

# FY2016 – FY2018 Triennial Performance Audit of the Metropolitan Transit System (MTS)

FINAL AUDIT REPORT

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Prepared For:



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## EXECUTIVE SUMMARY

**Transit operators that receive Transportation Development Act (TDA) funds are required to undergo triennial performance audits in the State of California.** Triennial performance audits are a requirement for the continued receipt of State TDA funds for public transit under California Public Utilities Code (PUC) Section 99246. This performance audit is administered by the San Diego Association of Governments (SANDAG) and prepared by Kimley-Horn and Associates. This report represents the State-mandated performance audit of the San Diego Metropolitan Transit System (MTS) for Fiscal Years 2016, 2017, and 2018, the period from July 1, 2015 through June 30, 2018.

The TDA triennial performance audit of MTS includes evaluations of:

- Compliance with pertinent sections of the Public Utilities Code
- Progress to implement prior performance audit recommendations
- Agency goals and objectives and performance monitoring systems
- Systemwide and functional area performance trends.

The objective of the performance audit is to assess compliance with PUC requirements, identify significant achievements as well as opportunities for improvement, and develop recommendations for short- and long-term efficiency and effectiveness improvements.

Several audit period accomplishments and challenges were noted. Major accomplishments include:

- Safety awards for both rail and for bus
- Transit Optimization Plan (TOP) study, implemented during 2018 and 2019
- Financial sustainability actions, including naming rights, advertising and continued migration to 401k style plan
- Implementation of SAP project
- Advancement of Compass Program upgrade and re-brand
- Rehabilitation of the South Bay, East County, and opening of the Courthouse Trolley Station.
- Ongoing development of Mid-Coast Trolley extension project.

A decrease in ridership is noted as the most significant challenge during the audit period. Other challenges included unfunded mandates (e.g., zero-emission requirements), recruiting in a tight economy, and planning for new technology in a new environment.

**MTS is in compliance with Public Utilities Code (PUC) requirements and the implementation of prior audit recommendations:**

- Compliance with PUC Requirements: MTS is in compliance with all PUC requirements.
- Progress to Implement Prior Audit Recommendations: There were no prior audit recommendations regarding PUC requirements.

**Performance indicator trends show the following:**

- Systemwide operating cost per revenue vehicle hour, a measure of cost efficiency, increased by 12.7% during the audit period to \$111.35. During the same period inflation rose 7.9%. The trend is a result of a 16.3% growth in operating costs and an 3.2% increase in vehicle service hours. These costs reflect the impact of minimum wage increases in a tight economy and miscellaneous other expenses such as increasing energy costs. Operating cost per passenger, a measure of cost effectiveness, increased by 31.6% from \$2.53 in FY15 to \$3.33 in FY18. This is a result of the combined 16.3% increase in operating costs and the 11.6% decrease in ridership. The ridership decline affected all modes (except rural bus) and is a national phenomenon.
- Service productivity declined during the audit period. Passengers per service hour decreased by 14.4% while passengers per service mile decreased by 14.8%. The main contributor to this was the overall ridership declines. MTS added service as part of the Transit Optimization Plan (TOP) – adding frequency to core network routes with the highest ridership, and restoration of service that was cut during the recession.
- Service hours per employee FTE, a measure of labor productivity, increased by 0.6% during the audit period from 1,018 in FY15 to 1,024 in FY18. Total staffing was stable for MTS during the audit period, holding steady at about 2,450 FTEs.
- The MTS systemwide farebox recovery ratio decreased during the audit period, from 40.5% in FY15 to 31.7% in FY18). This is a statistic for all modes and the average masks variances observed for the individual modes. For all years in the audit period except for FY18, MTS systemwide farebox recovery was still higher than the 31.9% goal, and significantly higher than the 20% requirement. MTS has so far not taken the option to make changes in reporting post SB 508.
- The average fare per passenger trip increased by 3.0% during the audit period, from \$1.03 to \$1.06. The net cost per passenger trip increased by 51%, from \$1.51 in FY15 to \$2.27 in FY18.

The systemwide TDA performance trends overall are indicative decreases in ridership, increases in operating cost, and of the continued attention that MTS placed on cost containment during the audit period. MTS' accomplishments position it well for continued cost containment in the future.

**One recommendation is noted (see details in Section V).** MTS should track and document the farebox recovery ratio very closely over the next several years both with Senate Bill 508 reporting and without. A fare increase would bring back farebox revenue back to historical average. Given the other constraints (ballot measure, coordination with new regional fare structure, new fare collection system implementation) a new fare increase is not expected in the immediate near term but ought to be considered at the earliest opportunity.

## **SECTION I: INTRODUCTION**

The TDA triennial performance audit of the San Diego Metropolitan Transit System (MTS) follows state guidelines. Triennial performance audits are a requirement for the continued receipt of State Transportation Development Act (TDA) funds for public transit under California Public Utilities Code (PUC) Section 99246. The San Diego Association of Governments (SANDAG) is responsible for administering the conduct of performance audits in the San Diego Region. SANDAG has retained Kimley-Horn & Associates to conduct the performance audit of MTS. This report represents the State-mandated performance audit of MTS for Fiscal Years 2016, 2017, and 2018, the period from July 1, 2015 through June 30, 2018.

The TDA triennial performance audit of MTS includes evaluations of:

- Compliance with pertinent sections of the Public Utilities Code
- Progress to implement prior performance audit recommendations
- System wide performance trends for efficiency and effectiveness
- Functional area performance results
- Opportunities to improve the efficiency and effectiveness of operations.

The objective of the performance audit is to identify significant achievements as well as opportunities for improvements, and to provide recommendations for short- and long-term efficiency and effectiveness improvements.

The methodology for the MTS audit included site visits, interview, and data collection and analysis. Interviews were conducted with personnel responsible for the management and oversight of MTS services:

- Chief Executive Officer
- Chief Financial Officer
- Chief Operating Officer, Trolley
- Chief Operating Officer, Transit (Interim)/Director of Fleet and Facility Maintenance
- Chief of Staff
- Director of Human Resources and Labor Relations
- Director of Marketing and Communications
- Chief of Police
- General Counsel
- Internal Auditor
- Director of Financial Planning & Analysis
- Procurement Manager

- Manager of Planning
- Manager of Capital Projects (Bus)
- Assistant Superintendent of Transportation
- Superintendent of Light Rail Vehicle Maintenance
- Assistant Superintendent of Light Rail Vehicle Maintenance
- Director of Transportation
- Manager of Training (Bus)
- Manager of Transportation Communication and Technology
- Transit Operations Specialist
- Senior Transportation Planner
- Enterprise Business Solutions Manager
- Operating Budget Supervisor
- TransDev Project Manager
- Manager of South Bay and East County Operations/Manager of Contract Operations & Passenger Facilities
- Manager of Fleet and Facility Maintenance
- Manager of Paratransit and Mini Bus
- Transit Services Data Analyst
- Rail Operations Analyst/Manager of Service Quality (Rail)
- Systems Safety Manager
- Director of Capital Projects

Background documents and other written information including those identified in Exhibit I-1 were collected and reviewed:

**Exhibit I-1: MTS Background Documents and Written Information Reviewed**

Organization and staffing charts	National Transit Database (NTD) Reports, FY16-FY18	Labor Agreements
Maps & Brochures Re-Services	State Controller Reports, FY16-FY18	Service Contracts
Organization Goals, Objectives, Policies and Procedures, FY16-FY18	Annual Budget Documents, FY16-FY18	Sample Monthly Reports and Invoice Contractors
Form C Reports-Formerly B10,		Short Range Transit Plan

B11	Financial Audit Reports and Letters, FY16-FY18	CHP Terminal Inspection & Pull-out Notice Reports, FY16-FY18
Year-End Performance Reports to Board and Management, FY16-FY18	Sample Routine Performance Reports by Functional Managers, FY16-FY18	Mobile Phone Usage Survey, FY15, FY17
Customer Satisfaction Survey, FY16, FY18	Bus Maintenance Plan, FY18	System Safety Program Plan, FY15
Rail Fleet Management Plan, FY16	Community Impact Report, 2018	Transit Asset Management Plan, 2018
Vehicle Assignment Policy, FY18		

The audit team also:

- Conducted on-site interviews with MTS management and staff responsible for administering, managing, and operating the transit system, including staff from MTS Bus Operations, MTS Rail Operations, and other functions (e.g., marketing, finance, planning, human resources, and legal).
- Assessed compliance with applicable Public Utilities Code Sections, including progress and performance results relative to prior audit recommendations.
- Compiled and analyzed performance indicator trend information for the system and the individual operations, as well as for major functional areas.

### *1.1. Overview*

MTS operates motorbus, light rail, and demand response services throughout the southern portion of the urbanized areas of San Diego County, as well as rural parts of east San Diego County not served by the North County Transit District (NCTD). The name MTS began being used in 2005, reflecting a name change of the former Metropolitan Transit Development Board (MTDB). At the end of the audit period, the MTS transit system includes three light rail lines with 53 stations, 100 fixed bus routes and ADA complementary paratransit (MTS Access). MTS Bus operations has a fleet of 793 buses and operates more than 2 million revenue hours. MTS rail operations operates 128 light rail vehicles over 54.3 miles of track. The service area includes the cities of San Diego, Chula Vista, Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway, Santee and a portion of the unincorporated area of San Diego County.

MTS responsibilities include service planning, performance monitoring and analysis, and the activities required to administer, fund and deliver transit services within this service area either directly or through contracts with other service providers. These services include:

- Directly Operated Bus
- Trolley
- Contracted Fixed Route
- Commuter Express

- Rural Service
- General Public Paratransit - Sorrento Valley Coaster Connection (SVCC)
- Americans with Disabilities Act (ADA) Demand Response Service (MTS Access).

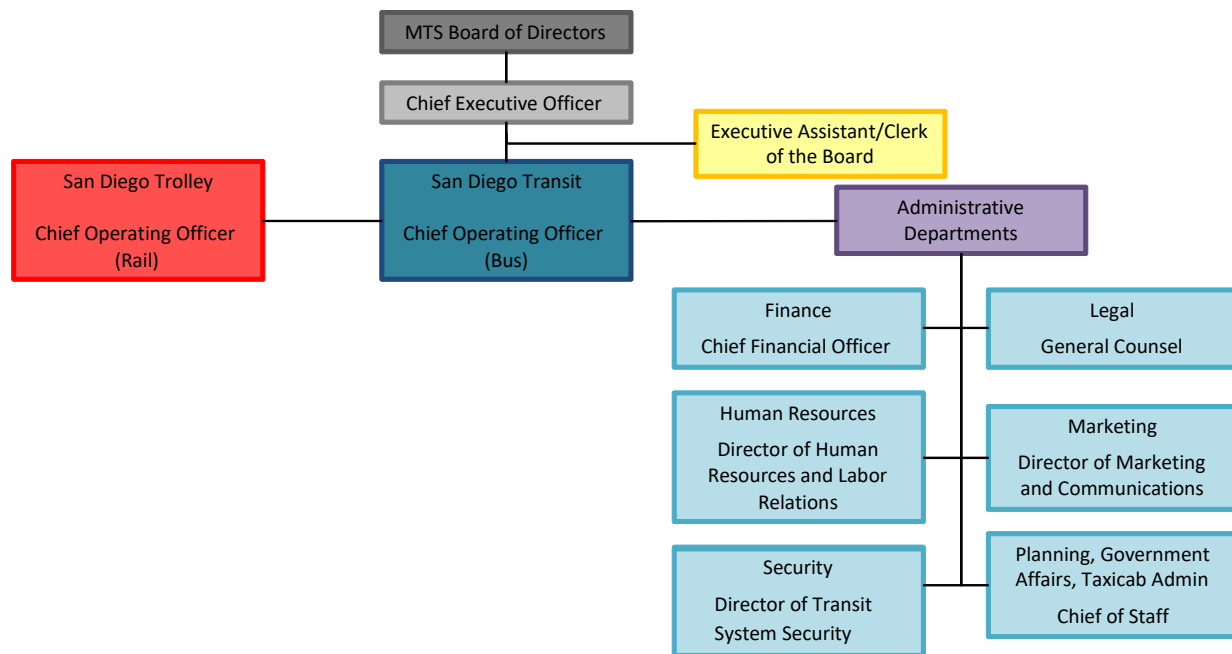
Each of these services that MTS provides is described in Section IV: Performance Trends and Functional Review. The section provides TDA performance indicators for the MTS system as a whole, as well as performance indicators for each service type individually.

