these "baseline" benefits or goals into our suggested revised performance monitoring system whereby expected savings could be compared against actual results once projects are completed.

Indicators of Project Efficiency should be Measured

In addition to more robust effectiveness measures, TransNet should have established goals, strategies, and metrics to track program and project delivery efficiency indicators as well as link strategic planning with resource allocation. At the current time, it seems that only Caltrans is using performance efficiency measurement concepts although data tracked is at the statewide level and not specific to TransNet. Yet, we believe that setting meaningful goals and tracking performance against those goals can help highlight potential areas in need of improvement, hold project owners accountable and economical, and demonstrate performance to the public.

Specifically, since 2005, Caltrans has been reporting a select set of performance measures to its state oversight agency on a quarterly basis. Performance measures relating to efficiencies presented in its Quarterly Report are generally compiled from the data provided by San Diego Caltrans District 11 and the various project managers. Targets tracked by Caltrans include items such as the following:

- Meet 100 percent of project delivery milestones for each fiscal year
- By 2012, reduce the support-to-capital ratio to 32 percent or lower and reduce overhead cost to 13 percent
- Each year, keep the total of all low bids within 5 percent of the engineers' estimates

Not only do these measures require the gathering and tracking of quantitative useful data, but they are enhanced by setting specific and defined targets and goals for efficient performance SANDAG could build on these specific measures and also collect data to measure and track:

- Percent of projects that exceed programmed budget
- Number of change requests for cost changes
- Number of change requests for schedule changes
- Average construction support costs, engineering support costs, etc.

To ensure such performance measures are useful and inspire efficiency, targets with challenging yet attainable numbers should be set to assess the timeliness and cost-effectiveness of the TransNet highway construction and transit projects. In April 2007, SANDAG began implementing a quarterly monitoring program to track indicators such as operating cost per passenger, passengers per revenue mile, reliability, and ridership for transit specific projects. Yet, we found that targets, goals, and related outcome objectives were not defined.

Moreover, SANDAG should also track its performance against quantitative criteria and calculations used during the regional transportation planning process whereby projects are ranked and prioritized based on estimated cost per person-miles traveled and cost per travel time savings calculations. A useful activity could be to also perform these calculations after project completion to identify variances from anticipated cost-effectiveness, discuss reasons for the differences, and use results to adjust future modeling or trend and compare projects against each other.

Other transportation entities across the country are finding that efficiency and effectiveness performance measurement is a critical tool used at both the project level and the policy level allowing stakeholders to evaluate the benefits of highway and transit improvements. A 2007 report by the State of Virginia Transportation Accountability Commission describes key objectives as the "desired outcomes" of programs and reflects the key measures associated in meeting those performance goals. The targets include both short-term and long-range milestones and performance measures are tracked by quarter. Following such a model, SANDAG could establish meaningful goals and targets and associate at least one measure with each thus setting forth tools for SANDAG to directly gauge the efficiency and effectiveness of transportation improvements in the region. For example, if the objective is to manage congestion, the measure would be to contrast the annual hours of delay before and after the roadway improvement.

Lastly, as part of a robust performance measurement and monitoring system, staff should be designated to follow-up on missed targets, assure corrective actions where needed, or assess impact of any shortfalls to the overall TransNet program. Thus, to make the process meaningful and value driven, SANDAG should develop performance measures and routinely follow-up on the impact of performance not meeting targeted goals.

Performance Data Should be Used by Management and Shared with Oversight Bodies

Once performance data is collected by SANDAG, it should be made available to TransNet Corridor Directors and their project management team as well as communicated to governance boards and the ITOC. These entities could use the data to quickly monitor the effectiveness of operational strategies and assess the success of SANDAG and Caltrans in achieving targets or benchmarks. Combined with the detailed project information already provided to these oversight bodies, the summarized performance data could enhance decision making. Given that much of the performance data already exists in either the Dashboard system or Caltrans databases, compiling and communicating the data should be plausible.

As mentioned in Chapter 1, the ITOC and other oversight bodies could use performance measures focused on budget, schedule, and scope to more closely monitor overall program adherence to the Ordinance and baseline cost and schedule goals. Additionally, future quarterly reports could also communicate program level milestones and success at meeting performance benchmarks when discussing TransNet program accomplishments or areas needing improvement.

Providing this statistical data and performance measures tied to targets and outcome objectives, SANDAG would also create greater transparency and visibility among the various responsible partners in charge of program implementation strategy. Moreover, this type of reporting also assists in answering the public's questions such as, "what are we getting for our investment" and "is the spending of our investment as efficient as possible."

Chapter 3:
Revenue and Cost Models are Practical, But Project Budget and Schedule Reprioritizations Should be Better Chronicled

With the 2008 projections estimating that the TransNet program will reach nearly $41 billion over the next 40 years, like its peers across the nation, SANDAG utilizes a complex structure for financing highway transportation and transit development projects with a variety of funding sources from federal, state, and local programs. As part of the blueprint established over the last three years, our audit revealed that SANDAG has established sound financial plans and reasonable revenue and cost estimates in cooperation with Caltrans, and these efforts had undergone appropriate levels of review and rigorous deliberation.

SANDAG's approach to TransNet financial planning is often referred to as a Plan of Finance and consists of a series of continuously updated revenue and expenditure projections for the TransNet projects covering the 40-year program lifecycle. Local sales tax revenues and related bonds issued fund only forty percent of the TransNet EAP projects, as the majority of projects are financed using state and federal sources. Consequently, project financing deliberated for the SANDAG Regional Transportation Plan is driven largely by state and federal program requirements. Strict state and federal regulations generally mandate that SANDAG use a "revenue constrained" program planning scenario whereby governmental revenues are projected using the most conservative approach based on committed or pledged dollars, and assumes that no additional funds will become available. Since provisions require SANDAG to match project estimated costs with available projected revenues, projects are annually reassessed and reprioritized to meet funding requirements.

Because SANDAG generally has limited control over the amount of revenues it receives from state and federal sources, it has employed innovative financing strategies using TransNet local revenues to expedite delivery of the EAP projects. Specifically, SANDAG issued commercial paper and bonds totaling approximately $635 million in outstanding debt as of December 2008 under the assumption that benefits from spending money on construction projects today would outweigh financing costs and increased construction costs in the future. SANDAG's financial leveraging of the TransNet local sales tax dollars is consistent with the financing strategy employed by other similar programs we identified.

In San Diego, the SANDAG Board has dedicated nearly all of future TransNet, federal, state, and local resources to the EAP major corridor projects believing these projects would best address regional transportation needs. While the risk to this approach includes the uncertainty of whether future TransNet funds will be available to complete non-EAP projects, other alternatives and ultimate decisions underwent a deliberative and public process to determine that the EAP projects selected best fit the regional needs.

As funding challenges are inherent in the government transportation project arena, SANDAG continuously monitors financial risks and updates cost estimates and revenue projections to determine the amount of money available to complete projects. Actual funding for projects is generally allocated on a year-to-year basis at the beginning of the annual budget cycle

when anticipated federal and state allocations are authorized. In consultation with its transportation and transit partners, SANDAG must continually designate, shift, or reallocate scarce funding towards TransNet projects in alignment with the highest priority at that time, given the typical changes that evolve on long-term projects and the conflicts resulting from multi-year project cost estimates and the limited funds to cover such expenditures. This continual need to reassess projects based on available funding is not unlike other transportation planning agencies we reviewed. We found that SANDAG's decisions are vetted through deliberative processes to ensure that funding is maximized while minimizing significant impacts on individual projects or to the regional transportation system as a whole. Further, the SANDAG Board's continual reprioritization is consistent with its authority as the Regional Transportation Commission as re-emphasized in the Ordinance.

Because funding is an ongoing challenge and projects are continually shifted and reprioritized to stretch limited resources, the TransNet program could benefit from creating and memorializing a budget history document that would track the funding and scope changes for individual projects as identified in the Ordinance to reduce confusion and increase accountability to promises made to the voters.

Plan of Finance is Rational, Reasonable, and Approved by SANDAG Board of Directors

While securing adequate funding for the TransNet transportation projects is a critical requirement of the program, our review of the SANDAG's financial strategy to deliver the TransNet projects found that the assumptions behind programming techniques to secure funds, as well as the revenue forecasts for the TransNet half-cent sales tax revenues, appeared reasonable and reliable.

When the TransNet Ordinance was initiated in 2005, SANDAG's Finance Department worked closely with SANDAG and Caltrans project managers, financial advisors, SANDAG and Caltrans executives, and program stakeholders to prepare a financial plan, which is also referred to as the Plan of Finance. The Plan of Finance is a systematic process employed to match the TransNet project estimated costs with available or anticipated revenues, and determine the best financing option. Project cost data are prepared by SANDAG and Caltrans project managers, and designated SANDAG staff at the TransNet Project Office compiles project cost summaries working in conjunction with the SANDAG Finance Department. SANDAG Technical Services and Finance Planning groups work together in analyzing project cash flow needs, reviewing available funding sources for each specific project, identifying funding gaps, developing funding alternatives, and creating a finance model for the TransNet program including short- and long-range plans.

In December 2005, the SANDAG Board approved the Plan of Finance for a ten-year timeframe between 2005 and 2015 with a total cost for the period of more than $2.8 billion to complete the EAP projects identified. In subsequent years, SANDAG developed and the Board approved a long-range financial plan covering the entire TransNet 40-year program. As part of the deliberation processes, external experts, such as Public Financial Management Incorporated, have helped develop, review, and provide input into SANDAG's models and

plans including assessing strategy for bonds and commercial paper issuance as well as mitigating exposure risks, particularly in the current fluctuating financial market.

The underlying concept behind the existing Plan of Finance is to ensure that funding is available for the accelerated delivery of the EAP projects, including those projects that remained uncompleted from the original ordinance. While the project costs and anticipated revenues may change year-to-year, SANDAG has established a sound process to review the finance plan and make the necessary modifications. In 2008, when estimated funding requirements for the EAP projects grew from $2.8 billion to nearly $5 billion due to various factors including increasing construction and labor costs, project scope changes, and unforeseen time delays, the SANDAG Board considered several options to maintain the momentum on these EAP projects. For example, one less costly option was to extend the project schedules until 2020 on the Mid-Coast Transit, I-805 Bus Rapid Transit, SR-76 Widening, and Blue and Orange Lines improvement that would effectively release allocated funds in the short-term. After reviewing these alternatives, the Board made a decision to maintain project schedules unchanged and issue $600 million in long-term variable rate debt in April 2008. This action was to increase cash flow and revise SANDAG's commitment of state and federal funds for the TransNet program from 85 percent to nearly 94 percent of amounts authorized for all regional projects. This authority to prioritize TransNet and dedicate future sales tax revenues to address current regional priorities and bond repayment is explicitly granted in the Ordinance.

Key Assumptions of Plan of Finance Include:

- Nearly all of TransNet Major Corridor Funding will be dedicated to EAP projects
- 94 percent of state, federal and other local funds will be dedicated to TransNet program
- EAP projects are accelerated and slated for completion by 2015.

Other entities and transportation authorities tasked with the implementation of regional transportation programs funded through an excise tax have employed similar financing models such as issuing bonds against future revenues to expedite the delivery of projects. For example, the Maricopa County Regional Freeway System financed through various sources including local excise tax, state, and federal funding, had nearly 37 percent of its total program resources generated with bonds and government loans.

Although SANDAG's decision to dedicate the vast majority of the TransNet program funding from local sales tax revenues, state funds, and federal sources to EAP projects appears to be a significant commitment of future funds, the underlying process to establish cost and revenue projections appears reasonable. Moreover, external financing agencies have conducted detailed analysis of SANDAG's financial information opining that it has the ability to cover its Plan of Finance and a reasonable expectation of fulfilling the Ordinance. Additionally, the Plan of Finance is vetted with a multitude of project stakeholders, and is reviewed and approved by the ITOC, SANDAG Transportation Committee, and SANDAG Board. The TransNet financial strategy is reviewed and revised at least annually as part of the SANDAG regional transportation plans and annual budget processes.

Current Debt Model Seems Appropriate

As of June 30, 2008, SANDAG had nearly $635 million in outstanding debt in commercial paper and bonds issued against the Ordinance half-cent sales tax revenues. Specifically, starting in November 2005, SANDAG entered into several agreements with major banking institutions to borrow capital funds against future sales tax revenues as part of the SANDAG Board-approved Plan of Finance. The debt financing model was developed by SANDAG in conjunction with external financial consultants, such as Public Financial Management Incorporated hired by SANDAG to help link projected cash flows through 2048 with the accelerated cash flow requirements of the EAP projects. Public Financial Management Incorporated also provided advice reviewing the bond structure and identifying opportunities to minimize financing costs by locking in low interest rates through hedging agreements.

As a result, SANDAG entered into three interest rate swap agreements that could allow SANDAG to lower interest payments with the goal of holding total program debt service costs at four percent. Because the interest rate payments under swap agreements are pegged to variable London Inter-bank Offer Rates, interest payments may still fluctuate significantly. Although the agreements were executed in 2005 and captured the forward rate to start in 2008 when the bonds were issued, the interest payments made by SANDAG since April 2008 have varied significantly from month-to-month. Currently, the SANDAG Finance Department has designated a team to review weekly the actual payments and compare them with the projected financing costs. However, at the time of our review, insufficient time has elapsed to make any conclusive statements regarding the financing cost trend.

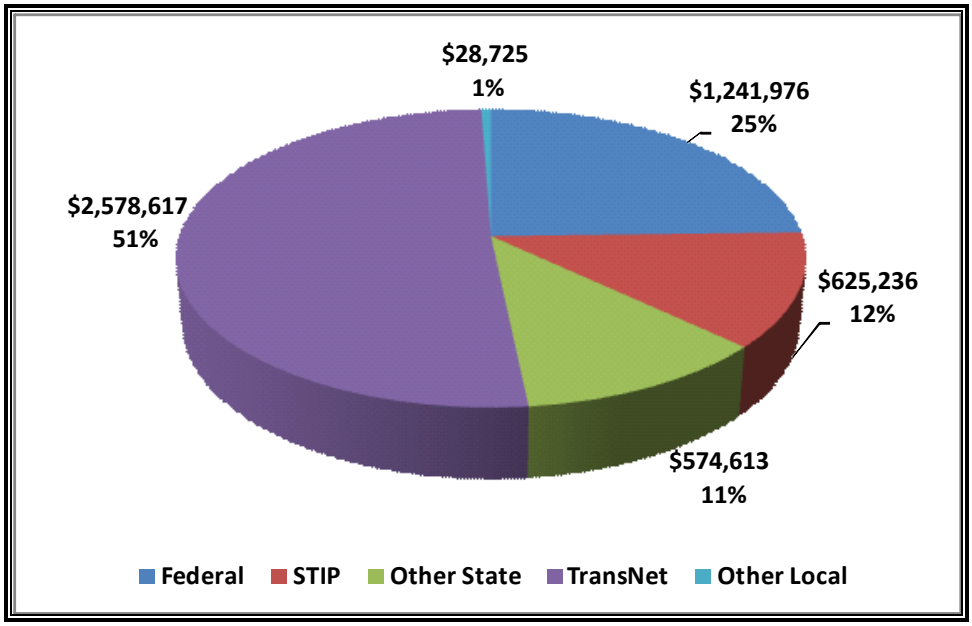
While the recent depressed market conditions necessitated SANDAG to lower its sales tax revenue projections by 4.63 percent in November of 2008, thus, slightly increasing its debt to revenue ratio, SANDAG has employed a similar debt model in the past where commercial paper and bonds were issued against the original Ordinance's local revenues, and has been successfully meeting those obligations and repaying its debt. However, in light of the recent economic downturn, SANDAG must continually monitor and review the debt to revenue ratio as well as total financing costs to ensure it meets short- and long-term obligations. On a go-forward basis, at a minimum, SANDAG should also continue carefully analyzing projected debt service costs and compare planned program financing costs to track any higher than expected bond issuance and debt services costs. Further, SANDAG should determine whether the Plan of Finance strategies should be modified in the long-term, and report to the ITOC and the SANDAG Board on the status of the debt-to-revenue ratio on a regular basis.

Revenue Projections and Assumptions are Reasonable

Critical to the success of the Ordinance, like other long-term, large-scale transportation improvement programs, sound and prudent methodologies for estimating revenues cash flow to cover project costs. Our review found that SANDAG's estimate assumptions and methodologies employed appear reasonable and generally conservative. When developing the financial plan for the TransNet program, SANDAG's Finance Department begins with identifying project finance needs based on project costs developed by SANDAG and Caltrans managers. Because TransNet projects receive allocations from

three major funding sources—state, federal and local sales tax monies—projects undergo the same programming processes that are in place for all SANDAG major corridor construction projects. While Caltrans is responsible for preparing and submitting project cost estimates for the highway projects, SANDAG is responsible for developing project cost estimates for the transit capital projects. Once combined, project budgets are annually programmed into the SANDAG Capital Improvement Program and the Regional Transportation Improvement Plan based on available federal, state and local funding sources. Figure 7 depicts TransNet anticipated revenues by funding source.

Figure 7: EAP Projects Funding, Proposed for Fiscal Years 2009-2010 through 2017-2018



Source: SANDAG's Capital Improvement Program authorized budget, Fiscal Year 2009

According to the Ordinance, 50 percent of all program revenues are anticipated from state, federal, or other funding sources. The funding composition tends to fluctuate, however. For example, through 2008 due to the SANDAG Board's decision to commit the vast majority of available state and federal funds to the TransNet program, such state and federal sources provide 60 percent (approximately 30 percent equally from each) and the related half-cent local sales tax funds comprising less than half, at 40 percent. As shown in Figure 7, future projections reflect that the other funding sources will provide about half—still achieving the forty percent expectations. While the revenue projection and programming methods for these funding streams vary due to slightly different processes employed in the fund appropriation process, we found the underlying assumptions and approaches were reasonable.

- **<u>TransNet Local Sales Tax Revenues</u>**

  Projections are developed based on SANDAG's Demographic and Economic Forecasting Model that has been in existence for several decades. SANDAG Finance Department staff use the model as a predictor of economic and population growth region-wide and trend expected sales and project the amount

of sales tax revenues expected to be generated. Model results are reviewed and evaluated on an ongoing basis by SANDAG Finance Department and the SANDAG Chief Economist. Additionally, SANDAG has an advisory committee that oversees the half-cent sales tax projections consisting of local experts in the area of municipal finance, economics, housing, real estate, and utilities, as well as academic researchers. Since 1980, the sales tax revenue projections-to-actual results have been monitored and reviewed on a quarterly and annual basis, and have been within 8 percent of targets. In the past, to correct for minor discrepancies and improve accuracy and reliability of data, SANDAG made adjustments to the model, and since 2000, resulting in revenue projections generally fall within two or three percent of estimated amounts. Because sales tax revenues have been impacted by the past year's economic conditions, the SANDAG Board lowered its Fiscal Year 2008-2009 projections to reflect an expected 4.63 percent decline for the EAP projects. SANDAG is committed to review the TransNet list of projects on an ongoing basis to consider and re-prioritize funding and potentially "shelve" projects as needed due to lower than expected sales tax revenues. During our review, SANDAG was in the process of revising its long-term projections for the TransNet revenues; however, the results were not yet available for our review.

