

FY2016 – FY2018 Triennial Performance Audit of the North County Transit District (NCTD)

FINAL AUDIT REPORT

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TABLE OF CONTENTS

Executive Summary.....	3
SECTION I: INTRODUCTION.....	6
I.1. Overview	7
I.2. Accomplishments and Challenges.....	21
I.3. Report Outline	23
SECTION II: COMPLIANCE REVIEW AND PRIOR AUDIT RECOMMENDATIONS.....	24
II.1. Compliance Review.....	24
II.2. Prior Audit Recommendations	28
SECTION III: MANAGEMENT CONTROL AND REPORTING.....	30
SECTION IV: PERFORMANCE TRENDS AND FUNCTIONAL REVIEW	33
IV-1. System-wide Performance	33
IV-2. BREEZE Fixed Route Bus Operations Performance.....	37
IV-3. COASTER Commuter Rail.....	40
IV-3.2. SPRINTER Hybrid Rail Services.....	44
IV-3.3. LIFT Paratransit and FLEX Demand Response Services	48
SECTION V: CONCLUSIONS AND RECOMMENDATIONS	51

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. The performance audit is administered by the San Diego Association of Governments (SANDAG) and prepared by Kimley-Horn & Associates. This report represents the State-mandated performance audit of the North County Transit District (NCTD) for Fiscal Years 2016, 2017, and 2018, the period from July 1, 2015 through June 30, 2018.

The TDA triennial performance audit of NCTD 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
- System-wide 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 are noted below:

- Managed costs within inflation over the audit period
- Fine-tuned the bus system, created more efficient schedules, focused on high performing routes
- Reduced demand on the demand responsive system by transferring persons able to use the fixed route system from demand response services (replaced on line ADA application with a customer service center requiring in person eligibility tests)
- Completed implementation of Positive Train Control system by the federal deadline of 12/31/2018 (one of only four rail operators to do so in North America)
- Continual decline of ridership over the audit period (15.6% decline over three years), reflecting national trends
- Purchase of new BREEZE buses and COASTER locomotives
- More reliable data, formalized procedures, use of computerized program capabilities, and standard reports for all modes
- Creation of internal Standard Operating Procedures (SOPs).

NCTD is in compliance with Public Utilities Code (PUC) requirements with the exception of farebox recovery ratio for paratransit service. Additionally, NCTD has made solid progress towards implementation of prior audit recommendations.

- Compliance with PUC Requirements: NCTD is in full compliance with all PUC requirements with the exception of the systemwide and paratransit farebox recovery ratios. The PUC and SANDAG

Policy 27 mandate that the systemwide farebox recovery ratio must be 18.8% percent, and 10.0% for paratransit service. In each audit year with exception of FY16 systemwide, when only considering passenger fares, the farebox ratios were below the standards for the respective services. The general trend in the farebox ratio has been declining due to loss of passenger revenue, with the systemwide ratio declining from 20.5% in FY16 to 16.5% in FY18, and for paratransit from 9.2% to 7.3% during the same time period according to the annual financial report. New State law (Senate Bill 508) permits additional local support funds to be used toward farebox recovery, resulting in higher systemwide ratios that exceed the mandate in FY18. The SANDAG Board adopted a fare pricing change to be effective September 2019 which increases the ADA paratransit fare from \$3.50 to \$5.00 and will help address the paratransit farebox issue.

- Progress to Implement Prior Audit Recommendations: NCTD has meaningfully addressed the three recommendations from the prior audit period.

1) NCTD was recommended to implement strategies to minimize operating cost for LIFT. They have done so by purchasing new software from Trapeze. The new software allows a potential passenger to book a trip online or through an interactive voice response system. Previously, NCTD had schedulers and reservationists that would handle these duties. They have also added an in-person functional assessment to their ADA service eligibility process. The in-person assessment is only necessary if a person's eligibility cannot be determined solely from their supporting medical documents.

2) NCTD was recommended to institute a robust tracking and management system for excess capital inventory at their rail maintenance facilities. The recommendation was completed with the implementation of an Asset Management Plan, which is required by the Federal Transit Administration. NCTD awarded a contract to a consultant to development Asset Management Plan. This recommendation was completed in October 2018.

3) The final recommendation was to work with SANDAG on developing a digital database for storing NCTD right of way information. The district currently uses a variety of data sources for researching right of way information. One such source is an NCTD GIS database that identifies right of way parcels and boundaries, surveys, and real property agreements. The information is electronically stored in NCTD's document management system, LaserFiche. Additionally, NCTD is implementing a real estate module in its Enterprise System, JD Edwards. The module will allow real estate agreements to be saved along the right of way by milepost and use type, along with critical terms and conditions of the agreements.

Performance indicator trends show the following:

- System-wide operating cost per service hour, a measure of cost efficiency, increased 8.3% during the audit period from \$132.84 in FY2015 to \$143.86 in FY2018 compared to inflation of 7.9%. Operating cost per passenger, a measure of cost effectiveness, increased by 27.9% from \$6.83 in FY2015 to \$8.47 in FY2018. This is a result of a 7.9% increase in total operating costs and a 15.6% decrease in ridership. The decrease in ridership reflects national trends and is at least partially attributable to the robust economy, low fuel costs, and sprawled development patterns more difficult to serve with fixed route transit services.
- Service productivity decreased during the audit period. Passengers per service hour decreased by 15.3% while passengers per service mile decreased by 11.8%. Again, ridership losses reflect national trends and economic conditions.

- Service hours per employee FTE, a measure of labor productivity, decreased by 7.9% during the audit period from 877 in FY2015 to 808 in FY2018. Note that the additional employees were achieved while holding costs to inflationary rates.
- The NCTD system-wide pure farebox recovery ratio decreased during the audit period, from 22.5% in FY2015 to 17.6% in FY2018. While the pure farebox recovery ratio was below the state mandated minimum (NCTD's blended rate requirement is 18.80%), the safe harbor calculation – calculation using Senate Bill 508 provisions – is comfortably above the minimum mandate at 34.67% in FY2018. However, during the audit period the revenue ratios for ADA paratransit were below the 10% Article 4.5 minimum.
- The average fare per passenger trip decreased by 7.8% during the audit period, from \$1.54 to \$1.42, reflecting a change in the making up of riders as a result of the decline.

The system-wide TDA performance trends overall are indicative of the continued attention that NCTD placed on cost containment given service increases during the audit period. NCTD's accomplishments position it well for continued cost containment in the future.

Two recommendations are offered for NCTD's consideration, both are detailed in Section V.

- Recommendation 1: Expand efforts to understand what riders want and how to grow demand.
- Recommendation 2: Closely track and document Farebox recovery ratio both with traditional calculation and according to SB 508 provisions.

SECTION I: INTRODUCTION

The TDA triennial performance audit of the North County Transit District (NCTD) 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 (“study team”) to conduct the performance audit of the North County Transit District (NCTD). This report represents the State-mandated performance audit of NCTD for Fiscal Years 2016, 2017, and 2018, the period from July 1, 2015 through June 30, 2018.

The TDA triennial performance audit of NCTD includes evaluations of:

- Compliance with pertinent sections of the Public Utilities Code
- Progress to implement prior performance audit recommendations
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- System-wide and functional area performance trends

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.

Based on the study team’s experience conducting multiple TDA audits, the study team compiled a list of data from NCTD to conduct the preliminary review of the NCTD’s operations and financials and identify specific audit areas. The preliminary review was followed by on-site interviews with NCTD staff and management focusing on the TDA requirements as well as the specific audit areas identified in the previous step. Upon completion of the on-site interviews, the study team conducted a detailed review of NCTD using data collected from reports/plans/documents and on-site interviews. Finally, the analysis and findings are documented in this report.

The methodology for the NCTD audit included site visits, interviews, and data collection and analysis. Interviews were conducted with personnel responsible for the management and oversight of NCTD services. They are listed below in order of scheduled interview:

- Senior Financial Analyst
- General Counsel
- Chief Financial Officer
- Chief of Safety & Security
- Chief Procurement & Contract Administration Officer
- Director of Service Planning
- Bus Mechanical Officer
- Executive Director
- Chief Operations Officer – Transit Planning & Bus Operations
- Rail Mechanical Officer
- Rail Mechanic Officer II
- Chief Administrative Officer/EEO Officer
- Assistant Controller
- Fare Revenue Specialist

- Chief Operations Officer Rail
- Customer Service Manager
- Manager of Marketing & Communications
- Civil Rights Officer
- Bombardier General Manager
- MV General Manager

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

Exhibit I-1: NCTD Background Documents and Written Information Reviewed

Organization and staffing charts	National Transit Database Reports, FY2016-FY2018	Data provided by operating units to support specific analyses
Labor agreements in effect during the audit period	State Controller Reports, FY2016-FY2018	Performance Objective Plans, FY2016-FY2018
Current NCTD Policies and Procedures	Comprehensive Annual Financial Reports, FY2016-FY2018	Annual Performance Monitoring Reports, FY2016-FY2018
FY2013-FY2015 performance audit report and responses to recommendations	Adopted Budgets, FY2016-FY2018	Service maps and brochures
Form B-10 and Related Reports, FY2016-FY2018	CHP Transit Operator Compliance Certificates	NCTD website: www.gonctd.com SANDAG website: www.sandag.org

The audit team also:

- Visited NCTD operations and maintenance facilities (SPRINTER Operations Facility, West Division/ BREEZE, and Stuart Mesa Maintenance Facility/ COASTER). Each site visit was accompanied by a responsible NCTD staff member. During the site visits, the study team also interviewed NCTD’s contractors (Bombardier and MV) for COASTER, SPRINTER, BREEZE, & LIFT/FLEX operations.
- 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

The North San Diego County Transit Development Board was created by California Senate Bill No. 802 on September 20, 1975 to plan, construct, and operate, directly, or through a contractor, public transit systems in its area of jurisdiction. In September 2002, Senate Bill 1703 modified the responsibilities of the Board by transferring responsibility for planning, programming, project development, and construction to the San Diego Association of Governments (SANDAG). In January 2006, the North San Diego County Transit Development Board was renamed to North County Transit District (NCTD). NCTD provides bus,

van and train service for people in the northern half of San Diego County—from the rural areas of Fallbrook and Ramona and the Camp Pendleton Marine Corps Base, to the cities of Oceanside, Vista, Carlsbad, Encinitas, San Marcos, Del Mar, Solana Beach, and Escondido, plus the unincorporated areas of North San Diego County.

NCTD's services are known and branded as: BREEZE (Fixed Route Bus), LIFT (ADA Paratransit Service), FLEX (Deviated Fixed Route and Demand Response), COASTER (Commuter Rail), and SPRINTER (Hybrid Rail). NCTD contracts with private operators to deliver these modes of public transit service.

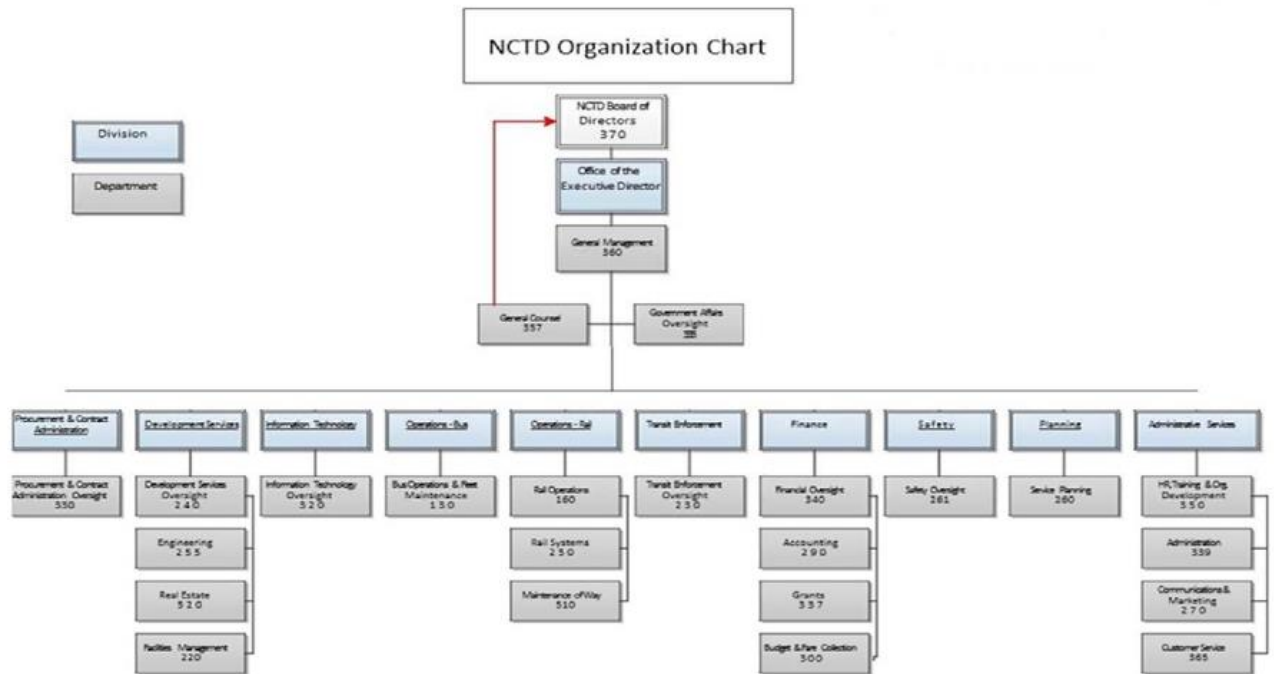
NCTD provides fixed route bus (BREEZE), deviated fixed route and demand response service (FLEX), commuter rail along the I-5 corridor (COASTER), hybrid rail service from Oceanside to Escondido (SPRINTER), and ADA paratransit services (LIFT) in the northern portion of San Diego County. NCTD serves a population of approximately 965,000 in an area of responsibility that covers about 403 square miles.