MTS is governed by a 15-member Board of Directors that includes:

- Four appointed from the City of San Diego (the Mayor of San Diego and 3 San Diego City Council members)
- Two appointed from the City of Chula Vista (the Mayor of Chula Vista and a Chula Vista City Council Member)
- One appointed from each city council of Coronado, El Cajon, Imperial Beach, La Mesa, Lemon Grove, National City, Poway and Santee
- One appointed from the San Diego County Board of Supervisors.

Exhibit I-2 shows the high-level MTS organization chart. San Diego Transit includes all motorbus (directly operated and contracted) and demand response services. San Diego Trolley is the light rail system.

*Exhibit I-2: MTS Organization Chart*



There were no changes to MTS fares during the audit period, from July 1, 2015 to July 1, 2018. The primary fare types as of June 30, 2018, are the cash fare (\$2.25 for local, *Rapid* routes 201/202, 204, and 215, urban and shuttle routes, \$2.50 for the Trolley, *Rapid* routes 235 and 237, and express routes,



\$5.00 for *Rapid* express/premium routes, and \$5 to \$10 for rural routes); the Day Pass (\$5.00 for most services), and the Monthly Pass (\$72 for regional, \$100 for rapid express/premium). Discounts are applicable for seniors and persons with disabilities, and special fare products for college students, youth, social service agencies, stadium services, and class trips. SANDAG is responsible for fare policy and fare setting in San Diego County.

## *1.2. Audit Period Accomplishments and Challenges*

MTS accomplishments during the audit period can be summarized as follows:

- Safety
- Ridership stabilization and changes to service
- Financial sustainability
- Technology initiatives
- Capital renewal and investment

**Safety** – In May 2017, MTS won the APTA GOLD award for Safety, the second bus safety award received in three years. MTS created the “Pause, Focus, Look” campaign to renew focus on driving safety. The campaign included enhancements to the buses and visibility conditions, new training technology using drone video footage, and increased visual safety cues to drivers. Before the program, MTS recorded ten preventable pedestrian accidents from 2013 to March 2016. After the campaign and until the end of 2016, zero pedestrian accidents were recorded.

In June 2018, MTS was presented the APTA Rail Safety Gold award, presented at the APTA Rail conference held in Denver, Colorado. The award represents the culmination of years of hard work and recognizes MTS safety performance for light rail and efforts to continuously improve safety (e.g., rule of the week, regular goals and stretch goals). Preventable accidents per 100,000 vehicle miles continued their downward trend during the audit period and Trolley had zero preventable accidents in FY16 or FY17. MTS exhibits the best safety record in the State of California among large light rail operators.

**Ridership Stabilization and Changes to Service** – In response to declining ridership, MTS launched the Transit Optimization Plan (TOP) study. It had several components: Market Analysis, Service Evaluation, Implementation Plan. The work started in spring 2016 and the Board approved TOP recommendations in September 2017. Service changes were made over four shake ups from January 2018 to January 2019 (i.e., half within the audit period, and half just after). Low performing services were trimmed in June 2017. While it too early to definitely assess the results, ridership appears to have bottomed out and the route-by-route tracking is a useful tool in gauging progress. MTS also introduced its South Bay BRT service and saw large increases in the Blue Line and the rural bus services.

In parallel, MTS has engaged in aggressive marketing activities. These include the Choose Transit campaign to enlist the support of cities, military and universities; Free Ride Day; UPass for the University of California San Diego, and mobile ticketing.

**Financial Sustainability** – MTS constantly evaluates financial sustainability decisions, ranging from investing into computer systems, rehabilitating infrastructure, holding the line on wages, to energy purchases. One of the first operators in the country to do so, MTS secured new long-term revenue sources through naming rights of two trolley lines. The Blue and Green lines were renamed the “UC San Diego Blue Line” and “Sycuan Green Line” respectively. The contracts have a long-term horizon, providing funding of at least \$675,000 per year and \$600,000 per year, respectively. When the Mid-Coast

extension is complete, this will further increase the blue line naming rights revenues to \$945,000 and there is a provision for inflation.

In an effort intended to boost advertising revenues combined with state of good repair, MTS is in the process of installing 600 bus shelters and 1,850 bus benches. Combined, these provide roughly \$1 million of advertisement revenues per year.

To decrease fare evasion rates, MTS implemented a new beat system and reported 2.8% fare evasion. This is on the low end of the spectrum of peer transit systems that report the percentages of trips where fare is evaded. A pair of code compliance officers and contracted security workers patrolled a chosen station twice a week and performed a ticket check. Fifty of these checks were performed in 2018.

MTS continues to benefit from its transition to a 401k style plan instead of a pension plan. Though the shift was made in the prior audit period, each year that passes sees a higher percentage of employees transitioned over. For example, by FY18, approximately 55% of bus operators are now in the 401k plan. Ultimately, all of them will be.

During the second half of the audit period, MTS developed its own Transit Asset Management (TAM) plan. Through this effort, MTS assessed many of its assets useful lives to optimize the lifecycle cost. For example, MTS analyzed operating costs per mile for a given age of a bus and found diminishing returns after the 13<sup>th</sup> year. Asset useful lives are an integral assumption that feeds into the agency 20-year Capital Improvement Program (CIP).

The combination of low unemployment and increased minimum wage led to challenges with recruitment. With the unemployment rate under 5% throughout the audit period and now closer to 3%, recruitment efforts were restructured to attract potential new employees. Internally, MTS dedicated one full time staff member to recruitment; this position was rotated amongst a team four. Externally, potential bus driver candidates were given immediate interviews at job fairs and response time between interviews and the process for offer letters was shortened.

Finally, MTS is having some detailed discussions on more clearly defining capital and operating budget items as some may categorize better as capital rather than operating cost and vice versa.

**Technology Initiatives** – During the audit period, MTS implemented a complex technology project, SAP, and made significant strides in advancing the Compass Program upgrade and re-brand.

MTS launched its ERP/EAM software which went live on January 1, 2016 at the beginning of the audit period, with approximately a year planned for implementation. The endeavor involved all MTS departments with emphasis on Finance. MTS has seen a reduction in lag time for procurements and a more streamlined approach to budgeting and scheduling. On the bus maintenance side, the adoption was straightforward, staff were on board immediately for work orders and to order parts. On the rail maintenance side, adoption of the new system was also fast but a glitch caused the staff to have to rebuild the inventory from scratch. Nevertheless, the staff believes the up-to-date-information will yield efficiencies moving forward as well as provide a better opportunity to mine information for trends.

On the customer facing end, MTS has made improvements to and are planning a complete re-design of the Compass fare system. In March 2017, MTS launched a mobile ticketing application called Compass Cloud (with North County Transit District) that provides a platform to purchase fares that could be stored on devices and activated when needed. In parallel, during the audit period MTS started the process of upgrading its entire fare system and re-branding the Compass program. This initiative is in response to the Compass system's obsolescence and will include a new fare schedule. MTS brought contractor Init to

become the new system vendor and expects to launch the new system in June 2021 to coincide with the opening of the UCSD Blue Line extension (Mid Coast).

Another accomplishment during this time was the successful launch of the OneBusAway app, which provides real-time transit information (for bus and trolley) on both iPhones and Android devices.

**Capital Renewal and Replacement** – During the audit period, MTS wrapped up its Trolley Renewal Project targeting the Blue and Orange Lines. MTS completed the rehabilitation of the South Bay Division (part of South Bay Rapid project, required to accommodate the articulated buses). MTS also completed the rehabilitation of the East County Division, a separate project.

A highlight was the October 2016 opening of the East County operations and maintenance facility in El Cajon. The 5.5 acre facility holds a LEED Silver certification and accommodates 120 CNG buses and 129 employees (operators and mechanics). This is also where the 24 diesel over the road coaches are domiciled.

In April 2018, MTS opened the Courthouse Trolley Station, the western terminus for the Orange Line. This station addressed constraints for a terminus at America Plaza and was designed in preparation of the Mid Coast LRT extension opening. The station provides access for 44,500 jobs within a half mile radius. The project was completed using a \$31.9 million grant fund from the Transit and Intercity Rail Capital Program (TIRCP). This cap and trade fund has also assisted in the procurement of nine new rail vehicles to add services to the Blue Line.

MTS challenges during the audit period can be summarized as follows:

- Ridership
- Unfunded mandates
- Recruiting in a tight economy
- Planning for new technology in a new environment

**Ridership** – In FY15, MTS experienced its highest ridership ever with 96.7 million total passenger trips. A “perfect storm” of reasons – listed below – resulted in a 11.6% ridership decrease in the three years following FY15, as shown in the chart below. The ridership drop follows a California-wide and in fact a national trend in ridership decreases and ridership demand for MTS was in fact peaking in FY15 when it was already declining in other markets.

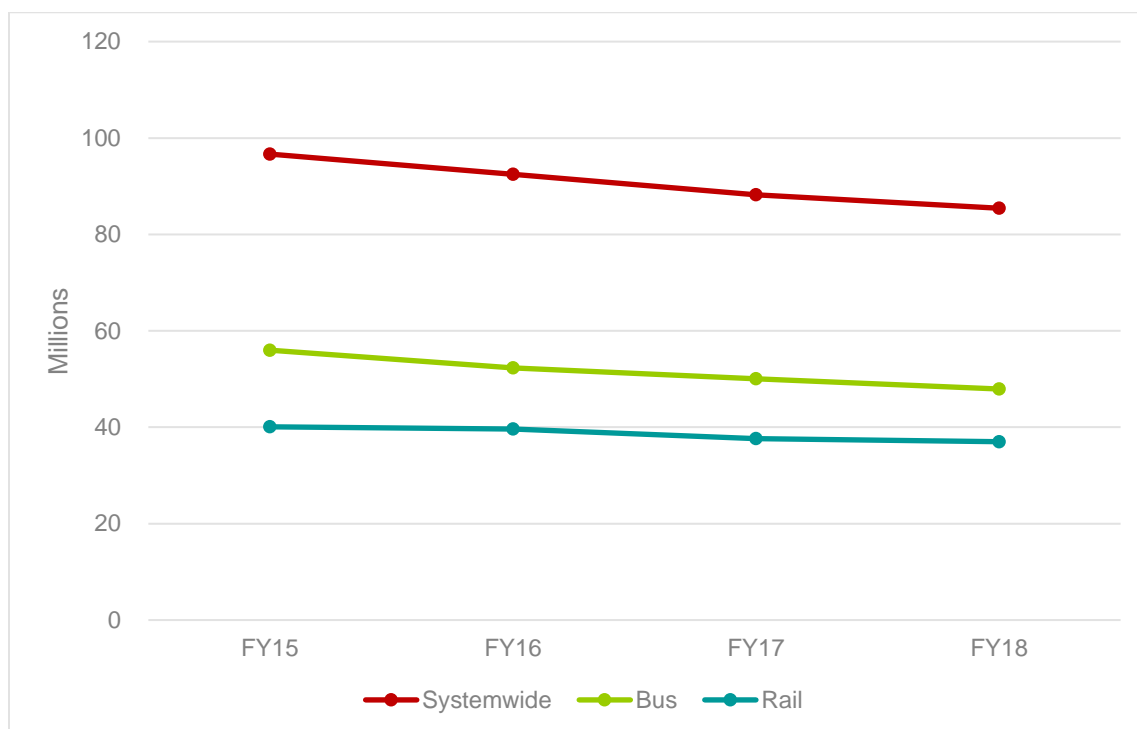
Among often-cited reasons for the decline include: historically low fuel prices, Assembly Bill 60<sup>1</sup>; the rising cost of living in Southern San Diego county which is causing transit dependents to move to more remote/suburban, lower density areas that are challenging to effectively serve with transit, Transportation Network Companies; zero or low cost of parking in many locations; and other factors.