- **State and Federal Funding**
  These funds are programmed into the TransNet program based on currently committed level of funds incorporated in the SANDAG's short-term and long-term regional transportation planning documents. Generally, the state and federal revenue projections are developed through the project programming plans, such as statewide State Transportation Improvement Program and the Federal Transportation Improvement Plan. While SANDAG is not a direct recipient of these funds, SANDAG's financial managers work closely with Caltrans to incorporate state and federal dollars into the regional and TransNet program. The SANDAG Finance Department develops short-term and long-term projections based on the existing state and federal requirements as well as amounts authorized. For example, SANDAG relies on the statewide "Fund Estimate" released by the California Transportation Commission which outlines state authorized funding sources by county, including the San Diego region. In this programming process for near- and long-term state revenue projections, SANDAG applies a conservative five percent escalation factor. Fund Estimate dollars are matched with the project cash flow needs for the TransNet programs.

- **Federal Grants**
  These sources, including the Federal Transit Administration New Starts Program, Regional Surface Transportation Program, Traffic Congestion Relief Program, and Congestion Mitigation and Air Quality programs, are generally guided at both the state and federal level with SANDAG and Caltrans staff ensuring timely submission of funding requests and grant applications to maximize regional transportation dollars. For instance, New Starts Program funds are formula-based allocations for the region's transit operator capital improvement projects; in San Diego; these funds are primarily used to fund the Mid-Coast and South Bay Bus Rapid Transit

projects. Although Caltrans is the direct recipient of some of these federal grants, SANDAG works closely with Caltrans to incorporate the estimates and programming of these funds into the regional transportation provisions of the federal Safe Accountable, Flexible, Efficient Transportation Equity Act which reflects a steady program growth of two percent on an annual basis.

Program Cost Estimates and Budgets Appear Supported by Underlying Detail

While project cost estimates for the TransNet Ordinance were developed based on project budgets created for the 2003 Regional Transportation Plan, these estimates require annual budget revisions to account for project scope changes and cost inflationary factors. These changes, however, are reviewed and approved by the SANDAG Transportation Committee and the SANDAG Board as part of the annual budget process.

Our audit analyzed TransNet project costs outlined in the Ordinance and compared them to authorized EAP project budgets in the December 2005 Plan of Finance, as well as traced the budget history from Fiscal Year 2005-2006 to Fiscal Year 2008-2009. Generally, we found that project budgets were well defined, and SANDAG and Caltrans had a sound process in place to develop and modify project budgets throughout the project life. Further, budget changes were properly approved and a process was established for proper authorization. Moreover, we found that TransNet program budget documents traced to the underlying supporting documents maintained by SANDAG and Caltrans project managers.

To arrive at cost estimates used in the Plan of Finance project budgets in 2005, SANDAG utilized the Ordinance project costs and applied a price escalation factor based on the Caltrans construction cost index and right-of-way escalation elements. SANDAG and Caltrans project managers worked closely together to review specific budgets for the EAP projects to develop accurate cost estimate with the precision of project estimates varying based upon the stage of the project. For instance:

- Design and construction estimates generally represent well-defined costs that are likely to hold true;
- Feasibility study estimates for projects that are planned, but not yet developed, are generally less accurate than the estimates calculated during the design stage;
- Projects planned several decades in the future often do not have feasibility studies and are estimated by SANDAG and Caltrans engineers using a “rule of thumb” formula and assumptions based on historic data of similar transportation project cost per mile.

Overall, SANDAG and Caltrans generally have sound processes to develop project cost estimates that are currently reflected in the Plan of Finance. Project development methodologies employed at both entities include establishing baseline budgets for each phase, including administration, environmental, design, right-of-way support, right-of-way capital, construction support, and construction capital costs. Cost estimates are generally refined throughout the project development process, and become definite at the construction

contract award stage where project managers monitor cost to keep within a 10 percent contingency. Project environmental and design budgets vary greatly based on the complexity and magnitude of the project. Construction cost estimates are developed based on unit costs, material and labor estimates. Project costs for administration support are determined at an entity-wide level, and costs are allocated to specific projects based on the total management and administration hours each incurs. Generally, project costs are updated at least annually to reflect current market conditions that are tracked through various cost indexes and comparable bids data. Between 2001 and 2006, Caltrans construction cost index increased nearly 60 percent, and TransNet project costs were revised upward to account for the rising price trend. To reflect the anticipated price increases, SANDAG applied various price escalation factors to project costs program-wide, which appears consistent with the project budget and financial planning processes used by other transportation entities.

To better understand the nature of project budget changes from the time of the Ordinance to most recent years, we attempted to trace project cost for all EAP projects from Fiscal Year 2003-2004 to Fiscal Year 2008-2009. Even though the project dollar amounts outlined in the Ordinance varied from year to year, demonstrating steady increases in project budgets, our review found that, generally, budget changes were well documented and supported by project files maintained by project managers or through board documents. For the most part, the budget changes were explained by inflation, authorized project scope changes, and other modifications. While Caltrans and SANDAG maintained records of budget approval authorizations in project files, SANDAG and Caltrans should establish a better mechanism to link and track the Ordinance planned projects amounts with current plans and budgets for all TransNet projects as described in greater detail later in this chapter.

Anticipated Revenues are Matched Against Project Costs

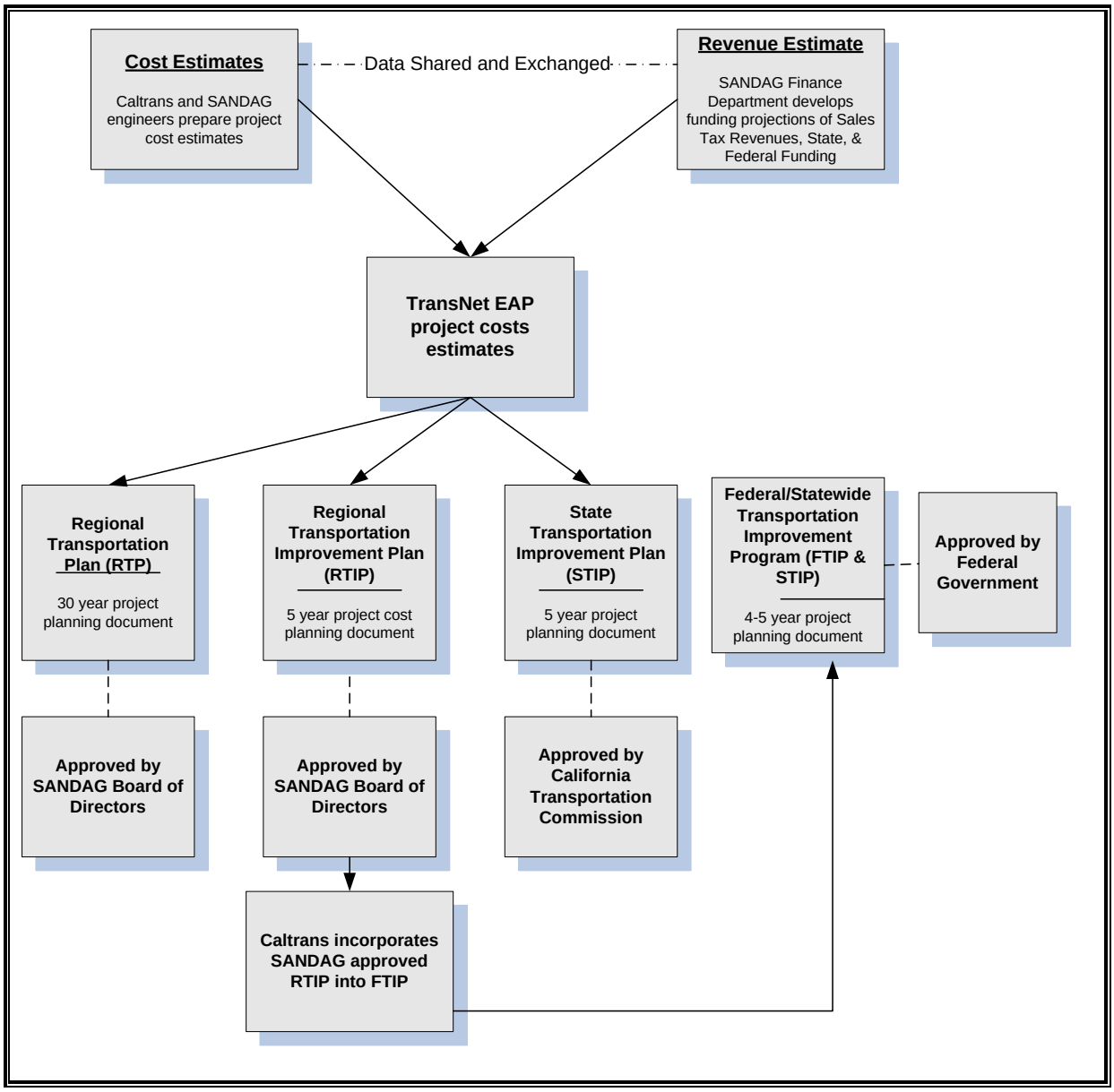
SANDAG short- and long-range transportation planning documents, as required by statute, reflect project authorized budgets based on the anticipated revenues matched with project cost estimates. Although part of the financial planning process involves generating overall program budget estimates, every project is reviewed and evaluated for funding priority on an annual basis, as required by state and federal regulations. Moreover, project annual budgets as mandated to be consistent with the Regional Transportation Plan and Regional Transportation Improvement Program. Revisions to revenues from state, federal and local funds occasionally occur due to a shortfall of authorized resources which necessitates additional revisions and reprioritization of projects. Additionally, cost overruns and scope changes also inevitably occur in the transportation industry with the susceptibility of project costs to the volatility of economic markets that often result in scope changes when funds are reduced. For instance, the rise in the construction prices in the early 2000's set a new precedent in SANDAG's planning approach where an unusually high inflationary factor had to be considered for the short-term cost projections to reflect unexpected market changes.

As revenues are realized on an annual basis, project budgets need to be revised to account for discrepancies between updated revenue projections and costs. Towards this end, SANDAG has an established process to make mid-point budget adjustments to match anticipated revenues with project costs allowing project stakeholders and SANDAG Finance Department staff to reassess available cash flow and determine project-specific plans of action. As a

result of the cash flow review, projects are reprioritized and those with lower priority are occasionally shelved based on the project's stage or percent of completion unless additional funds can be made available.

In addition to annual budget drills to fund project costs with forecasted revenues, SANDAG staff develops short- and long-range planning documents for Board approval as shown in Figure 8. Based on available funding to meet estimated costs, projects are prioritized by the SANDAG Board according to the Regional Transportation Plan's criteria established under its authority as the Regional Transportation Commission. In 2006, criteria for evaluating highway, transit, freeway connectors, and high occupancy vehicle connector projects was updated and strengthened by a working group comprised of representatives from SANDAG, Caltrans, MTS, NCTD, bicycle-pedestrian groups, and housing experts.

Figure 8: Transportation Programming Plans and Approval Process



Projects are assigned points based on technical models considering such elements as congestion relief, crash statistics, habitat and residential impacts, transit integration, and travel time savings as well as qualitative factors assigned percentages for serving goods movement and being compatible with smart growth. Projects are also prioritized based on regional goals to serve travel needs, develop network integration, and be cost-effective. In setting regional transportation priorities, SANDAG also reviews individual projects in light of the entire regional system elements of mobility and travel time, reliability and accidents, accessibility from home and work, and environmental sustainability. These priority methods were deemed reasonable and sound by a State Legislative Analyst's Office review conducted in 2006.

While the SANDAG Board initially matches prioritized project costs with available revenue based on a quantitative evaluation and ranking system through these short- and long-term planning efforts, a project with a lower ranking may take precedence if the project is more in line with the long-term regional transportation goals, considered "shovel ready", or has non-local funding sources available for use. Moreover, despite the Ordinance prescribing certain projects as priority, the Ordinance also authorizes the SANDAG Board to "amend the programming of projects as necessary" following the Regional Transportation Improvement Program amendment procedures. Thus, SANDAG Board can add, remove, or modify projects listed in the Ordinance to accommodate the region's transportation needs.

Financing Uncertainty and Volatility Generate Challenges for SANDAG as Current Plans Show Future Funding Shortfalls

As a result of current economic conditions, projections for available sales tax revenues have been reduced; this situation is just one example of the volatility of transportation financing that the TransNet program could face over its 40-year lifecycle. Compounding news of the recession is the State of California's budget crisis and discussions of cancelling more than $5 billion worth of infrastructure projects statewide unless there is a comprehensive budget solution. Yet, at the same time, speculation of a federal economic stimulus package brings promises of the largest public works construction program since the creation of the interstate highway system a half-century ago. With so much uncertainty and funding decisions entirely outside of SANDAG's control, one of its biggest challenges for the TransNet program remains securing the necessary funds to cover projected long-term shortfalls of more than $2.8 billion by the year 2026.

However, it is important to note that SANDAG's short- and long-range plans are generally based on conservative projections of revenues and include only those state and federal programs that were available at the time the long-range plans were developed, thus assuming no additional sources or programs would become available. Throughout the years, SANDAG has experienced both the inflow of additional funds from statewide Proposition 1B monies, as well as shortfalls due to statewide budget cuts. Thus, maintaining a budgeting and financing structure that allows for flexibility while ensuring accountability is an important element in a successful transportation planning organization. Clearly, market volatility dictates caution and continuous review and update of the revenue estimates used in the

development of the TransNet program's financial model as well as diligence in tracking fiscal conditions and making timely decisions as situations warrant.

While the changing financial environment is complex and difficult to manage, the SANDAG Board made conscious decisions to deliver the EAP projects within the first quarter of the Ordinance lifecycle rather than stringing the projects out over the full 40 years. The existing Plan of Finance was based on assumptions representing key policy decisions of the SANDAG Board to dedicate significant amounts of future funding presumed available for the entire TransNet program for the completion of just the EAP projects. Specifically, the Plan of Finance identifies the following key assumptions:

- Nearly all of TransNet major corridor project funding is dedicated to completing EAP projects;
- 94 percent of the state and federal funding will be dedicated to the TransNet program as matching funds. While this is a departure from past historic practice whereby similar major highway and transit projects received approximately 77 percent of state and federal matching funds, additional funding from local Proposition 42 monies were available to fund street and roadway improvements making other monies available for direction to major highway and transit projects.

Subscribing to an informal philosophy of using federal and state monies before drawing on local funding pools as well as the approach of "not leaving any money on the table," SANDAG is able to utilize local resources to leverage other funding sources. Occasionally, state and federal authorities adjust the annual authorized program amount based on overall statewide and federal priorities. Thus, SANDAG is often required to review and revise funding plans for individual projects and the entire TransNet program. As certain federal and state grants become available only for projects that are ready to advertise, SANDAG and Caltrans have an incentive to remain flexible in managing projects and shift priorities as necessary to meet the external funding requirements and secure such funds. Instilling in its project managers a "use it or lose it" motto has encouraged all partners to utilize available funds as soon as money becomes available—thus promulgating a more speedy project delivery and timely funding application process.

For instance, SANDAG ensured projects were "ready to go" when the California Transportation Commission (CTC) allocated nearly seven percent, or $490 million, of total funding available from statewide Proposition 1B monies to SANDAG capital construction projects. Additionally, SANDAG projects were often ranked highest compared to other transportation entities statewide as determined by the CTC in the Corridor Mobility Improvement Account revenues allocation process. Specifically, only four statewide projects received the highest score of 14, with three of these projects designated as SANDAG projects. While the projects were evaluated based on delivery times and value, SANDAG's high performance rating in 2007 allowed it to secure nearly $430 million in funding. While many funding sources contain legal and grant-related restrictions or provisions, SANDAG's ability to manage and oversee the spending to ensure compliance with various statutory requirements continues to be an important aspect of managing the TransNet program.

Moreover, faced with uncontrollable impacts on capital construction projects from the current economic recession and lower than expected sales tax revenues that could ultimately delay the delivery of both EAP projects and non-EAP projects, SANDAG appears to have taken reasonable actions over the last three years to secure funding, control projects, and oversee the TransNet program. Much uncertainty still exists with the TransNet program in preliminary stages. With current SANDAG projections calling for TransNet project costs to reach amounts greater than $41 billion, the key is to continually focus on bringing in new and steady financing—as SANDAG seems to have been successful in doing up to this point of the program.

Projects are Continually Reassessed and Reprioritized based on Available Funding, but Decisions are Vetted and Approved through SANDAG Board

Because the availability and estimates of funding is critical to the success of the TransNet program, SANDAG continuously monitors financial risks, updates cost estimates and revenue projections, reviews project status, and communicates with those charged with governance. Available funding and project status can change significantly over the course of a year, thus, SANDAG and Caltrans meet frequently to reconsider the budget and schedule of major corridor highway and transit projects. As the designated Regional Transportation Commission, the SANDAG Board possesses the requisite authority to adjust TransNet project budgets and reprioritize them to maximize benefit for the transportation system of the entire region as referenced in the Ordinance. Other transportation entities have taken similar approach to the regional planning requiring the use of local funds to support transportation objectives of the entire region. For instance, Orange County and Riverside County jointly financed the expansion of a SR-91 project that impacted commuters traveling between the two counties for employment. Similarly, El Dorado County committed its local funds to a SR-50 High Occupancy Vehicle lanes project within Sacramento County boundaries to improve travel times for its residents traveling on SR-50 into Sacramento County for employment purposes.

While SANDAG and its Caltrans partner have employed sound models of estimation that appear reasonable, variances naturally occur requiring a review of status and priorities on an as needed basis or, at a minimum, during the annual budget cycle. Because actual costs or revenues that miss estimated targets have cascading effects on other projects, detailed cost and project activity data is discussed with the ITOC and SANDAG Transportation Committee on a monthly basis as well with the SANDAG Board on a quarterly basis. When funding is scarce or lower than projections, SANDAG staff provides the governing and oversight bodies with a range of alternatives and impacts of each option based on factors such as project priority as outlined in the Ordinance, readiness to enter construction, status in terms of addressing regional transportation goals, and ranking based on quantitative and qualitative scoring criteria used as part of the regional transportation planning process. Thoughtful questions are asked, data is vetted, and projects are reprioritized based on the Board's deliberative and transparent process.