A brief description of each service is presented below.

- BREEZE currently operates 30 routes in the North County service area, from early morning to late at night, seven days a week. Of the current active fleet of 152 buses, 133 of the vehicles are cost efficient environmentally friendly Compressed Natural Gas (CNG) models. 26 replacement vehicles will be purchased in 2019-2020 will be CNG and 6 will be electric. MV assumed revenue operations of the BREEZE service on July 1, 2017 as part of a procurement for BREEZE, LIFT, and FLEX operations and maintenance. Prior to July 1, 2017, First Transit was the responsible contractor for BREEZE, LIFT, and FLEX operations and maintenance. The re-procurement of this service contract with a more robust scope and increased wages impacted certain areas of performance during the audit period.
- COASTER provides commuter rail service seven days a week, north and south along the San Diego County coast between Oceanside and San Diego. COASTER service is provided by seven locomotives, 10 bi-level cab cars, and 18 bi-level passenger coaches. Bombardier assumed revenue operations of the COASTER service on July 1, 2016 as part of a bundled service procurement for COASTER and SPRINTER operations and maintenance. Prior to July 1, 2016, Transit America Services, Incorporated was the responsible contractor for COASTER operations and maintenance along with right of way and signal maintenance for both the COASTER and SPRINTER while TransDev with Bombardier as a sub-contractor was responsible for SPRINTER operations and vehicle maintenance. The re-procurement of this service contract with a more robust scope and increased wages impacted certain areas of performance during the audit period.
- SPRINTER provides east-west mobility link between Escondido, San Marcos, Vista, and Oceanside. This hybrid rail service is delivered using European-style light rail vehicles with a current active fleet of 12 light rail diesel multiple units (DMU).
- LIFT provides demand response and ADA paratransit service for passengers, who due to their disability, are unable access fixed route service. MV operates and maintains NCTD owned vehicles to deliver the LIFT service using a fleet of 54 vans and cutaways.
- FLEX provides deviated fixed route service in parts of Camp Pendleton, Escondido and Ramona, where BREEZE service is not available. FLEX vehicles take passengers anywhere along the scheduled FLEX route and will deviate up to $\frac{3}{4}$ mile off the route with a prior reservation. FLEX also provides demand response service between Escondido and Ramona during the weekday mid-day period.

Exhibit I-2 shows NCTD's high-level organizational structure from the FY2015 actual financial reports.

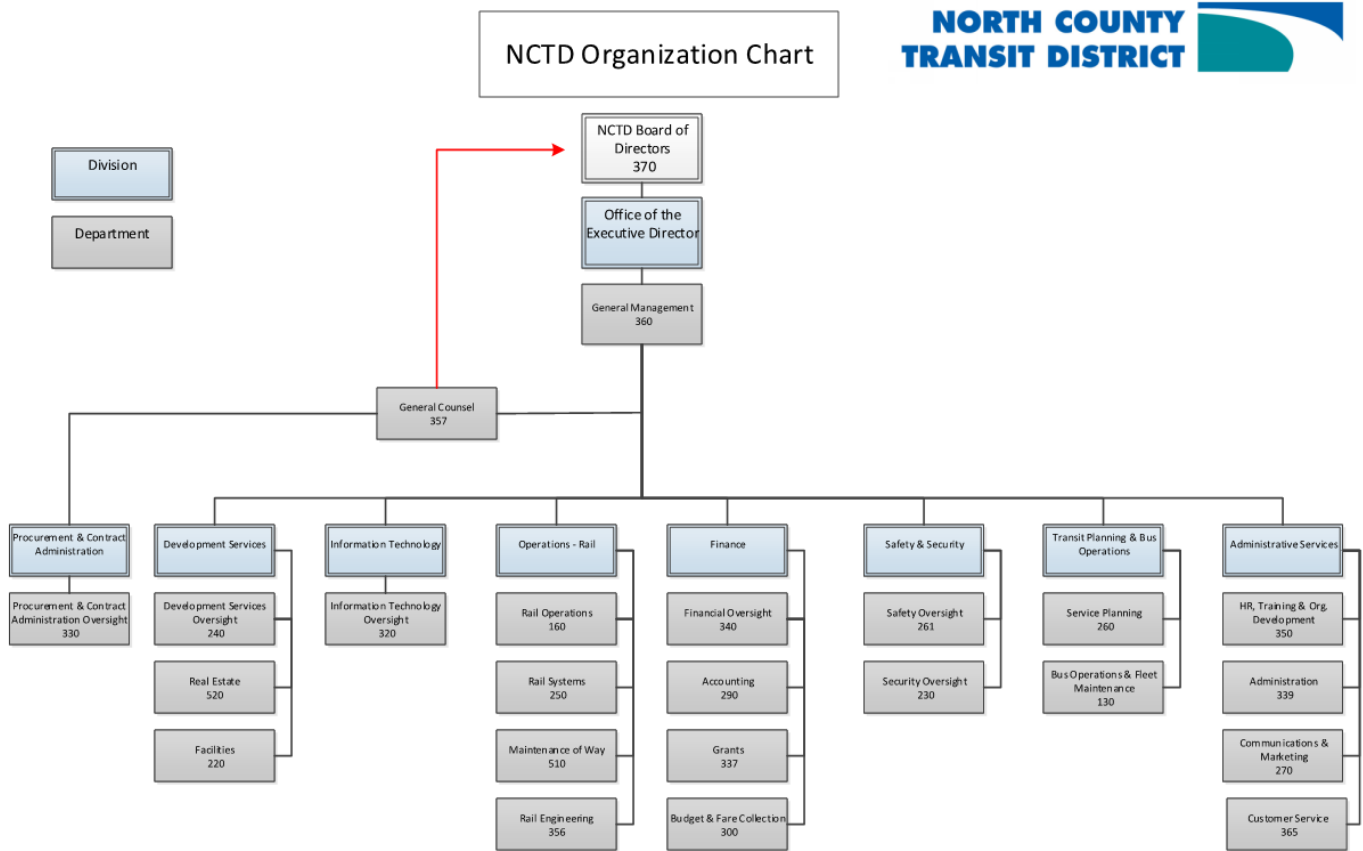
Exhibit I-2: NCTD Organization Chart (FY2015 Actual CAFR)



Source: NCTD, FY 2015 CAFR

NCTD's organization chart did not change dramatically from FY2015 to FY2018 as it had in prior audits following the privatization of bus operations. Exhibit I-3 shows NCTD's high-level organizational structure from the FY2018 actual financial reports.

Exhibit I-3: NCTD Organization Chart (FY 2018 Actual CAFR, End of Audit Period)



Source: NCTD, FY 2018 Actual CAFR

Three significant points to note regarding the recent organizational changes:

- Procurement and Contract Administration Division now reports through General Counsel's Office
- Safety and Security Divisions merged in 2017. Additionally, on-site security was contracted out to local law enforcements agencies, Oceanside Police Department, Escondido Police Department, and San Diego County Sheriff's Department
- Planning and Bus Operations were combined to a single division

Total staffing levels started at 157.50 in FY2016 and ended at 134.25 in FY2018. This is a 14.8% decrease during the audit period, of which 31 positions of the decrease were attributable to transitioning security services from a directly staffed model to a contracted model. The NCTD budgeted staffing levels, are illustrated in Exhibit 1-4.

Exhibit I-3: NCTD Staffing Levels (Budgeted Positions), FY2016-2018



Adopted FY2018 Operating Budget and
FY2018-2022 Capital Improvement Program

PERSONNEL SUMMARY

	FY2014	FY2015	FY2016	FY2017	FY2018
	Budget	Budget	Budget	Budget	Budget
	Positions	Positions	Positions	Positions	Positions
BUS OPERATIONS & FLEET MAINTENANCE	7.00	7.00	7.00	6.00	2.17
RAIL OPERATIONS	2.00	3.00	3.00	5.00	4.00
FACILITIES	2.00	5.00	4.00	6.00	4.00
SECURITY OVERSIGHT	40.00	41.00	41.00	47.00	21.00
DEVELOPMENT SERVICES OVERSIGHT	1.00	1.00	1.00	2.00	6.00
RAIL SYSTEMS	4.00	4.00	4.00	4.00	4.00
RAIL ENGINEERING	3.00	5.00	7.00	6.00	4.00
SERVICE PLANNING	9.00	9.00	10.00	9.00	8.50
SAFETY OVERSIGHT	4.00	4.00	5.00	5.00	4.33
COMMUNICATIONS & MARKETING	4.00	2.00	3.00	3.75	3.25
MOBILITY MANAGEMENT	1.00	1.00	0.00	0.00	0.00
ACCOUNTING	2.00	5.00	5.00	5.00	5.00
BUDGET & FARE COLLECTION	3.00	3.00	3.00	3.00	2.00
FINANCIAL OVERSIGHT	6.00	3.00	8.50	9.00	6.00
GRANTS	3.00	3.00	3.00	3.00	2.00
INFORMATION TECHNOLOGY	11.00	11.00	8.00	8.00	9.00
PROCUREMENT & CONTRACT ADMINISTRATION	13.00	13.00	8.00	7.00	7.00
GOVERNMENT AFFAIRS & COMMUNICATIONS	1.00	1.00	1.00	0.75	1.00
ADMINISTRATION	7.00	6.50	7.00	8.00	7.00
HUMAN RESOURCES	3.00	3.00	4.00	4.00	4.00
GENERAL COUNSEL	5.00	5.00	6.00	6.00	7.00
GENERAL MANAGEMENT	1.00	1.00	1.00	1.00	2.00
CUSTOMER SERVICE	12.00	12.00	12.00	12.00	15.00
OPERATIONS OVERSIGHT	3.00	1.00	1.00	0.00	0.00
MAINTENANCE OF WAY	1.00	1.00	2.00	3.00	3.00
REAL ESTATE	3.00	3.00	3.00	3.00	3.00
	151.00	153.50	157.50	166.50	134.25

Source: NCTD FY2018 Budget

The previous audit period saw much change as it relates to service contracts and ridership.

The re-procurement of bundled contracts for bus, rail, and facilities maintenance increased costs based on more robust and detailed scope of work requirements, compliance with regulatory requirements such as minimum wage increases in the State of California, and contractor pricing changes from contracts that were more than seven years old. The cost impacts for re-procurement were as follows.

	Expenditure for Final Year of Contract	Expenditure for First Year of New Contract	\$ Change	% Change
Operations and Maintenance – Bus	FY2017 – First Transit \$35,303,857	FY2018 – MV Transp. \$36,694,679	\$1,390,823	3.9%
Operations and Maintenance - Rail	FY2016 – TASI and TransDev, \$14,459,797	FY2017 – Bombardier \$24,195,670	\$9,735,873	67.3%
Facilities Maintenance – Bus and Rail	FY2016 – TASI FY2017 – First Transit \$4,082,535	FY2017 – Bombardier FY2018 – MV Transp. \$3,788,749	(\$293,786)	-0.5%

Below is a summary detail for each of the District modes and the supporting transit services and contracted providers:

Combined BREEZE Fixed Route Service, LIFT ADA Complementary Paratransit Service, and FLEX Specialized Transportation Service Contract	
Contractor	MV Transportation, Inc.
Contract Term Limits	Base: July 1, 2017 to June 30, 2027 (exclusive of a single three-year option)
Contract Value	\$304,620,005 (at time of contract award)
Payment Terms	Lump sum for positions and services that are not variable depending on service levels, in equal payments over the 12 months of the year. For costs that are variable depending on service levels operated, a rate per variable has been assigned (cost per hour for vehicle operators, cost per mile for vehicle maintenance employees and parts), payable each month for actual service operated. Annual costs and rates are escalated each year according to San Diego Regional CPI, capped at 3% annually.
Scope of Contract	<p>BREEZE service, bus dispatching, employing and managing bus operators, vehicle maintenance, and facility maintenance. The Contract has specific requirements related to wages, staffing levels, and productivity commitments for Operators and Vehicle Maintainers.</p> <p>Managing and operating LIFT ADA paratransit service; taking customer reservations and complaints; scheduling, dispatching, and maintaining telephone recordings and records; maintaining a current ADA paratransit buffer map; maintaining all necessary records and data needed to assess its performance against contractual requirements and those required for Federal reporting.</p> <p>Managing FLEX specialized transportation services which includes demand response, deviated fixed route, and other low-density services.</p>

Combined Rail Operations and Maintenance Contract	
Contractor	Bombardier Transportation (Holdings) USA, Inc. (Bombardier)
Contract Term Limits	Base: June 11, 2016, to June 30, 2023 (exclusive of a single three-year option)
Contract Value	\$198,281,697 (at time of contract award)
Payment Terms	Lump sum, equal payments over the 12 months of the year. Annual costs and rates are escalated each year according to San Diego Regional Consumer Price Index (CPI), capped at 3% annually.
Scope of Contract	COASTER commuter rail and SPRINTER hybrid rail operations, vehicle maintenance, maintenance of way, maintenance of signal, and dispatch in accordance with all state and federal regulations. The Contract is performance-based contract and Bombardier proposed minimum staffing levels to accomplish those performance requirements.