In the past, ridership was fairly highly correlated with employment. This does not appear to be the case any more.

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<sup>1</sup> Assembly Bill 60 (2013) authorized applicants unable to submit satisfactory proof of legal presence in the United States, but able to meet other qualifications for licensure and provide satisfactory proof of identity and California residency, to obtain California Driver Licenses

Exhibit I-3: MTS Ridership from FY15 to FY18



Source: NTD Reports from FY2016 to FY2018.

The ridership drop during the audit period is equivalent to approximately 11 million passengers. The slide was steeper on the bus side than it was for rail which makes sense. The good news is several indicators suggest this trend may be turning around.

**Unfunded Mandate** – MTS retired its last diesel standard bus in 2017, successfully converting most of the fixed route fleet to Compressed Natural Gas (CNG). In December 2016, newly purchased propane fueled minibuses became operational. These vehicles included 31 minibuses and 46 paratransit buses. As of the end of the audit period, 35% of the paratransit fleet runs on clean energy.

Chief among the unfunded mandates is the upcoming California Air Resources Board (CARB) Innovative Clean Transit rule. The regulation includes a 25 percent zero emissions bus purchase requirement in 2023, with increasing purchase requirements in future years, culminating in a 100 percent zero emissions purchase requirement by 2029. Currently two technologies meet the zero-emission bus requirements: hydrogen fuel cell and battery electric. Both have performance limitations and operational, implementation and funding challenges. During the audit period, MTS spent considerable efforts fighting the mandate but lost. MTS hired a Zero Emissions analyst and hired CTE for some early planning and getting smart by attending workshops and conferences. MTS is also closely tracking total electrical supply costs since these are expected to grow over time. A pilot program, initiating in summer 2019, will include eight battery electric buses. The pilot program will enable MTS to observe the electric fleet's effectiveness handling existing topography and route ranges. MTS is also examining hydrogen fuel cell pilot options.

**Recruiting in a Tight Economy** – The economy in Southern San Diego county has been on a tear during the audit period and is effectively at full employment. This poses ongoing challenges in terms of

both recruiting and retention. MTS sometimes loses employees to other companies who offer more money, or to situations where the schedule can be more flexible (e.g., working for Uber or Lyft). The latter is a growing challenge with the newer generation. It is difficult recruiting people from outside of San Diego due to the difference in pay in and cost of living. MTS has addressed this in part by making sure there are excellent training programs in place to grow from within. MTS has also worked very hard at recruiting, rotating positions and providing interviews on the spot to help potential bus operators who can't take time off from their jobs, for example. Minimum wage increases ripple throughout the organization. In some cases, MTS has made special adjustments to wages and schedules as well (e.g., for flaggers).

**Planning for New Technology in a New Environment** – Longer term, an ongoing challenge will be reinventing MTS services in a new environment which is becoming more congested all the time. Understanding the impacts of technology such as autonomous vehicles, ubiquitous scooters, changing behaviors due to Transportation Network Companies, is a big challenge. There are big changes in urban mobility, with new players coming into the market and some exiting after a short period. MTS needs to stay on the forefront of this revolution, develop the best alternatives for itself to stay competitive and the right partnerships to be successful.

### *1.3. Report Outline*

The remainder of the performance audit report is organized into four sections:

- II. Compliance Review: Assesses MTS compliance with specific PUC requirements and discusses the status of prior audit recommendations.
- III. Management Control and Reporting: Examines the management structure and performance monitoring systems in place to help reach MTS goals and objectives.
- IV. Performance Trends and Functional Review: Examines system wide performance trends as well as trends in the major functional areas: operations, maintenance, and planning and administration.
- V. Conclusions and Recommendations: Outlines recommendations and potential implementation strategies for MTS to capitalize on improvement opportunities.

## **SECTION II: COMPLIANCE REVIEW AND PRIOR AUDIT RECOMMENDATIONS**

The compliance review assesses compliance with PUC requirements and implementation of prior audit recommendations. Activities conducted by MTS and each of the MTS service providers to comply with TDA requirements are described in this section. TDA performance indicator results and trends are discussed in Section IV – Performance Trends and Functional Review.

PUC requirements verified as part of this performance audit include the compliance requirements for transit operators stipulated in the California Department of Transportation TDA Performance Audit Guidebook for Transit Operators and Regional Transportation Planning Entities (2008) and TDA Statutes and California Codes of Regulations (2009).

With the consolidation of operations in the MTS service area, some of the compliance findings have been made for MTS as a whole. Where appropriate (e.g., where operators continue to file separate financial audits and State Controller reports), findings have been made for particular MTS services. Please note that Chula Vista Transit (CVT) information is provided where appropriate and merged with MTS Contracted Service, also where appropriate, due to the absorption of CVT by MTS in January 2015.

Compliance is assessed at three levels:

- Fully compliant.
- Partially compliant, with additional actions required to achieve full compliance.
- Non-compliant or not applicable.

Compliance to measure progress towards implementing prior audit recommendations has been measured in three categories:

- Fully implemented.
- Partially implemented but further progress is warranted.
- Not implemented or not applicable.

### ***II.1. Compliance Review***

MTS and its contractors are in compliance with the PUC and CAC requirements for urban operators.

Code Reference	Operator Compliance Requirements, Findings, Verification			
PUC Section 99243	<b>Requirement – Uniform System of Accounts and Records:</b> Annual reports based on the Uniform System of Accounts and Records established by the State Controller are submitted to the RTPA within 90 days of the end of the fiscal year (September 30) or 110 days if submitted electronically (approx. October 20). Starting FY17, annual report due within 7 months of the end of the fiscal year (January 31) (AB 1113).			
	<b>Findings</b>		<b>State Controller Report Submittal Dates</b>	
	<b>MTS Bus: fully compliant</b> Source: State Controller Annual Report All reports were submitted electronically		MTS Bus: FY16: 18-October-2016 FY17: 25-January-2018 FY18: 28-January-2019	
	<b>MTS Contracted Bus and Demand Response: fully compliant</b> Source: State Controller Annual Report All reports were submitted electronically		MTS Contracted Bus: FY16: 18-October-2016 FY17: 25-January-2018 FY18: 28-January-2019	
	<b>MTS Rail: fully compliant</b> Source: State Controller Annual Report All reports were submitted electronically		MTS Rail: FY16: 18-October-2016 FY17: 25-January-2018 FY18: 28-January-2019	
	<b>Chula Vista Transit</b>		Chula Vista Transit: n/a MTS assumed full operations starting in FY16	
PUC Section 99245	<b>Requirement – Annual Fiscal Audit:</b> Certified annual fiscal and compliance audits are submitted to the RTPA and State Controller within 180 days of the end of the fiscal year (December 31), or receive 90-day extension (March 31).			
	<b>Findings</b>		<b>Annual Fiscal Audit Submittal Dates</b>	
	<b>MTS: fully compliant</b> Source: Annual fiscal audits were included as part of the Comprehensive Annual Financial Report.		MTS: FY16: 31-October-2016 FY17: 23-November-2017 FY18: 1-November-2018	
	<b>Chula Vista Transit</b>		Chula Vista Transit: n/a MTS assumed full operations starting in FY16.	
PUC Section 99251	<b>Requirement – CHP Certifications:</b> Following inspection of the operator's terminal, CHP has certified operator's compliance with Vehicle Code 1808.1 within 13 months prior to each TDA claim submittal.			
	<b>Findings</b>		<b>CHP Certification Dates</b>	
	<b>MTS: Fully Compliant</b> Source: CHP Transit Operator Compliance Certificates			
			Imperial Ave	
Kearny Mesa				

Code Reference	Operator Compliance Requirements, Findings, Verification				
	<b>MTS Contracted Bus and Demand Response: Fully Compliant</b> Source: CHP Transit Operator Compliance Certificates		FY16	FY17	FY18
		First Transit, Copley Park	27-Oct-15	20-Oct-16	18-Oct-17
		Transdev, El Cajon	9-Sep-16	15-Sep-17	6-Sep-18
		Transdev, South Bay	1-Jan-16	20-Jan-17	9-Feb-18
	<b>MTS Rail: not applicable</b>	MTS Rail: Vehicle Code 1801.1 does not apply to rail operators.			
	<b>Chula Vista Transit</b>	Chula Vista Transit: n/a MTS assumed full operations starting in FY16.			
PUC Section 99261	<b>Requirement – Transportation Planning Agency Regulations:</b> Claims for TDA funds are submitted in compliance with RTPA's rules and regulations for such claims.				
	<b>Findings</b>	<b>Verification</b>			
	<b>Fully compliant</b> – MTS submits its TDA claims and proper documentation to SANDAG each year.	Review of full claims packet including checklist submitted to SANDAG for the audit period.			
PUC Section 99266	<b>Requirement – Budget Changes:</b> Operating budget has not increased by more than 15% over the preceding year unless reasonable justification has been provided.				
	<b>Findings</b>	<b>Percent Growth in Budget</b>			
	<b>MTS Bus: fully compliant</b> Source: Annual adopted budgets FY16-18	MTS Bus: FY16: +1.6% FY17: - 0.2% FY18: +4.2%			
	<b>MTS Contracted Bus and Demand Response: fully compliant</b> Source: Annual adopted budgets FY16-18	MTS Contracted Bus: FY16: +5.7% FY17: +3.2% FY18: +1.6%			
	<b>MTS Rail: fully compliant</b> Source: Annual adopted budgets FY16-18	MTS Rail: FY16: +2.0% FY17: +5.0% FY18: +2.2%			
	<b>Chula Vista Transit</b>	Chula Vista Transit: n/a MTS assumed full operations starting in FY16.			
PUC Section 99247	<b>Requirement – Performance Measures Definitions:</b> The operator's definition of performance measures are consistent with Public Utilities Code Section 99247, including (a) operating cost, (b) operating cost per passenger, (c) operating cost per vehicle service hour, (d) passengers per vehicle service hour, (e) passengers per vehicle service mile, (f) total passengers, (g) transit vehicle, (h)				



Code Reference	Operator Compliance Requirements, Findings, Verification	
	vehicle service hours, (i) vehicle service miles, and (j) vehicle service hours per employee.	
	Findings	Verification
	<b>Fully compliant</b>	MTS operating statistics are collected and performance measures are calculated in accordance with PUC requirements. In annual the Performance Monitoring Report, revenue hours are defined by MTS as in-service hours plus layover hours.
PUC, Sections 99268.2 99268.3 99268.4 99268.5 99269	<b>Requirement – Revenue Ratios:</b> Operator has maintained a ratio of fare revenues to operating costs at least equal to: 20% for urban areas, 10% for non-urban areas, 10% for services for elderly and disabled persons. For MTS operators, the systemwide ratio shall be not less than the ratio achieved in FY17 (31.9%). The urban area ratio of 20% became the systemwide standard starting in FY17 from SB 508.	
	Findings	Farebox Recovery Ratios
	<b>MTS Systemwide Combined Operations: fully compliant</b> Exceeded the systemwide 31.9% ratio in FY16 and exceeded the 20% ratio in FY17 and FY18. Source: CAFR, Schedule of Revenues, Expenses, and Changes in Net Position – Budget and Actual	FY16: 37.9% FY17: 34.4% FY18: 32.3%
	<b>MTS Bus: fully compliant</b> Exceeded the 20% urban area ratio annually. Source: Audited Financial Statements	MTS Bus: FY16: 27.4% FY17: 26.2% FY18: 23.1%
	<b>MTS Contracted Bus and Demand Response: fully compliant</b> Exceeded the 20% urban area ratio annually. Source: Audited Financial Statements	MTS Contracted Bus Operations: FY16: 38.1% FY17: 36.0% FY18: 33.4%
	<b>MTS Rail: fully compliant</b> Exceeded the 20% urban area ratio annually. Source: Audited Financial Statements	MTS Rail: FY16: 54.8% FY17: 47.8% FY18: 44.9%
	<b>MTS Non-Urban Area: fully compliant</b> Exceeded the 10% rural area ratio annually. Source: TDA Claim Form	MTS Non-Urban: FY16: 13.3% FY17: 11.4% FY18: 12.0%
	<b>MTS Elderly and Disabled: fully compliant</b> Exceeded the 10% elderly & disabled ratio	MTS Elderly & Disabled: FY16: 12.4% FY17: 12.3% FY18: 12.9%