For instance, the SR-52 project has undergone various reprioritization discussions vetted through the established processes. In Fiscal Year 2008-2009, the Corridor Director requested

additional resources due to cost overruns on the SR-52 Extension project as a result of escalating construction pricing. Although the members of the Transportation Committee required additional information about the underlying reasons for the request, Caltrans offered different alternatives for consideration. Both the Transportation Committee and Board decided to shift project priority from the SR-52 managed lanes project to the SR-125 to SR-67 Extension to maintain momentum on the project. Although the decision required that the environmental phase of the SR-52 High Occupancy Vehicle Managed Lanes project be postponed until additional funding became available, the process of evaluating project alternatives in light of potential scope and schedule options appears sound and demonstrates effective disclosure, deliberation, and decision-making allowing for consensus of critical funding issues at the highest level when necessary.

Due to the state budget deficit crisis, SANDAG and Caltrans have had to reassess and reprioritize many of the TransNet projects on a more frequent basis, as the crisis poses a significant risk to ongoing transportation projects including several major EAP projects that are funded using statewide Proposition 1B funds. While SANDAG does not expect the funds to be permanently eliminated, the State's current inability to issue bonds to fund statewide transportation projects is creating a cash flow shortage affecting the progress of EAP projects. Specifically, SANDAG identified approximately $177 million of projects ready to start and $557 million in projects currently under construction that may be at risk of delay or suspension. For instance, discussions are underway that could see EAP projects on the SR-52 and I-15 corridors worth more than $435 million, absorbing some of the impact by being placed on hold and possibly pushing completion schedules out several years. With the state funding not yet authorized for Fiscal Year 2009-2010, Caltrans' potential inability to proceed with several of the TransNet projects could ultimately result in a domino effect wherein one project delays subsequent work as well as increased costs related to the suspension of projects. According to SANDAG and the Caltrans TransNet Project Office, staff is tracking the delay of programmed funds and finding alternative solutions to backfill for the Proposition 1B funds such as monies from the proposed federal stimulus package.

Given the recent economic volatility and concerns amid growing variances between the estimated and actual revenues and expenditures over the last few years, more frequent focus has been directed at the list of TransNet projects to re-prioritize funding and potentially "shelve" projects. Currently, the SANDAG Board is reevaluating the potential risk that some of the projects outlined in the Ordinance may not be completed at all due to a lack of funds. Specifically, at a November 2008 board meeting, SANDAG executives and its Board discussed the possibility of reviewing the list of currently authorized TransNet projects and identifying those that may be removed. However, the SANDAG executive team cautioned such action as the budget shortfall could be short-term and may be overcome through increased future cash flows.

With the TransNet program mandated to be in place 40 years, SANDAG's current wait-and-see approach before formally eliminating non-EAP projects also envisioned in the Ordinance seems appropriate as the financial turmoil from the past few years may not yet provide enough evidence to revise such long-term plans or the overall approach to financing projects. A meeting is anticipated in early 2009 between TransNet program management and the governance team to revisit and reassess project delivery priorities once again. In the

meantime, SANDAG continues to monitor its projections, actual receipts, and models to adjust as appropriate and afford the best information and data available for decision-making.

While Certain Projects may be Shelved in the Future, Other Projects Have Been Blended into the TransNet Program

Although certain TransNet projects originally anticipated for completion may ultimately be cancelled at some future point, it should also be acknowledged that more projects than originally envisioned have been provided or are in the final stages of completion using TransNet-backed funding. For instance, both the SPRINTER Rail System and I-15 Middle Segment Managed Lanes were added through SANDAG Board action that expanded upon the Ordinance's vision.

According to SANDAG and Caltrans, options for including additional projects or phases into the TransNet program originate from discussions among individual project teams, Corridor Directors, and SANDAG's Finance Department. Factors considered include priority status identified by the Ordinance, whether projects are "shovel ready," project ranking from the Regional Transportation Plan modeling process, availability or allowable use of state or federal funding sources, and impact to other currently programmed projects. For example, a weekly project team could raise an issue that one project in the final stages of completion might be in jeopardy because it needs local matching dollars to leverage greater amounts of state or federal funding to finish the project. After meeting with SANDAG Finance Department and SANDAG executive management to deliberate the impact of the project on the region's transportation system, a recommendation could be crafted to use available TransNet monies on the project as well as other options if TransNet monies are not provided.

For instance, the I-15 Middle Segment Managed Lane project was initiated through this process. Although not designated as a TransNet project, the I-15 Middle Segment was halfway through construction in 2005 when project scope and higher-than-expected construction bids compelled Caltrans to seek additional funding sources to complete the project as planned. In Fiscal Year 2008-2009, SANDAG Board approved an additional $5 million of TransNet sales tax revenues for the project, thus allowing completion of the project in September 2008 when the I-15 Middle segment was open for public use. While these projects only received a small portion of TransNet funding when compared to the entire project budget, their related accomplishments are encompassed under the Ordinance umbrella.

Decisions to allocate TransNet monies to these projects underwent significant discussion and data review by SANDAG and Caltrans staff, the ITOC, Transportation Committee, and the Board. SANDAG's project prioritization criteria are generally stated and reviewed in the Regional Transportation Plan and Regional Transportation Improvement Program. Because all of the projects described in this report are included and authorized in these regional plans, it appears that the prioritization process was followed. Thus, the projects added to the EAP program between 2006 and 2008 clearly benefited from the funding available from local sales tax money, which helped accelerate these projects and enhanced the regional transportation system—the explicit intent of Proposition A ballot language passed by the San Diego voters in 2005, and the TransNet Extension Ordinance.

Creation of Budget History Documents to Track Project Movement Would Provide Strengthened Accountability

With continued reprioritization of projects based on available funding, there is frequent and significant movement occurring with some projects being temporarily shelved while others are accelerated based on annual budget discussions or meetings with governance bodies. Also, as project scopes are more refined in more detailed design plans or project costs increase more than expected, levels of funding are shifted among projects or within phases. We found that these constant shifts can be difficult to follow and track, although SANDAG has not implemented some type of institutionalized method for tracking the budget history and funding evolution for the EAP projects. Specifically, the complexity of project funding, prioritization, and scoping change between project budgets and original cost estimates presented a challenge to our audit.

While SANDAG and Caltrans project managers met our requests with a tremendous sense of cooperation and willingness to assist us in our tasks, we believe that SANDAG and Caltrans would benefit from creating protocols to better track and document all changes to project budget, scope, and schedule. Data regarding project reprioritization, cost estimate changes, and funding reallocations are shared and approved by governance bodies as necessary which is an important step in the process. However, SANDAG does not maintain a history of changes made against original Ordinance estimates. Best practices dictate that year-to-year project budget changes should be tracked, and the documents supporting reasons for the change and the proper authorization should be easy to access to assist in future decision-making purposes. Thus, we believe budget history documents would allow SANDAG to better explain and justify to the public how project promises from the 2004 Ordinance were amended to result in actual projects delivered. Accountability could be further strengthened by analyzing the changes to identify whether they were based on need, priority, or bad decisions. Moreover, the data could be used to help the ITOC oversee and understand the cumulative impact of their recommendations related to TransNet funding as well as statistics showing how the local sales tax revenue is leveraged and maximized to address regional transportation needs.

Although it appears that the SANDAG Board authorized scope and budget modifications and project files contained disparate evidence surrounding project changes, SANDAG and Caltrans generally did not have a centralized tracking to memorialize project evolution. When we endeavored to compare the original budgets approved in the Ordinance with the project budgets data authorized by the Board for Fiscal Year 2008-2009, generally, we found significant variation on all EAP projects. Our detailed review of project files revealed that all budget changes were appropriately reviewed and authorized, although the link between the project budgets in the Ordinance and current project budgets could not be easily established without going through the specific project detail. For example, one of the challenges was to determine how a project defined in the Ordinance evolved into several project components over the years. Moreover, due to the project reprioritization process that takes place annually, certain TransNet projects budgeted in previous years were not always included in the most recent SANDAG budget. These inconsistencies seem inherent to the existing planning approach where the funding and project scope may change year-to-year based on competing funding priorities and regional transportation needs. Thus, reasons for omissions

could include situations where projects with similar scope were combined under one project as well as where projects were placed on hold pending further development of environmental or concept design plans. For instance:

- ✓ ***I-15 Bus Rapid Transit Direct Access Ramps:***
  Although we found records tracking back to Fiscal Year 2002-2003 Plan of Finance documents showing project scope and budget for the I-15 Bus Rapid Transit project to add direct access ramps at Hale and Hillary Streets, the project was omitted from the SANDAG's Fiscal Year 2008-2009 approved Capital Improvement Program. Upon further research, we found that the project was re-scoped and re-prioritized, whereby the Hillary Street direct access ramp was folded into the I-15 South Managed Lanes segment and the Hale Street direct access ramp was merged into the North Managed Lanes segment.

- ✓ ***SR-52 Middle Lane from I-15 to SR-125:***
  In another example, we found that the SR-52 Middle Lane from I-15 to SR-125 project was identified as one of the EAP projects and had incurred costs, but was not currently included in SANDAG's Fiscal Year 2008-2009 program budget. According to the TransNet Project Office Manager, the project was placed on hold due to a reallocation of funds between SR-52 Managed Lanes and the SR-52 Extension Project. Based on project team discussion, the initial SR-52 Middle Lane project currently held a lower priority compared to other sub-projects on the same corridor and also had experienced cost overruns related to cost increases in design modifications.

- ✓ ***I-805 Corridor:***
  While only an I-805 Middle Managed Lanes Environmental Phase project was identified to be completed as part of the Early Action Program, the budget priority was reassigned to the I-805 South Managed Lanes Environmental project instead as that project is moving forward with design and construction. Moreover, because of the availability of additional state bond monies, funds were budgeted for another project—the I-805 High Occupancy Vehicle/Carroll Canyon Direct Access Ramp—currently scheduled for completion by June 2012.

Thus, due to the complexity of project budget development and funding re-prioritization process, it is often difficult to track the various project scope and budget changes. Also, as previously mentioned, TransNet projects could likely face continued challenges such as increasing construction materials costs, evolving project scope, and growing contingencies that alter budgets and scope. From a project design point of view, it is important to understand that projects identified in the TransNet program may likely continue to experience changes in scope and cost due to various circumstances such as changing priorities, escalating costs, and changing market conditions. However, the general public, as well as future decision-makers, may not be aware of all these issues or the history behind changes and, thus, not fully understand their effects on the bottom-line budget and schedule. While changes and modifications are Board approved and follow an open, transparent process, our view is that a project by project budget history should be maintained to represent all significant changes over the life of the TransNet program. Table 2 provides one possible

example of a budget history document that could be developed to track key project changes throughout a project's lifecycle.

Table 2: Example of Proposed Format of a Project Budget History Document Summarizing Major Project Changes

Project Name	**Project Description**: Brief summary of project (e.g. transit, highway, location, completion date)				
Key Project Changes	**2005**	**2006**	**2007**	**2008**	**Current**
2005 Ordinance Amount	**$$$**				
Market Adjustments -Cost Escalation/Inflation/Deflation -Additional Changes & Description: -Project-Wide -Environmental -Design -Right-of-Way -Construction -Other					
Scope Change Impacts -Scope Reductions -Additional/Expanded EIS/EIR -Realignment Work -New Lanes -Stakeholder Design Changes					
Major Project Redefinitions -Project/Segment/Phase Merger -Project/Segment/Phase Split					
Schedule Change Impacts -Rework Needed -Accelerated Opening -Suspension Items					
Other Adjustments					
Current Authorized Project Budget					**$$$**

Note: Category/details can be added or modified to address particular nuances of project.

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Chapter 4: Project Management and Delivery Methods are Sound; However, Some Practices Could be Enhanced

Over the last three years, SANDAG and Caltrans have been following established project management practices and sound project delivery techniques and methods for planning, implementing, and monitoring the EAP projects. Generally, we found that the management structure employed was sufficient to ensure:

- Roles and responsibilities were established;
- Milestones, budget and timelines were well defined and communicated;
- Key project action items and project decisions were memorialized in project files; and
- Project status was tracked weekly, and budget and schedule changes were communicated to executive management on a monthly and quarterly basis.

Compared to other public works and transportation programs and entities, the TransNet program appears to have similar or better project management practices in place over project documentation, monitoring and oversight, conflict resolution protocols, and on-going formal and informal feedback from project team members to senior and executive level management. These aspects all help expedite problem-solving and provide opportunity for discussion and buy-in on project direction from staff at all levels. Other sound project controls are in place to ensure cost estimates are reasonable, expenditures are contained, schedules are adhered to, and quality of work is appropriate.

Nonetheless, we identified a few areas where SANDAG should strengthen its practices as well as tighten project documentation. For instance, while budget changes appeared reasonable, project files did not always maintain consistent documentation to support cost items as key data was not always centrally located or maintained and took some time to gather. Additionally, several policies and practices should be memorialized in a more formal project delivery manual to guide project managers and staff involved in the day-to-day project. Although we found SANDAG and Caltrans' exercised sound project delivery practices, the TransNet program could be enhanced by consistently completing project evaluation forms and documenting lessons learned. In addition, there are several control features and practice tools to be gleaned from the NCTD's SPRINTER Rail project that should be considered on future SANDAG transit projects—as well as for highway construction projects and the TransNet program overall.

Because the TransNet is in its infancy, many of the EAP projects were in preliminary scoping or early design stages. Thus, not enough time has passed or efforts undertaken for us to draw conclusions on project performance. For activity we did review, the EAP projects in general appear to be on schedule and within authorized budgets although we noted several instances of project cost overruns and schedule delays within certain phases. Budget or schedule revisions were substantiated or documented, and we found that SANDAG and Caltrans operated sufficient processes to track, monitor, and address budget and cost changes on the projects we reviewed. However, we cannot determine the impact of these cost and time changes on the overall program outcome until TransNet projects are closer to completion.

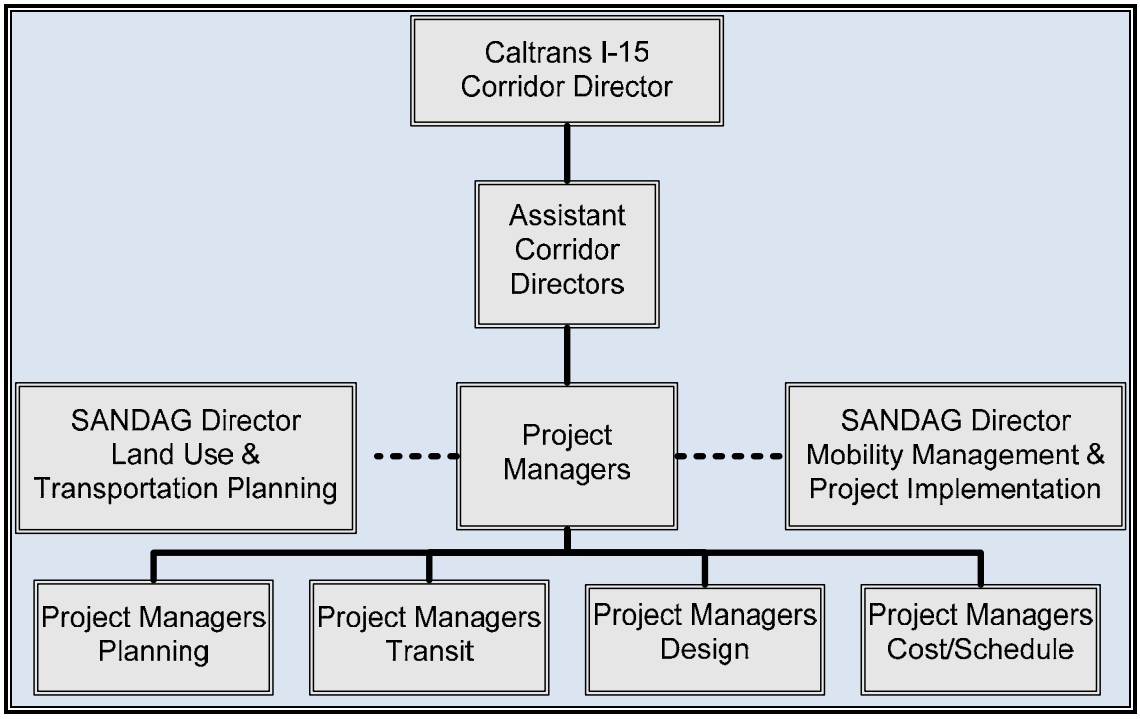
For instance, our review revealed that both SANDAG and Caltrans project managers, resident engineers, and task managers all closely monitor task orders and related amendments as well as contracts and resulting change orders. Although the project team could improve documentation of reasons for time extensions on task order amendments, task order amendments and change orders were generally well documented. Additionally, construction change order amounts were monitored against a 10 percent benchmark to ensure that the changes did not exceed the stated contract amount. These project and contract monitoring techniques appeared consistent with industry best practices and existing procedures noted at other peer entities.

Current Project Structure Seems to Work Well

While most of the current TransNet EAP projects are jointly conducted by Caltrans and SANDAG, Caltrans is primarily responsible for highway construction projects and SANDAG plans, develops, and monitors transit improvement projects. We found that over the last three years a coordinated project level structure exists between the two organizations that appears well managed. Specifically, the TransNet program has to date on EAP projects enjoyed a strong project management and delivery structure as shown in Figure 9 that works well and has been followed diligently. Key project managers' and Corridor Directors' roles and responsibilities are defined to ensure sufficient review and monitoring of project costs, quality management, scope changes, resource management, risk planning, and financial management. Interviews with both entities reveal that the structure allows for frequent communication, detailed tracking of work-in-progress, continuous flow of information, and feedback and support from all team members across agencies. Moreover, we found that:

- Throughout project phases, Corridor Directors and their project managers work on multidisciplinary teams to consider various aspects of each project—members of any particular project could include Caltrans staff, SANDAG staff, external consultants, stakeholders, and representatives from the MTS or NCTD, and city or county staff.
- While each corridor can contain multiple segments and each segment may contain multiple projects, each project has its own series of project managers with defined responsibilities over schedule and budget, design, and construction—all of whom meet on a weekly basis to resolve any project issues. Others on the project team attend as well including consultants, advisors, and invited stakeholders. Any deviations from the budget or schedule are discussed in the team environment during various meetings, one of which is the monthly Project Development Team meeting.
- To ensure the communication channels remain open and all stakeholders have a chance to discuss concerns and issues on a regular basis, each transit-related project team meets with transit operators NCTD and MTS, at a regional Project Development Team meeting. In addition to these meetings, the division also has a monthly half-day meeting on projects that are in construction.

Figure 9: Current Project Management Structure Example



* Project structure below the Corridor Director level can change and evolve to fit individual project needs.

- Corridor Director and project managers hold weekly "progress meetings" with all team members and consultants where schedules, deliverables, technical issues, and action items are discussed. Every few weeks, the team also conducts risk-based discussions where each project is reviewed from a more broad perspective and factors that impact the overall delivery are considered in "what-if" scenarios. These meetings are memorialized with meeting minutes that are prepared by the consultant, reviewed by project managers, and approved by the Corridor Director.