Comprehensive Facilities Maintenance	
Contractor	Bombardier Transportation (Holdings) USA, Inc. (Bombardier)
Contract Term Limits	Base: July 1, 2016 to June 30, 2023 (exclusive of a single three-year option)
Contract Value	\$27,413,400 (at time of contract award)
Payment Terms	

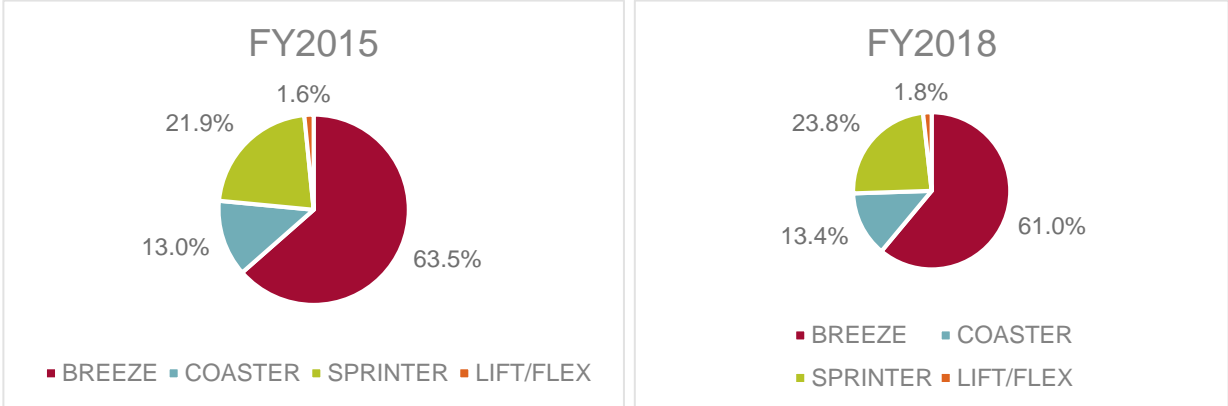
Scope of Contract	<p>Maintenance of operational equipment, janitorial services, and structural maintenance of the COASTER and SPRINTER rail operations facilities.</p> <p>Janitorial services and structural maintenance of the Maintenance of Way facility, layover yard trailer, Transit Centers, COASTER stations, and SPRINTER stations.</p> <p>Structural Maintenance of NCTD's two administrative offices.</p> <p>The Contract has specific requirements related to wages and staffing levels.</p>
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Systemwide ridership peaked in FY2015. However, the current audit period has seen a steady decline in ridership, consistent with national trends. Nationally, ridership loss has been attributable to historically low fuel costs, Assembly Bill 60, rising costs of living and increased development sprawl which is more difficult to serve with fixed route transit.

NCTD's operating costs increased over the audit period in line with inflation (both rates at 7.9%). BREEZE service miles decreased 3.9% during the audit due to route optimization while service hours remained relatively unchanged (increase of 0.1%). NCTD also decreased staffing levels as a number of functions, including security, were contracted out. BREEZE operations costs increased by 9.5%, which was greater than inflation. Overall COASTER operating costs decreased by 16.0%, however the decrease was largely due to a decrease in administrative operating cost. While COASTER operations costs decreased during the period, maintenance costs rose sharply, reflective of an aging fleet (vehicles are 25 years old and have a 30-year useful life). SPRINTER operating costs increased by 22.4%. LIFT/FLEX operations cost increased during the period. This increase was mainly due to increased maintenance cost. The systemwide pure farebox recovery ratio decreased by 27.9%, from 22.5% to 16.2%, during the audit period. NCTD made the fixed route farebox recovery requirement using safe harbor calculations (i.e., adding locally generated revenues, and subtracting some costs). The BREEZE farebox recovery ratio decreased by 27.5%, COASTER and SPRINTER farebox recovery ratios decreased by 19.4% and 25.2% respectively, and the LIFT farebox recovery ratio decreased by 19.8%. In FY2018, the LIFT farebox recovery ratio dropped to 7.4%, which was below the TDA minimum mandate of 10% for paratransit services.

Mode share for the different modes stayed very similar during the audit period. Exhibit I-5 illustrates that the BREEZE bus and COASTER commuter rail mode shares of total riders slightly decreased, while the SPRINTER and LIFT mode shares increased slightly. As point of reference, in 2006 BREEZE carried 85% of NCTD's passengers.

Exhibit I-5: NCTD Mode Share, Unlinked Trips



BREEZE, the NCTD's fixed route bus system, peaked in FY2015 by carrying over 8.0 million passengers annually. However, the system has seen a steady decline. Over the audit period, ridership has decreased by 18.9%. BREEZE ridership decline is due to the many factors, one reason being more people have a driver's license and access to a car.

BREEZE service generally operates from approximately 5:30 am to 11:30 pm, with the service span varying by route. Service frequency typically varies between 30 to 60 minutes, with some 15 minute-headway service. The BREEZE system is currently operated by MV, using two operations and maintenance facilities. The West Division facility is located in Oceanside; the East Division facility is located in Escondido.

NCTD, based on the completion of a comprehensive study in 2012, "The Mobility Plan", has structured the BREEZE service - with a focus on productivity in terms of generating ridership and revenue. NCTD had a major service change that cut 8% of the fixed route services in October 2017. The routes that were cut were low performing. NCTD focused on fine tuning the bus system in this audit period. The service change is further discussed in Section I.2 of this report.

COASTER, NCTD's commuter rail line, experienced a 12.7% decrease in ridership over the audit period. It is important to note that NCTD's ridership is likely impacted by significant construction that is occurring combined with riders that may have shifted to Amtrak as part of the Rail2Rail agreement that allows customers from both railroads to take trips on designated trains. Rail2Rail ridership of COASTER customers totaled 95,173 in FY 16, 77,978 in FY 17, and 50,476 in FY 18. Bombardier operates the trains, maintains the equipment, track, signals and facilities. NCTD is responsible for contract management and oversight. The COASTER runs between the Oceanside Transit Center and San Diego's Santa Fe Depot, with six intermediate station stops.

COASTER operates 22 trains weekdays (with an increase to 26 trains on Friday nights, seasonally), eight Saturday, Sunday, and Holiday trains. The COASTER runs 365 days per year. NCTD is looking to add more times during mid-day on weekends and later times during the week and weekend. This will be accomplished with the purchase of new locomotives and cars and the double tracking of the rail corridor.

Since COASTER began service in 1995, it has experienced significant ridership growth serving approximately 1.6 million passengers in FY 2015, with most Park & Ride facilities near or at full capacity. This ridership is equivalent to about 5,500 weekday boardings. NCTD consolidated their rail operations and maintenance to be under one contract. Bombardier now also handles dispatching functions for COASTER and all other trains operating on the San Diego Subdivision. Ongoing maintenance activities for the COASTER service are also performed by Bombardier at the COASTER Stuart Mesa Maintenance Facility, located at Camp Pendleton. Exhibit I-5 provides the COASTER system map.

Exhibit I-6: COASTER System Table

COASTER STATIONS		ZONES
Oceanside Transit Center	195 S. Tremont Street <i>(South Tremont Street between Topeka St. and Michigan Ave.)</i>	North County - Zone 1
Carlsbad Village	2775 State Street <i>(State St. & Grand Ave.)</i>	
Carlsbad Poinsettia	6511 Avenida Encinas <i>(Avenida Encinas just north of Embarcadero Ln.)</i>	
Encinitas	25 East "D" Street <i>(D Street & S. Vulcan Ave.)</i>	
Solana Beach	105 N. Cedros Avenue <i>(North Cedros Ave. & Lomas Santa Fe Dr.)</i>	
Sorrento Valley	11170 Sorrento Valley Road <i>(Sorrento Valley Rd. between Carmel Mountain Rd. and Sorrento Valley Blvd.)</i>	Sorrento Valley - Zone 2
Old Town Transit Center	4005 Taylor Street <i>(Taylor St. & Pacific Hwy.)</i>	San Diego - Zone 3
Santa Fe Depot	1050 Kettner Boulevard <i>(West Broadway & Kettner Blvd.)</i>	

SPRINTER ridership decreased over the audit period by 8.6%. The decline in some of the SPRINTER ridership is likely due to the discontinuation of a fare subsidy program that NCTD was providing for students that reduced the fares by approximately 51% for a monthly pass. The fare subsidy was discontinued as its source of funding was derived from state funding which resulted in reduced farebox recovery for SPRINTER. Additionally, the state funding was needed to fund the procurement of electric buses. SPRINTER operates 18 hours/day and runs east-west between the Escondido and Oceanside Transit Centers, known as ETC and OTC respectively. SPRINTER runs under a temporal-separation shared track use program where SPRINTER utilizes the track for approximately 18 hours/day and freight trains get about six hours per night, up to five nights per week.

SPRINTER has 12 vehicles and is operated and maintained by Bombardier. Bombardier operates the trains, maintains the equipment, track, signals and facilities. NCTD is responsible for contract management and oversight. NCTD began managing fare enforcement on SPRINTER in July 2010.

The SPRINTER system map is presented in Exhibit I-7.

Exhibit I-7: SPRINTER System Map



SPRINTER cars are unique in North America and a significant number of parts can only be sourced from Europe and some instances there is a long lead time to acquire parts. NCTD received a Buy America Waiver to purchase SPRINTER maintenance parts. Not having this waiver prevented the use of federal funds for equipment that was non-Buy America compliant which increased pressure on NCTD's operating budget due to the need to use state and local funds for capital needs

The new combined rail contract with Bombardier included increased maintenance responsibilities within the base contract and largely explains the cost increase for maintenance. The SPRINTER fleet is currently nearing the end of its first comprehensive overhaul. NCTD has transitioned the oversight and or implementation of the capital overhaul to Bombardier to streamline the procurement process and project implementation. NCTD based on lessons learned has issued a task order to a consultant to assist in the development of plans for the next overhaul of the SPRINTER fleet including emissions upgrades.

LIFT is a curb-to-curb shared ride service available to ADA-certified patrons. LIFT serves origins and destinations that are within ¼-mile of an NCTD fixed route, during the same hours as the corresponding fixed route (generally from 5:30 am to 11:30 pm).

In the previous audit period, LIFT transitioned from a brokerage operational model back to a dedicated fleet operational model. This change brought a significant increase in operations, maintenance, and administration cost as all vehicles must be dispatched from centralized locations. NCTD has made significant strides to contain the cost for LIFT operations. This is discussed in Section I.2 of this report.

FLEX is a deviated commuter and demand response system available to anyone, within certain service areas. FLEX is also operated by MV under a dedicated fleet model.

Fares for NCTD's modes area are established by SANDAG. Fares were not modified in the NCTD service area during the audit period. The last major fare changes occurred in 2011 when fares for BREEZE, COASTER, and LIFT were reduced by NCTD to spur ridership.

Currently, NCTD fare structures and fare levels differ among service modes.

- The base fare for BREEZE was decreased from \$2.00 to \$1.75 in July 2011. Fifty percent discounts are provided for senior/disabled/Medicare patrons. Youth under 6 ride for free.
- The base fare for SPRINTER remained at \$2.00 during the audit period. Fifty percent discounts are provided for senior/disabled/Medicare patrons. Youth under 6 ride for free.

- COASTER utilizes a zone-based fare structure. Single ride fares range from \$4.00 to \$5.50 depending on the number of zones crossed. Fifty percent discounts are provided for senior/disabled/Medicare patrons. Youth under 6 ride for free.
- The base fare for FLEX is set at \$5.00. Fifty percent discounts are provided for senior/disabled/Medicare patrons. Youth under 6 ride for free.
- The LIFT paratransit one-way fare is set at \$3.50. NCTD also sells 10 ride LIFT Ticket Books for \$35.00.

NCTD offers various regional fare products. As of the end of the audit period, NCTD offers:

- Regional Day Pass, Regional 14-Day Pass, Regional Monthly Pass valid on BREEZE / SPRINTER / MTS Regular Bus
- Senior Local Day Pass valid on BREEZE / SPRINTER
- Regional Rapid Express Monthly Pass valid on BREEZE / SPRINTER / MTS Regular Bus & Premium Bus / MTS Trolley
- Premium Day Pass valid on BREEZE / SPRINTER / COASTER/ FLEX / MTS Regular Bus & Premium Bus / MTS Trolley.

It should be noted that approximately 70% of NCTD fare revenue is attributable to the monthly passes described above. The cash fare discount for senior/disabled/Medicare riders is set at 50%, in accordance with 49 U.S. C. 5307 (c)(1)(D)d. The monthly pass discounts are set at 75% for senior/disabled/Medicare and at 50% for youth riders. Exhibit I-7 provides NCTD's fare structure from FY2007 to FY2016. No changes to the fare structure were made in FY2017 and FY2018. Therefore, the FY2016 fare structure and fare levels are also reflective of the FY2017 and FY2018 fare structure and fare levels. The SANDAG Board adopted a fare change scheduled for implementation in September 2019, designed to harmonize fares across NCTD and MTS, simplify the structure and raise more revenue.