Code Reference	Operator Compliance Requirements, Findings, Verification	
	annually. Source: TDA Claim Form	
	<b>Chula Vista Transit</b>	Chula Vista Transit: n/a MTS assumed full operations starting in FY16.
PUC Section 99271	<b>Requirement – Employee Retirement System:</b> The current cost of the operator's retirement system is fully funded with respect to the officers and employees of its public transportation system, or the operator is implementing an RTPA-approved plan to fully fund the retirement system within 40 years.	
	<b>Findings</b>	<b>Verification</b>
	<b>MTS: fully compliant</b>	Comprehensive Annual Financial Report MTS CalPERS Plans SDTI CalPERS Plans SDTI PARS Plan SDTC Retirement Plan
	<b>Chula Vista Transit</b>	Chula Vista Transit: n/a MTS assumed full operations starting in FY16.
CAC Section 6754(a)(3)	<b>Required Findings:</b> If the operator received STA funds, the operator makes full use of funds available from the Federal Transit Administration before TDA claims are granted.	
	<b>Findings</b>	<b>Verification</b>
	<b>MTS: fully compliant</b>	MTS utilizes federal funds that are available to the agency, as reported in the annual financial reports. MTS receives FTA Section 5307, Section 5337, Section 5339, Section 5311 and Section 5311F grants.
	<b>Chula Vista Transit</b>	Chula Vista Transit: n/a MTS assumed full operations starting in FY16.

**II.2. Prior Audit Recommendations**

The prior audit did not contain any specific recommendations.

## SECTION III: MANAGEMENT CONTROL AND REPORTING

On June 23, 2005, the MTS Board of Directors approved the following vision for MTS services (still valid through the audit period).

### A Vision for MTS Services

- Develop a **Customer-Focused System**: Provide services that reflect the travel needs and priorities of our customers.
- Develop a **Competitive System**: Provide services that are competitive with other travel options by meeting market segment expectations.
- Develop an **Integrated System**: Develop transit services as part of an integrated network rather than a collection of individual routes.
- Develop a **Sustainable System**: Provide appropriate types and levels of service that are consistent with market demands and are maintainable under current financial conditions.

To achieve this vision of a customer-focused, competitive, integrated, and sustainable system, MTS Board Policy No. 42 establishes a process for evaluating existing transit services. The policy provides a set of measures for annual evaluation, listed in Exhibit III-1.

Exhibit III-1: MTS Transit Service Performance Indicators

CUSTOMER FOCUSED / COMPETITIVE				INTEGRATED			SUSTAINABLE												
PRODUCTIVITY		QUALITY		CONNECTIVITY			RESOURCES		EFFICIENCY										
Total Passengers	Average Weekday Passengers	Passengers/Revenue Hour	<b>Passengers/In Service Hour</b>	Passenger Load Factor	On-Time Performance	Mean Distance between Failures	Accidents/100,000 Miles	Comments/100,000 Passengers	Route Headway	Span of Service Consistency	Service Availability	In-Service Miles	In-Service Hours	Peak Vehicle Requirement	In-Service Speeds	In-Service/Total Miles	In-Service/Total Hours	Farebox Recovery Ratio	<b>Subsidy/Passenger</b>

**Bold** – Key indicators used for ranking route performance.

Source: MTS Policies and Procedures: Transit Service Evaluation and Adjustment (Revised June 20, 2013)

For each indicator, MTS establishes performance targets every three years. These targets represent aggressive, yet realistic service expectations based on service design, route characteristics, and operating environments. At the conclusion of each fiscal year, MTS conducts an annual service evaluation to compare actual performance of the system with the targets and to identify opportunities for adjustments and improvements based on this analysis. Overall system performance is documented in the Annual Performance Monitoring Report.

Routes in the bottom quartile for each route group for passengers per in service hour and subsidy per passenger are identified for further analysis on a segment basis (temporal and geographic) as well as closer look at other aspects of the route's performance. MTS has established policies and procedures for service changes.

During the audit period, MTS also restructured the performance evaluation program to incorporate what used to be overall agency goals to be assigned within the individual departments' goals for more direct accountability. For the last year in the audit period (FY18), the common goals from the departments are:

1. Achieve a favorable expense budget variance for fiscal year 2018.
2. Improve upon the following Key Performance Indicators (KPI) as compared to fiscal year 2017:
  - a. Monthly Ridership
  - b. Passengers Per Revenue Hour
  - c. Farebox Recovery and Subsidy
3. Improve upon the following Service Quality key Performance Indicators (KPI) as compared to fiscal year 2017:
  - a. On-Time Performance
  - b. Complaints Per 100K Passengers
  - c. Mean Distance Between Failures
  - d. Preventable Accidents Per 100K Miles
4. Continue to enhance Safety Programs
5. Develop and implement a defensive driver training program, focusing on non-revenue vehicles, by February and March 2018
6. Completion of FTA Triennial Audit with no audit findings as a result

Statuses for performance in each of these areas are reported annually and form the basis for assessing the individual departments' performance. Performance also features directly into staff compensation as part of the annual assessment process.

## SECTION IV: PERFORMANCE TRENDS AND FUNCTIONAL REVIEW

This section of the report provides results of the analysis of TDA and functional performance indicators. This section of the audit report discusses performance results, beginning with the five TDA performance indicators required under Section 99246 (c) of the Public Utilities Code (PUC):

- **Operating Cost per Service Hour:** a measure of cost efficiency
- **Operating Cost per Passenger:** a measure of cost effectiveness
- **Passengers per Service Hour:** a measure of service productivity
- **Passengers per Service Mile:** another measure of service productivity
- **Vehicle Service Hours per Employee Full-Time Equivalent (FTE):** a measure of labor productivity.

TDA performance indicators are provided for MTS first at the Systemwide level (i.e., MTS Bus, MTS Contracted Bus, and MTS Rail combined), then for each individual service type. Functional level performance is reviewed at the service type level. The performance trends cover the audit period, from FY16 through FY18, with FY15 used as a base year to provide a point of reference for the analysis.

Most primary data elements for this analysis are extracted from the National Transit Database (NTD). Other sources (e.g., MTS Annual Performance Monitoring Reports, State Controller, financial audit, and internal reports) have been used as necessary either to augment the information reported, or to improve data accuracy and availability. Most of the tables presented include inflation, measured by the change in the Consumer Price Index (CPI) for San Diego county. Inflation was up 7.9% over the three years of the audit period.

Data collection and reporting procedures for the five TDA performance indicators were reviewed to verify that the data reported are consistent with data definitions. TDA performance indicators are used to assess service efficiency and effectiveness and to provide a point of departure to drill down into functional performance indicators and trends, to provide additional clarification of performance results. Additional performance indicators were also evaluated regarding the efficiency, effectiveness, and general performance of MTS's public transportation services

In addition to the five required indicators, the **farebox recovery ratio** is calculated to determine whether an operator is eligible for funding under PUC. A summary of what is include is under PUC sections 99243 and 99247. The ratio of fare revenues to operating cost is 20% as the claimant is serving an urbanized area.

With the passage of Senate Bill 508 (SB 508) in October 2015, the State deleted provisions for certain operators to meet a greater than 20% farebox ratio. Previously, MTS was required to continually meet a 31.9% (regional routes have a 20% goal). SB 508 effectively authorized operators to use local funds in the calculation of farebox recovery ratio. The specific SB 508 language change is presented in the text box below. This is a significant change that affects this TDA Triennial audit period for the first time.

### **SB 508 (99268.19.)**

If fare revenues are insufficient to meet the applicable ratio of fare revenues to operating cost required by this article, an operator may satisfy that requirement by supplementing its fare revenues with local funds.

As used in this section, “local funds” means any nonfederal or nonstate grant funds or other revenues generated by, earned by, or distributed to an operator.

Given its farebox recovery rates exceed the minimum goal, MTS opted not to modify its farebox recovery reporting approach during the audit period.

### IV-1. System-wide Performance

Exhibit IV-1 shows MTS systemwide TDA performance indicators during the audit period.

Exhibit IV-1: MTS Systemwide TDA Performance Indicators

Verified TDA Statistics & Performance Indicators	Base Year	Audit Review Period			% Change FY15- FY18
	FY15	FY16	FY17	FY18	
Operating Costs	\$244,611,260	\$250,808,312	\$268,652,470	\$284,436,283	16.3%
Unlinked Passengers	96,660,850	92,437,294	88,194,806	85,429,212	-11.6%
Vehicle Service Hours	2,475,048	2,569,421	2,581,544	2,554,405	3.2%
Vehicle Service Miles	32,118,758	33,344,787	33,501,220	33,323,214	3.8%
Employee FTEs	2,431	2,520	2,453	2,494	2.6%
Operating Cost per Revenue Vehicle Hour	\$98.83	\$97.61	\$104.07	\$111.35	12.7%
Operating Cost per Passenger	\$2.53	\$2.71	\$3.05	\$3.33	31.6%
Passengers per Revenue Vehicle Hour	39.05	35.98	34.16	33.44	-14.4%
Passengers per Revenue Vehicle Mile	3.01	2.77	2.63	2.56	-14.8%
Service Hours per Employee FTE	1,018	1,019	1,052	1,024	0.6%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Bureau of Labor Statistics, Form-C Reports

The Transit Optimization Plan (TOP) study approved by the MTS Board in September 2017 resulted in significant changes to allocation of services. In June 2017, MTS trimmed some low performance bus routes. Other changes were implemented over four shake ups, from January 2018 to January 2019. Even though about half of these changes were made during the audit period, real results of the TOP are likely to be better observed in the next audit period. Systemwide, operating costs were up 16.3% from FY15 levels and ridership down 11.6%.

The main findings for Systemwide TDA performance are:

- Operating cost per revenue vehicle hour, a measure of cost efficiency, increased by 12.7% during the audit period from \$98.83 in FY15 to \$111.35 in FY18.
- Operating cost per passenger, a measure of cost effectiveness, increased 31.6% from \$2.53 in FY15 to \$3.33 in FY18. The decrease in ridership combined with the increase in operating costs almost equally contributed to this increase.
- Service productivity declined during the audit period. Passengers per revenue vehicle hour decreased by 14.4% while passengers per revenue service mile decreased by 14.8%.

- Service hours per employee FTE, a measure of labor productivity, remained stable during the audit period, increasing by 0.6%. This trend is a result of minor increases in the total level service provided and a 2.6% increase in employee FTEs.

**Exhibit IV-2** shows MTS systemwide fare revenue indicators during the audit period.

**Exhibit IV-2: MTS Systemwide Revenue Performance Indicators**

Date Item and Farebox Ratio	Base Year	Audit Review Period			% Change FY15- FY18
	FY15	FY16	FY17	FY18	
Operating Costs	\$244,611,260	\$250,808,312	\$268,652,470	\$284,436,283	16.3%
Farebox Revenues	\$99,114,021	\$97,913,890	\$93,279,455	\$90,235,809	-9.0%
Net Cost	\$145,497,239	\$152,894,422	\$175,373,015	\$194,200,474	33.5%
Unlinked Passenger Trips	96,660,850	92,437,294	88,194,806	85,429,212	-11.6%
Farebox Recovery Ratio	40.5%	39.0%	34.7%	31.7%	-21.7%
Average Fare per Passenger Trip	\$1.03	\$1.06	\$1.06	\$1.06	3.0%
Net Cost per Passenger Trip	\$1.51	\$1.65	\$1.99	\$2.27	51.0%
Percent Change in CPI		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

The main findings for systemwide MTS revenue are as follows:

- The MTS systemwide farebox recovery ratio diminished from 40.5% in FY15 to 31.7% in FY18. For every year in the audit period except FY18 the MTS farebox recovery was higher than the MTS systemwide farebox recovery requirement of 31.9%. MTS, for the time being, has not taken the option to report farebox recovery differently with the 2015 passing of SB 508 (see further explanatory note below).
- The average fare per passenger trip increased by 3% during the audit period, from \$1.03 to \$1.06.
- The net cost per passenger trip increased by half, from \$1.51 in FY15 to \$2.27 in FY18. This reflects the combined effect of increased net costs and overall decreased ridership.