Enhancing this structure are two additional SANDAG executives involved in the planning, development, management, and implementation of the transit projects. These two directors oversee functional areas at SANDAG—namely, the Land Use and Transportation Planning Department and the Mobility Management and Project Implementation Department—and provide guidance, supervision, and general coaching to the TransNet project managers. However, the project managers report to, and are overseen by, a specified Corridor Director who is directly accountable for schedules, budgets, and scope of assigned corridors and projects.

Effective Project Management Tools are Employed

Currently, both SANDAG and Caltrans are exercising several tools allowing for effective project management over resource planning, cost estimation and budgeting, cost and progress monitoring, scheduling, and reporting areas. Although both entities use separate automated systems such as Primavera and Microsoft Project for developing project schedules and

milestones, these systems are merged together through a middleware tool that feeds into the Dashboard system. Project accounting data from both SANDAG and Caltrans, including authorized budgets and actual expenditures also are input into the Dashboard. The Dashboard displays critical project milestones, including budgets, expenditures, schedules, and progress, for each individual project as well as for the overall TransNet program. The system serves as a project monitoring tool internally as well as externally, for the general public.

Additionally, our review found strong project management and documentation throughout a highway project's life cycle. At both SANDAG and Caltrans one or more project managers are responsible for all aspects of project planning, including budget projections by phase, schedule development, decisions to outsource work or conduct work in-house. Project documentation generally memorialized significant decisions and illustrated various types of monitoring tools and spreadsheets in addition to the automated Primavera and Microsoft Project scheduling tools. Moreover, financial records are also used to manage projects. For instance, for our sample of projects, SANDAG and Caltrans project manager regularly reviewed, maintained, and used the following project documentation to manage projects and tasks:

- Environmental documents, design plans, and status;
- Results of project coordination meetings with stakeholders and communications with external parties involved;
- Proposed transit operating plans and ridership counts;
- Detailed schedules and budgets for work orders and amendments;
- Transit financing requests and financial grant applications;
- Cost estimates and projections at various project phases;
- Construction status, bid, award reports, and construction progress payments;
- Contracts and task orders including amendments and change orders;
- Data from SANDAG's cost management system used to track contract working days, quantities of items used, and change orders;
- Payment vouchers for contractors and invoices for consultants prior to authorization;
- Responses to contractor or vendor questions related to billing discrepancies;
- Evidence of verification of labor surcharges and equipment rates, tentative agreements, and time and material for daily extra work reports submitted by contractors;
- Internal resource staffing assignments for each project; and
- Detailed spreadsheets tracking historic revenue sources, budgets and actual costs by phase, and burn rate calculations.

As a result, day-to-day project activities appear well-managed and monitored, with project decisions and action plans readily available to the project team, Corridor Directors, and

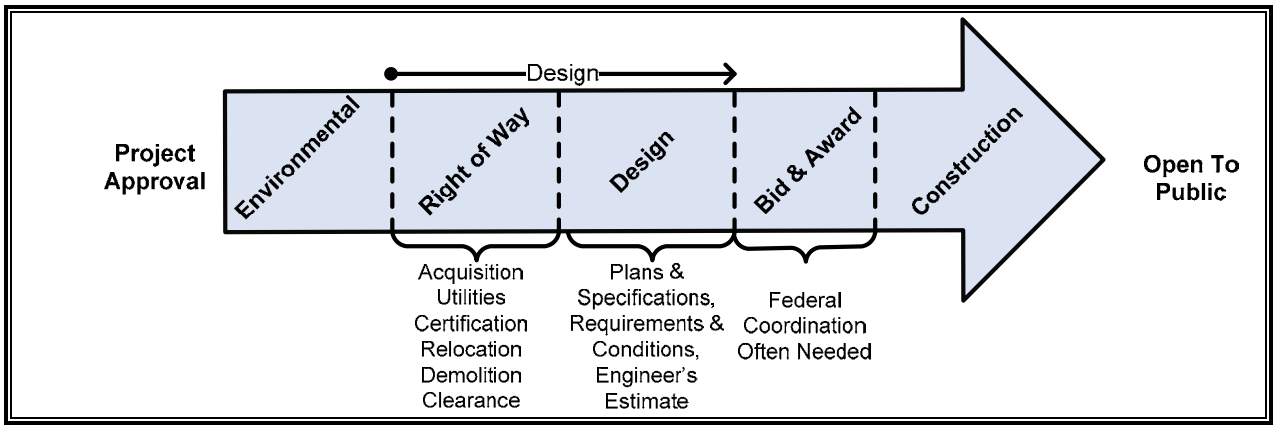
public through vehicles including formal quarterly reports, various governance and oversight committees' public meeting minutes, project development team meeting minutes, informal daily and weekly discussions, and Dashboard data. For instance, project meetings and decisions are documented with action items to enhance institutional memory and transparency. Although well managed overall, some historic project data, such as documentation of critical changes to project budgets and schedules as discussed in Chapter 3 of this report, were not easily located in project files.

Project Delivery Methods and Schedules Appear Reasonable

Guided by extensive project management and oversight techniques employed by project managers as well as several Caltrans project manuals, TransNet projects undergo sound and consistent delivery methods intended to track progress against scheduled milestones and ensure appropriate tasks are completed at each phase—with some slight deviations to fit specific project circumstances and individual project manager style. Project managers as well as Corridor Directors continually reiterated to us that delivering projects on budget and on schedule throughout the various project phases is one of the key project objectives jointly identified by SANDAG and Caltrans.

While each project phase as shown in Figure 10 may require different techniques and skills, our audit revealed that, generally, both SANDAG and Caltrans employed similar processes to develop and manage both transit and highway construction projects. Project delivery phases are as follows:

Figure 10: Typical Project Delivery Phases



In general, both entities consider and track work in six different phases—environmental, design, right-of-way support, right-of-way capital, construction support including the bid and award process, and construction capital. Additionally, Caltrans seems to monitor its development and construction projects against eight critical milestones as shown below:

1. Project Analysis and Environmental Document
2. Projects Plans, Specifications, Estimates
3. Office Engineer Verification of Complete Plans, Specifications, Estimates

4. Right-of-Way Certification
5. Ready to List for Bid
6. Construction Advertising
7. Contract Award
8. Contract Acceptance

For highway construction projects, these key milestones are tracked on a monthly, if not more frequent, basis. Specifically, the Caltrans District 11 Director has a performance contract with the Caltrans' Executive Director to meet estimated schedules and targets for delivery. Justifications for any variances must be documented, and the District Director's performance evaluation is directly tied to district performance. To ensure all key dates are considered and interim project delivery milestones are closely monitored, the Caltrans District 11 Director identified additional delivery targets in the environmental stage and design stage to be tracked by Corridor Directors. These supplemental dates include:

- Begin Environmental Document
- Circulate Environmental Document
- Presidential Permit Approval
- Encroachment Permit Approval

Moreover, in each project phase, it appears that appropriate tasks take place. For instance, project development team meetings held early in the environmental stages include all project stakeholders such as the MTS, NCTD, cities, and County whenever appropriate or whenever the project crosses multiple municipal boundaries. Often, environmental studies are performed by an external consultant hired by either SANDAG or Caltrans. Highway regulations mandate that a Final Report study including the environmental study and the value analysis are performed on all projects receiving over $25 million in federal funds. All TransNet highway construction projects receive some level of federal funding and thus, according to Caltrans executives, all projects are built to meet federal specifications for the environmental and design requirements. Work is managed by task order, consultants are held accountable to a task, and costs are only reimbursed based on work performed and invoiced. A designated project manager is responsible for monitoring consulting work and authorizing consultants' reimbursements for the work performed.

In the design and environmental stages, SANDAG and Caltrans have an option to outsource the work or perform engineering designs in-house. Both entities have sophisticated resource allocation planning processes to match the available resources with the project needs. For instance, SANDAG utilizes an Overall Work Plan detailing projected resources allocated to each project task at a high level, while Caltrans establishes and monitors its Resource Plan detailing project budget and staff resources available. A designated project manager is responsible to ensure that the decision to outsource work is thoroughly evaluated, reviewed and approved. Further, the decision to outsource is generally due to lack of available in-house resources to complete the job and meet the planned schedule. While the project

manager is charged with monitoring work, both SANDAG and Caltrans have policies and procedures to monitor engineering and design work performed by external consultants.

Additionally, in the design stage, project managers facilitate and monitor those project activities performed by other transportation partners—such as permit issuance—that are incorporated into overall project schedules. For instance, SANDAG and Caltrans often must coordinate with local cities to review project design plans for compliance with city codes and regulations and to issue necessary permits. Because the review and permit process can take longer than expected to meet city requirements, the project manager's role is to minimize any potential delays. Each city has unique administrative codes and permit requirements, resulting in unique review processes dependent upon individual project specifics and location. According to SANDAG senior management, SANDAG is currently working with city officials to identify better protocols to maximize the benefit of the city plan reviews and minimize time needed to secure permits.

In all transportation and transit programs, timing of right-of-way acquisition can be a tricky venture—buy land too soon, and one could end up managing the property; buy land too late and project delivery may experience added costs and possible delays from contested acquisitions. For the EAP projects we reviewed, Corridor Directors informed us that only limited amounts of right-of-way land will be needed since many of the projects relate to improvements and expansions of existing corridors. However, for the parcels identified by SANDAG or Caltrans to be purchased, each entity must follow rigorous and standard federal requirements.

Once a typical project enters the construction phase, costs are more defined and plans more concrete. Construction contracts are awarded through a competitive bid and award process that spanned a four to eight month time frame—between the engineer's estimate that forms the basis of bid requests, and the receipt and opening of the bids—for the 21 contracts entered into thus far for EAP projects. The competitive procurement process for Caltrans construction contracts takes slightly more time than at SANDAG, since once completed, plans and specifications at the District also have to be reviewed by Caltrans Headquarters, which is also responsible for advertising the bids and awarding the contract. Since this additional layer does not exist at SANDAG, the bids, depending on the size and complexity of the project, contracts are awarded within about six months. Best practices and controls are in place to ensure competitive processes seek the best bid price, and contractor performance is monitored on a daily basis by resident engineers in the field.

Project Evaluation Forms should be more Consistently Employed and Used during Various Project Phases

Several strong practices are in place to plan, develop, deliver, and manage TransNet transit and highway construction projects, including the availability of post evaluation forms available for highway construction projects. These forms and resulting evaluation reports compare initial costs to actual expenditures within various phases, as well as request input on lessons learned and recommendations for improvements. However, these forms are not used with consistency or on a real-time basis to garner meaningful insights.

In part, the uneven use of post evaluation forms is a result of past practices of waiting until a highway development project was formally closed-out with all claims, settlements, disputes, and final project costs known so that Caltrans staff could perform a true budget-to-actual comparison. Yet, with some claims resulting in litigation and keeping projects open for years, any benefits gleaned from a post-project evaluation would grow stale and be forgotten. However, the benefits of such tools could be realized by Caltrans completing post-evaluations after each phase to enhance its existing project monitoring tools and ensure needed changes are made mid-stream on a project—further, SANDAG may want to incorporate its own similar protocols.

Moreover, as Caltrans and SANDAG pioneer various project delivery approaches to meet the EAP schedule, TransNet project managers and Corridor Directors would benefit from a close review of the lessons learned on these projects. For instance, the unique design sequencing approach implemented on the I-15 Corridor warrants further analysis of actual costs incurred, including staff and support costs to ascertain whether the practices employed should be applied to future projects. Furthermore, conducting cost benefit and risk analyses including reviews of project delivery options and associated costs should be considered on all future projects prior to making a decision between project delivery methods, such as a design-sequencing or design-build, for example.

Although post evaluations are not always performed on completed projects, SANDAG and Caltrans staff hold informal discussions on lessons learned and improvements proposed on future projects or even subsequent project stages. SANDAG and Caltrans also employ value analyses on projects and quality control items to improve design features that have been identified and serve to enhance projects. Various process improvements and tools are now available on Caltrans' intranet, including a database containing design specification updates and improvements.

SANDAG Should Strengthen Transit Project Development Practices

Prior to the passage of Senate Bill 1703 in 2003, SANDAG was not involved in the project development or construction aspects of transit projects. Senate Bill 1703 transferred responsibility for the planning, development and construction of regional transit projects from MTS and NCTD to SANDAG. While the vast majority of TransNet early action transit projects currently underway were primarily planned and developed by MTS or NCTD prior to SANDAG's assumption of development responsibilities, SANDAG is in progress of establishing practices and structure to plan, develop, and managed future transit projects. Many of the current SANDAG project managers, consultants and executives have previously worked at Caltrans, MTS, or NCTD and collectively bring unique insight, experience, and knowledge of project delivery methodologies and tools used by these other entities. In several areas, these project managers stated that they rely on Caltrans or other project manuals to aid in their own transit project development efforts.

With much of the project development knowledge "transferred" to SANDAG from these other transit and transportation agencies, SANDAG should build upon, improve, and formalize its documentation of current processes and procedures to better ensure long-term

continuity of in-house expertise. There are several areas that SANDAG could strengthen as it moves forward with future transit projects including memorializing its policies and procedures into project delivery manuals, and implementing consistent project performance monitoring tools to capture and assess key data on transit projects.

To assist in its new transit roles and responsibilities, SANDAG hired several staff members from MTS and NCTD to oversee and manage project planning and development of the transit component of the regional transportation system. Of the current 17 EAP projects, seven are transit-specific projects in addition to the I-15 Middle that incorporates bus rapid transit components. Specifically:

- **Mid-Coast and Super Loop (2 projects)**
  These two projects were initially developed by MTS, with environmental reports prepared jointly by MTS, United States Department of Transportation, and the Federal Transit Administration.
- **Blue Line and Orange Line Trolley (2 projects)**
  While the initial trolley lines were built by MTS, these two TransNet projects on the Blue and Orange lines involve improvements only. Currently, SANDAG is in the early planning stages with the environmental study not expected to clear until December 2010.
- **I-805 South Bus Rapid Transit**
  This project was started by MTS, with former MTS employees joining the SANDAG team to continue planning and early design work.
- **SPRINTER**
  SANDAG provided oversight of this project beginning in 2007, but NCTD was responsible for the planning, development, and delivery of the rail line.
- **Mid-City Rapid Bus**
  SANDAG completed the conceptual engineering work in December 2008 and will be entering early design stages, pending approval of additional federal funding.

Because most of the SANDAG's ongoing TransNet transit projects were developed and planned by other entities and are still in preliminary environmental or early planning stages, SANDAG has not yet developed or formalized all the needed protocols since subsequent design and construction phases have yet to be started. For instance, while interviews with SANDAG project managers reveal that development protocols are similar to those used at Caltrans, we did not find documented comprehensive procedures memorializing these processes and practices. Although the SANDAG Board adopted several policies outlining SANDAG's responsibilities over transit project delivery, these directives are geared at a higher policy level and do not provide sufficient "hands-on" guidance for project managers and staff involved in the day-to-day project management and delivery. Towards this end, SANDAG should consider establishing working-level policies and procedures to ensure the uniform application and documentation of practices, controls, and preferences and make such guidance available to staff for reference and training purposes.

Additionally, SANDAG could implement more rigorous protocols to augment its effectiveness in planning, developing, and overseeing TransNet transit projects. For instance, while SANDAG project managers employ good project management and monitoring techniques, SANDAG lacks entity-wide comprehensive guides and procedures for the application of consistent project management techniques on all projects to ensure quality. Up to this point, many TransNet transit projects were originally scoped and designed while under the authority of MTS and NCTD. Yet, because SANDAG's role over the planning and project delivery has increased dramatically over the last five years, we believe more formal protocols are needed to ensure the process and established practices continue as envisioned and planned to achieve the desirable outcomes.

At a minimum, SANDAG should consider consolidating board policies into a single project delivery manual where further defined procedures could be established and practices memorialized. Policies, procedures, and protocols should then be available to SANDAG staff for reference and training purposes. More importantly, with project development and project delivery staff transferring from other transit agencies and municipalities to SANDAG as part of its growing responsibilities over transit projects, consistency in processes and procedures would better ensure continuity of SANDAG's expertise relative to transit planning and development.

However, while SANDAG may lack detailed transit development policies and procedures, SANDAG's existing project delivery practices appear to be sufficient. For instance, our review of project files for the I-15 Bus Rapid Transit Stations and the Mid-Coast Super Loop suggest that processes followed were generally similar to those applied on highway construction projects in terms of establishing key project milestones and budgets, establishing a process to monitor performance, track project status, and documenting project delivery actions and issues to ensure ongoing communication and frequent updates to Corridor Directors and executive management. Moreover, many of the TransNet EAP projects with a transit component are also subject to Federal Transit Administration requirements. Based on our cursory review of Value Analysis Reports and Congestion Impact Studies that were performed jointly by the MTS and Federal Highway Administration, adherence with federal requirements was part of the deliberate project delivery processes.

Another feature that would strengthen transit project management is the creation of a uniform filing system where critical project documentation such as cost estimates, project budget history, project development team meetings, change orders, and other data are organized and located under a similar numbering system to ensure consistency and availability of important project data. Further, SANDAG may want to consider creating a shared database to house the electronic copies of project documentation. For highway construction projects, Caltrans organized project files on an automated shared drive and electronic documents followed as the physical files. However, while most critical project data seems to have been retained in SANDAG and Caltrans, project historic data, such as important changes to project budgets and schedules, were not always easily located in project files.

Lessons can be Learned from SPRINTER Project

In 2006, the SANDAG Board approved approximately $24 million in TransNet Extension funding to pay for cost increases on NCTD's SPRINTER transit project. At that time, the project was approximately 70 percent complete and the Federal Transit Administration and SANDAG required a number of best practices and cost controls to be implemented on the project that could prove valuable to employ on future SANDAG transit projects.

Initially started and planned in the late 1980s under the original TransNet ordinance, the SPRINTER Rail project involved the conversion of a 22-mile existing older freight line built in the 1880's into a new light rail transit line running between Oceanside and Escondido. Using diesel multiple unit light-rail vehicles that are self-propelled and known for being more fuel efficient and quieter than traditional commuter rail counterparts, the new generation vehicles are only the second of their kind used in the country. Acquiring and launching a new type of rolling stock for the light-rail project required significant review and approvals from federal, state, and local authorities, which took significantly longer to obtain than was originally anticipated based on experience with past "traditional" light-rail projects. In fact, NCTD reported that federal approval to enter into the final design phase was not granted until 2000—nearly a decade after the first right-of-way acquisitions began.

Subsequent state budgetary problems and funding freezes between 2002 and 2004 forced NCTD to explore bridge financing and bonding options, adding unanticipated increased costs and additional administrative efforts. Additionally, like other regional and statewide transit and highway construction projects, the SPRINTER project was faced with unprecedented construction industry cost escalations between 2003 and 2006. The initial 1987 TransNet ordinance funding of $60 million in 1990 dollars rose to today's $484 million level and pushed the development timeframe out more than 20 years; it should be noted, however, that the $60 million funding was intended to be matched by other funding sources. Nonetheless, NCTD reports that the SPRINTER is the lowest cost-per-mile new rail project in the state and country, at $22 million per mile when compared to similar rail projects in Los Angeles, Charlotte, Denver, Pasadena, and Pittsburgh among others.