To address the declines in customer ridership and revenue, NCTD has undertaken a number of activities to garner customer feedback to improve service quality and grow ridership (some of them implemented after the end of this audit period). Following are some examples:

Land Use and Transit Integration Surveys – NCTD's Land Use and Transit Integration Study consists of three rounds of public outreach. During these events, NCTD and its consultant team gathers input on rider and non-rider travel preferences (i.e. by car, bike, train), their frequent origins and destinations, and service strategies they would like to see implemented in North County (i.e. micromobility, increased service frequencies, new routes). The first round of this outreach was conducted in November of 2018, and the most recent round was conducted in May 2019. The third and final round will be conducted in Summer 2019.

SANDAG Surveys - SANDAG and NCTD deployed an intercept survey in March 2019 to explore whether iCommute bike lockers and/or shared micromobility services (i.e. bikeshare and/or scootershare) could provide a solution for bike congestion on-board SPRINTER vehicles. The survey covered topics regarding bike usage, travel patterns, and awareness of SANDAG iCommute services and bicycle parking infrastructure.

Additionally, NCTD provides input to SANDAG when developing its Onboard Transit Passenger Survey, which is conducted onboard all fixed bus and rail routes throughout the region to gather information on rider demographics and travel behavior. The next Onboard Transit Passenger Survey will occur in Calendar Year 2020.

Marketing Department Rider Surveys – During FY2017 NCTD’s marketing department conducted multiple rounds of in-person (transit stations and on board) and online rider satisfaction surveys. The surveys covered all five modes and included a wide range of topics from general service satisfaction, fares, performance, facilities, and safety/security.

Planning Department COASTER Surveys – During the first quarter of 2018, NCTD engaged consultants from IBI Group to perform on-board and online surveys of COASTER riders and online surveys of key North County employers. The survey covered topics regarding customer travel patterns, schedule preferences, origins and destinations, and preferences/recommendations for future schedule changes.

In addition to these activities, NCTD is advancing a comprehensive transit operations study, Strategic Multimodal Transit Implementation Plan, that builds on the work completed as part of the Land Use and Transit Integration Strategy to develop implementable strategies for existing and future mobility services.

Finally, NCTD has laid out a 5-year funding and strategic budget strategy to implement the following service improvement goals.

- Implement 30-minute frequencies on the COASTER
- Implement 15-minute peak frequencies on the SPRINTER
- Implement improved bus service frequencies
- Implement new first and last mile services
- Implement new technologies that improve the customer riding experience
- Increase investments in marketing and outreach programs

The achievement of the goal for increased COASTER frequencies is dependent on SANDAG providing two new trainsets consistent with the Regional Transportation Plan. The implementation of SPRINTER frequency improvements assumes that NCTD’s request for state discretionary funding will be approved to fund a project estimated to be under \$100 million. The funding for the remaining goals will be funded through NCTD’s operating or capital budget.

Exhibit I-7: Fare Structure for NCTD Services (as of FY 2018 Budget)

BREEZE and ADA Fares

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Basic Fare										
Regular	\$2.00	\$2.00	\$2.00	\$2.00	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75	\$1.75
Senior/Disabled/Medicare	1.00	1.00	1.00	1.00	0.75	0.75	0.75	0.75	0.75	0.75
Day Pass										
Regular	4.00	4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	5.00
Senior/Disabled/Medicare	2.00	2.00	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Monthly Pass										
	54.00	54.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Regional Day Pass										
Day Pass		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Premium Day Pass		11.00	11.00							
Region Plus Day Pass				14.00	14.00	12.00	12.00	12.00	12.00	12.00
Regional Monthly Calendar or Rolling 30-Day Pass										
Regular	60.00	64.00	68.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00
Youth	30.00	32.00	34.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00
Senior/Disabled/Medicare	15.00	16.00	17.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Regional Premium Monthly Calendar or Rolling 30-Day Pass										
Regular			90.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Youth			45.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Senior/Disabled/Medicare			22.50	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Regional 14 Day Pass										
				43.00	43.00	43.00	43.00	43.00	43.00	43.00
Regional Premium 14 Day Pass										
				60.00	60.00	60.00	60.00	60.00	60.00	60.00
College Monthly Pass										
	44.00	44.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00

Fares - ADA

	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016
Regular Fare	4.00	4.00	4.00	4.00	3.50	3.50	3.50	3.50	3.50	3.50

Source: FY2018 Budget

COASTER FARES

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Sorrento Valley COASTER Connection										
Single Trip			\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00	\$1.00
Single Trip Senior/Disabled/Medicare			0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Monthly Pass			40.00	40.00	40.00	40.00	40.00	40.00	40.00	40.00
Monthly Pass Youth			20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00
Monthly Pass Senior/Disabled/Medicare			10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
ZONE 1										
Basic Fare										
Regular	\$4.00	\$4.00	\$5.00	\$5.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00	\$4.00
Senior/Disabled/Medicare	2.00	2.00	2.50	2.50	2.00	2.00	2.00	2.00	2.00	2.00
Ten Trip Ticket										
Regular	36.00	36.00								
Senior/Disabled/Medicare	18.00	18.00								
Monthly Pass										
Regular	115.00	115.00	144.00	144.00	120.00	120.00	120.00	120.00	120.00	120.00
Youth (all zones)	77.00	77.00	91.00	91.00	82.50	82.50	82.50	82.50	82.50	82.50
Senior/Disabled/Medicare (all zones)	38.50	38.50	45.50	45.50	41.25	41.25	41.25	41.25	41.25	41.25
ZONE 2										
Basic Fare										
Regular	4.50	4.50	5.50	5.50	5.00	5.00	5.00	5.00	5.00	5.00
Senior/Disabled/Medicare	2.25	2.25	2.75	2.75	2.50	2.50	2.50	2.50	2.50	2.50
Ten Trip Ticket										
Regular	40.50	40.50								
Senior/Disabled/Medicare	20.25	20.25								
Monthly Pass										
Regular	126.00	126.00	154.00	154.00	150.00	150.00	150.00	150.00	150.00	150.00
ZONE 3										
Basic Fare										
Regular	5.00	5.00	6.00	6.00	5.50	5.50	5.50	5.50	5.50	5.50
Senior/Disabled/Medicare	2.50	2.50	3.00	3.00	2.75	2.75	2.75	2.75	2.75	2.75
Ten Trip Ticket										
Regular	45.00	45.00								
Senior/Disabled/Medicare	22.50	22.50								
Monthly Pass										
Regular	142.00	142.00	170.00	170.00	165.00	165.00	165.00	165.00	165.00	165.00
ZONE 4										
Basic Fare										
Regular	5.50	5.50	6.50	6.50						
Senior/Disabled/Medicare	2.75	2.75	3.25	3.25						
Ten Trip Ticket										
Regular	50.00	50.00								
Senior/Disabled/Medicare	25.00	25.00								
Monthly Pass										
Regular	154.00	154.00	182.00	182.00						

Source: FY2018 Budget

SPRINTER FARES

	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
Basic Fare										
Regular		\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00	\$2.00
Senior/Disabled/Medicare		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Day Pass										
Regular		4.00	4.50	4.50	4.50	4.50	4.50	4.50	4.50	5.00
Senior/Disabled/Medicare		2.00	2.25	2.25	2.25	2.25	2.25	2.25	2.25	2.25
Monthly Pass										
		54.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00	59.00
Regional Day Pass										
Day Pass		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00
Premium Day Pass		11.00	11.00							
Region Plus Day Pass				14.00	14.00	12.00	12.00	12.00	12.00	12.00
Regional Monthly Calendar or Rolling 30-Day Pass										
Regular		64.00	68.00	72.00	72.00	72.00	72.00	72.00	72.00	72.00
Youth		32.00	34.00	36.00	36.00	36.00	36.00	36.00	36.00	36.00
Senior/Disabled/Medicare		16.00	17.00	18.00	18.00	18.00	18.00	18.00	18.00	18.00
Regional Premium Monthly Calendar or Rolling 30-Day Pass										
Regular			90.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Youth			45.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
Senior/Disabled/Medicare			22.50	25.00	25.00	25.00	25.00	25.00	25.00	25.00
Regional 14 Day Pass										
				43.00	43.00	43.00	43.00	43.00	43.00	43.00
Regional Premium 14 Day Pass										
				60.00	60.00	60.00	60.00	60.00	60.00	60.00
College Monthly Pass										
		44.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00	49.00

Source: FY2018 Budget

1.2. Accomplishments and Challenges

System-Wide

This audit period did not see significant change as the previous audit period had. This period focused on fine tuning and stabilizing operations after the major changes were made in the prior audit period. Some of the major changes were:

- Bus and rail operations were consolidated to two contracts (Bombardier for rail, MV for bus)
- LIFT/FLEX transitioned to a dedicated fleet operational model
- Implementation of a comprehensive service management approach with dedicated staffing in a consolidated operations control center to manage service disruptions

Consolidating rail and bus operations to two contracts simplified contract oversight for NCTD. As part of the re-procurement of rail and bus operations contracts, NCTD advanced the development of a significant

number of standard operating procedures and plans to support improved and integrated modal operations. Additionally, NCTD created a consolidated operations control center that includes rail and bus dispatchers, safety and security personnel, and service coordinators to support improved service quality and to support management of emergencies and service disruptions. The service coordinators also support NCTD's oversight of the contractors' performance by logging all service incidents in a safety database to support tracking of events, issuance of corrective actions, and reporting to regulatory authorities.

One of the previous audit recommendations was to implement strategies to minimize operating costs for LIFT paratransit service. NCTD improved efficiency and reduced cost by improving technology, increasing fares, and enhancing their ADA certification program.

Over the audit period, NCTD purchased software from Trapeze that will allow customers to book rides on-line or through an interactive voice response system. Until the purchase of this software, reservations were made over the phone, which requires schedulers and reservationists. They also installed mobile data terminals (MDT) on LIFT and FLEX vehicles to improve scheduling efficiency for drivers. This should improve the productivity of trips completed per revenue hour. The MDT will also allow customers to receive notifications (text message, email, or phone call) about the status of the vehicle. This feature should increase on-time departures.

NCTD, through SANDAG, is approaching completion of proposed changes to its fare structure. For the short term, NCTD will be charging double a single bus fare, instead of being inclusive of transfers. It is expected this will produce an increase in revenue, as there are no discounts given and the rate will be increasing from \$3.50 to \$5.00 for each trip. Changing this is expected to improve the farebox recovery ratio. As provided for in the Comprehensive Fare Ordinance, NCTD intends to charge for transfers in the event increased ADA paratransit fares do not achieve farebox recovery targets.

NCTD currently certifies passengers for the LIFT program through an online only process. The potential passenger will complete an application and submit supporting documents for why they need to be a part of the program. The determination is made solely by the documents and application they submit. In October 2017, NCTD implemented a hybrid approach where, if approval or denial could not be determined solely from the supporting documents, the applicant would be required to attend an in-person assessment.

BREEZE Service Change

NCTD has seen a continual decline of ridership for BREEZE service over the audit period. In addition, operating costs have increased and farebox recovery has decreased. NCTD took proactive steps to mitigate these issues by taking a more comprehensive approach to service planning for the BREEZE system.

In the past, NCTD had compared routes based on four performance metrics and the category they fell in. The four performance metrics were passengers per revenue mile, passengers per revenue hour, cost per passenger, and farebox recovery. The categories were: core, corridor, local, local – small vehicle, commuter, and rural. Routes either passed, failed, or were placed on a watch list based on the average of their assigned category. If a route failed three out of the four measures for two consecutive non-school bids, it was deemed deficient. NCTD would then implement strategies to improve performance of the route.

In FY2017, NCTD moved away from this method and took a more holistic approach by ranking routes within the entire system. The same performance metrics are used and routes are given a composite productivity score based on the median score of the entire system. This new approach allowed NCTD to identify productive and deficient routes, which led to their October 2017 service change. The service change brought a 10%-11% reduction revenue hours/miles, but only a 3% drop in ridership. The fiscal savings were estimated to be \$1.7 million.

Future

The current audit period was a time for NCTD to stabilize from the big changes previously made and to plan for future service expansion.

It was said during one of the interviews that transit is shifting due to the increased options for transportation. In the past, a person's main options were driving, public transit, and taxi service. New technology has given rise to more options like Lyft and Uber and electric scooters like Bird and Lime. NCTD is making strides to work with and adapt to transit shifts like Uber and Lyft. Understanding how people choose their mode of transportation is key to their success. Many NCTD employees who were interviewed mentioned that their respective departments increased their focus on reliable data, which goes hand-in-hand with predicting future trends. Another concept that was discussed during the interviews was first and last mile connections. It was mentioned that SANDAG is currently working with these companies to get a cheaper fare for passengers for first and last mile connections.

Additionally, NCTD is taking actions for future increase in capacity by purchasing new vehicles for both COASTER and BREEZE modes. The current COASTER locomotives are past their useful service life, are hard to find parts for, and are tier zero for emissions. The new locomotives will have cleaner emissions and greater reliability. BREEZE is expecting to add 26 new vehicles to their fleet, six of which will be electric. NCTD is committed to meet the State's Innovative Clean Transit measure, which states that 100% of transit buses must be zero emissions by 2040.

Within the audit period, NCTD received a Buy America waiver to purchase SPRINTER maintenance parts using federal funds. Not having this waiver prevented the use of federal funds for equipment that was non-Buy America compliant which increased pressure on NCTD's operating budget due to the need to use state and local funds for capital needs

Capital Projects

In fiscal year 2018, NCTD completed full implementation of interoperable positive train control (PTC) initiatives on service area along the Los Angeles-San Diego-San Luis Obispo (LOSSAN) corridor. PTC is a proactive, automated system for preventing train collisions and other hazards. NCTD was one of four railroads in the country to accomplish this by the Federal Rail Administration deadline of 12/31/2018.