MTS has performed internal calculations of Farebox Recovery Ratio that include other revenues as allowed by SB 508. According to one calculation, adding other advertising, naming rights, energy credit and miscellaneous other revenues increases the FY18 rail operations ratio from 45.2% to 49.8% and the FY18 bus operations ratio from 21.9% to 29.5%. MTS is aware of the bill and for the time being has elected not to report farebox recovery differently than in the past.

Systemwide tallies provide average performance across all modes. Individual modal calculations (separated by directly operated and contracted operations) break out these statistics at a more granular level for all service types. The rest of this chapter includes the following sections:

- IV-2: MTS Bus Operations
- IV-3: MTS Contracted Bus Operations, including ADA paratransit services.
- IV-3: MTS Rail Operations

Each section includes an overview of performance against TDA performance indicators, followed by a discussion of performance at the functional level.

## *IV-2. MTS – Directly Operated Bus Operations Performance*

**Exhibit IV-3** shows MTS Bus Operations TDA performance indicators during the audit period.

**Exhibit IV-3: MTS Bus TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$91,410,940	\$94,782,000	\$104,733,367	\$110,955,049	21.4%
Unlinked Passengers	27,263,712	25,627,964	24,314,556	22,866,573	-16.1%
Vehicle Service Hours	806,048	824,866	822,277	820,677	1.8%
Vehicle Service Miles	9,561,390	9,702,131	9,626,387	9,683,731	1.3%
Employee FTEs	719	762	758	763	6.2%
Operating Cost per Revenue Vehicle Hour	\$113.41	\$114.91	\$127.37	\$135.20	19.2%
Operating Cost per Passenger	\$3.35	\$3.70	\$4.31	\$4.85	44.7%
Passengers per Revenue Vehicle Hour	33.82	31.07	29.57	27.86	-17.6%
Passengers per Revenue Vehicle Mile	2.85	2.64	2.53	2.36	-17.2%
Service Hours per Employee FTE	1,122	1,082	1,084	1,075	-4.1%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

The main drivers for TDA performance for directly-operated bus include operations cost and ridership. MTS Bus Operations experienced a 21.4% increase in operating costs, a rate significantly higher than inflation. Root causes for this cost increase include: (1) wages – minimum wage increases had impacts during the audit period (e.g., \$500,000 increase for security labor alone); (2) recruitment – whereas there was a deficiency in the operator ranks before, MTS made strides in recruitment to fill driver ranks. This explains the FTE increase and also drove up operating cost; and (3) new service – MTS deployed the new South Bay Rapid Service.

One of the big stories of this audit period is the decline in ridership – 16.1% – which is about five percentage points higher than the systemwide ridership number. Reasons for the decline include AB360, cost of living in the greater San Diego area, TNC's, and the low cost of gasoline, among other factors. The volume of service provided as measured by revenue vehicle hours and miles, was stable, increasing 1.8% and 1.3%, respectively.

TDA Performance measures include:

- Cost efficiency declined as the operating cost per service hour increased by 19.2%. Cost effectiveness also decreased as the operating cost per passenger increased by 44.7%. Cost effectiveness suffered the double whammy of the increase in operating cost (numerator) and drop in ridership (denominator).
- The ridership's decline also affected service productivity. Passengers per service hour and per service mile decreased by 17.6% and 17.2%, respectively. Because the volume of service provided in the region was stable, the reduction in service productivity measures was highly driven by the ridership decline during FY15 through FY18.



- Service hours per employee FTE, a measure of labor productivity, decreased over the audit period by 4.1%.

**Exhibit IV-4** shows MTS Bus Operations fare revenue indicators during the audit period.

**Exhibit IV-4: MTS Bus Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$91,410,940	\$94,782,000	\$104,733,367	\$110,955,049	21.4%
Farebox Revenues	\$27,156,322	\$26,169,280	\$24,863,742	\$23,034,059	-15.2%
Net Cost	\$64,254,618	\$68,612,720	\$79,869,625	\$87,920,990	36.8%
Unlinked Passenger Trips	27,263,712	25,627,964	24,314,556	22,866,573	-16.1%
Farebox Recovery Ratio	29.7%	27.6%	23.7%	20.8%	-30.1%
Average Fare per Passenger Trip	\$1.00	\$1.02	\$1.02	\$1.01	1.1%
Net Cost per Passenger Trip	\$2.36	\$2.68	\$3.28	\$3.84	63.1%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

Main findings for MTS Bus revenue indicators are as follows:

- The farebox recovery ratio decreased over one quarter from 29.7% to 20.8%, as a result of the ridership declines and increased operating cost. However, farebox recovery continues to exceed the TDA-mandated farebox recovery ratio (20% for urban systems). MTS also has not made any changes to its farebox recovery reporting approach despite the passage of SB 508.
- The average fare per passenger trip was very stable during the audit period, increasing just 1.1% over three years.
- Due to increasing operating costs and decreasing ridership, the net cost per passenger trip increased by 63.1% over the audit period, again a result of the combined effect of increased net costs and ridership declines.

**Exhibit IV-5** shows MTS Bus Operations performance indicators. Sources for the data include NTD reports but also MTS annual performance monitoring reports.

**Exhibit IV-5: MTS Bus Operations Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Vehicle Operations FTEs	529.3	579.5	575.4	573.5	8.4%
Vehicle Operations Costs	\$52,045,813	\$54,880,177	\$63,736,387	\$67,132,804	29.0%
Vehicle Service Hours (VSH)	806,048	824,866	822,277	820,677	1.8%
Vehicle Service Miles (VSM)	9,561,390	9,702,131	9,626,387	9,683,731	1.3%
Total Vehicle Hours	861,908	894,988	889,932	888,098	3.0%
Total Vehicle Miles	11,142,180	11,326,789	11,279,703	11,210,583	0.6%
Unlinked Passenger Trips	27,263,712	25,627,964	24,314,556	22,866,573	-16.1%

Passenger Miles	117,585,084	114,845,052	109,727,324	104,544,729	-11.1%
VSH per Operations FTE	1,523	1,424	1,429	1,431	-6.0%
VSM per Operations FTE	18,063	16,744	16,731	16,884	-6.5%
Service Miles per Service Hour	11.9	11.8	11.7	11.8	-0.5%
Service Hours / Total Hours	93.5%	92.2%	92.4%	92.4%	-1.2%
Service Miles / Total Miles	85.8%	85.7%	85.3%	86.4%	0.7%
Vehicle Operations Cost per Passenger Trip	\$1.91	\$2.14	\$2.62	\$2.94	53.8%
Vehicle Operations Cost per Passenger Mile	\$0.44	\$0.48	\$0.58	\$0.64	45.1%
Average Passenger Miles per Passenger Trip	4.3	4.5	4.5	4.6	6.0%
Preventable Accidents per 100,000 Total Vehicle Miles	1.35	1.26	1.19	1.19	-11.9%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

The amount of service provision for bus transportation overall increased modestly since FY15, by 1.8% for vehicle service hours and 1.3% for vehicle service miles. The TOP study implemented in FY18 and FY19 did not result in significant service increases, rather a reallocation of existing service.

Bus operations FTEs increased 8.4% to 573.5 FTEs during the period and vehicle operating costs increased 29% to \$67.1 million. Unlinked passenger trips were down 16.1% over the audit period, which is about 5 percentage points higher than the systemwide ridership decrease.

Main findings from Exhibit IV-5 are as follows:

- Most of the service effectiveness measures (e.g., service miles / total miles) were stable over the audit period.
- Vehicle operations cost per passenger trip and per passenger mile were up considerably, by 53.8% and by 45.1% respectively, due to the decrease in ridership and increase in costs.
- Preventable accidents per 100,000 total vehicle miles were down by 11.9% during the audit period. This is remarkable because the accident rate had already come down 20.4% in the prior audit period. MTS has worked to prevent burn out by avoiding overtime. MTS makes an effort to improve safety operations year over year with continued operator training. Retraining occurs for the 8-hour state mandated training, and there is retraining after accidents or due to customer service complaints. MTS also won the APTA Gold award for safety in 2017.

**Exhibit IV-6** below presents performance indicators for Bus Maintenance.

**Exhibit IV-6: MTS Bus Maintenance Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Maintenance FTEs	159.1	160.7	163.0	169.6	6.5%
Maintenance Costs	\$21,303,522	\$22,185,515	\$26,553,534	\$27,396,429	28.6%
Total Vehicle Hours	861,908	894,988	889,932	888,098	3.0%
Total Vehicle Miles	11,142,180	11,326,789	11,279,703	11,210,583	0.6%
Peak Vehicles	215	224	232	232	7.9%

Total Vehicles	286	275	273	270	-5.6%
Vehicle Hours per Maintenance FTE	5,416	5,569	5,460	5,238	-3.3%
Vehicle Miles per Maintenance FTE	70,016	70,483	69,204	66,115	-5.6%
Maintenance Cost per Active Vehicle	\$74,488	\$80,675	\$97,266	\$101,468	36.2%
Maintenance Cost per Vehicle Hour	\$24.72	\$24.79	\$29.84	\$30.85	24.8%
Maintenance Cost per Vehicle Mile	\$1.91	\$1.96	\$2.35	\$2.44	27.8%
Vehicle Hours per Active Vehicle	3,014	3,255	3,260	3,289	9.1%
Vehicle Miles per Active Vehicle	38,959	41,188	41,318	41,521	6.6%
Mean Distance between Failures	12,943	9,463	9,600	10,980	-15.2%
Spare Ratio	33.0%	22.8%	17.7%	16.4%	-50.4%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

At the top level for maintenance, the service output remained fairly stable during the audit period. While the total fleet decreased by 5.6%, the number of vehicles in peak service increased by 7.9%. Fluctuations in the number of buses are normal, given the procurement cycles and accounting for inactive buses that may be ready to retire. MTS procures its buses annually to avoid the peaks and valleys issues in procurements, a best practice. The number of miles the vehicles traveled remained remarkably stable during the period, at about 11.2 million miles. Within this context, the maintenance workforce went from 159.1 FTEs to 169.6 FTEs, a 6.5% increase. Maintenance costs increased 28.6%, much higher than inflation.

Main findings of the performance indicators on the bottom half of Exhibit IV-6 are as follows:

- Maintenance cost per active vehicle increased by 36%. The reduction in total vehicles contributed to this trend.
- Maintenance cost per vehicle hour and mile increased by 24.8% and 27.8% respectively. The total service provision during this period being fairly stable, this metric is primarily driven by the increase in maintenance cost experience during the period.
- Vehicle hours and miles per active vehicle increased by 9.1% and 6.6% meaning that vehicles were more utilized over the audit period.
- Mean distance between failures (MDBF) decreased by 15.2% but is closer to the historical average. Since FY16, vehicle reliability for directly operated bus has been rising gradually to its FY18 level of 10,980. This measure is reported consistent with the NTD definition of MDBF, and a failure is a mechanical failure that presents a vehicle from starting or completing its trip (for safety, movement, or policy reasons).
- Spare ratio decreased from 33% to 16.4% of peak vehicles. Compared to FY15, the spare ratio has stabilized to a better range below 20%. FTA recommends operators carry spares at no more than 20%. Note the NTD measure for spare ratio is a point in time measurement as of June 30 and may include deliveries not yet in service and retired buses awaiting disposal.

During the audit period, MTS decreased its directly operated bus administration staffing, and administration costs decreased as well. This is shown in **Exhibit IV-7**.