The NCTD had secured funding from federal and state sources to cover the increases, but it ran short in 2006 when an additional $42 million in funding sources were authorized by the NCTD Board in order to cover project cost overruns due to a number of factors, including—time lags between initial design and vehicle authorization process that resulted in overall project delays; significant design issues partially due to the need for redesign to accommodate technical specifications of newly acquired trains; the inability to remove freight operations from the line during construction necessitating the use of construction "work windows" and an added year of construction; and, the resulting overall work remaining to complete construction. Decision makers believed the project to be an integral part of the regional transit network and part of the region's transportation solution and realized that the Ordinance plan to extend the SPRINTER line could not be achieved if the line was not constructed. While the SPRINTER project began service in March 2008 and continues to close-out construction claims, there are several lessons and practices that SANDAG could consider and incorporate into TransNet transit and highway construction projects where applicable. Some of these best practices include:

- ✓ Adopting the Federal Transit Administration's process for evaluating individual project elements and risks related to cost, scope, and schedule and formalize the results in risk mitigation registers including descriptions, cause, potential impact, likelihood of impact materializing, mitigation strategy and costs to mitigate. Data from these documents form the basis for developing a risk mitigation and management plan as well as a means for tracking the success of mitigation efforts and the responsible staff assigned. In addition to project risk tracking, SANDAG could employ a risk based approach to the TransNet program as a whole to capture overarching risks to the program's success such as available funding and adequate resources as well as document approaches taken to minimize any negative consequences that could occur.

- ✓ Continuing existing SANDAG and Caltrans techniques employing similar risk assessment practices and ensuring the risk assessment approach is performed consistently on all projects. Moreover, SANDAG could merge risk assessment results from Caltrans highway construction projects with its own transit risk results, once identified, into an integrated risk plan as well as ensure lessons learned on the SPRINTER projects are incorporated and memorialized into SANDAG policies and procedures.

- ✓ Ensuring project risk assessment processes include a periodic review and reassessment of project cost risks at contract milestone achievements. This requires a systematic risk analysis to continuously track progress and evaluate the risk exposure based on current factors.

- ✓ Assessing technical capacity and adequacy of staff resources as part of a risk mitigation and management plan that could identify gaps in resource levels, training needs, additional staff needs, or staff reassignments.

- ✓ Consistently using schedule forecasting techniques that allow evaluation of staff burn rates, anticipated completion time, and budgets to more closely monitor project costs against plans.

- ✓ Using earned value calculations and percent of work complete to date, update monthly project forecasts of costs to complete. Although SANDAG has made strides toward implementing these methodologies in its Dashboard system that captures project percent of completion, the SPRINTER project employed efficiency analysis, manpower analysis, payment application analysis, trend analysis, and other analytical techniques to provide monthly forecasts and status.

- ✓ Developing detailed sub schedules and report on all critical activities on key system components that are combined into an integrated schedule for all project activities. While similar project scheduling and reporting practices appear to be successfully employed and ongoing at SANDAG, it should ensure these practices are consistently employed on all projects, and formalize these procedures for continued agency-wide implementation.

While several of these practices may have been informally shared, we suggest that SPRINTER project management conduct intensive, hands-on workshops with SANDAG and Caltrans executives where critical tool employed and practical experiences could be formally shared, specific implementation details deliberated, and benefits versus cost analysis reviews could be employed. These meetings could result in the establishment of more stringent project delivery tools and written policies and procedures to assure best practices are implemented.

Construction Cost Budgets Estimates were Generally Accurate

Construction cost budget estimates are influenced by various factors including construction price index fluctuations, local market conditions, demand for contracted labor, economic conditions, project scope, and underlying assumptions used by estimators. The accuracy of these cost estimates are tested during the bid process where the engineer's estimate is ultimately compared to bid estimates prepared by independent contractors. Comparing a contractor's bids to the engineer's estimate serve as a litmus test of the quality of the engineer's estimate and how well the estimate reflected current market conditions, material costs, and the labor market. Our review revealed that both SANDAG and Caltrans have developed sound cost estimation practices and techniques for highway transportation projects that have proven generally accurate for the 21 contracts related to EAP projects totaling over $658 million put out to bid over the last three years.

Specifically, in developing construction estimates, Caltrans engineers use various cost estimating techniques and assumptions to ensure that during the design phase of a project's development cycle, construction cost estimates are continuously updated and refined to track market conditions. Engineers use industry indices for estimating materials costs and rely on experience and historical data for best approximating quantities needed. Other factors considered include such things as prices of crude oil, asphalt concrete, labor cost, equipment rental, and mobilization—all elements typically considered in the transportation industry. All construction estimates are reviewed by the Office of Engineer at Caltrans' headquarters in Sacramento. Major construction projects also undergo additional cost review conducted by Federal Highway Administration.

Even with several layers of reviews, construction cost estimates may still be significantly affected by unexpected fluctuations in market conditions which occurred in California, between 2001 and 2005. During this period, Caltrans and others in the industry reported unexpected construction cost increases exceeding 60 percent more than expected costs according to statewide data. Variances were so extreme during this period that Caltrans hired a third party to review construction cost estimates on all projects during that period.

We compared engineer's estimates to bids received for the 21 contracts advertised for bid over the last three years. On average, variances were 2.2 percent across all the contracts. Yet, our review revealed 13 of the engineer's estimates were significantly different than bids received on individual projects as shown in Table 3.

Table 3: Percent Difference between Engineer's Estimate and Lowest Bid

	Corridor	Segment	Engineer's Estimate	Lowest Bid	Percent Difference
1	I-5	HOV (High Occupancy Vehicle) Ramp Modification	$1,446,481	$1,842,913	**27 %**
2	I-5	HOV (High Occupancy Vehicle)	$39,548,558	$32,821,953	(17 %)
3	I-15	South Unit 1	$67,607,450	$48,380,250	(28 %)
4	I-15	Middle Soundwall	$3,543,735	$4,902,615	**38 %**
5	I-15	Middle Unit 2	$57,858,000	$67,837,529	**17 %**
6	I-15	Middle Unit 3	$96,435,000	$81,952,560	(15 %)
7	I-15	Middle Unit 4	$36,201,000	$32,228,492	(11 %)
8	I-15	Middle Unit 5	$35,628,960	$39,592,936	**11 %**
9	I-15	Middle Unit 1 Landscape	$2,793,515	$2,446,027	(12 %)
10	SR-52	Ops East/ West Bound Auxiliary Lanes	$25,160,521	$17,748,749	(30 %)
11	SR-52	Ops West Bound Truck Lane	$4,220,645	$3,074,324	(27 %)
12	SR-52	Extensions Unit 4	$72,797,532	$56,821,094	(22 %)
13	SR-52	Extension Unit 5A	$96,381,600	$66,359,459	(31 %)

Source: "Bid Summaries" from Caltrans Office Engineer Website

While there were four contracts where the lowest bid was more than 10 percent greater than the engineer's estimate—in one instance the lowest bid was over 38 percent greater—we found these variances to be consistent with the condition of the construction market at the time the bids were advertised during the unusual construction cost inflationary period of 2004 to 2007. Other causes included contractors associating a higher complexity with these construction projects and consequently incorporated potential contractor error costs in their bid proposal.

By contrast, we also noted instances where the bid was significantly lower than the engineer's estimate—specifically, four bids were received that were at least 27 percent under engineer's estimates. Again, the timing of those bids (three of them were received in 2008), suggest that the price fluctuations are closely tied to the trends in the economy overall. It appeared that when the economy was slow and work was scarce, contractors were more willing to lower profits in order to obtain work and, thus, bid at lower rates than they would in a thriving economy. When comparing the numbers of bids received during favorable construction industry times to bids received in slower economic times, we found that the number of bidders decreased when the economy was doing well. Specifically, for contracts awarded between 2004 and 2007 where the bids were much higher than the engineer's estimate, there were typically only two or three contractors submitting a bid on each project. Of those three bids received in 2008 that came in much lower than the engineer's estimate, there were seven contractors bidding on each project during the economic slowdown.

Further, estimates can be significantly impacted by the length of time between the estimates and receipt of bids—much of which is largely under control of the estimating entity. However, we found the time lapse between the engineer's estimate and bid receipt was not significant on any of the projects reviewed, and ranged from four to eight months. Specifically, for the seven construction contracts awarded in 2008, more than half of the contracts took seven months to award.

Table 4: Comparison of Timeframe between Engineer's Estimate and Bid Opening

	Corridor	Segment	Length	Difference in Low Bid and Engineer's Estimate (Under)/Over	Number of Bids Submitted	Low Bid Amount
1	I-15	South Unit 2	7 months	(8 %)	3	$60,545,000
2	I-15	South Unit 3	7 months	(9 %)	6	$66,868,627
3	SR-52	Extension Unit 5A	7 months	(31 %)	6	$66,359,459
4	SR-52	Ops East/ West Bound Auxiliary Lanes	7 months	(30 %)	6	$17,748,749
5	I-15	South Unit 1	7 months	(28 %)	7	$48,380,250
6	I-15	North (BM Facility)	8 months	4 %	4	$5,464,905
7	I-15	North Unit 2	8 months	(3 %)	7	$47,420,115

Source: "Bid Summaries" from Caltrans Office Engineer Website & Project Schedules from Dashboard Website

As shown in the Table 4, the bid variance on one $66 million project was approximately 31 percent less than estimates, while the bid variance was not much lower (approximately 29.5 percent) for a $17 million project. Thus, there appears to be no direct correlation between the value of the project and the length of the bid process or the bid variance. Similarly, the bid variance for the two projects taking eight months to award ranged from less than 2.87 percent of estimates to nearly 4 percent over estimates. According to Caltrans, when bids started getting out of sync with engineer's estimates in 2008, new policies were established to update estimates more frequently.

Process to Manage Project Cost Overruns and Delays was Reasonable

To assess EAP project performance, we reviewed Dashboard data summarized at the corridor segment level for comparing budget to actual costs and baseline to actual schedules. At the summary level, projects seemed to be within authorized budgets. For instance, between 2006 and 2008, SANDAG and Caltrans had only expended approximately 12 percent of the total TransNet budget approved to date. However, since the vast majority of these projects were still in the early environmental and design phases, full projects costs have not yet been realized that would have allowed us to more conclusively assess whether projects will ultimately meet budget and schedule goals.

Additionally, we examined performance on 22 highway and transit segments as well as assessed performance by project phase including environmental, design, right-of-way, and construction. Our review revealed 4 of the 22 segments had experienced cost-related or schedule delays in the right of way support area and another 5 of the 22 segments experienced similar issues in the environmental phase. In addition to historic construction cost increases in the early 2000s, causes for the overruns and delays included subpar consultant work, unexpected or unforeseen site conditions requiring rework, and additional unplanned activity to complete environmental studies. Nevertheless, reasons for the issues were tracked, vetted with management, and the processes to manage and address these changes were reasonable.

For instance, the Mid-Coast project experienced delays of more than 12-months and required Board approval of $11 million to cover cost overruns in the environmental stage. Because the Mid-Coast project was initially envisioned for development and construction in the early 1990's, an environmental study was completed at that time. Upon subsequent reprioritization processes, the project was placed on hold until 2005 when the TransNet extension program was launched. Because the initial environmental study had been completed more than 15 years prior, SANDAG had to revisit the concept plans to address changed conditions along the I-5 Corridor and adjust alignment design plans to accommodate appropriate train speed level. Although the project technically experienced budget overages, the reasons were justified and documented in project files and steps were taken to minimize the total impact of the overruns.

In another example, we found budgeted costs were exceeded on the I-15 Middle Segment project due to various extraneous circumstances including construction cost escalation and events related to fire and flooding as well as combining portions of work on the North and Middle I-15 segments. While initial budgets on both of these projects were exceeded, the excess costs related to rework needed was justified based on project file documentation and approved by project executive and senior management.

Moreover, as described throughout this report, SANDAG and Caltrans have several processes in place to monitor costs and schedule against planned targets and to minimize these overruns and delays and ensure projects and activities remain on schedule.

SANDAG and Caltrans Generally Employed Adequate Procurement Practices to Supplement Staff and Complete Project Activities

For the EAP projects commenced over the last three years, SANDAG and Caltrans have primary responsibility for the majority of the TransNet program's $160 million in contracting activities that are used to supplement limited staff and provided needed expertise. Based upon a cursory review of activities, we found that practices employed were adequate to afford sufficient competition to attract good prices and quality services, objectively select contractors, track and approve allowable contract expenditures, and monitor contractor skills and performance.

Specifically, Caltrans relies on its contract compliance offices at Caltrans headquarters that have established contract solicitation, selection, and award processes that provide controls, objectivity, and fair competition. The contract award process is centralized, and all TransNet contracts awarded by Caltrans require approval of its Contract Monitoring Office and appropriate headquarters executives. Similarly, SANDAG's procurement of consultant contracts follows a typical competitive procurement process whereas SANDAG's Contracts Unit advertises and receives requests for proposals from different consulting firms. The responsive proposals are reviewed and scored based on pre-determined criteria by an independent review panel generally consisting of staff familiar with the solicited work. If warranted, the panel will conduct interviews before the final selection is made and the contract is awarded. We found SANDAG contract files to be well-organized and containing appropriate documentation to support a competitive process such as requests for proposals, responses, scoring sheets, and correspondence.

To achieve synergies and avoid duplication of efforts in contracting, both entities utilize SANDAG's established list of more than one dozen on-call consultants for engineering and architectural services. Each of the consulting on-call contracts had an initial value of $10 million with options for renewal of the term and increase of contract value—with a not-to-exceed cap of 25 percent of the contract value. Before work is performed on a contract, a task order must be issued detailing the scope of work as well as deliverables, costs, and deadlines. SANDAG's TransNet Project Office tracks all task orders against the contract on a summary level and monitors the remaining contract amount in relation to the consultant's commitments on other project task orders. Additionally, SANDAG and Caltrans have established project level processes to monitor and track procurement and contracting processes, including contract award and monitoring. Contract amendments, task orders, and change orders on construction projects are reviewed by designated staff, with project task managers having the responsibility for monitoring contractor performance by initially developing task orders and then managing against task orders and work deliverables. Moreover, project managers review consultant timesheets and invoices as well as approve payments.

Procurement Controls Include:

- Competitive procurement practices to ensure objectivity and fairness
- Detailed scope of work
- Well-organized contract files
- Close interaction with consultants and contractors
- Monitoring of consultant work and invoicing
- Contract performance evaluations completed
- Internal audit function reviews contract and procurement area

As part of SANDAG's monitoring process over its consultants, mechanisms have been established for the early identification of contractor problems and to ensure that the most qualified consultant has been selected. Specifically, in using consultants as extension of in-house staff, project managers interact and supervise consultant work on a daily basis which allows for early detection of performance deficiencies or other obstacles that may affect the project delivery. For instance, project managers on the Mid-Coast project became aware of a problem related to the quality and effort of a consultant. During the consultant performance

monitoring process, SANDAG project managers' review of an invoice revealed inadequate work performed as compared to the amounts billed. After trying to resolve differences with the consultant, it was mutually decided to terminate the contract, and procure services from another firm. Currently, SANDAG has protocols in place to select and monitor engineering and architectural services work performed by outside consultants. Specifically, SANDAG relies on an on-call list of pre-selected firms who are authorized to perform work on as-needed basis. The consulting firm with a prior poor performance record, as indicated by the project manager, is no longer on the list of SANDAG's on-call consultants. On a go-forward basis, to employ lessons learned from this experience, SANDAG may wish to consider establishing a formal project risk assessment analysis where cost impact is considered as part of the on-going efforts monitoring progress on a project. For example, the information about a consultant's poor performance would be logged and considered as additional cost or risk factor that would be reviewed at a higher project, or potentially corridor level.

Moreover, performance evaluations are completed on design consultants and contractors used by SANDAG or Caltrans at the close-out of the task order. Specifically, project managers and Corridor Director complete a "Quality Assurance" document which serves as the basis of the discussion between the Corridor Director and consultant/contractors. The Quality Assurance document is intended to provide constructive feedback to the consultants/contractors to improve their performance on future projects. If necessary, it would also state reasons that could prevent the consultant/contractor from being utilized again on TransNet projects.

Construction contracts follow similar strong protocols although all individual projects are put out for competitive bid rather than selected from an on-call listing. Caltrans staff also monitors contractor performance. Besides the day-to-day interactions with contractor staff on a project or construction site, consultants are also part of the individual project development team meetings where SANDAG and Caltrans staff can closely monitor expertise and performance. Additionally, Caltrans' online database of current contractors allows instant access to progress payments, contract amendment data, and other contract-related information.

A final control in place over contract and procurement activities centers around SANDAG's Internal Audit function established within the last year. Currently, there is one Principal Management Internal Auditor, reporting directly to the Deputy Executive Director, who is in charge of developing risk-based audit plans, conducting day-to-day audit activities, and working on assignments addressing the needs of the SANDAG executive team. A large portion of the audit year was consumed by efforts on a comprehensive audit of contract pre-award activities and task order processes. However, because the work was still in process and report still in development, we were unable to obtain the internal audit results.

As a result, we would recommend that SANDAG report to the ITOC on its audit findings that relate to the TransNet program either directly on a project-specific basis or more globally related to SANDAG general operations. The ITOC may want to consider using its newly formed Audit Subcommittee as the information portal for these audit findings—especially those of a more sensitive nature—that could report back to the ITOC at large in the more public setting. Further, since SANDAG's Internal Auditor anticipates conducting future

additional audits on contract pre-award activities and general contracting practices and processes, the ITOC may want to have the Internal Auditor regularly appear before the Audit Subcommittee to share any TransNet related audit issues and corrective actions taken.

Task Order Amendments and Change Orders are Tightly Controlled, Although Minor Enhancements Could be Incorporated

While the dollar value of task orders and construction contracts are significant for most if not all of the TransNet projects, it is typical in the industry to need amendments and contract change orders to increase the value or extend time. These modifications that can easily result in formal requests for budget increases, may be caused by unforeseen circumstances, weather, emergencies, inadequate service or quality, or insufficiently defined scope of work. While generally our review revealed that the task order amendments and change orders were properly managed and approved in a reasonable manner, SANDAG and Caltrans could improve its task order approval process by modifying delegated authority thresholds and improving documentation supporting reasons for granting time extensions on projects.

Task Order Amendment Process Seems Reasonable; However Improvements are Needed

Since 2005, the SANDAG has issued nearly 377 task orders with 263 related task order amendments with a total value of nearly $100 million to 16 different architectural and engineering consulting firms, as shown in Table 5. According to SANDAG staff, over 90 percent of these task orders relate to TransNet funded projects.