1.3. Report Outline

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

- Section II- Compliance Review: Assesses NCTD compliance with specific PUC requirements and discusses the status of prior audit recommendations.
- Section III- Management Control and Reporting: Examines the management structure and performance monitoring systems in place to help reach NCTD goals and objectives.
- Section 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.
- Section V- Conclusions and Recommendations: Outlines recommendations and potential implementation strategies for NCTD 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 NCTD and each of the NCTD 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 (2018).

With the consolidation of operations in the NCTD service area, some of the compliance findings have been made for NCTD 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 NCTD services.

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

Code Reference	Operator Compliance Requirements	Compliance Finding	Verification Information
PUC Section 99243	Uniform System of Accounts and Records: The transit operator submitted annual reports to the RTPA based upon the Uniform System of Accounts and Records established by the State Controller. Report is due 90 days after end of fiscal year (Sept. 28) for paper filing, or 110 days (Oct. 18) if filed electronically.	Full Compliance	State Controller Report submittal dates: FY2016: 10/11/2016 FY2017: 1/31/2018* FY2018: 1/31/2019 Starting FY17, annual report due within 7 months of the end of the fiscal year (January 31) (AB 1113).
PUC Section 99245	Annual Fiscal Audit: The operator has submitted annual fiscal and compliance audits to its RTPA and	Full Compliance	Annual fiscal audit dates: FY2016: January 27, 2017

Code Reference	Operator Compliance Requirements	Compliance Finding	Verification Information
	to the State Controller within 180 days following the end of the fiscal year (Dec. 27), or has received the appropriate 90-day extension by the RTPA allowed by law.		FY2017: December 18, 2017 FY2018: December 26, 2018
PUC Section 99251	CHP Certifications: The CHP has, within the 13 months prior to each TDA claim submitted by an operator, certified the operator's compliance with Vehicle Code Section 1808.1 following a CHP inspection of the operator's terminal.	Full Compliance	CHP certification dates during the audit period: 2016 (First Transit): East Facility 1/4/2017 West Facility 12/08/2016 2017 (MV Transportation): East Facility 7/7/2017 West Facility 7/19/2017 2018 (MV Transportation): East Facility 7/18/2018 West Facility 7/13/2018
PUC Section 99261	Transportation Planning Agency Regulations: The operator's claim for TDA funds is submitted in compliance with rules and regulations adopted by the RTPA for such claims.	Full Compliance	NCTD submitted its TDA claims and proper documentation to SANDAG for Article 4 and 4.5 revenue each year for FY2016, FY2017, and FY2018. A TDA Claims Checklist is used to indicate compliance with each required element, such as financial/ performance reporting forms, resolution of the governing body authorizing the claim, description of service provided, and other attached exhibits. NCTD claims State Transit Assistance Funds for operations, subject to the eligibility criteria. The STA Findings checklist shows compliance with the criteria under PUC 99314.6. The methodology applied by NCTD and SANDAG is based on an operating cost per vehicle revenue mile. As described in the TDA statute, the eligibility criteria uses operating cost per vehicle revenue hour. NCTD and SANDAG should revise the methodology to comply with the TDA application to determine eligible use of STA for operations.

Code Reference	Operator Compliance Requirements	Compliance Finding	Verification Information
PUC Section 99266	<p>Budget Changes: The operator's operating budget has not increased by more than 15% over the preceding year, nor is there a substantial increase or decrease in the scope of operations or capital budget provisions for major new fixed facilities unless the operator has reasonably supported and substantiated the change(s).</p> <p>Source: Annual Operating Budget</p>	Full Compliance	FY2016: 6.4% FY2017: 8.2% FY2018: -2.3%
PUC Section 99247	<p>Data Definitions: 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) vehicle service hours, (i) vehicle service miles, and (j) vehicle service hours per employee.</p>	Full Compliance	NCTD operating statistics are collected and performance measures are calculated in accordance with PUC requirements.
PUC Sections 99270.1 99275.5	<p>Requirement – Revenue Ratios in SANDAG Policy 27: The system-wide ratio using a blended urban/rural formula approved by SANDAG is 18.8% for NCTD Article 4.0 claims. For Article 4.5 claims for ADA Paratransit Service, the ratio is 10.0%.</p> <p>Source: Comprehensive Annual Financial Report</p>	<p>Partial Compliance Systemwide</p> <p>Not in Compliance ADA Paratransit</p>	<p>Farebox Recovery Ratios System-wide (passenger fares only):</p> <p>FY2016: 20.5% FY2017*: 17.8% FY2018: 16.5%</p> <p>Farebox Recovery Ratios for ADA Paratransit Service:</p> <p>FY2016: 9.2% FY2017*: 8.3% FY2018: 7.3%</p> <p>* Starting in FY17, operating costs exclude certain costs per PUC 99268.17 (SB 508). With local support revenues, the systemwide farebox ratio is met in FY18 according to the State Controller Report.</p>
PUC Section 99271	<p>Employee Retirement System: 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</p>	Full Compliance	NCTD offers a defined benefit pension through an independent contract with the California Public Employees' Retirement System (CalPERS). The Comprehensive

Code Reference	Operator Compliance Requirements	Compliance Finding	Verification Information
	a plan approved by the RTPA, which will fully fund the retirement system for 40 years.		Annual Financial Report provides the current cost of the retirement system.
CAC Section 6754(a)(3)	<p>Required Findings: If the operator receives state transit assistance funds, the operator makes full use of funds available to it under the Urban Mass Transportation Act of 1964 before TDA claims are granted.</p> <p>Source: Comprehensive Annual Financial Report</p>	Full Compliance	<p>The three primary sources of Federal aid are FTA 5307 (Urban Area), FTA 5337 (State of Good Repair), and FTA 5339 (Bus/Bus Facilities). During the audit period, NCTD received both federal operating and capital grants:</p> <p>FY 2016: Operating (\$12,568,370) Capital (\$7,885,351)</p> <p>FY 2017: Operating (\$17,992,711) Capital (\$19,998,684)</p> <p>FY 2018: Operating (\$22,056,755) Capital (\$27,067,680)</p>

II.2. Prior Audit Recommendations

Exhibit II.2-1 Recommendation #1 Response

Recommendation 1 - Implement strategies to minimize operating cost for LIFT.

Recommended Actions – NCTD demand response service is growing rapidly in terms of cost and with regard to the number of passenger trips made on this service. At a per trip cost above \$40, these trends are unsustainable. NCTD should take comprehensive actions to control cost and demand growth within the regulatory framework. Scheduling trips to improve productivity and reduce deadhead, charging fares to include transfer fees required for the same trip on fixed route, using rigorous screening to move able bodied riders to fixed route services are but a few possible actions.

Update – This action is complete. NCTD has undertaken the following activities to improve efficiency and or reduce cost.

1. NCTD has purchased software from Trapeze that will allow passengers to book rides on-line or thru an interactive voice response system. This technology will result in operational efficiencies related to the number of schedulers and reservationists required. Previous implementation of this software at other transit agencies has resulted in up to a 40% drop in call volume. The current schedule for implementation is the 1st quarter of FY19.

2. NCTD has purchased Itinerary Planner Assistant (IPA) from Trapeze. This application will allow customers to compare cost and travel times for ADA Paratransit Trips with other NCTD services. NCTD anticipates that this application will support a diversion of trips to other services that can be provided at a lower cost given that LIFT customers can ride BREEZE and SPRINTER services fare free. The current schedule for implementation is 2nd quarter of FY19

3. NCTD has installed a mobile data terminal (MDT) on each LIFT and FLEX vehicle, which allows real time location tracking and more accurate data collection. This improved data collection method will assist NCTD's contracted operator, MV Transportation, in the improvement of scheduling efficiency and the productivity of trips completed per revenue hour.

4. NCTD previously certified passengers for the LIFT program using an on-line only process. Potential clients apply for certification thru an application, supported by medical records from their doctor. The determination of eligibility is made solely by the application and supporting documentation. NCTD will be implementing a hybrid approach that includes an in person functional assessment as part of the eligibility certification by December 31, 2018. Pursuant to the new certification requirements, applicants will continue to apply on-line similar to the existing process. If the applicant's eligibility cannot be clearly established, he/she will be required to participate in an in-person interview and or functional assessment to provide a clear determination of eligibility (approval or denial). NCTD will also provide travel training for customers to assist in the use of fixed route and other services that are provided at a lower cost per passenger than LIFT ADA paratransit. The implementation of this approach is a best practice within the industry and is focused in on ensuring that only eligible applicants utilize ADA paratransit service.

5. In order to improve on-time performance, improve scheduling efficiency, improve the ability to dynamically re-route based on performance, and improve the customer experience, NCTD modified the following operational rules effective July 1, 2017:

a. On-time Pick-up Window: The on-time pickup window was 20 minutes, NCTD changed the on-time pickup window to 30 minutes to improve scheduling efficiency and to foster improved on-time performance by the Contractor.

b. Cancellation Window: Formerly, customers were allowed to cancel a trip 1 hour prior to the start of a trip, NCTD adjusted the cancellation window to 2 hours to support improved operational efficiency. The increased cancellation window will allow the Contractor more time to reschedule trips in an efficient manner.

c. Scheduling Window: Customers were allowed to book a trip 2 days in advance, NCTD expanded the scheduling window to 7 days in advance. This provides the Contractor more time to efficiently group and offer trips to the lowest cost provider. This change also provides customers the opportunity to call

less frequently to book trips; making the service more user friendly for customers; and lowering the call volume making it easier for customers to call in for last minute trips and checking on trips.

Exhibit II.2-2 Recommendation #2 Response

Recommendation 2 - NCTD was recommended to institute a robust tracking and management system for excess capital inventory at their rail maintenance facilities.

Recommended Actions – NCTD stores significant capital inventory items at their rail maintenance facilities. While operating parts are well tracked and reported, inventory items purchased with capital funds are less so. Improving capital inventory tracking provides better information and control over filling needs in a timely and cost efficient manner.

Update – This action is complete. This recommendation will be fully completed as part of NCTD's implementation of an Asset Management Plan as required by the Federal Transit Administration. NCTD's Board of Directors awarded a contract to a consultant to complete the development of an Asset Management Plan and update of procedures by October 2018. In FY 2018, NCTD completed upgrades to its enterprise asset management system, JD Edwards, to support enhanced management of all capital inventory, including excess inventory. NCTD has also completed inventories of all rail assets.

Exhibit II.2-3 Recommendation #3 Response

Recommendation 3 - The final recommendation was to work with SANDAG on developing a digital database for storing NCTD right of way information.

Recommended Actions – NCTD maintains information on its right-of-way in a variety of formats, some electronic and others paper files. Access is difficult, as is developing a comprehensive view of the right-of-way and its characteristics. These sources include an NCTD GIS database that identifies right-of-way parcels and boundaries, surveys, and real property agreements. The data sources such as surveys and real property agreements are electronically stored in NCTD's document management system LaserFiche.

Update – This action is complete. NCTD is implementing a real estate module in its Enterprise System, JD Edwards. The module will allow real estate agreements to be saved along the right of way by milepost and use type, along with critical terms and conditions of the agreements. This module is estimated to be implemented with full functionality by July of 2019, and affords the District visibility to the various incidental uses along the Right-of-Way. The module stores information by milepost and use type, along with critical terms and conditions of the agreements.

SECTION III: MANAGEMENT CONTROL AND REPORTING

As part of the Comprehensive Strategic Operating and Capital Plan, the Board of Directors established the following eight major agency goals.

Goals

1. Placing service to our customers first
2. Ensuring the safety and security of our employees and customers
3. Delivering high-quality transit services
4. Demonstrating good stewardship of federal, state, and local funds
5. Managing transit assets in a manner that sustains and promotes current and future transportation services
6. Securing adequate revenue, protecting our assets, and getting the maximum return on the public investment
7. Working in partnership with our communities and other stakeholders
8. Encouraging innovation, creativity, and leadership

Performance towards achievement of each agency goals is tracked by NCTD and the results are reported to the Board of Directors on a monthly or quarterly basis. Each agency goal has specialized measures or initiatives which are tracked. The measures and initiatives include data trending for key performance metrics, monitoring and oversight programs, stakeholder outreach programs, and many more. Exhibit III-1 displays the specific initiatives and measures tracked for each goal.