**Exhibit IV-7: MTS Bus Administration Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Administration FTEs	30.1	22.2	20.1	20.1	-33.2%
Administration Costs	\$18,061,605	\$17,716,308	\$14,443,446	\$16,425,816	-9.1%
Vehicle Service Hours (VSH)	806,048	824,866	822,277	820,677	1.8%
Vehicle Service Miles (VSM)	9,561,390	9,702,131	9,626,387	9,683,731	1.3%
VSH per Administration FTE	26,770	37,211	40,830	40,826	52.5%
VSM per Administration FTE	317,549	437,674	477,997	481,730	51.7%
Complaints per 100,000 Passengers	7.8	4.5	3.5	4.8	-38.5%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

Bus administration FTEs went from 30.1 to 20.1, a third reduction. Meanwhile costs related to administration decreased 9.1%. As a result, vehicle service hours and miles per administration FTE shot up dramatically, by over 50% each, a very good trend.

Customer satisfaction over the audit period *increased*, as complaints per 100,000 passengers decreased by 38.5%. MTS centralized the comments for all of MTS garages (bus, rail, and general) at a single call center in FY 2014, as well as re-organized and classified complaints so they could be investigated in a more efficient manner. The rate of complaints increased due to the new centralized system properly recording complaints that would have been previously categorized incorrectly or that went directly to departments/garages/personnel. Additionally, the implementation of new *Rapid* service and related service changes in those corridors generated significant passenger feedback as riders adapted to new routes and schedules. In FY14, MTS predicted that this rate should stabilize going forward, and they have been vindicated. Customer complaints peaked in FY15, and have been significantly reduced and stabilized in the years since.

### ***IV-3. MTS – Contracted Bus Operations***

Performance reporting for MTS Contracted Bus Operations is reported in the annual MTS NTD reports and is identified by service type:

- *Fixed Route Services*
- *Commuter Express Bus*
- *Rural Bus Services*
- *General Public Demand Response*
- *ADA Demand Response Service*

This structure has been followed for this and prior performance audits. Rural is maintained as a separate service because SANDAG's TDA Claims Manual has retained the State's 10% farebox recovery requirement for Rural Services (as well as 10% for paratransit). For each service type, there is a review of TDA-mandated performance indicators and revenue performance indicators. As a reminder, in January 2015, all Chula Vista Transit service and supporting functions were absorbed by the MTS and relocated to the MTS South Bay facility. Chula Vista Transit is no longer identified as a separate service type.

### IV-3.1. MTS – Contracted Bus Fixed Route Services

Overall performance of MTS Contracted Fixed Route Bus Operations was similar, though lighter, experience as that experienced on the directly-operated fixed route side. **Exhibit IV-8** provides TDA performance indicators for MTS Contracted Fixed Route Services exclusive of Commuter Express and Rural services.

**Exhibit IV-8: MTS Contracted Fixed Route Bus Operations TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$58,455,305	\$57,484,817	\$57,184,255	\$58,626,688	0.3%
Unlinked Passengers	28,331,402	26,360,743	25,312,824	24,606,833	-13.1%
Vehicle Service Hours	959,417	973,233	975,156	980,624	2.2%
Vehicle Service Miles	9,634,872	9,723,147	9,810,491	9,802,569	1.7%
Employee FTEs	841	850	823	856	1.8%
Operating Cost per Revenue Vehicle Hour	\$60.93	\$59.07	\$58.64	\$59.79	-1.9%
Operating Cost per Passenger	\$2.06	\$2.18	\$2.26	\$2.38	15.5%
Passengers per Revenue Vehicle Hour	29.53	27.09	25.96	25.09	-15.0%
Passengers per Revenue Vehicle Mile	2.94	2.71	2.58	2.51	-14.6%
Service Hours per Employee FTE	1,141	1,144	1,185	1,146	0.4%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

Operating costs for contracted fixed route services increased by 0.3% over the audit period, far less than inflation. This is commendable especially given the accompanying increase in service output. Contracted services increased the service put out on the street, with a 2.2% increase in vehicle service hours coupled with a 1.7% increase in service miles. The fleet size increased and added South Bay BRT service contributed to the increase. However, ridership declined 13.1%. The contractor, TransDev, reports that border routes have grown significantly, despite the overall ridership decline.

TDA indicator findings include:

- Operating cost per revenue vehicle hour decreased 1.9%, a good trend. The drop is observed from FY15 to FY16. Afterwards, cost efficiency was stable.
- When adjusted for service consumed (operating cost per passenger) cost increased significantly by 15.5%. The main contributing factor as with other service types was the 13.1% ridership reduction.
- Passengers per service hour and passengers per service mile decreased by 15% and 14.6% respectively.
- Service hours per Employee FTE increased during the audit period, by 0.4%.

Fare revenue indicators for MTS Contracted Fixed Route Bus increased over the audit period. This is shown in **Exhibit IV-9**.

**Exhibit IV-9: MTS Contracted Fixed Route Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$58,455,305	\$57,484,817	\$57,184,255	\$58,626,688	0.3%
Farebox Revenues	\$27,032,179	\$26,801,735	\$25,286,644	\$23,759,622	-12.1%
Net Cost	\$31,423,126	\$30,683,081	\$31,897,611	\$34,867,066	11.0%
Unlinked Passenger Trips	28,331,402	26,360,743	25,312,824	24,606,833	-13.1%
Farebox Recovery Ratio	46.2%	46.6%	44.2%	40.5%	-12.4%
Average Fare per Passenger Trip	\$0.95	\$1.02	\$1.00	\$0.97	1.2%
Net Cost per Passenger Trip	\$1.11	\$1.16	\$1.26	\$1.42	27.8%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

Contracted fixed route services have continued to significantly exceed the TDA 20% farebox recovery requirement and contributed to the achievement of MTS exceeding the systemwide recovery requirement (31.9%) in spite of this indicator experiencing a 12.4% decrease over the audit period (in line with ridership declines). The farebox revenues were down 12.1% over the audit period and the farebox recovery ratio ended the audit period at 40.5%.

### *IV-3.2. MTS – Commuter Express Services*

Although operated by the same contractor, Commuter Express Services are treated separately for reporting purposes. **Exhibit IV-10** provides Commuter Express TDA performance indicators.

**Exhibit IV-10: MTS Contracted Commuter Express TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$2,393,711	\$2,186,845	\$2,255,518	\$2,384,988	-0.4%
Unlinked Passengers	303,940	291,969	287,252	283,135	-6.8%
Vehicle Service Hours	11,255	11,562	11,357	11,657	3.6%
Vehicle Service Miles	344,334	350,017	343,297	342,749	-0.5%
Employee FTEs	15	14	15	13	-10.7%
Operating Cost per Revenue Vehicle Hour	\$212.68	\$189.14	\$198.60	\$204.60	-3.8%
Operating Cost per Passenger	\$7.88	\$7.49	\$7.85	\$8.42	7.0%
Passengers per Revenue Vehicle Hour	27.00	25.25	25.29	24.29	-10.1%
Passengers per Revenue Vehicle Mile	0.88	0.83	0.84	0.83	-6.4%
Service Hours per Employee FTE	750	817	757	870	15.9%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Form-C Reports

The drivers for the TDA performance are presented in the upper half of the table. Operating costs were flat (even slightly negative) over the audit period, including a small reduction in staff size. This is commendable in an environment where inflation was up almost 8%. Service output was pretty stable, with a recent increase in the number of service hours in FY18, as a result of added service. Ridership was down 6.8% over the audit period, which is less erosion than for other MTS services.

Main findings for commuter express bus TDA performance include:

- TDA performance measures reflect some mixed results. Cost efficiency improved by 3.8%, but cost effectiveness declined 7% over the audit period. Service productivity was affected by the reduction in ridership, with a 10.1% and a 6.4% decrease in the associated measures. Finally, labor productivity increased 15.9% to 870 hours per employee FTE, a nice accomplishment made possible by the reduction in staffing.

Fare revenue indicators for MTS Contracted Commuter Express services increased over the audit period. This is shown in **Exhibit IV-11**.

**Exhibit IV-11: MTS Contracted Commuter Express Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Operating Costs	\$2,393,711	\$2,186,845	\$2,255,518	\$2,384,988	-0.4%
Farebox Revenues	\$1,251,705	\$1,242,792	\$1,196,656	\$1,197,246	-4.4%
Net Cost	\$1,142,006	\$944,053	\$1,058,862	\$1,187,742	4.0%
Unlinked Passenger Trips	303,940	291,969	287,252	283,135	-6.8%
Farebox Recovery Ratio	52.3%	56.8%	53.1%	50.2%	-4.0%
Average Fare per Passenger Trip	\$4.12	\$4.26	\$4.17	\$4.23	2.7%
Net Cost per Passenger Trip	\$3.76	\$3.23	\$3.69	\$4.19	11.6%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

Of all the bus modes, one would expect a higher farebox recovery ratio for commuter express service. During the audit period the ratio was remarkably stable with a 4% decline compared to the FY15 base year. The best year was FY16 when it hit 56.8%. Still at 50.2% in FY18 the farebox recovery ration continues to significantly exceed the TDA 20% farebox recovery requirement. It also contributed to the achievement of MTS exceeding the 31.9% systemwide recovery requirement.

The net cost per passenger trip increased by 11.6% from \$3.76 in FY15 to \$4.19 in FY18 while the average fare per passenger trip increased by 2.7% over the audit period.

### *IV-3.3. MTS – Contracted Bus Rural Services*

Rural transit services link the sparsely populated central and eastern portions of San Diego County to the San Diego urban core. **Exhibit IV-12** provides TDA performance indicators for MTS Contracted Bus Rural Services.

**Exhibit IV-12: MTS Contracted Bus Rural Services TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Operating Costs	\$795,080	\$778,383	\$853,595	\$905,621	13.9%
Unlinked Passengers	69,545	72,129	72,881	80,771	16.1%
Vehicle Service Hours	5,389	5,439	5,376	6,144	14.0%
Vehicle Service Miles	138,779	138,815	138,692	162,860	17.4%
Employee FTEs	3	4	5	5	42.4%

Operating Cost per Revenue Vehicle Hour	\$147.54	\$143.11	\$158.78	\$147.40	-0.1%
Operating Cost per Passenger	\$11.43	\$10.79	\$11.71	\$11.21	-1.9%
Passengers per Revenue Vehicle Hour	12.90	13.26	13.56	13.15	1.9%
Passengers per Revenue Vehicle Mile	0.50	0.52	0.53	0.50	-1.0%
Service Hours per Employee FTE	1,576	1,307	1,075	1,262	-19.9%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

From a ridership perspective, rural routes provide a rare bright spot in an otherwise bleak audit period for system ridership. Ridership increased 13.9% over the period, to over 80,000 passengers.

Vehicle service hours and miles increased significantly throughout the current audit period, by 14.0% and 17.4% respectively. Contractor TransDev reports that many routes are at capacity. Even thirty percent of its operators live across the border in Tijuana and neighboring areas. Operating costs increased 13.9% during the audit period, higher than inflation. These offset the TDA performance metrics gains from ridership and service provision.

The operating cost per revenue vehicle hour, a measure of efficiency, decreased by 1.9%. The operating cost per passenger decreased by 1.9% during the same period. Service productivity measures – passengers per revenue vehicle hour and per revenue vehicle mile – increased by 1.9% and decreased by 1%, respectively. Service hours per employee FTE were down by 19.9%, because of a modest increase in the dedicated staff.

**Exhibit IV-13** provides revenue performance indicators for MTS Contracted Bus Rural Services.

**Exhibit IV-13: MTS Contracted Bus Rural Services Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Operating Costs	\$795,080	\$778,383	\$853,595	\$905,621	13.9%
Farebox Revenues	\$96,090	\$93,643	\$85,835	\$204,180	112.5%
Net Cost	\$698,990	\$684,740	\$767,760	\$701,441	0.4%
Unlinked Passenger Trips	69,545	72,129	72,881	80,771	16.1%
Farebox Recovery Ratio	12.1%	12.0%	10.1%	22.5%	86.6%
Average Fare per Passenger Trip	\$1.38	\$1.30	\$1.18	\$2.53	83.0%
Net Cost per Passenger Trip	\$10.05	\$9.49	\$10.53	\$8.68	-13.6%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

The big story here is the 112.5% increase in farebox revenues over the audit period, resulting in an 86.6% increase in the farebox recovery ratio. The ratio increased from 12.1% in FY15 to almost double, 22.5%, in FY18. The farebox recovery ratio easily exceeded the TDA-mandated farebox recovery ratio of 10% for non-urban areas over the audit period.