Our review of sampled amendments revealed that the procurements appeared to be justified, properly approved, and tracked. Based on our desk review of the sample of 12 task orders and 43 related amendments from seven different contracts, we found the scope, roles, responsibilities, project deliverables, and schedule milestones appeared to be reasonably defined in the task order—thus, insufficient scope did not seem to be the cause behind the needed amendments. Rather, we found that task orders were often amended to add funds for subsequent phases released and approved for work, due to unforeseen circumstances, or to account for additional required work or time needed to complete the deliverable.

For instance, on the Super Loop EAP project, one task order reviewed was to design a bus transit project to the 60 percent design for the construction phase. When the designs were presented to stakeholders, they requested a modification to the stations which required a task order amendment to account for the additional costs associated with the re-design of those stations. Similarly, on the I-805 Managed Lane EAP project, only the current year budget was funded on the task order even though the money would only cover a portion of alignment studies needed for a particular segment. Thus, as more funding became available, the task order was amended to add additional scope and money to complete the studies.

Table 5: Consulting Contracts Issued Since 2005

Contract Number	Number of Task Orders	Value (incl. amendments)	Number of Task Order Amendments	Amendment Value	Amendment Value %
Environmental On-Call					
5000261	29	$ 7,342,570	27	$ 1,120,377	15.3%
5000262	21	$ 12,189,350	37	$ 2,886,463	23.7%
Construction Management On-Call					
5000304	39	$ 6,399,439	36	$ 663,443	10.4%
5000305	40	$ 6,232,682	22	$ 1,996,355	32.0%
Engineering On-Call					
5000401	26	$ 11,331,969	13	$ 372,905	3.3%
5000402	77	$ 11,079,392	49	$ 3,464,101	31.3%
5000403	44	$ 11,936,314	40	$ 1,061,746	8.9%
5000404	40	$ 12,249,762	22	$ 524,301	4.3%
5000405	27	$ 6,272,938	17	$ 1,365,052	21.8%
Engineering/Environmental On-Call (Highway/Transit)					
5000921	0	n/a	n/a	n/a	n/a
5000922	0	n/a	n/a	n/a	n/a
5000923	25	$ 5,749,734	n/a	n/a	n/a
5000924	3	$ 2,721,733	n/a	n/a	n/a
5000925	1	$ 987,602	n/a	n/a	n/a
5000931	3	$ 218,620	n/a	n/a	n/a
5000932	2	$ 3,421,048	n/a	n/a	n/a
Totals:	**377**	**$ 98,133,153**	**263**	**$ 13,454,743**	**14%**

Note: While the vast majority of the on-call consultant task orders were issued for TransNet funded projects, there is a number of task orders that were for other projects. However, since the number and value of task orders for non-TransNet projects was minimal, we did not separate those task orders as they do not affect the overall analysis.

In each instance, we found reasons and justifications for the increased budget to be well-documented and that the amendment was properly approved by several different SANDAG staff including the Contract Manager, Director of Engineering and Construction, Finance Director, and Office of General Counsel as well as Caltrans Corridor Directors and Caltrans Headquarter staff, where appropriate. With the large amount of people involved with task order approvals, we were informed that amendments can take two weeks to two months to process adding potential delays to a project. Thus, SANDAG should consider revising its delegated authority amounts for appropriate levels of staff where shorter timelines could be achieved when revising task order amendments of lesser value.

Further, for the amendments that only extended time and did not increase task order funding, written justification of need did not have sufficient detail. Specifically, the standard task order amendment template used only requires checking a box indicating a "no-cost extension of time with no change to the scope of work." In discussion with task order managers, we

learned that although there were valid reasons for time extensions such as unforeseen events delaying the project or funding not readily available to complete the task within the originally allotted timeframe, such detail and justification is not provided in the amendment request. Without explanations why a project needs additional time to provide deliverables, information is insufficient for proper approvals, which may cause additional delays in the approval of the amendments and the start or continuation of scheduled work. Yet, both SANDAG and Caltrans task order managers did not appear overly concerned with the delay for time extension only amendments. In fact, they indicated that the time extension are easiest to process and usually are much quicker than requests for more funding that require modifications to the scope of work.

Ultimately, while amendments processed increased initial task order amounts by approximately 14 percent and extended time beyond several months in some instances, it appears that SANDAG and Caltrans have the requisite processes in place to control unwarranted or unnecessary increases. One Task Order Manager indicated that it can be difficult to determine how large a task order should be—if a task order value is too low and covers individual discrete activities, there could be numerous task orders or amendments needed which is time-consuming; however, if a task order value is too high and encompasses many activities, then it could be difficult to manage. Thus, Task Order Managers must strive to reach a balance in the number of task orders and amendments that are created.

As mentioned in the previous section, SANDAG's internal auditors are in process of conducting an in-depth review of the task order process. Although those efforts have not been finalized and made available to us, the Internal Auditor should report findings and corrective actions planned to the ITOC.

Construction Change Orders Follow a Similar Controlled Process and Were Justified

Caltrans typically anticipates a five to ten percent contingency range for roadway construction projects that is consistent with targets used at other public works department in San Francisco, Los Angeles, Long Beach, and Oakland.

Over the three-year period of our review, SANDAG and Caltrans awarded 21 construction contracts for EAP projects worth over $658 million, and processed 920 contract change orders valued at approximately $44.5 million. Of those, 511 change orders worth $24 million were issued for projects that have been fully completed. In total, these change orders were 13 percent of total construction payments or 14 percent of the original contract bid value. While the 13 to 14 percent range is higher than the 10 percent target total, in the end, contractors were only paid 7.6 percent more than the initial contract bid amount. Thus, while the change order reporting by itself appears somewhat higher than benchmarks, it is not as significant if put in perspective with the overall payment amounts.

Generally, both SANDAG and Caltrans follow similar procedures to control and monitor change orders. For transit projects, SANDAG maintains change order data in its cost management system and informally uses Caltrans procedures as a guide in handling change orders. Similarly, Caltrans employs a statewide, public database known as "Major Construction Payment & Information System" or "Progress Pay." While the system allows contractors to track progress payments, it also provides detailed information regarding

payments resulting from change orders, total extra work paid to-date, and details of the original contract such as approval date, start of construction, and estimated completion dates. Based on this information, the system also calculates the percent completed and percent time elapsed to determine whether the project is on time and on budget. The Progress Pay system eliminates the need for contractors to submit invoices to Caltrans for their monthly progress pay since Caltrans employees or Caltrans-hired field inspectors determine the project progress and the associated payment amounts each month.

To examine reasonableness of construction contract change orders and adherence to procedures, we reviewed a sample of change orders from four construction contracts where work was either complete or nearing completion, total payment amounts exceeded the original contract value, and change orders constituted at least 11 percent of the contract value. The contracts were from three different corridors where construction work was most advanced and reported a total of 288 change orders worth $21 million as shown in Table 6 below.

Table 6: Analysis of Change Orders Reviewed

	Contract					Change Orders			
Segment/ Project	**Contract Number**	**Contract Bid/Value**	**Total Payment**	**% Paid Over Contract Value**	**Work Complete Status**	**No. of COs**	**Total CO Value**	**CO % of Total Payment**	**CO % of Contract Bid/Value**
I-5 HOV (High Occupancy Vehicle) Ramp Modification	11-279604	$ 1,842,913	$ 1,861,914	1.0%	100%	7	$ 331,076	17.8%	18.0%
I-15 Middle (Unit 1)	11-080904	$ 51,545,000	$ 56,708,928	10.0%	100%	154	$ 9,883,933	17.4%	19.2%
I-15 Middle (Unit 3)	11-080924	$ 81,952,560	$ 89,131,356	8.8%	96%	114	$ 10,140,504	11.4%	12.4%
SR-52 Ops (West Bound Truck Lane)	11-2T0204	$ 3,074,324	$ 3,812,917	24.0%	100%	13	$ 656,236	17.2%	21.4%
	Totals:	**$ 138,414,797**	**$ 151,515,115**	**9.5%**		**288**	**$ 21,011,749**	**13.9%**	**15.2%**

Overall, our review revealed that these change orders were reasonable, properly approved, and diligently tracked. For instance, one change order on an SR-52 contract to extend a freeway lane was needed to relieve increased levels of congestion for commuters while construction was on-going that was greater than initially envisioned. In another example, concrete barriers had to be modified after the completion of the design, since due to the design-sequencing delivery approach employed, the design was not fully complete at the time the contract was awarded.

In each instance, we found reasons and justifications for the increased contract amounts to be well-documented and that the amendment was properly approved by several different Caltrans staff including the construction engineer, project engineer, project manager, and Corridor Director if needed. Moreover, the overall anticipated impact from these amendments and change orders on the continuation of a corridor segment or entire project is informally considered and discussed— project managers at both SANDAG and Caltrans meet regularly with consulting staff to communicate any budget, schedule problems, or delays and discuss impacts at the weekly project development team meetings. Any significant budget or schedule changes affecting the critical path are elevated to Executive

Management, who presents the issues and alternative solutions along with Corridor Directors to the SANDAG Board.

While the amendment and change order process employed has integrity, practices could be enhanced by SANDAG tracking change orders and contract amendments overall for the TransNet program to facilitate management and oversight functions at the program level. This data could be used to develop and trend performance indicators and provide another tool to gauge project and program status or level of success. A more detailed discussion of performance measures as well as our recommendations can be found in Chapter 2 of this report.

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Chapter 5: Conclusion and Recommendations

Because the TransNet program is in its preliminary stages with many projects in the early environmental or design planning phases, project data were not yet available at the time of our audit to allow a full assessment of project performance for overall conclusions to be drawn. For example, although it is reasonable that cost overruns in an early design phase could be managed and brought back in line with the overall project budget through cost containment activities in subsequent project phases, we could not conclude with certainty whether appropriate steps were taken since these projects were in progress. As such, while this audit could only focus on the framework and foundation established by SANDAG and Caltrans to guide project efforts, there may be other improvements needed that will be revealed as more projects are completed.

Nonetheless, SANDAG and its partners have taken strong initiatives and aggressive steps to create many practices and tools over the last three years allowing for the acceleration of promised projects and achievement of early program success. Based on our review of progress on the EAP projects, the TransNet program operates with well-defined processes to plan, develop, and deliver projects. Good working relationships have also been established between SANDAG and Caltrans to coordinate their efforts among multiple stakeholders and other transportation and transit entities in addition to strong project management practices to track and discuss project cost, schedule, and scope. Other elements necessary for a successful program delivery are in place including governance and oversight as well as project monitoring and accountability.

Over the last three years, SANDAG and Caltrans have built a solid foundation and should continue to ensure that actual practices follow established procedures as well as focus post-project discussions on maximizing benefits and cost savings for future projects. Moreover, SANDAG and Caltrans need to maintain integrity of the program controls with a flexible structure to accommodate different situations that will occur over the successive decades that cannot be foreseen at this time. Toward this end, we recommend a series of actions that would strengthen and enhance the groundwork for future development. Specifically:

	Recommendation	**Report Reference**	**Priority**
To assist management and oversight bodies in deliberating project activities, weighing options before making decisions, and strengthening general levels of oversight, SANDAG should work in conjunction with Caltrans to:			
1.	Develop and deliver a brief, high-level summary, or "Report Card," to the ITOC and other oversight bodies for each transportation project describing project budget and schedule by phase, project performance, project benefits and risks, financial assumptions, project cost range, and highlights of project changes to scope, schedule and cost as well as budget-to-actual and project-to-date information.	Chapter 1, pages 32 & 33	High

Recommendation		Report Reference	Priority
	Also, consider summarizing Report Card performance on a monthly, quarterly, or annual basis, as appropriate, to identify trends or systemic issues.		
2.	Summarize and distribute data reflecting key project milestones and performance indicators where period-to-period trends for the program overall, as well as at a corridor or segment level, could be analyzed. Statistics should include budget and schedule targets compared to actual performance, as well as progress towards meeting program objectives such as reducing levels of congestion and travel times, minimizing project cost per mile, and increasing the percentage of projects completed on time and on budget.	Chapter 1, page 34	High
3.	Provide status information regarding existing audit requirements and status updates on internal and external audits in progress or completed of SANDAG, Caltrans, or other transportation partners outlining scope of audit work, results of audit efforts, corrective actions planned or taken, and outstanding findings and unresolved issues as they relate to the TransNet program. In particular, the SANDAG Internal Auditor should report to the ITOC, or its newly formed Audit Subcommittee, once the current in-process audit of contracting and task order practices is completed.	Chapter 4, page 86	Medium
4.	Work collaboratively with the ITOC to identify other type of oversight data needed from SANDAG, Caltrans, or other transportation partners where appropriate and within reason.	Chapter 1, pages 31 & 35	Low
To monitor overall program adherence with the Ordinance and assess the overall program impacts resulting from project budget and schedule deviations, the ITOC should:			
5.	Analyze suggested Report Card data and performance indicator data provided looking for trends, issues, and progress toward overall TransNet goals as well as consider the multi-faceted project performance details impact on travel time and congestion as well as project performance in terms of schedule and budget adherence. Moreover, the data could be used to monitor effectiveness of operational strategies and the success of SANDAG in meeting targets.	Chapter 1, pages 32-34	High
6.	Work collaboratively with SANDAG to identify other type of oversight data needed from SANDAG, Caltrans, or other transportation partners that can be captured in matrices or other formats enabling a period-to-period review of data and results over time.	Chapter 1, pages 31 & 35	Low

Recommendation		Report Reference	Priority
7.	Develop matrices or tracking documents to summarize critical ITOC concerns, issues, and decisions resulting from discussions at monthly meetings, as well as to memorialize resolutions or action items carried forward to subsequent meetings complete with owners assigned and timeframes for completion established. Progress and actions taken could be tracked and progress updated at subsequent meetings, and the matrices could serve as an institutional transfer of knowledge as new ITOC members are appointed.	Chapter 4, page 35	Medium
8.	Identify additional entities, positions, or individuals to regularly provide status reports and data to the ITOC (such as the SANDAG Internal Auditor), and incorporate standard monthly meeting agenda categories to address the new areas and ensure all critical TransNet program areas also receive an oversight focus in addition to project-specific activities. Refer to suggested categories in Chapter 1. Also, consider protocols regarding specified time allocations allowing for adequate deliberation prior to decisions rendered for the more critical areas with high-dollar or high-profile impact.	Chapter 1, page 36	Low
9.	Consider using the newly formed ITOC Audit Subcommittee as the information portal for audit status updates, especially those of a more sensitive nature. The Subcommittee could report back to the ITOC at large in the more public setting.	Chapter 4, page 86	Low
To refine its existing Dashboard integrated budget and schedule tool, SANDAG should:			
10.	Revisit its intent and vision for the Dashboard to determine whether it should include all EAP projects and report on all Ordinance programs, as well as determine whether the Dashboard is meant to function as an "in-progress" management tool for current projects or should be established as a comprehensive historical data warehouse for the 40-year duration of the TransNet program. Also, use the Dashboard data to summarize performance indicators and monitor progress of indicators such as "percent of work completed compared to total costs" and "support costs as a percent of capital construction costs."	Chapter 2, pages 44-46	Medium
11.	Add an explanatory note to better clarify cumulative data presented or isolate and remove the pre-2005 expenditures to more accurately reflect the TransNet program costs.	Chapter 2, page 45	Medium

Recommendation		Report Reference	Priority
12.	Develop a mechanism to report project budget and schedule history and key changes over the course of the TransNet program.	Chapter 2, page 45	Medium
13.	Ensure all Dashboard views and tables are complete and accurate such as "percent of completion" data by clearly identifying and communicating to project managers responsible for the data, the assumptions and definitions behind the percent complete calculations as well as monitoring the indicator for reasonableness. Additionally, reassess the need and use of the "Trends, Risks, and Issues" section in the Dashboard to ensure complete and current information or eliminate the section and capture similar data through a different vehicle.	Chapter 2, pages 45-46	Medium
Building upon strong existing protocols related to transparency holding project owners accountable and economical to demonstrate performance results to the public, SANDAG should work in conjunction with Caltrans to:			
14.	Develop and define concrete performance goals and targets to measure project outcomes as well as performance efficiencies as part of a comprehensive performance monitoring system linking goals with strategic planning, specific goals, and resource allocations and evaluating progress toward objectives such as levels of reduced congestion, project cost per mile, and percent of projects completed on time and budget. Performance measures should track program and project delivery effectiveness and efficiency indicators related to hitting targets on meeting delivery milestones, staying within certain percentages of cost estimates, and reducing support costs and overhead by prescribed amounts. Performance measures should be challenging yet attainable targets used to assess timelines and cost-effectiveness of projects. Once program-wide performance data is collected, it should be made available to the ITOC and other oversight bodies through the Quarterly Report process whereby program level milestones could be communicated and success or struggle with meeting benchmarks could be discussed to highlight accomplishments or improvements needed as well as month-to-month changes to identify trends and patterns. Indicators that could be measured include the following hypothetical examples:	Chapter 2, pages 46-49	High

Recommendation		Report Reference	Priority
	✓ Each fiscal year, meet XX percent of project delivery milestones ✓ By XXXX, reduce the support-to-capital ratio to XX percent and reduce overhead cost to XX percent ✓ Each year, keep the total of all low bids within X percent of the total of all engineers' estimates		
15.	Consider using baseline data available in other models, such as the Caltrans California Life-Cycle Benefit/Cost Analysis Model that considers items including travel time savings and reduced emissions, to compare expected project benefits against actual results once projects are completed. Similarly, performance could be weighed against quantitative criteria and calculations used during the regional transportation planning process whereby projects are ranked and prioritized based on estimated cost per person-miles traveled and cost per travel time savings calculations. SANDAG could perform these calculations after project completion to identify variances from anticipated cost-effectiveness measures, discuss reasons for the differences, and use results to adjust future modeling or trend and compare projects against each other.	Chapter 2, page 48	Low
16.	Once a comprehensive performance monitoring system is designed as discussed above and performance data is captured, designate individual staff to monitor follow-up on missed targets, assure corrective actions where needed, or assess the impact of any shortfalls on the TransNet program. Such monitoring should be routinely conducted to assess the impact of performance not meeting target goals.	Chapter 2, page 49	Medium
As funding is an ongoing challenge and projects are continually shifted and reprioritized to stretch limited resources, to monitor financial risks and availability of funds to complete projects as well as increase accountability, SANDAG should:			
17.	Continue to regularly monitor and review the debt-to-revenue ratio as well as total financing costs to ensure it meets short- and long-term obligations as well as analyze projected debt service costs and compare planned program financing costs to track any higher than expected bond issuance and debt services costs. Further, SANDAG should determine whether the POF strategies should be modified in the long-term, and report to the ITOC on the status of the debt-to-revenue ratio on a regular basis.	Chapter 3, page 54	Low