Exhibit III-1: Summary of NCTD Strategic Goals and Tracking Measures

Table 2.1: Summary Table of NCTD Strategic Plan Goals

GOAL	STRATEGY	SELECT MEASURES/INITIATIVES
1. Placing Service To Our Customer First	Expediently assess and respond to customer feedback	Volume of Customer Feedback Response Time to Customer Feedback Average Call Wait Time Average Call Handle Time Average Call Abandonment Rate
2. Ensuring the Safety and Security of Our Employees and Customers	Track incidents Identify trends to mitigate or eliminate risks to NCTD customers, employees, and assets	Increase the level of security on NCTD services and at NCTD facilities Increase surveillance capabilities with vehicle on-board equipment Proactively document, track, and review/analyze crime and security incident trends
3. Delivering High Quality Transit Services	Operate safe, reliable, convenient, comfortable, and clean bus, rail, ADA Paratransit, and demand response service	On-Time Performance Mechanical Reliability System Cleanliness
4. Demonstrating Good Stewardship of Federal, State, and Local Funds	Provide effective, efficient and sustainable transit service Periodically monitor service productivity	Ridership Operating Cost per Revenue Hour Operating Cost per Revenue Mile Operating Cost per Boarding Farebox Recovery
5. Manage Transit Assets in a Manner that Sustains and Promotes Current and Future Transportation Services	Maintain NCTD assets consistent with regulatory requirements. Maintain NCTD assets consistent with forecasted service needs and regional plans	Percentage of Preventive Maintenance Checks completed on time (by mode) Railroad ROW Management/Oversight Oversight/Management of Facilities Management of Operating Systems (RTMS, APCs, AVL, JDE) Develop Transit Asset Management Plan
6. Secure Adequate Revenue, Protect our Assets, Get the Maximum Return on the Public Investment	Sustain/secure existing revenue stream. Seek to expand revenue streams Sustain maintenance programs across all modes and facilities Centralize asset management	Fare Revenue per Passenger and Auxiliary/Non-Transportation Revenue Finalize/Update Fleet, Signal, Facilities, and Maintenance of Way (MOW) Plans Develop Transit Asset Management Plan
7. Work in Partnership with our Communities and Other Stakeholders	Continue to develop community, employer, and business partnerships Collaborate with municipal planning/public works branches in the NCTD service area	Support regional events (SD Fair, Del Mar Horseracing, Padres Baseball) Work with event sponsors on fare promotions to increase use of NCTD services Regularly meet with City Officials/Staff for information exchange Support local, public health, environmental, national security initiatives as they relate to transit
8. Encouraging Innovation, Creativity, and Leadership	Deploy technology to improve the customer experience, comply with federal/state mandates, Evaluate new ways to meet customer needs Attract and retain a competent workforce	Implementation of Positive Train Control (PTC) Evaluation and implementation of Real-Time Passenger Information System Implementation of Document Management System (DMS). Employee Training/Development Programs

Source: NCTD Comprehensive Strategic Operating and Capital Plan FY16-25

In addition to monitoring performance towards agency goals, NCTD produces several types of performance reports. Major performance reports include:

- Departmental Quarterly Reports
- Contract Oversight Comprehensive Reports
- Monthly Performance Report

- Web-based Performance Monitoring Dashboard
- National Transit Database Report.

Descriptions of each report are as follows:

Departmental Quarterly Reports

Departments have developed monthly and quarterly performance reports that include data specific to their functions and responsibilities, and summaries of milestones accomplished during that quarter.

Departmental quarterly reports are submitted to the NCTD Board of Directors.

Contract Oversight Comprehensive Reports

Comprehensive reports are prepared by bus contract operations and maintenance staff and rail operations staff using performance metrics and maintenance summaries as reported by contractors.

Monthly Performance Report

Operations contractors provide weekly modal performance reports. For each mode, this report provides a detailed overview of service delivery, service effectiveness, service efficiency, service quality, and safety performance. Weekly performance reports compare performance against contractual performance goals and are summarized monthly for inclusion in the comprehensive monthly report.

Web-based Performance Monitoring Dashboard

NCTD is in the process of overhauling the provision of providing online data and analysis regarding service performance through a business intelligence platform that provides closer to real-time performance data. The performance metric dashboard contains statistical data and charts in regard to service delivery, boardings, revenue, and operating costs.

National Transit Database

The NTD was established as the nation's primary source for information and statistics for the transit systems of the United States. Recipients or beneficiaries of grants from the FTA under the Urbanized Area Formula Program (§5307) or Other than Urbanized Area (Rural) Formula Program (§5311) are required by statute to submit data to the NTD. Over 660 transit providers in urbanized areas currently report to the NTD through the Internet-based reporting system. As a recipient of both 5307 and 5311 funds, as well as numerous other grants, NCTD provides statistical information to NTD.

SECTION IV: PERFORMANCE TRENDS AND FUNCTIONAL REVIEW

IV-1. System-wide Performance

This section of the report provides results of the analysis of TDA and functional performance indicators. The review of TDA performance indicators identifies system-wide trends to assess the overall efficiency and effectiveness of NCTD. Functional area performance trends are also examined by mode (i.e., fixed route bus, commuter rail, paratransit and light rail) to provide additional clarification of performance results.

The TDA performance indicators are as follows:

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

The metrics tracked in the report were calculated using the data submitted by NCTD to the National Transit Database from Fiscal Year 2016, 2017, and 2018. Additional data from the CAFRs, annual Bus Operations Performance Reports, and the annual Fleet Maintenance Plans was incorporated as needed. The performance trends cover the period from FY2016 through FY2018, with FY2015 used as a base year to provide a point of reference for the analysis. It should be noted that any differences between the values and metrics reported in the TDA audit report and other publicly available sources, such as the NCTD CAFR, may be attributed to different data sources and data definitions. Rail service metrics reported in the report reflect train car miles/hours as opposed to train consist miles/hours.

Exhibit IV-1 shows NCTD system-wide TDA performance indicators during the audit period.

Exhibit IV-1: NCTD System-Wide TDA Performance Indicators

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$86,349,565	\$87,552,363	\$92,829,686	\$93,189,180	7.9%
Unlinked Passengers	12,640,231	12,005,664	10,958,725	10,662,534	-15.6%
Vehicle Service Hours	650,033	652,737	670,474	647,756	-0.4%
Vehicle Service Miles	9,801,189	9,765,017	9,738,214	9,370,150	-4.4%
Employee FTEs	741	736	792	801	8.2%
Operating Cost per Service Hour	\$132.84	\$134.13	\$138.45	\$143.86	8.3%
Operating Cost per Passenger	\$6.83	\$7.29	\$8.47	\$8.74	27.9%
Passengers per Service Hour	19.45	18.39	16.34	16.46	-15.3%
Passengers per Service Mile	1.29	1.23	1.13	1.14	-11.8%
Service Hours per Employee FTE	877	887	846	808	-7.9%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

The main findings from Exhibit IV-1 are as follows:

- System-wide operating costs increased by 7.9% during the audit period, exactly matching inflation (CPI).
- Service hours and miles declined modestly (0.4% and 4.4%, respectively) over the audit period, with changes focused on fine tuning the 25+% expansion delivered in the FY13 to FY15 period.
- Operating costs per service hour increased by 8.3% as a result of operating cost growth and very small service reductions. CPI was 7.9% over the audit period, and cost control was effective during this period.
- Overall ridership decreased by 15.6% during the audit period, reflecting national transit industry trends. Contributors to the decline are legion and include a healthy economy and low gas prices, offering a personal auto travel option to more families, jobs and housing moving away from easily served central business districts, and immigrants (a high transit amenable population) moved to suburbs in large numbers which are less well served by transit. NCTD lacks many characteristics of areas recovering from ridership loss (e.g., a large vibrant central business district with large numbers of millennials and growing mixed development, and large active senior retired populations). Even so, NCTD is working hard to grow ridership with a variety of options under review to include: reducing 80-90 bus stops to increase speed of service, looking at first and last mile options for rail riders, considering alternative ways to serve low density areas efficiently (e.g., micro-transit, general public demand response, route deviation), partnering with cities to achieve air quality and mobility plans, and double tracking Coaster to add service.
- Productivity, measured by passengers per hour and mile, also declined by 15.3% and 11.8% respectively, again reflecting national transit industry trends. NCTD is working diligently on ways to attract and grow ridership.

While NCTD ridership losses parallel those of the national transit industry, they are of concern and NCTD is focusing significant resources on generating and encouraging ridership on transit. The significant fare increase (roughly 42% for adult cash fares) scheduled for September 2019 will likely accelerate passenger losses and additional strategies are needed. The fare change also simplifies and harmonizes fares regionally, which is intended to help with system integration to grow ridership.

Exhibit IV-2 shows system-wide fare revenue indicators during the audit period, using the NTD data sources. The TDA farebox recovery calculation follows in a separate table.

Exhibit IV-2: NCTD System-wide Revenue Performance Indicators

Data Item and Farebox Ratio	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$86,349,565	\$87,552,363	\$92,829,686	\$93,189,180	7.9%
Farebox Revenues	\$19,438,167	\$18,147,102	\$15,816,235	\$15,117,408	-22.2%
Net Cost	\$66,911,398	\$69,405,261	\$77,013,451	\$78,071,772	16.7%
Unlinked Passenger Trips	12,640,231	12,005,664	10,958,725	10,662,534	-15.6%
Pure Farebox Recovery Ratio	22.5%	20.7%	17.0%	16.2%	-27.9%
Average Fare per Passenger Trip	\$1.54	\$1.51	\$1.44	\$1.42	-7.8%
Net Cost per Passenger Trip	\$5.29	\$5.78	\$7.03	\$7.32	38.3%
Pure Farebox Recovery, Fixed Route Bus	19.5%	16.4%	13.0%	14.1%	-27.5%
Pure Farebox Recovery, Commuter Rail	37.5%	41.1%	32.6%	30.2%	-19.4%
Pure Farebox Recovery, Light Rail	18.6%	18.3%	17.5%	13.9%	-25.2%

Pure Farebox Recovery, Demand Response	9.2%	9.2%	8.3%	7.4%	-19.8%
Local Support Funds Expended on Operations	\$47,589,633	\$47,516,027	\$49,399,742	\$12,419,835	-73.9%
TDA Requirement	18.8%	18.8%	18.8%	18.8%	

Source: NTD Reports, B-10 Reports

The main findings from Exhibit IV-2 are as follows:

- Farebox recovery measures the percentage of operating costs paid with passenger fares. The nationally defined system-wide farebox recovery ratio decreased by an alarming 27.9% during the period, finishing the audit period at 16.2%. The BREEZE farebox ratio decreased by 27.5%, ending the audit period at 14.1%. The farebox ratios for COASTER fell by 19.4% closing the audit period at 30.2%. SPRINTER passengers paid 13.9% of the cost of services, reflecting a decline of 25.2% over the audit period. The LIFT farebox ratio dropped to 7.4%, which was below the TDA mandated farebox recovery ratio of 10% for demand response services.
- Two factors are driving the decline in farebox recovery – a significant drop in ridership and cost increase consistent with inflation. Fares have remained unchanged over the audit period.
- In response to this trend, SANDAG studied fare structure and pricing for NCTD and MTS and adopted a fare pricing increase to be effective in September 2019. The proposed change is expected to increase fare revenue and elevate farebox recovery performance, and it focuses on harmonizing fare pricing across the region by bringing NCTD fares up to MTS price levels. The high fare increase (e.g., 42% hike in bus adult cash fares) will also result in further loss of riders.
- System-wide farebox revenue dropped from \$19.4 million to \$15.1 million, a 22% decrease, during the audit period (as compared to a 15.6% decline in ridership).

The TDA mandates a minimum farebox recovery reflecting an intent that passengers pay a small but important share of the cost of transit services. Failure to meet the target risks receipt of some state funding sources. The minimum targets are as follows:

- The minimum for fixed route bus and rail in non-rural areas is set at 20%
- The minimum for fixed route transit services in rural areas is set at 10%
- The minimum for demand response services is set at 10%
- The blended target for NCTD considering rural and urban operating statistics is 18.8%.

The State of California requires that at least one of two farebox recovery measures meets the minimum target – a “pure” farebox recovery and/or a “safe harbor” farebox recovery (through SB 508). The pure measure is simply farebox revenue divided by operating expenses (shown in Table IV-2 above). NCTD met the pure farebox recovery ratio minimum in FY15 and FY16. The ridership losses in FY17 and FY18 contributed to pure farebox recovery below minimum targets in FY17 and FY18 (closing at 16.2% versus the blended 18.8% minimum target).

The safe harbor measure allows revenue and expense adjustments in making the calculation, which is shown in Table IV-3 for FY 2018 (the lowest fare revenue and local subsidy year). NCTD is consistent with state guidance in making safe harbor adjustments, and readily exceeds the minimum farebox recovery requirement under safe harbor rules (i.e., 34.6% actual versus a blended target of 18.8%). The adjustments include:

- Revenue and expense of new service (routes) and service changes greater than 25% of an existing route can be excluded for the year of implementation, plus two years.

- System generated revenue (e.g., advertising, interest, rental and lease income) can be added to fare revenue
- Local subsidies provided for operations can be added to fare revenue (e.g., TRANSNET funds)
- Operating expenses unrelated to current operations may be excluded (e.g., depreciation, prior year pension benefit adjustments, qualified principal and interest payments on capital expenditures, qualified rideshare expenses)
- Certain expense growth over the rate of inflation can be excluded (e.g., fuel, electricity, liability insurance).