### *IV-3.4 MTS - Sorrento Valley Coaster Connection (SVCC)*

The SVCC service was designed to provide direct access to regional transit. **Exhibit IV-14** provides SVCC TDA performance indicators for the audit period.



**Exhibit IV-14: MTS Demand Response SVCC TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$289,717	\$279,569	\$297,882	\$315,280	8.8%
Unlinked Passengers	119,317	104,987	105,250	90,726	-24.0%
Vehicle Service Hours	5,837	5,597	5,522	5,976	2.4%
Vehicle Service Miles	69,165	67,179	66,713	68,607	-0.8%
Employee FTEs	5	5	5	5	0.0%
Operating Cost per Revenue Vehicle Hour	\$49.63	\$49.95	\$53.94	\$52.76	6.3%
Operating Cost per Passenger	\$2.43	\$2.66	\$2.83	\$3.48	43.1%
Passengers per Revenue Vehicle Hour	20.44	18.76	19.06	15.18	-25.7%
Passengers per Revenue Vehicle Mile	1.73	1.56	1.58	1.32	-23.3%
Service Hours per Employee FTE	1,167	1,119	1,104	1,195	2.4%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

MTS Contracted SVCC Services show mixed results throughout the audit period. Ridership decreased 24%, higher than any other service type. Meanwhile, operating costs increased 8.8%, about the inflation rate.

Given this, TDA performance indicators will predictably indicate negative performance for efficiency and effectiveness. Cost efficiency worsened 6.3% and cost effectiveness 43.1%. Also, passengers per revenue vehicle hour and per mile decreased by 25.4% and by 23.3%, respectively. The only indicator with a flat performance was the labor productivity measure, up 2.4% over the audit period.

**Exhibit IV-15** provides revenue performance indicators for MTS SVCC Services.

**Exhibit IV-15: MTS Demand Response SVCC Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$289,717	\$279,569	\$297,882	\$315,280	8.8%
Farebox Revenues	\$114,320	\$108,043	\$104,566	\$88,862	-22.3%
Net Cost	\$175,397	\$171,526	\$193,316	\$226,418	29.1%
Unlinked Passenger Trips	119,317	104,987	105,250	90,726	-24.0%
Farebox Recovery Ratio	39.5%	38.6%	35.1%	28.2%	-28.6%
Average Fare per Passenger Trip	\$0.96	\$1.03	\$0.99	\$0.98	2.2%
Net Cost per Passenger Trip	\$1.47	\$1.63	\$1.84	\$2.50	69.8%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

All revenue performance indicators for SVCC services declined over the audit period including the SVCC farebox recovery ratio which decreased from 39.5% to 28.2%. The average fare per passenger trip increased by 2.2% and the net cost per passenger trip increased by 69.8%.

### IV-3.5 MTS – ADA Paratransit Services

MTS provides MTS Access Paratransit services in central and southern San Diego. Operating funding for these services is provided by local TDA and *TransNet* revenue sources. MTS Access provides the complementary paratransit services required by the Americans with Disabilities Act (ADA). First Transit has been the contractor during the audit period. Their contract was executed in 2009, it is a nine year contract with option years.

Personal Care Attendants may travel without paying a fare. Children five years and younger travel free with a fare paying adult. Reservations are accepted from two days in advance up to 5:00 p.m. the day before travel. **Exhibit IV-16** provides TDA performance indicators for MTS Access services.

**Exhibit IV-16: MTS Demand Response ADA TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Operating Costs	\$16,970,435	\$18,559,650	\$19,764,550	\$20,159,479	18.8%
Unlinked Passengers	475,322	516,221	529,091	505,973	6.4%
Vehicle Service Hours	231,650	251,937	262,276	251,152	8.4%
Vehicle Service Miles	4,083,491	4,517,497	4,736,926	4,606,212	12.8%
Employee FTEs	258	264	290	293	13.8%
Operating Cost per Revenue Vehicle Hour	\$73.26	\$73.67	\$75.36	\$80.27	9.6%
Operating Cost per Passenger	\$35.70	\$35.95	\$37.36	\$39.84	11.6%
Passengers per Revenue Vehicle Hour	2.05	2.05	2.02	2.01	-1.8%
Passengers per Revenue Vehicle Mile	0.12	0.11	0.11	0.11	-5.6%
Service Hours per Employee FTE	898	953	904	856	-4.7%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

At the top level, paratransit operating costs climbed 18.8%, well over inflation. Service provision also increased significantly over the audit period (8.4% increase in vehicle service hours and 12.8% increase in vehicle service miles). Ridership increased 6.4% and staffing levels were also up by 13.8% compared to FY15 levels. The highest ridership was experienced in FY17 at 529,000 and FY18 levels are slightly lower at about 506,000. During the audit period, MTS and the contractor had to deal with a driver strike that lasted 9 days. The strike was about contract negotiations between union workers and First Transit.

Given the above, MTS has achieved generally positive results in all aspects of meeting and managing ADA demand. The main takeaways for the TDA indicators include:

- Cost effectiveness, measured by the operating cost per passenger decreased by 11.6%, from \$35.70 in FY15 to \$39.84 in FY18. At the same time, the cost per revenue vehicle hour of service provided increased by 9.6%, a bit higher than the 7.9% growth in the CPI.
- Service productivity indicator performance was significantly more stable.

MTS is also in the process of converting the fleet to propane. Out of 170 vehicles, three quarters have been converted, leaving about 50 vehicles to convert in the next audit period. The benefit will be operating cost savings of about \$400,000 per year. The full benefit of the program is expected to become more apparent in future years.

MTS also hired a new contractor to handle ADA eligibility to provide improved accuracy of the process.

**Exhibit IV-17** provides revenue performance indicators for MTS Access Services.

**Exhibit IV-17: MTS Demand Response ADA Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$16,970,435	\$18,559,650	\$19,764,550	\$20,159,479	18.8%
Farebox Revenues	\$2,323,231	\$2,385,015	\$2,773,603	\$2,598,019	11.8%
Net Cost	\$14,647,204	\$16,174,635	\$16,990,948	\$17,561,461	19.9%
Unlinked Passenger Trips	475,322	516,221	529,091	505,973	6.4%
Farebox Recovery Ratio	13.7%	12.9%	14.0%	12.9%	-5.9%
Average Fare per Passenger Trip	\$4.89	\$4.62	\$5.24	\$5.13	5.1%
Net Cost per Passenger Trip	\$30.82	\$31.33	\$32.11	\$34.71	12.6%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: Form-C Reports

Operating costs increased faster than farebox revenues over the audit period. As a result, the farebox recovery ratio shed about 6%, from 13.7% in FY15 to 12.9% in FY18. The average fare per trip increased 5.1%, but the net cost per passenger trip experienced an increase of 12.6%.

#### *IV-4. MTS – Rail Operations Performance*

**Exhibit IV-18** shows MTS Rail Operations TDA performance indicators during the audit period.

**Exhibit IV-18: MTS Rail TDA Performance Indicators**

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$73,101,951	\$75,515,653	\$82,472,931	\$90,313,010	23.5%
Unlinked Passengers	40,082,461	39,614,897	37,638,945	36,995,201	-7.7%
Vehicle Service Hours	495,684	492,683	490,197	478,175	-3.5%
Vehicle Service Miles	8,596,143	8,673,789	8,728,365	8,656,486	0.7%
Employee FTEs	497	474	461	461	-7.4%
Operating Cost per Revenue Vehicle Hour	\$147.48	\$153.27	\$168.24	\$188.87	28.1%
Operating Cost per Passenger	\$1.82	\$1.91	\$2.19	\$2.44	33.9%
Passengers per Revenue Vehicle Hour	80.86	80.41	76.78	77.37	-4.3%
Passengers per Revenue Vehicle Mile	4.66	4.57	4.31	4.27	-8.3%
Service Hours per Employee FTE	997	1,039	1,063	1,038	4.2%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

At the top level, ridership for MTS Rail services experienced a 7.7% decline over the audit period, which is consistent with the national experience and about half the decline observed for Bus. The biggest drop occurred between FY16 and FY17. MTS kept the service output stable in term of vehicle service miles and constrained the vehicle service hours with a 3.5% reduction over three years. In addition, MTS

contained the labor force and employee FTEs decreased 36, from 497 in FY15 to 461 in FY18. Despite these three concerted actions, the overall operating costs for Rail increased 23.5% over the audit period. Reasons for the increase in operating cost include: (1) wages and (2) cost of electricity and (3) Accounting for General Accounting Standards Board (GASB) regulations and operating capital flows. On the labor side, MTS has a positive reputation in the community, but is confronted with record low unemployment. To address retention, particularly with flaggers, MTS raised rates and adjusted schedules. Security wages were affected by minimum wage increases. MTS has been closely tracking energy costs particularly given the upcoming California Air Resource Board zero emissions requirements and the paradigm change this will require for Bus operations. But with Rail, the total cost of energy (cost of the commodity provided by Calpine plus the cost of demand/transmission provided by SDG&E) has risen 16% during the audit period, and a further 20% in the first quarter of FY19. Finally, according to management, adjusting for GASB and FY18 operating capital would bring rail operating cost increases better in line with inflation – 6.5% versus 7.9%.

Findings for TDA performance indicators for rail include:

- The first two measures represent overall efficiency and effectiveness. Operating cost per revenue vehicle hour, a measure of cost efficiency, increased 28.1% over the three-year audit period. Operating cost per passenger, a measure of cost effectiveness, increased 33.9%. While these increases are substantially higher than the change in inflation, MTS suffered the combined effects of the ridership decrease with increased cost of operations.
- The next two measures are meant to capture productivity of the service provided. Passengers per revenue vehicle hour and passengers per revenue vehicle mile decreased by 4.3% and 8.3%, respectively due to the declines in ridership.
- The last measure is intended to address labor productivity. Service hours per employee increased by 4.2% over the audit period. MTS is to be commended that it has managed to improve labor productivity over multiple audit cycles.

**Exhibit IV-19** shows MTS Rail Operations fare revenue indicators during the audit period.

**Exhibit IV-19: MTS Rail Revenue Performance Indicators**

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$73,101,951	\$75,515,653	\$82,472,931	\$90,313,010	23.5%
Farebox Revenues	\$41,140,175	\$41,113,382	\$38,968,409	\$39,353,823	-4.3%
Net Cost	\$31,961,776	\$34,402,271	\$43,504,522	\$50,959,187	59.4%
Unlinked Passenger Trips	40,082,461	39,614,897	37,638,945	36,995,201	-7.7%
Farebox Recovery Ratio	56.3%	54.4%	47.2%	43.6%	-22.6%
Average Fare per Passenger Trip	\$1.03	\$1.04	\$1.04	\$1.06	3.6%
Net Cost per Passenger Trip	\$0.80	\$0.87	\$1.16	\$1.38	72.7%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

The main findings for MTS Rail revenue are as follows:

- The MTS Rail farebox recovery ratio diminished from 56.3% in FY15 to 43.6% in FY18. MTS Rail farebox recovery during the audit period was significantly higher than the MTS systemwide farebox recovery requirement of 31.9%. As mentioned above, MTS has not taken the option to report farebox recovery differently with the passing of SB 508, for the time being.

The system average farebox recovery for rail masks different recovery rates for the Blue, Orange, Green and Silver lines. Of the four, the heavily used Blue line exhibits by far the highest farebox recovery ratio. The FY18 annual route statistics show the Blue Line at 69.1% farebox recovery, and the Orange, Green, and Silver lines at 39.5%, 39.6%, and 5.5%, respectively.