Recommendation		Report Reference	Priority
18.	Establish a mechanism to link and track the Ordinance planned projects and amounts with current plans and budgets for all TransNet projects to reduce confusion and better justify to the public how project promises from the Ordinance were amended to result in actual projects delivered. Such on-going tools should specifically identify and document the history or evolution of a project's budget over time by tracking all significant changes to project funding, prioritization, and scope over the life of the TransNet program. Moreover, the data should be shared with the ITOC and other oversight bodies to better oversee and understand the cumulative impact of recommendations related to TransNet funding. Other data that would be valuable for the ITOC to receive is the quarterly data related to sales tax revenue collected in the particular quarter, collected to date, and distributed amongst the various Ordinance projects, programs, and entities.	Chapter 3, pages 65-67	High
To expand and enhance the current project management and delivery practices, SANDAG and Caltrans should consider the following:			
19.	Ensure post-evaluation forms are consistently used and completed for all highway construction and transit projects after each project phase to ensure appropriate changes are made mid-stream rather than waiting until a project is formally closed-out. Communicate key results to the ITOC as appropriate. Additionally, consider capturing various process best practices in shared databases that can be easily accessed and considered for application across all TransNet projects as well.	Chapter 4, pages 75-76	Medium
20.	Build upon, improve, and formalize transit project documentation of current SANDAG processes and procedures to better ensure long-term continuity of in-house expertise. Towards this end, SANDAG should consider establishing working-level policies and procedures to ensure the uniform application of project delivery and management techniques and make such documentation of practices, controls, and preferences available to SANDAG staff for reference and training purposes. At a minimum, SANDAG should consolidate Board policies into a comprehensive delivery manual where further defined procedures could be established and practices memorialized.	Chapter 4, pages 77-78	Medium

Recommendation		Report Reference	Priority
21.	Create a uniform filing system to strengthen transit project management where critical project documentation such as cost estimates, project budget history, project development team meetings, change orders, and other data are organized and located under a similar numbering system to ensure consistency and availability of important project data. Further, SANDAG may want to create a shared database to house the electronic copies of project documentation.	Chapter 4, page 78	Low
22.	Conduct an intensive, hands-on workshop in which SPRINTER project management could formally share critical lessons-learned and practical experiences with SANDAG and Caltrans executives including discussing specific implementation details deliberated and benefits versus cost analysis employed. These meetings could result in the establishment of stronger project delivery tools and written policies and procedures to assure best practices are implemented such as: ✓ Using risk mitigation registers evaluating project risks related to cost, scope, and schedule including descriptions, cause, potential impact, likelihood of impact materializing, mitigation strategy and costs to mitigate. ✓ Merging highway construction and transit risk assessment results into an integrated risk plan that can be overseen for the entire TransNet program.	Chapter 4, pages 79-80	Medium
23.	Revisit the task order approval process to identify which individuals are needed for approvals or consider implementing a higher delegated authority level for certain types of amendments wherein a streamlined process could be employed on lower value amendments to ensure approval protocols are not causing unnecessary delays on projects.	Chapter 4, page 88	Low
24.	Ensure task order amendments for time extension have sufficient written justification explaining why a project needs the extension and assessing the impact of the delay on other project activities and downstream project phases.	Chapter 4, pages 88-89	Low
25.	Enhance practices by tracking change orders and contract amendments for the TransNet program overall and developing and trending performance indicators to provide another tool to gauge project and program status or level of success.	Chapter 4, page 91	Medium

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Appendix A:
TransNet Highway Construction and Transit Projects
(Estimated Amounts in Millions, 2002 dollars)*

#	Corridor	Segment			
		EAP [1]	Cost	Non-EAP	Cost
1	I-5	North Coast (Phase 1 - Environmental Document)	$ 79	Managed Lanes (Leucadia Blvd to Vandegrift Blvd)	$ 291
2				Managed Lanes (Merge I-5 & I-805)	$ 30
3				Managed Lanes (SR-56 to Leucadia Blvd)	$ 400
4				HOV (SR-905 to SR 54)	$ 130
5				HOV (SR-54 to I-8)	$ 600
6				HOV (I-8 to I-805)	$ 193
7		Lomas Sante Fe Interchange	$ 75	HOV (I-5 to I-805)	$ 105
8				I-5 to SR-56	$ 140
9				I-5 to SR-78	$ 150
10				Rt 398/Rt 472 Coaster/BRT	$ 400
11		Blue Line Trolley	$ 270		
		I-5 EAP Sub-Total:	**$ 424**	**I-5 Non-EAP Sub-Total:**	**$2,439**
12	Mid-Coast [2]	Mid-Coast Light Rail Transit (Old Town to UCSD)	$ 670		
13		Super Loop (UTC to UCSD)	$ 30		
		Mid-Coast EAP Sub-Total:	**$ 700**		
14	I-15	Managed Lanes (SR-163 to SR-56)	$ 220		
15		Managed Lanes (SR-56 to Centre City Pkwy)	$ 430		
16		Managed Lanes (Centre City Pkwy to SR-78)	$ 120		
17				HOV (SR-94 to SR-163)	$ 200
18				HOV (I-15 to SR-78)	$ 200
19				HOV (I-15 to SR-94)	$ 150
20				SR-94 HOV (I-5 to I-15)	$ 80
21		BRT Rt 610 Phase 1 (Escondido to Downtown)	$ 118	BRT Rt 610	$ 252
22				BRT Rt 470	$ 60
		I-15 EAP Sub-Total:	**$ 888**	**I-15 Non-EAP Sub-Total:**	**$ 942**

#	Corridor	Segment			
		EAP [1)]	Cost	Non-EAP	Cost
23	I-805	BRT Rt 628 Phase 1 (Otay Mesa to Downtown)	$ 72	BRT Rt 628	$ 428
24				BRT Rt 680 (San Ysidro to Sorrento Mesa)	$ 70
25				HOV (SR-905 to SR-54)	$ 150
26				SR-94 HOV (I-805 to I-15)	$ 70
27				SR-52 HOV (I-15 to I-805)	$ 70
28				HOV (I-805 to SR-52)	$ 150
29		Managed Lanes (Environmental for North, Middle, South segments	$ 14	Managed Lanes (SR-54 to I-8)	$ 436
30				Managed Lanes (Mission Valley Viaduct)	$ 250
31				Managed Lanes (I-8 to I-5)	$ 380
32				SR 54 Interchange	$ 10
		I-805 EAP Sub-Total:	**$ 86**	**I-805 Non-EAP Sub-Total:**	**$ 2,014**
33	SR-52	Extension - New Freeway (SR-125 to SR-67)	$ 200	New Freeway (SR-125 to SR-67)	$ 40
34		Widening - Managed Lanes (I-15 to SR-125)	$ 170		
		SR-52 EAP Sub-Total:	**$ 370**	**SR-52 Non-EAP Sub-Total:**	**$ 40**
35	SR-94/ SR-125			Interchange (SR-94 and SR-125)	$ 110
36				Widening (SR-125 to Steele Canyon)	$ 90
37				HOV (I-805 to I-8)	$ 350
38		Orange Line Trolley	$ 70		
		SR-94/SR-125 EAP Sub-Total:	**$ 70**	**SR 94/SR 125 Non-EAP Sub-Total:**	**$ 550**
39	SR-54/ SR-125			HOV & Widening (I-805 to SR 94)	$ 140
				SR 54/SR 125 Non-EAP Sub-Total:	**$ 140**
40	SR-67			Widening (Mapleview St to Dye Rd)	$ 240
				SR-67 Non-EAP Sub-Total:	**$ 240**
41	I-8			Widening (Second St to Los Coches)	$ 30
				I-8 Non-EAP Sub-Total:	**$ 30**
42	SR-78	SPRINTER Completion	$ 60		
43				SPRINTER Extension	$ 200

#	Corridor	Segment			
		EAP [1)]	Cost	Non-EAP	Cost
44				HOV (I-5 to I-15)	$ 500
		SR-78 EAP Sub-Total:	**$ 60**	**SR-78 Non-EAP Sub-Total:**	**$ 700**
45	**SR-76**	Widening (Melrose Dr to I-15)	$ 180		
		SR-76 EAP Sub-Total:	**$ 180**		
46	**SR-56**			Widening (I-5 to I-15)	$ 100
				SR-56 Non-EAP Sub-Total:	**$ 100**
47	**Mid-City**	Rapid Bus Purchase	$ 22	BRT Rt 611 (SDSU to Downtown San Diego)	$ 68
		Mid-City EAP Sub-Total:	**$ 22**	**Mid-City Non-EAP Sub-Total:**	**$ 68**
48	**Coronado Tunnel**			Tunnel Construction Match (Glorietta Blvd to Alameda Blvd)	$ 25
				Coronado Non-EAP Sub-Total:	**$ 25**
49	**Border Access**			Miscellaneous improvements to Enhance the Border Access	$ 25
				Border Access Non-EAP Sub-Total:	**$ 25**
		Total 17 EAP:	**$2,800**	**Total 32 Non-EAP:**	**$7,313**
Total TransNet Program (2002 dollars): $10,113					

Source: TransNet Extension Ordinance, 2004; 2005 Plan of Finance; and SANDAG Capital Improvement Program (CIP) Budget, Fiscal Year 2007

Note 1: EAP project designation is per the 2005 Plan of Finance and 2008 TransNet Factsheet.

Note 2: Mid-Coast Corridor projects were part of the I-5 Corridor in the Ordinance but then were split into a separate Mid-Coast Corridor in 2005.

*When 2002 amounts could not be clearly identified, updated amounts were used.

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Appendix B: Audit Interviews Conducted

As part of this audit, our contract required we conducted on-site and phone interviews with certain individuals and entities as identified to us by the TransNet program management. During the course of the audit, we also met or inquired about the TransNet program with other individuals and stakeholders. While we conducted at least one interview with each individual listed below, on many occasions we had follow-up conversations either in person, over the phone, or via email.

	Stakeholder Entity	Name	Title/Position
TransNet Program Management			
1	SANDAG	Charles "Muggs" Stoll	TransNet Program Manager
Executive Management			
2	SANDAG	Gary Gallegos	Executive Director
3	SANDAG	Diane Eidam	Chief Deputy Executive Director
4	Caltrans	Will Kempton	Director
5	Caltrans	Gregg R. Albright	Deputy Director, Planning & Modal Programs
6	Caltrans	Pedro Orso-Delgado	District 11 Director
7	Caltrans	Laurie Berman	Chief Deputy District 11 Director, Project Delivery
Corridor Director			
8	SANDAG	Leslie Blanda	Corridor Director, Mid-Coast
9	Caltrans	Allan Kosup	Corridor Director, I-5 & SR-76
10	Caltrans	Gustavo Dallarda	Corridor Director, I-15
11	Caltrans	Joel Haven	Corridor Director, I-805 & SR-52
TransNet Project Offices			
12	SANDAG	Richard Chavez	Principal Engineer
13	SANDAG	Dean Hiatt	Senior Transportation Engineer
14	Caltrans	Christine Valle	TransNet Program Manager
15	Caltrans	Ann Fox	TransNet Program Engineer
16	Caltrans	Nadine Danjou	TransNet Program Analyst
Mobility Management and Project Implementation			
17	SANDAG	Jack Boda	Department Director, Mobility Management and Planning
18	SANDAG	Jim Linthicum	Division Director, Engineering and Construction
19	SANDAG	Dan Martin	Project Implementation Program Manager
20	SANDAG	William A. Prey	Construction Engineer
Project Managers			
21	SANDAG	Frank Owsiany	Senior Transportation Engineer
22	SANDAG	Barrow Emerson	Senior Transit Planner
23	SANDAG	Jennifer Williamson	Senior Transportation Planner
24	SANDAG	Eric Adams	Senior Project Manager
25	SANDAG	Keith Greer	Project Manager
26	SANDAG	Edward Schafer	Senior Planner
27	Caltrans	Cory Binns	Corridor Project Manager

	Stakeholder Entity	Name	Title/Position
28	Caltrans	Arturo Jacobo	Project Manager, I-5 Corridor
29	Caltrans	John Rieger	Project Manager, I-5 North & SR-52
30	Caltrans	Andrew Rice	Project Manager, I-15 Managed Lanes
31	Caltrans	David Stebbins	Design Manager, I-15 Managed Lanes
32	Caltrans	Roger Carlin	Design Manager, SR-52 Corridor
33	Caltrans	Majid Kharrati	Senior Transportation Engineer, I-5 Corridor
34	Caltrans	Jayne Dowda	Senior Transportation Engineer
35	Caltrans	Kelly Finn	Chief, Environmental Analysis Branch A
36	Caltrans	Chris White	Chief, Environmental Resource Study
Construction			
37	Caltrans	Armando Garcia	Deputy District Director, Construction
38	Caltrans	Marla Deyou	Construction Claims Chief
39	Caltrans	Faridun Javed	Senior Resident Engineer
40	Caltrans	Rahim Akhondzadeh	Resident Engineer
41	Caltrans	Dung Tran	Resident Engineer
Finance			
42	SANDAG	Renee Wasmund	Department Director, Finance
43	SANDAG	Susan Brown	Manager, Financial Planning & Project Control
44	SANDAG	Lauren Warrem	Manager, Finance
45	SANDAG	Lisa Kondrat-Dauphin	Associate Accountant
46	SANDAG	Sookyung Kim	Staff Accountant
47	SANDAG	Jose Nuncio	Program Manager
48	SANDAG	Marney Cox	Chief Economist
Contracts and Procurement			
49	SANDAG	Elaine Richardson	Manager, Contracts and Procurement
50	SANDAG	Louise Torio	Contracts & Procurement Specialist
51	SANDAG	Emilio Rodriguez	Senior Engineer/Contracts Manager
52	Caltrans	America Hernandez	Contracts Manager
53	Caltrans	Jared Lakis	Consultant Contracts
Audits			
54	SANDAG	Steve Castillo	Principal Management Internal Auditor
55	Caltrans	Laurine Bohamera	Manager, Internal Audits & Investigations
56	Caltrans	Maryann Campbell-Smith	Manager, External Audits
Transportation Consultants			
57	CH2MHill	Hany Haroun	Design
58	Boyle Engineering	Clark Fernon	Design
59	HNTB	Bart Desai	Dashboard Design
60	LAN	Christopher Mockus	Construction Management
Transit Operators			
61	MTS	Sharon Cooney	Director of Government Affairs
62	MTS	Clifford Telfer	Chief Financial Officer
63	MTS	Linda Musengo	Finance
64	MTS	Tom Lynch	Controller

	Stakeholder Entity	Name	Title/Position
65	MTS	Michael Daney	Senior Transportation Planner
66	MTS	Brent Boyd	Senior Transportation Planner
67	NCTD	Tom Lichterman	Director of Operations
68	NCTD	Diane Hessler	Chief Management Accountant
69	NCTD	Steven Hoyle	Project Officer
Local Jurisdictions			
70	City of San Diego	Deborah Van Wanseele	Deputy Director, Transportation Engineering & Capital Projects
71	City of San Diego	Marnell Gibson	Deputy Director, Right-of-Way, Engineering & Capital Projects
72	City of San Diego	Dave Zoumaras	Deputy Director, Field Division
73	City of San Diego	James Nagelvoort	Deputy Director, Planning & Technical Services
74	City of San Diego	Linda Marabian	Senior Traffic Engineer
75	City of San Diego	Wendy Morrow	Senior Management Analyst
76	County of San Diego	Mohamad Fakhrriddine	Deputy Director, Engineering Services
ITOC			
77	ITOC	John Meyer	Chair – Municipal/Public Finance
78	ITOC	Hamid Bahadori	Traffic/Civil Engineering
79	ITOC	Jesus Garcia	Engineering
80	ITOC	Jim Ryan	Construction Project Management
81	ITOC	Valerie Harrison	Organizational Development
82	ITOC	Kevin Cummins	Biology/Environmental Science
83	ITOC	Ron Gerow	Real Estate/Right-Of-Way Acquisition
Transportation Committee			
84	City Council	Jim Madaffer	Transportation Committee Representative
Other Stakeholders			
85	Associated General Contractors	Brad Barnum	Vice President, Government Relations
86	Building Industry Association	Matt Adams	Vice President, Government Affairs
87	Endangered Habitats League	Michael Beck	Planning Commissioner, EHL Board Member
88	San Diego County Taxpayers Association	Gordon Lutes	Project Design Consultant

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Appendix C: Amendments and Change Orders Reviewed

As of October 2008, when we performed our testing of contract amendments, SANDAG had entered into 16 consulting contracts with A&E (architectural and engineering) firms. Seven of those contracts did not have any task order amendments and an additional two contracts were for non-EAP projects—thus, we excluded them from our detailed testing. For the seven remaining A&E contracts, we reviewed each task order issued and noted those with amendments that significantly increased the initial task order value or extended the task order time frame—both instances that could increase the risk of project delay or budget overrun. As a result, we identified 12 task orders to review that had a combined total of 43 amendments worth over $16 million. For these amendments, we reviewed supporting documentation and interviewed the responsible task order managers to assess the reasonableness of justifications supporting the amendments and potential impact on project schedules and costs. The following table summarizes the task orders and amendments selected for review:

Task Orders and Amendments Reviewed

#	Contractor	Contract Number	Task Order Number	Number of Associated Amendments	Original Task Order Value	Amended Task Order Value
1	EDAW	5000261	5	3	$1,425,520	$2,129,522
			7	5	$253,000	$304,662
2	URS	5000262	2	6	$2,022,565	None, amendments were for time only.
			11	2	$539,101	$3,486,780
3	PGH Wong Engineering	5000305	10	5	$37,457	$1,943,220
4	Boyle Engineering	5000401	13	1	$1,965,317	None, amendment was for time only.
5	Bureau Veritas	5000402	8	3	$50,000	$296,428
			32	6	$1,146,200	$2,886,089
			47	1	$40,000	None, amendment was for time only.
6	CH2MHill	5000403	12	4	$103,258	$191,011
			31	3	$25,771	$885,206
7	Kimley-Horn	5000405	2	4	$44,698	$278,996
Total Reviewed:			**12**	**43**	**$7,653,387**	**$16,429,796**

Similarly, over the three-year period of our review, SANDAG and Caltrans awarded 21 construction contracts for EAP projects—of which, eight contracts were either complete or nearing completion. Using "progress pay reports" from Caltrans' Office Engineer and information from SANDAG project managers, we identified the contract value, payment amounts, and work complete status, as well as number and value of contract change orders. To identify any unusual or larger-value change orders in addition to excessive contract change order payments, we calculated the total amount and percentage paid in excess of the contract value as well as the change order value as a percentage of total payment and contract value. We identified four contracts whose change orders constituted at least 11 percent of the contract value or where the total payment was above the original bid amount. From each of the four construction contracts selected, we reviewed two change orders from each contract for a total of eight change orders totaling more than $7.2 million. We interviewed the contract resident engineers as well as reviewed supporting change order documentation to assess the justification supporting the change order and the potential impact of those changes on the project. The following table summarizes the change orders selected for review:

Change Orders Reviewed

#	Contractor	Contract Number	Segment/Project	Change Order Number	Change Order Amount
1	L B Civil Construction	11-279604	I-5 HOV Ramp Modification	2	$65,000
				6	$50,000
2	Coffman Specialties	11-080904	I-15 Middle Unit 1	9	Change order did not add cost.
				100	$555,101
3	FCI Constructors	11-080924	I-15 Middle Unit 3	49	$5,423,428
				86	$318,416
4	Hazard Construction	11-2T0204	SR-52 Ops West-Bound Truck Lane	1	$25,000
				15	$831,494
			Total Reviewed:	**8**	**$7,264,439**

Response to Audit Recommendations

	Recommendation	Report Reference	Priority	Response/Action Plan
To assist management and oversight bodies in deliberating project activities, weighing options before making decisions, and strengthening general levels of oversight, SANDAG should work in conjunction with Caltrans to:				
1.	Develop and deliver a brief, high-level summary, or "Report Card," to the ITOC and other oversight bodies for each transportation project describing project budget and schedule by phase, project performance, project benefits and risks, financial assumptions, project cost range, and highlights of project changes to scope, schedule and cost as well as budget-to-actual and project-to-date information. Also, consider summarizing Report Card performance on a monthly, quarterly, or annual basis, as appropriate, to identify trends or systemic issues.	Chapter 1, pages 32 and 33	High	*The TransNet program team intends to work with the ITOC to develop a reporting mechanism that is responsive to this recommendation and meets the ITOC needs for timely and appropriate information. Much of this information exists in both organizations and on the Dashboard. Therefore, we will work with the ITOC to determine how to consolidate the information and present it in the most useful manner – possibly through the use of an ITOC subcommittee. <u>The added cost of creating and maintaining the new Report Card also will be assessed.</u>*
2.	Summarize and distribute data reflecting key project milestones and performance indicators where period-to-period trends for the program overall, as well as at a corridor or segment level, could be analyzed. Statistics should include budget and schedule targets compared to actual performance, as well as progress towards meeting program objectives such as reducing levels of congestion and travel times, minimizing project cost per mile, and increasing the percentage of projects completed on time and on budget.	Chapter 1, page 34	High	*The setting of performance targets for program, corridor, and segments within the TransNet program is something that the TransNet program team has been and will continue to develop. To a large extent, these early years of the program have effectively served to establish a baseline of project development performance. Much of the data on actual performance and some analysis of budget and schedule targets are currently collected and reported through the Dashboard and other methods. Like recommendation no. 1, this is another area that TransNet program team will work with the ITOC to address. The added cost to develop performance targets and track progress against them will be assessed as well.*

	Recommendation	Report Reference	Priority	Response/Action Plan
3.	Provide status information regarding existing audit requirements and status updates on internal and external audits in progress or completed of SANDAG, Caltrans, or other transportation partners outlining scope of audit work, results of audit efforts, corrective actions planned or taken, and outstanding findings and unresolved issues as they relate to the *TransNet* program. In particular, the SANDAG Internal Auditor should report to the ITOC, or its newly formed Audit Subcommittee, once the current in-process audit of contracting and task order practices is completed.	Chapter 4, page 86	Medium	*Due to the ITOC lead role in the annual fiscal audits beginning in FY 2009, a regular reporting process has been developed and will be refined with the ITOC input.* *SANDAG will apprise the ITOC of the task order process audit results upon its completion.*
4.	Work collaboratively with the ITOC to identify other type of oversight data needed from SANDAG, Caltrans, or other transportation partners where appropriate and within reason.	Chapter 1, pages 31 and 35	Low	*See response to recommendation no. 1 – this should be addressed as part of that process.*
To monitor overall program adherence with the Extension Ordinance and assess the overall program impacts resulting from project budget and schedule deviations, the ITOC should:				
5.	Analyze suggested Report Card data and performance indicator data provided looking for trends, issues, and progress toward overall *TransNet* goals, as well as consider the multi-faceted project performance details impact on travel time and congestion as well as project performance in terms of schedule and budget adherence. Moreover, the data could be used to monitor effectiveness of operational strategies and the success of SANDAG in meeting targets.	Chapter 1, pages 32-34	High	*Related to recommendation no. 1 and no. 2 above.* *The ITOC intends to appoint a subcommittee to review this recommendation in conjunction with several others. The subcommittee will have the ability to work independently and with TransNet program staff on an as-needed basis and will develop a reporting process to the full ITOC. An assessment of the costs and benefits will be made by the subcommittee for any proposals developed to address this recommendation.*

	Recommendation	Report Reference	Priority	Response/Action Plan
6.	Work collaboratively with SANDAG to identify other type of oversight data needed from SANDAG, Caltrans, or other transportation partners that can be captured in matrices or other formats enabling a period-to-period review of data and results over time.	Chapter 1, pages 31 and 35	Low	*Same as recommendation no. 4 above.*
7.	Develop matrices or tracking documents to summarize critical ITOC concerns, issues, and decisions resulting from discussions at monthly meetings, as well as to memorialize resolutions or action items carried forward to subsequent meetings complete with owners assigned and timeframes for completion established. Progress and actions taken could be tracked and progress updated at subsequent meetings, and the matrices could serve as an institutional transfer of knowledge as new ITOC members are appointed.	Chapter 4, page 35	Medium	*The ITOC considers this recommendation to be of high priority. SANDAG staff is willing and able to develop historical records of ITOC actions that could be used for continuous updates for future actions. Development of example format alternatives will be presented to the ITOC for consideration.*
8.	Identify additional entities, positions, or individuals to regularly provide status reports and data to the ITOC (such as the SANDAG Internal Auditor), and incorporate standard monthly meeting agenda categories to address the new areas and ensure all critical *TransNet* program areas also receive an oversight focus in addition to project-specific activities. Refer to suggested categories in Chapter 1. Also, consider protocols regarding specified time allocations allowing for adequate deliberation prior to decisions rendered for the more critical areas with high-dollar or high-profile impact.	Chapter 1, page 36	Low	*Although the ITOC believes much of this recommendation is already being done, they will have the subcommittee referred to in no. 5 above review these issues for potential improvements and/or efficiencies.*

	Recommendation	Report Reference	Priority	Response/Action Plan
9.	Consider using the newly formed ITOC Audit Subcommittee as the information portal for audit status updates, especially those of a more sensitive nature. The Subcommittee could report back to the ITOC at large in the more public setting.	Chapter 4, page 86	Low	*See response to no. 5 above.*
To refine its existing Dashboard integrated budget and schedule tool, SANDAG should:				
10.	Revisit its intent and vision for the Dashboard to determine whether it should include all *TransNet* Early Action Program (EAP) projects and report on all Extension Ordinance programs, as well as determine whether the Dashboard is meant to function as an "in-progress" management tool for current projects or should be established as a comprehensive historical data warehouse for the 40-year duration of the *TransNet* program. Also, use the Dashboard data to summarize performance indicators and monitor progress of indicators such as "percent of work completed compared to total costs" and "support costs as a percent of capital construction costs."	Chapter 2, pages 44-46	Medium	*All EAP projects are being added to the Dashboard. The Environmental Mitigation Program and Goods Movement Program are being added to the Dashboard. Staff will discuss options with ITOC for adding other programs to the Dashboard. The Dashboard is intended to be a comprehensive historical data warehouse. The Dashboard currently compares percent work complete to total cost. There is some concern with the proposal to track support costs at the project level that need to be discussed with the ITOC.*
11.	Add an explanatory note to better clarify cumulative data presented or isolate and remove the pre-2005 expenditures to more accurately reflect the *TransNet* program costs.	Chapter 2, page 45	Medium	*A note will be added to the Dashboard to better explain the data presented.*
12.	Develop a mechanism to report project budget and schedule history and key changes over the course of the *TransNet* program.	Chapter 2, page 45	Medium	*Staff will begin to compile the history of changes to budget and schedule from this point forward. Staff will make this available in the Dashboard. Staff needs to discuss with ITOC the effort to compile the history of previous changes and the costs and benefits of doing so.*

	Recommendation	Report Reference	Priority	Response/Action Plan
13.	Ensure all Dashboard views and tables are complete and accurate such as "percent of completion" data by clearly identifying and communicating to project managers responsible for the data, the assumptions, and definitions behind the percent complete calculations as well as monitoring the indicator for reasonableness. Additionally, reassess the need and use of the "Trends, Risks, and Issues" section in the Dashboard to ensure complete and current information or eliminate the section and capture similar data through a different vehicle.	Chapter 2, pages 45-46	Medium	*Staff will modify the "Trends, Risks, and Issues" section in the Dashboard. New tools to help provide better consistency in the "percent of completion" data for the Dashboard are being rolled out to the project teams. Additional training efforts are also being deployed to improve accuracy and consistency.*
Building upon strong existing protocols related to transparency holding project owners accountable and economical to demonstrate performance results to the public, SANDAG should work in conjunction with Caltrans to:				
14.	Develop and define concrete performance goals and targets to measure project outcomes as well as performance efficiencies as part of a comprehensive performance monitoring system linking goals with strategic planning, specific goals, and resource allocations and evaluating progress toward objectives, such as levels of reduced congestion, project cost per mile, and percent of projects completed on time and budget. Performance measures should track program and project delivery effectiveness and efficiency indicators related to hitting targets on meeting delivery milestones, staying within certain percentages of cost estimates, and reducing support costs and overhead by prescribed amounts. Performance measures should be challenging yet attainable targets used to assess timelines and cost-effectiveness of projects. (Continued on the following page)	Chapter 2, pages 46-49	High	*Related to recommendation no.2 above – more specificity in this recommendation on developing goals/targets.* *The topic of performance goals, targets, and project/program monitoring provides a key recommendation that the TransNet program team believes may best be addressed by establishing an ITOC subcommittee and a regular reporting process to advance ideas to promote better accountability. This process will allow the ITOC and the TransNet program team to fully assess the costs and benefits of any proposals that are developed.* *ITOC believes that carpool and FasTrak® usage data should be included in developing the goals and performance measures referred to in this recommendation.*

	Recommendation	Report Reference	Priority	Response/Action Plan
14.	Once program-wide performance data is collected, it should be made available to the ITOC and other oversight bodies through the Quarterly Report process whereby program level milestones could be communicated and success or struggle with meeting benchmarks could be discussed to highlight accomplishments or improvements needed as well as month-to-month changes to identify trends and patterns. Indicators that could be measured include the following hypothetical examples: ✓ Each fiscal year, meet XX percent of project delivery milestones ✓ By XXX, reduce the support to capital ratio to XX percent or lower and reduce overhead cost to XX percent ✓ Each year, keep the total of all low bids within X percent of the total of all engineers' estimates	Chapter 2, pages 46-49	High	

	Recommendation	Report Reference	Priority	Response/Action Plan
15.	Consider using baseline data available in other models, such as the Caltrans California Life-Cycle Benefit/Cost Analysis Model that considers items including travel time savings and reduced emissions, to compare expected project benefits against actual results once projects are completed. Similarly, performance could be weighed against quantitative criteria and calculations used during the regional transportation planning process whereby projects are ranked and prioritized based on estimated cost per person-miles traveled and cost per travel time savings calculations. SANDAG could perform these calculations after project completion to identify variances from anticipated cost-effectiveness measures, discuss reasons for the differences, and use results to adjust future modeling or trend and compare projects against each other.	Chapter 2, page 48	Low	*Related to recommendation no. 14. This recommendation appears to be a longer-term action plan versus a shorter-term action plan for recommendation no. 14.* *Regarding the longer-term, the process for the next Regional Transportation Plan (RTP) will have to incorporate much of what is suggested here to conform to new state laws. The TransNet program team suggests that the TransNet program coordinate and incorporate the appropriate new processes developed in the upcoming RTP cycle.*
16.	Once a comprehensive performance monitoring system is designed as discussed above and performance data is captured, designate individual staff follow-up on missed targets, assure corrective actions where needed, or assess the impact of any shortfalls to the overall *TransNet* program. Such performance monitoring should be routinely conducted to assess the impact of performance not meeting target goals.	Chapter 2, page 49	Medium	*The TransNet program team generally concurs with this statement, to the extent that it refers to <u>new</u> performance monitoring systems and/or procedures. The team believes that this kind of accountability has been and will continue to be the routine responsibility of the Corridor Project Directors and the TransNet Project Offices.*

	Recommendation	Report Reference	Priority	Response/Action Plan
As funding is an ongoing challenge and projects are continually shifted and reprioritized to stretch limited resources, to monitor financial risks and availability of funds to complete projects as well as increase accountability, SANDAG should:				
17.	Continue to regularly monitor and review the debt-to- revenue ratio as well as total financing costs to ensure it meets short- and long-term obligations as well as continue to consistently analyze projected debt service costs and compare planned program financing costs to track any higher than expected bond issuance and debt services costs. Further, SANDAG should determine whether the POF strategies should be modified in the long-term, and report to the ITOC on the status of the debt-to-revenue ratio on a regular basis.	Chapter 3, page 54	Low	*We concur with the recommendation. SANDAG updates the Plan of Finance on an annual basis or more frequently, if necessary. As part of the update, some of the key metrics that are analyzed include the debt coverage ratio and the debt service costs as well as the assumptions underlying sales tax revenue growth and cost escalation factors. In addition, actual debt service costs are monitored on a weekly basis. Regular reports will be provided to the ITOC on the debt coverage ratio.*
18.	Establish a mechanism to link and track the Extension Ordinance planned projects and amounts with current plans and budgets for all *TransNet* projects to reduce confusion and better justify to the public how project promises from the Extension Ordinance were amended to result in actual projects delivered. Such on-going tools should specifically identify and document the history or evolution of a project's budget over time by tracking all significant changes to project funding, prioritization, and scope over the life of the *TransNet* program. Moreover, the data should be shared with the ITOC and other oversight bodies to better oversee and understand the cumulative impact of recommendations related to *TransNet* funding. (Continued on the following page)	Chapter 3, pages 65-67	High	*The budget tracking mechanism recommendation is something that the project teams are committed to developing for projects in the TransNet program. May have some concern for the implementation of this for all projects – particularly those in the program that are not actively being worked on. Cost information for those projects are at a planning level. Also see responses to recommendations nos. 12 and 14.* *Regarding the recommendation for "other data," we concur. SANDAG will provide a quarterly report to the ITOC containing components such as total TransNet revenue collected and the distribution of the revenue among the programs, as well as the status of spending the bond proceeds.*

	Recommendation	Report Reference	Priority	Response/Action Plan
18.	Other data that would be valuable for the ITOC to receive is the quarterly data related to sales tax revenue collected in the particular quarter, collected to date, and distributed amongst the various Extension Ordinance projects, programs, and entities.	Chapter 3, pages 65-67	High	.
To expand and enhance the current project management and delivery practices, SANDAG and Caltrans should consider the following:				
19.	Ensure post-evaluation forms are consistently used and completed for all highway construction and transit projects after each project phase to ensure appropriate changes are made mid-stream rather than waiting until a project is formally closed-out. Communicate key results to the ITOC as appropriate. Additionally, consider capturing various process best practices in shared databases that can be easily accessed and considered for application across all *TransNet* projects as well.	Chapter 4, pages 75-76	Medium	*The concept of informal post-evaluation for project development has been and will continue to be encouraged for all projects in the program. However, formal processes are not encouraged until a project is formally closed-out due to potential project claim issues.*
20.	Build upon, improve, and formalize transit project documentation of current SANDAG processes and procedures to better ensure long-term continuity of in-house expertise. Towards this end, SANDAG should consider establishing working-level policies and procedures to ensure the uniform application of project delivery and management techniques and make such documentation of practices, controls, and preferences available to SANDAG staff for reference and training purposes. At a minimum, SANDAG should consolidate Board policies into a comprehensive delivery manual where further defined procedures could be established and practices memorialized.	Chapter 4, pages 77-78	Medium	*While we concur with the many of the specific issues contained within this recommendation, SANDAG is considering a more comprehensive management review of the Transit planning and project development processes it is responsible for. It would be appropriate to assess these recommendations in light of that management review in order to determine the best course of action.*

	Recommendation	Report Reference	Priority	Response/Action Plan
21.	Create a uniform filing system to strengthen transit project management where critical project documentation such as cost estimates, project budget history, project development team meetings, change orders, and other data are organized and located under a similar numbering system to ensure consistency and availability of important project data. Further, SANDAG may want to create a shared database to house the electronic copies of project documentation.	Chapter 4, page 78	Low	*We concur and will develop this as part of our document control improvements.*
22.	Conduct an intensive, hands-on workshop in which SPRINTER project management could formally share critical lessons learned and practical experiences with SANDAG and Caltrans executives including discussing specific implementation details deliberated and benefits versus cost analysis employed. These meetings could result in the establishment of stronger project delivery tools and written policies and procedures to assure best practices are implemented such as: ✓ Using risk mitigation registers evaluating project risks related to cost, scope, and schedule including descriptions, cause, potential impact, likelihood of impact materializing, mitigation strategy, and costs to mitigate. ✓ Merging highway construction and transit risk assessment results into an integrated risk plan that can be overseen for the entire *TransNet* program.	Chapter 4, pages 79-80	Medium	*It is anticipated that the North County Transit District (NCTD) will convene detailed lessons learned workshop with NCTD, SANDAG, and FTA staff in the spring of 2009, pending the resolution of potential contractor claims and/or litigation. The ITOC is interested in exploring how to involve the public in this process. Staff will communicate this feedback to NCTD staff and report back to the ITOC on the process.* *It is the intent of the TransNet program team to conduct formal risk analyses during the development of the major corridor projects such as the Mid Coast Transit project and the Interstates 5 and 805 corridor projects. This will include risk identification and mitigations.* *A Risk Registry is being added to the Dashboard to identify and monitor risk for TransNet program projects.* *Once the risk registry is added to the Dashboard, an evaluation can be made regarding the value of conducting a program-level risk assessment.*

	Recommendation	Report Reference	Priority	Response/Action Plan
23.	Revisit the task order approval process to identify which individuals are needed for approvals or consider implementing a higher delegated authority level for certain types of amendments wherein a streamlined process could be employed on lower value amendments to ensure approval protocols are not causing unnecessary delays on projects.	Chapter 4, page 88	Low	*As part of ongoing efforts to streamline procurement processes, these issues will be reviewed.*
24.	Ensure task order amendments for time extension have sufficient written justification explaining why a project needs the extension and assessing the impact of the delay on other project activities and downstream project phases.	Chapter 4, pages 88-89	Low	*We concur and have taken steps to strengthen the documentation required for time extensions.*
25.	Enhance practices by tracking change orders and contract amendments for the *TransNet* program overall and developing and trending performance indicators to provide another tool to gauge project and program status or level of success.	Chapter 4, page 91	Medium	*This information is currently gathered and may have value in being reported at a program level. The TransNet program team would like to engage the ITOC in how to implement this process.*