TABLE IV-3: 2018 TDA FAREBOX RECOVERY CALCULATION (SB 508)

Fare Revenue & Adjustments	Fare revenue excluding fares from service extensions	\$ 14,848,878
	Auxiliary transportation revenue	\$ 1,361,352
	Non-Transportation Revenues	\$ 1,055,714
	Local cash grants and reimbursements	\$ 12,060,000
	Total Fares-Plus-Local-Fund Revenue:	\$ 29,325,944
Adjusted Operating Cost	Total Operating Cost	\$ 106,082,001
	Qualified depreciation and amortization expense	\$ (18,818,138)
	Qualified principal and interest payments on capital projects	\$ (2,109,415)
	Qualified ridesharing expenses	\$ (214,025)
	Fuel cost increase in excess of CPI	\$ (283,894)
	Power, including electricity cost increase in excess of CPI	\$ (27,791)
	Liability insurance cost increase in excess of CPI	\$ (45,055)
	Total Exclusions and Exemptions:	\$ (21,498,318)
	TDA-Adjusted Operating Cost:	\$ 84,583,683
Farebox Recovery Calculation	TDA Farebox Recovery Requirement	18.8%
	TDA Pure Fare Recovery Ratio:	17.56%
	TDA Safe Harbor Fare Recovery Ratio:	34.67%

The rest of this chapter includes the following sections:

- BREEZE Fixed Route Bus
- COASTER Commuter Rail
- SPRINTER Light Rail

- LIFT Paratransit / FLEX demand response

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

IV-2. BREEZE Fixed Route Bus Operations Performance

BREEZE ridership decreased during the audit period by a significant 18.9%, reflecting national trends. NCTD managed costs above the rate of inflation (9.8% growth in cost per hour versus inflation of 7.9%). The delta is at least in part attributable to the modest decline in service hours and miles (-0.2% and -2.9%, respectively). NCTD effectively leverages its contracting strategy to gain more for less, reflected in higher productivity (2.6% increase in service hours per employee equivalent).

Exhibit IV-4 shows BREEZE TDA performance indicators during the audit period.

Exhibit IV-4: TDA Performance Indicators for BREEZE Fixed Route Bus Service

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$42,580,865	\$45,707,639	\$49,505,107	\$46,639,573	9.5%
Unlinked Passengers	8,030,008	7,558,076	6,740,871	6,508,713	-18.9%
Vehicle Service Hours	464,822	464,181	480,236	463,855	-0.2%
Vehicle Service Miles	6,381,255	6,328,967	6,342,642	6,194,287	-2.9%
Employee FTEs	452	449	467	440	-2.8%
Operating Cost per Service Hour	\$91.61	\$98.47	\$103.08	\$100.55	9.8%
Operating Cost per Passenger	\$5.30	\$6.05	\$7.34	\$7.17	35.1%
Passengers per Service Hour	17.28	16.28	14.04	14.03	-18.8%
Passengers per Service Mile	1.26	1.19	1.06	1.05	-16.5%
Service Hours per Employee FTE	1,028	1,035	1,028	1,055	2.6%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-4 are as follows:

- Ridership decreased by 18.9% from 8.0 million rides in FY 2015 to 6.5 million rides in FY 2018. Many of the contributors to a national decline in transit ridership exist in north county – robust economy, low fuel prices, distributed employment and population patterns, immigrants moving to harder to serve suburbs, and seniors leaving the state in search of a lower cost of living. NCTD is combatting losses with more efficient schedules, modest service adjustments, a focus on on-time performance, and plans to reduce 80-90 bus stops to speed service operations.
- Operating costs increased by 9.5% during the audit period, coupled with modest service declines, produced cost growth per hour of service of 9.8% versus inflation of only 7.9%. The modest service declines reflected scheduling improvements to achieve better speed, passenger connections and reduce cost.
- Staffing levels are a little lower in FY18 compared to FY15, The new contract with MV establishes a minimum level of productive hours work per employee, and there are scope of work differences.

Exhibit IV-5 shows BREEZE Bus fare revenue indicators during the audit period.

Exhibit IV-5: BREEZE Bus Revenue Performance Indicators

Data Item	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$42,580,865	\$45,707,639	\$49,505,107	\$46,639,573	9.5%
Farebox Revenues	\$8,307,371	\$7,480,713	\$6,420,477	\$6,597,733	-20.6%
Net Cost	\$34,273,494	\$38,226,926	\$43,084,630	\$40,041,840	16.8%
Unlinked Passenger Trips	8,030,008	7,558,076	6,740,871	6,508,713	-18.9%
Farebox Recovery Ratio	19.5%	16.4%	13.0%	14.1%	-27.5%
Average Fare per Passenger Trip	\$1.03	\$0.99	\$0.95	\$1.01	-2.0%
Net Cost per Passenger Trip	\$4.27	\$5.06	\$6.39	\$6.15	44.1%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

Main findings from Exhibit IV-5 are as follows:

- BREEZE fare revenue decreased by 20.6% during the audit period (fares constant, 18.9% ridership decline). Coupled with a cost increase of 9.5%, the pure farebox recovery for this mode fell 27.5% to riders paying 14.1% of the cost of their trip.
- The average fare per passenger hovered around \$1.00 over the audit period (fare pricing was held constant).
- Given that operating costs increased, and ridership declined significantly, the net cost per passenger trip increased from \$4.27 to \$6.15 during the audit period, soaring by 44.1%.

Exhibit IV-6 shows BREEZE operational performance indicators during the audit period.

Exhibit IV-6: BREEZE Operational Performance Indicators

Operations Data	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operations FTEs	340	342	353	323	-5.1%
Total Operating Costs	\$42,580,865	\$45,707,639	\$49,505,107	\$46,639,573	9.5%
Vehicle Service Hours (VSH)	464,822	464,181	480,236	463,855	-0.2%
Vehicle Service Miles (VSM)	5,677,315	5,612,786	5,640,387	5,456,012	-3.9%
Total Vehicle Hours	497,598	497,903	515,902	498,161	0.1%
Total Vehicle Miles	6,381,255	6,328,967	6,342,642	6,194,287	-2.9%
Unlinked Passenger Trips	8,030,008	7,558,076	6,740,871	6,508,713	-18.9%
Passenger Miles	38,759,521	38,008,708	29,113,751	28,003,123	-27.8%
VSH per Operations FTE	1,367	1,359	1,362	1,438	5.2%
VSM per Operations FTE	16,698	16,431	16,001	16,913	1.3%
Service Miles per Service Hour	12.2	12.1	11.7	11.8	-3.7%
Service Hours / Total Hours	0.9	0.9	0.9	0.9	-0.3%
Service Miles / Total Miles	0.9	0.9	0.9	0.9	-1.0%
Operating Cost per Passenger Trip	\$5.30	\$6.05	\$7.34	\$7.17	35.1%
Operating Cost per Passenger Mile	\$1.10	\$1.20	\$1.70	\$1.67	51.6%
Average Passenger Miles per Passenger Trip	4.83	5.03	4.32	4.30	-10.9%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-6 are as follows:

- Staff counts shown for BREEZE Operations include both agency and contracted staff. Total reported staff declined by 5.1% during the audit period, based on NTD and Form C Reports.
- Service hours and service miles decreased by 0.2% and 3.9% respectively during the audit period.
- NCTD’s fixed route bus operations costs increased by 9.5% from \$42.6 million in FY2015 to \$46.6 million in FY2018, versus inflation of 7.9%.
- Operations costs per passenger trip and per passenger mile increase by 35.1% and 51.6% respectively.
- The speed of service operations declined from 12.2 miles per hour to 11.8, a 3.7% decline, reflecting higher congestion in the region. NCTD is planning to reduce 80 to 90 bus stops to reverse this trend and slightly increase operating speeds.

Exhibit IV-7 shows BREEZE Bus maintenance indicators during the audit period.

Exhibit IV-7: NCTD BREEZE Maintenance Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Maintenance FTEs	82.0	67.0	76.5	61.9	-24.5%
Maintenance Costs	\$10,414,350	\$10,928,846	\$11,239,935	\$10,152,870	-2.5%
Total Vehicle Hours	497,598	497,903	515,902	498,161	0.1%
Total Vehicle Miles	6,381,255	6,328,967	6,342,642	6,194,287	-2.9%
Peak Vehicles	137	137	137	132	-3.6%
Total Vehicles	165	165	163	152	-7.9%
Revenue Vehicle Failures	489	468	441	526	7.6%
Vehicle Hours per Maintenance FTE	6,068	7,431	6,744	8,048	32.6%
Vehicle Miles per Maintenance FTE	77,820	94,462	82,910	100,069	28.6%
Maintenance Cost per Active Vehicle	\$63,117	\$66,235	\$68,957	\$66,795	5.8%
Maintenance Cost per Vehicle Hour	\$20.93	\$21.95	\$21.79	\$20.38	-2.6%
Maintenance Cost per Vehicle Mile	\$1.63	\$1.73	\$1.77	\$1.64	0.4%
Vehicle Hours per Active Vehicle	3,016	3,018	3,165	3,277	8.7%
Vehicle Miles per Active Vehicle	38,674	38,357	38,912	40,752	5.4%
Total Miles Between Failures	13,050	13,523	14,382	11,776	-9.8%
Spare Ratio	20.4%	20.4%	19.0%	15.2%	-25.9%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD reports, NCTD data

Main findings from Exhibit IV-7 are as follows:

- Maintenance costs decreased by 2.5%, while inflation increased by 7.9% during the audit period.
- Maintenance costs per active vehicle rose by 5.8%, while per vehicle hour dropped by 2.6%.
- NCTD has decreased its spare ratio from 20.4% in FY15 to 15.2% in FY18, which is a reduction of 25.9%, largely attributable to minor service decreases. NCTD has entered a contract to replace 26 buses (6 buses of the 26-bus order will be electric buses). These first 6 electric vehicles are the bridge to a future where NCTD envisions a fully electric bus fleet. NCTD states an intent to increase the spare ratio once new vehicles have settled into operations to bring them in line with FTA’s 20% guideline.

- Revenue vehicle failures showed a modest, gradual increase. From FY2015 to FY2018, revenue vehicle failures increased by 7.6%, at least in part due to an aging fleet and slower operating speeds.
- The increased number of failures and fewer miles operated in service also led to a decrease of 9.8% in the miles between failures.

NCTD's BREEZE administration further reduced staffing levels and increased productivity during the audit period. Exhibit IV-8 illustrates some of the key administrative data and metrics.

Exhibit IV-8: BREEZE Bus Administration Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Administration FTEs	30.0	40.1	38.1	55.0	83.3%
Administration Costs	\$9,134,554	\$9,758,651	\$12,546,826	\$10,603,702	16.1%
Vehicle Service Hours (VSH)	464,822	464,181	480,236	463,855	-0.2%
Vehicle Service Miles (VSM)	5,677,315	5,612,786	5,640,387	5,456,012	-3.9%
Unlinked Passenger Trips	8,030,008	7,558,076	6,740,871	6,508,713	-18.9%
VSH per Administration FTE	15,494	11,576	12,605	8,434	-45.6%
VSM per Administration FTE	189,244	139,970	148,042	99,200	-47.6%
Complaints per 100,000 Boardings	3.53	8.40	12.20	15.80	347.2%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports, Quarterly Performance Reports

Main findings from Exhibit IV-8 are as follows:

- The frequency of customer complaints greatly increased during the audit period, by 347% (from 3.5 complaints per 100,000 boarding's to 15.8). The increase is due to NCTD bringing customer service in-house from MTS; NCTD believes they were more diligent about asking more probing questions and documenting input. The customer feedback is recorded, analyzed, and follow-up on for solutions and improvements.

IV-3. COASTER Commuter Rail

COASTER service experience moderate decreases in the 1 percent range, and ridership fell significantly (12.7%) reflecting national trends. Note that passenger declines are less than that experienced by bus or systemwide, reflecting a more stable employment-based distance riders. Operating costs fluctuated over the audit period, ending with a 16% drop in total costs. NCTD was one of only four rail operators in the United States to fully implement positive train control by the national deadline (12/31/2018) reflecting excellent project and program management capabilities.

About 69% of the COASTER track is double tracked, allowing traffic to move uninhibited in both directions. Additional double tracking is being implemented by SANDAG, which will allow for service expansion. NCTD leases the track to other train operators as well. The daily demand on the commuter rail tracks are: COASTER operates 22 trains, Metrolink 16 trains, Amtrak 24 trains, and 6 freight trains. Freight railroads have track access, but often operate during the overnight hours.

Exhibit IV-9 provides TDA performance indicators for COASTER Commuter Rail.

Exhibit IV-9: COASTER TDA Performance Indicators

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$19,741,329	\$16,745,495	\$18,049,952	\$16,592,479	-16.0%
Unlinked Passengers	1,641,525	1,556,056	1,454,865	1,433,125	-12.7%
Vehicle Service Hours	35,161	34,680	34,422	34,747	-1.2%
Vehicle Service Miles	1,391,367	1,372,271	1,360,510	1,376,953	-1.0%
Employee FTEs	113	101	123	135	19.5%
Operating Cost per Service Hour	\$561.46	\$482.86	\$524.37	\$477.52	-14.9%
Operating Cost per Passenger	\$12.03	\$10.76	\$12.41	\$11.58	-3.7%
Passengers per Service Hour	46.69	44.87	42.27	41.24	-11.7%
Passengers per Service Mile	1.18	1.13	1.07	1.04	-11.8%
Service Hours per Employee FTE	311	343	280	257	-17.3%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-9 are as follows:

- COASTER operating costs decreased by 16% during the audit period, compared to an increase in inflation of 7.9%. While a modest decrease in hours and miles contributed to the cost reduction, the service contract and management cost control played a larger role.
- COASTER ridership decreased by 12.7% during this period from 1.64 million trips in FY2015 to 1.43 million trips in FY2018. NCTD is looking at first mile, last mile options to help increase riders by making the whole of their trips easier.
- Service productivity decreased significantly during the audit period, mirroring national trends. Passengers per service hour and passengers per service mile decreased by 11.7% and 11.8% respectively.

Fare revenue indicators for COASTER Commuter Rail increased over the audit period. This is shown in Exhibit IV-10.