- The average fare per passenger trip decreased by 3.6% during the audit period, from \$1.03 to \$1.06.
- The net cost per passenger trip increased by 72.7%, from \$0.80 in FY15 to \$1.38 in FY18. This reflects the combined effect of increased net costs (i.e., higher energy and labor costs) and decreased ridership levels.

During the audit period, MTS significantly reduced its operations staffing. This is shown in **Exhibit IV-20**.

**Exhibit IV-20: MTS Rail Operations Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Vehicle Operations FTEs	291.1	266.7	252.4	239.0	-17.9%
Vehicle Operations Costs	\$25,034,145	\$25,995,153	\$28,780,200	\$31,982,876	27.8%
Car Service Hours (CSH)	495,684	492,683	490,197	478,175	-3.5%
Car Service Miles (CSM)	8,596,143	8,673,789	8,728,365	8,656,486	0.7%
Total Vehicle Hours	509,243	506,905	504,300	486,523	-4.5%
Total Vehicle Miles	8,690,330	8,786,704	8,839,806	8,758,506	0.8%
Unlinked Passenger Trips	40,082,461	39,614,897	37,638,945	36,995,201	-7.7%
Passenger Miles	224,422,021	220,170,000	210,971,128	214,376,455	-4.5%
CSH per Operations FTE	1,703	1,847	1,942	2,001	17.5%
CSM per Operations FTE	29,526	32,519	34,586	36,224	22.7%
Service Miles per Service Hour	17.3	17.6	17.8	18.1	4.4%
Service Hours / Total Hours	97.3%	97.2%	97.2%	98.3%	1.0%
Service Miles / Total Miles	98.9%	98.7%	98.7%	98.8%	-0.1%
Vehicle Operations Cost per Passenger Trip	\$0.62	\$0.66	\$0.76	\$0.86	38.4%
Vehicle Operations Cost per Passenger Mile	\$0.11	\$0.12	\$0.14	\$0.15	33.7%
Average Passenger Miles per Passenger Trip	5.6	5.6	5.6	5.8	3.5%
Preventable Accidents per 100,000 Total Vehicle Miles	1.17	1.21	1.04	1.16	-0.9%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

Base data for rail operations show that MTS kept the service output stable over the audit period. Car service hours decreased 3.5% since FY15, with the biggest reduction occurring between FY17 and FY18. Total vehicle hours decreased 4.5% during the same period, meaning MTS carved out some efficiencies.

Car service miles and total vehicle miles remained very stable during the audit period with less than a 1% change. Total rail vehicle operations costs jumped to \$31.9 million in FY18.

The MTS Rail staff count decreased significantly during the audit period, by 52 FTEs in three years. The biggest drop occurred in FY16, but the sizeable reductions occurred every year. The reduction is explained by the ramping down of the extensive Trolley Renewal Project targeting the Blue and Orange lines. The repairs and replacements included rehabilitation and retrofit of stations and transit centers throughout the system, new crossovers and upgraded signaling, replacement of the overhead catenary wire, track work and rail replacement, slope repair, and traction power substation replacement and rehabilitation. MTS also opened the Courthouse Station, a \$12 million terminal for the Orange Line that is used as stub terminal. This station was constructed due to insufficient capacity at America Plaza station to turn trains. MTS also refreshed the operations control center during this audit period with new screens.

Labor productivity measures such as Car Service Hours and Car Service Miles per Operations FTE jumped by 17.5% and by 22.7%, respectively, mainly due to the staffing reductions.

MTS also maintains a very high rate of service efficiency, with rates in the high 90s percentage for both service hours over total hours and service miles over total miles. Recent projects like the Courthouse station are likely to improve these numbers even more.

Vehicle operations costs per passenger trip and per passenger mile did increase 38.4% and by 33.7% over the audit period, respectively, largely due to the 27.8% increase in vehicle operations costs.

MTS Policy 42 Performance Monitoring Report for FY18 notes that Trolley had no preventable accidents in FY16 or FY17, but two such accidents in FY18. Preventable accidents per 100,000 vehicle miles as shown in Exhibit IV-25 continued their downward trend since FY15. MTS exhibits the best safety record in the State of California among large light rail operators. Finally, as a result of its safety performance and of its efforts to continuously enhance safety, MTS received the coveted APTA Rail Safety Gold Award in Denver in June 2018.

During the audit period, MTS slightly increased its rail maintenance staffing. This is shown in **Exhibit IV-21**.

**Exhibit IV-21: MTS Rail Maintenance Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change
	FY15	FY16	FY17	FY18	FY15-FY18
Maintenance FTEs	202.1	203.3	206.7	215.8	6.7%
Maintenance Costs	\$25,026,539	\$26,425,383	\$29,852,701	\$32,711,904	30.7%
Total Car Hours	509,243	506,905	504,300	486,523	-4.5%
Total Car Miles	8,690,330	8,786,704	8,839,806	8,758,506	0.8%
Peak Cars	97	97	97	97	0.0%
Total Cars	130	130	130	130	0.0%
Car Hours per Maintenance FTE	2,519	2,493	2,440	2,255	-10.5%
Car Miles per Maintenance FTE	42,992	43,213	42,776	40,594	-5.6%
Maintenance Cost per Active Vehicle	\$192,512	\$203,272	\$229,636	\$251,630	30.7%
Maintenance Cost per Car Hour	\$49.14	\$52.13	\$59.20	\$67.24	36.8%
Maintenance Cost per Car Mile	\$2.88	\$3.01	\$3.38	\$3.73	29.7%

Car Hours per Active Car	3,917	3,899	3,879	3,742	-4.5%
Car Miles per Active Car	66,849	67,590	67,999	67,373	0.8%
Mean Distance between Failures (MDBF)	5,987	6,335	6,906	9,239	54.3%
Spare Ratio	34.0%	34.0%	34.0%	34.0%	0.0%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

MTS constrained service output with a 4.5% reduction in total car hours over the audit period (total car miles increased by 0.8%). Peak cars and total cars were unchanged. Maintenance FTEs increased by 14, to 216 FTEs, and maintenance costs increased 30.7% to over \$32.7 million in FY18. Root causes of the increase in maintenance costs include: (1) Mid-life overhauls – Some of the fleets are ageing such as the 3000 series have reached this point; (2) Warranty – The 4000 series rail car fell out of warranty during the audit period, requiring MTS to assume those costs; and (3) Absorbing the cost of SAP implementation – The system was installed in 2016 at the beginning of the audit period. In most departments the migration went smoothly but with Rail maintenance it was much more challenging. A glitch occurred in the data capture and it was labor intensive to completely rebuild the inventory. In the end, however, MTS feels the data is more complete and the new \$11 million Enterprise Asset Management system will pay dividends in terms of efficiency and effectiveness.

At this point all the vehicles are low floor. During the site visit the auditors were treated to visit a brand new 5000 series rail car undergoing final acceptance testing and witnessed 4000 series rail cars in revenue service.

Findings for the metrics on maintenance include:

- Car hours per maintenance FTE decreased by 10.5%, total miles per maintenance FTE decreased by 5.6%, as a result of the stability of the service and of the staffing increases.
- Maintenance cost per car hour and mile increased by 36.8% and 29.7%, respectively, given to increase in maintenance costs.
- With vehicle reliability, measured by the Mean Distance Between Failures (MDBF), the higher the number, the better because this means that each vehicle travels further between mechanical failures (due to safety, vehicle movement, or policy). MDBFs for rail improved every single year of the audit period, including a large jump from FY17 to FY18 to 9,239 miles. This jump also coincided with MTS receiving the APTA Rail Safety Gold Award in Denver.
- The spare ratio was the same for each year in the audit period, fixed at 34%.

During the audit period, MTS increased its rail administration staffing slightly, and administration costs increased too. This is shown in **Exhibit IV-22**.

**Exhibit IV-22: MTS Rail Administration Performance Indicators**

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change FY15-FY18
	FY15	FY16	FY17	FY18	
Administration FTEs	4.0	4.2	2.2	5.8	43.2%
Administration Costs	\$23,041,267	\$23,095,117	\$23,840,030	\$25,618,230	11.2%
Car Service Hours (CSH)	495,684	492,683	490,197	478,175	-3.5%

Car Service Miles (CSM)	8,596,143	8,673,789	8,728,365	8,656,486	0.7%
CSH per Administration FTE	122,922	117,824	226,314	82,794	-32.6%
CSM per Administration FTE	2,131,716	2,074,325	4,029,716	1,498,829	-29.7%
Complaints per 100,000 Passengers	1.9	1.5	1.2	1.3	-31.6%
Percent Change, Consumer Price Index		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, Annual Performance Monitoring Reports

For base data reported to NTD, administrative costs for Rail increased 11.2% over the audit period, compared to 7.9% for the San Diego County CPI. The number of administration FTEs is somewhat suspicious with a large dip and jump in FY17 and FY18, though from a small base. Administrative costs rose a bit higher than inflation, to over \$25 million in FY18.

Customer satisfaction improved during the audit period as complaints per 100,000 passengers decreased by 31.7% over the audit period. This continues a positive trend from the past audit period (FY12-15). The decrease in complaints was specific to MTS Rail. Trolley complaints are tracked through the consolidated MTS call center, now in place since FY14.



## SECTION V: CONCLUSIONS AND RECOMMENDATIONS

MTS is in compliance with PUC requirements and has made satisfactory progress to implement prior audit recommendations:

- Compliance with PUC Requirements: MTS is in compliance with applicable PUC requirements.
- Progress to Implement Prior Audit Recommendations: The last audit did not have any recommendations

The systemwide TDA performance trends overall are indicative of the continued attention that MTS placed on cost containment during the audit period, and the Transit Optimization Plan was drawn up and implemented to combat declining ridership. One recommendation is offered for MTS at this time.

### Recommendation 1:

**Issues and Opportunities.** MTS suffered fare erosion across its system during the last three years. MTS has not raised fares in 10 years, since 2009. The combined farebox recovery ratio for all modes in FY2018 was 31.7%. For FY2018, the farebox recovery ratio is 43.6% for rail and 20.8% for directly operated bus. While farebox recovery for rail is still very healthy, the bus number is 9% lower than where it started the audit period (30%).

Two developments have occurred in the audit period:

- Passage of SB 508, enabling MTS to report local revenues in the farebox calculations to the State
- SANDAG fare change, scheduled for implementation in September 2019 and designed to harmonize fares across NCTD and MTS, to simplify the structure and raise more revenues.

SB 508 provides an opportunity to report farebox differently. SANDAG's fare change, the first since 2009, affects mostly passes (reduction for youth passes, increase for senior/disabled/Medicare patrons, day pass went up by one dollar). The new INIT fare collection system is expected to reduce the need for passes by calculating the best fare possible for each rider. MTS expects that once the fare change goes into effect, an additional four to five million dollars will be generated, with a positive impact on the farebox recovery ratio.

**Recommended Actions.** This is a two-part recommendation. First, MTS should track and document the farebox recovery ratio side by side over the next several years both with SB 508 reporting and without. SB 508 provides an opportunity for MTS shine a light on local revenue generation as well as further develop cost efficiencies. For the second part, a fare increase would bring back farebox revenue back to historical average. Given the other constraints (ballot measure, coordination with new regional fare structure, new fare collection system implementation) a new fare increase is not expected in the immediate near term but ought to be considered at the earliest opportunity.

**Expected Results.** Maximize local fund contribution to operations. Increased fare revenues to maintain farebox recovery above 20%.

MTS Response.

- MTS is in compliance with the TDA FRR thresholds and has already obtained approval from our Board and the SANDAG Board to simplify fares and increase revenue (primarily driven by the \$1 increase in the day pass) by approximately \$5M. Since historically we haven't had challenges meeting the FRR target and thus haven't needed to look at other "local funds" to enhance our

revenue streams, we can track these sources of revenues and determine the impacts on FRR with and without these revenue sources.

- Our focus in the coming years are to drive additional riders to our system through a simplified fare structure, and a significant enhancement of our transit network as we pursue additional sales taxes through a November 2020 ballot measure. With this as the short-term focus, there are no considerations for additional fare increases in the coming years.