Exhibit IV-10: COASTER Revenue Performance Indicators

Date Item and Farebox Ratio	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$19,741,329	\$16,745,495	\$18,049,952	\$16,592,479	-16.0%
Farebox Revenues	\$7,400,569	\$6,877,550	\$5,882,922	\$5,014,818	-32.2%
Net Cost	\$12,340,760	\$9,867,945	\$12,167,030	\$11,577,661	-6.2%
Unlinked Passenger Trips	1,641,525	1,556,056	1,454,865	1,433,125	-12.7%
Farebox Recovery Ratio	37.5%	41.1%	32.6%	30.2%	-19.4%
Average Fare per Passenger Trip	\$4.51	\$4.42	\$4.04	\$3.50	-22.4%
Net Cost per Passenger Trip	\$7.52	\$6.34	\$8.36	\$8.08	7.5%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

Main findings from Exhibit IV-10 are as follows:

- Farebox revenue decreased by 32.2% during the audit period, while operating costs decreased by 16%. This trend caused the farebox recovery ratio to decrease by 19.4% during the audit period. In FY2018, the pure farebox recovery ratio was 30.2%.
- The average fare per passenger trip decreased by 22.4% during the audit period, while the net cost per passenger trip increased by 7.5% to \$8.08.

Exhibit VI-11 provides COASTER Commuter Rail operations performance indicators.

Exhibit IV-11: COASTER Commuter Rail Operations Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operations FTEs	31.0	24.0	55.0	70.0	125.8%
Total Operations Costs	\$7,658,868	\$5,314,002	\$4,816,130	\$5,648,018	-26.3%
Car Service Hours (CSH)	35,161	34,680	34,422	34,747	-1.2%
Car Service Miles (CSM)	1,391,367	1,372,271	1,360,510	1,376,953	-1.0%
Total Car Hours	40,509	39,974	39,809	40,124	-1.0%
Total Car Miles	1,471,448	1,460,442	1,443,834	1,459,636	-0.8%
Unlinked Passenger Trips	1,641,525	1,556,056	1,454,865	1,433,125	-12.7%
Passenger Miles	45,885,614	43,722,519	38,461,097	37,902,707	-17.4%
CSH per Operations FTE	1,134	1,445	626	496	-56.2%
CSM per Operations FTE	44,883	57,178	24,737	19,671	-56.2%
Service Miles per Service Hour	39.6	39.6	39.5	39.6	0.1%
Service Hours / Total Hours	86.8%	86.8%	86.5%	86.6%	-0.2%
Service Miles / Total Miles	94.6%	94.0%	94.2%	94.3%	-0.2%
Operations Cost per Passenger Trip	\$4.67	\$3.42	\$3.31	\$3.94	-15.5%
Operations Cost per Passenger Mile	\$0.17	\$0.12	\$0.13	\$0.15	-10.7%
Average Passenger Miles per Passenger Trip	28.0	28.1	26.4	26.4	-5.4%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-11 are as follows:

- The staffing levels in FY17-18 are different than in FY15-16 because Bombardier contract establishes a new baseline. The new contract has a more robust scope of work, rendering direct comparisons challenging.
- Total operating costs for COASTER decreased by 26% during the audit period, with only a minor reduction in service hours and miles.
- The large increase in staffing while service reduced by about 1% led to a 56% drop in car service hours and miles per operations FTE.
- Ridership decreased by 12.7% during the audit period, and passenger trip lengths also declined 5.4%. The mix of riders is changing as more people have access to cars for travel, and low fuel costs make auto travel more attractive to consumers.

Exhibit IV-12 shows the COASTER Commuter Rail maintenance performance indicators.

Exhibit IV-12: NCTD COASTER Maintenance Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Maintenance FTEs	55.0	60.0	48.0	45.0	-18.2%
Maintenance Costs	\$5,252,158	\$4,777,053	\$7,253,801	\$7,180,591	36.7%
Total Car Hours	40,509	39,974	39,809	40,124	-1.0%
Total Car Miles	1,471,448	1,460,442	1,443,834	1,459,636	-0.8%
Peak Vehicles	24	24	24	24	0.0%
Total Vehicles	35	35	35	35	0.0%
Revenue Vehicle Failures	31	18	15	39	25.8%
Car Hours per Maintenance FTE	737	666	829	892	21.1%
Car Miles per Maintenance FTE	26,754	24,341	30,080	32,436	21.2%
Maintenance Cost per Active Car	\$150,062	\$136,487	\$207,251	\$205,160	36.7%
Maintenance Cost per Car Hour	\$129.65	\$119.50	\$182.22	\$178.96	38.0%
Maintenance Cost per Car Mile	\$3.57	\$3.27	\$5.02	\$4.92	37.8%
Car Hours per Active Car	1,157	1,142	1,137	1,146	-1.0%
Car Miles per Active Car	42,041	41,727	41,252	41,704	-0.8%
Car Miles Between Failures	47,466	81,136	96,256	37,427	-21.2%
Spare Ratio	45.8%	45.8%	45.8%	45.8%	0.0%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-12 are as follows:

- The number of COASTER vehicle failures increased from 31 in FY2015 to 39 in FY2018 (with two good years in between), largely reflective on an aging fleet nearing replacement and overhaul. All rail cars are currently at 25 years of age with a useful life of 30 years. Current performance is consistent with an aging fleet.
- Maintenance costs have increased 36.7% as a result of a more robust scope of work and pricing by the new contract with Bombardier. Maintenance with Bombardier is a fixed annual amount that escalates based on CPI and capped at 3%. A significant component of maintenance costs are parts and materials. Looking towards the future replacement of this fleet, NCTD is partnering with two

different transit agencies on rail car procurement, providing flexibility and cost efficiency opportunities.

- The spare ratio appears high but is actually reasonable, hovering at 45% due to a combination of factors – small fleet, aging cars and engines, and repair plans.
- NCTD is actively pursuing a fleet replacement program to improve customer service, enhance reliability and appearance of trains, reduce maintenance failures and costs, and better access a national supply of parts and materials. Five locomotives have already been ordered, and the agency is seeking to add two more to that buy. NCTD has partnered with two other transit agencies on their bi-level car bids to provide flexibility and resilience and expects to purchase 26 cars over the coming seven years.

COASTER administrative costs have decreased dramatically as a result of cost management initiatives and an effective contracting strategy. Exhibit IV-13 shows several key indicators.

Exhibit IV-13: NCTD COASTER Administration Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Administration FTEs	27.0	17.0	20.0	20.0	-25.9%
Administration Costs	\$6,830,303	\$6,654,440	\$5,980,021	\$3,763,870	-44.9%
Car Service Hours (CSH)	35,161	34,680	34,422	34,747	-1.2%
Car Service Miles (CSM)	1,391,367	1,372,271	1,360,510	1,376,953	-1.0%
Unlinked Passenger Trips	1,641,525	1,556,056	1,454,865	1,433,125	-12.7%
CSH per Administration FTE	1,302	2,040	1,721	1,737	33.4%
CSM per Administration FTE	51,532	80,722	68,026	68,848	33.6%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

From FY2015 to FY2018, COASTER administrative staffing levels decreased by 26% from 27 to 20 FTEs. Given relatively stable service levels, car service hours per administrative FTE and car service miles per administrative FTE increased by about 33% each. NCTD is an innovator and skilled contract strategist, gaining more customer service for less over the audit period.

IV-3.2. SPRINTER Hybrid Rail Services

SPRINTER hybrid rail serves the east-west Highway 78 corridor with 22 miles of rail and 15 stations, serving Oceanside, Vista, Unincorporated County of San Diego, San Marcos and Escondido. Stations are particularly well used around colleges and universities (e.g., Palomar College, Cal State San Marcos). The SPRINTER operates via a temporal separation waiver from the Federal Railroad Administration (FRA). Freight trains operate after SPRINTER service is over and all SPRINTERS are off of the railroad.

Exhibit IV-14 provides SPRINTER Hybrid Rail performance indicators.

Exhibit IV-14: SPRINTER Hybrid Rail TDA Performance Indicators

Verified TDA Statistics & Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$16,147,814	\$16,295,393	\$15,411,451	\$19,770,818	22.4%
Unlinked Passengers	2,769,686	2,677,929	2,549,053	2,532,731	-8.6%
Vehicle Service Hours	31,260	31,170	30,938	32,515	4.0%
Vehicle Service Miles	687,068	684,576	685,210	710,980	3.5%
Employee FTEs	74	64	81	105	41.9%
Operating Cost per Service Hour	\$516.56	\$522.79	\$498.14	\$608.05	17.7%
Operating Cost per Passenger	\$5.83	\$6.09	\$6.05	\$7.81	33.9%
Passengers per Service Hour	88.60	85.91	82.39	77.89	-12.1%
Passengers per Service Mile	4.03	3.91	3.72	3.56	-11.6%
Service Hours per Employee FTE	422	487	382	310	-26.7%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-14 are as follows:

- From FY2015 through FY2018, operating costs increased by 22.4%, whereas the Consumer Price Index over the same period increased by 7.9%. This is in part a result of an increase in vehicle service hours (4%), vehicle service miles (3.5%), and employee FTEs. Passengers fell by 8.6%, significantly less decline than the system-wide average decline.
- As a result of all of these factors, operating cost per passenger increased 33.9% from \$5.83 in FY2015 to \$7.81 in FY2018.
- Operating costs per service hour experienced increases and decreases throughout the audit period, closely reflecting changes in service levels. Operating cost per service hour stands at \$608.05 in FY18 up 17.7% over the audit period.
- Productivity, measured as passengers per service hour and mile, declined by 12.1% and 11.6%, respectively.
- As with COASTER, the number of employees for FY17 and FY18 constitute a new baseline for NCTD with the new Bombardier contract in place. This contract establishes a more robust scope of work within the base contract.

Fare revenue indicators for SPRINTER Hybrid Rail services increased over the audit period. This is shown in Exhibit IV-15.

Exhibit IV-15: SPRINTER Hybrid Rail Revenue Performance Indicators

Data Item and Farebox Ratio	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$16,147,814	\$16,295,393	\$15,411,451	\$19,770,818	22.4%
Farebox Revenues	\$3,002,250	\$2,975,566	\$2,692,730	\$2,750,014	-8.4%
Net Cost	\$13,145,564	\$13,319,827	\$12,718,721	\$17,020,804	29.5%
Unlinked Passenger Trips	2,769,686	2,677,929	2,549,053	2,532,731	-8.6%
Farebox Recovery Ratio	18.6%	18.3%	17.5%	13.9%	-25.2%
Average Fare per Passenger Trip	\$1.08	\$1.11	\$1.06	\$1.09	0.2%
Net Cost per Passenger Trip	\$4.75	\$4.97	\$4.99	\$6.72	41.6%

% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%
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Source: NTD Reports

Main findings from Exhibit IV-15 are as follows:

- Farebox revenue decreased by 8.4% during the audit period, reflecting declines in ridership. Operating costs increased by 22.4%. This caused the pure farebox recovery ratio to drop by 25.2%, with passengers paying 18.6% of the cost of their trip in FY2015 and only 13.9% in FY2018.
- The average fare per passenger trip remained stable over the audit period at about \$1.10, ranging from \$1.06 to \$1.11. Fares remained constant over the audit period, but SANDAG has approved a significant fare change for September 2019. The fare change harmonizes NCTD fares with MTS (resulting in a significant fare increase in some cases), and simplifies fares overall.

Operating costs for SPRINTER Hybrid Rail services decreased almost 4%, while inflation increased by 7.9%. This is shown in Exhibit IV-16.

Exhibit IV-16: SPRINTER Operations Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operations FTEs	45.0	38.0	30.0	49.0	8.9%
Total Operations Costs	\$6,569,673	\$4,767,141	\$4,286,406	\$6,312,292	-3.9%
Car Service Hours (CSH)	31,260	31,170	30,938	32,515	4.0%
Car Service Miles (CSM)	687,068	684,576	685,210	710,980	3.5%
Total Car Hours	31,408	31,367	31,044	32,658	4.0%
Total Car Miles	690,288	688,177	689,222	717,931	4.0%
Unlinked Passenger Trips	2,769,686	2,677,929	2,549,053	2,532,731	-8.6%
Passenger Miles	24,354,812	23,329,054	21,868,218	21,730,491	-10.8%
CSH per Operations FTE	695	820	1,031	664	-4.5%
CSM per Operations FTE	15,268	18,015	22,840	14,510	-5.0%
Service Miles per Service Hour	22.0	22.0	22.1	21.9	-0.5%
Service Hours / Total Hours	99.5%	99.4%	99.7%	99.6%	0.0%
Service Miles / Total Miles	99.5%	99.5%	99.4%	99.0%	-0.5%
Operations Cost per Passenger Trip	\$2.37	\$1.78	\$1.68	\$2.49	5.1%
Operations Cost per Passenger Mile	\$0.27	\$0.20	\$0.20	\$0.29	7.7%
Average Passenger Miles per Passenger Trip	8.8	8.7	8.6	8.6	-2.4%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-16 are as follows:

- Operations staffing levels varied over the audit period, and FY18 staffing levels were about 9% higher than FY15.
- NCTD became more efficient over the audit period, with SPRINTER operations costs declining nearly 4% while service hours and miles increased by a similar amount (4% and 3.5%, respectively). As a result, cost per hour and mile declined by 4.5% and 5%, trending opposite the direction of inflation.

- Deadhead hours have been greatly reduced, and 99.6% of all train hours are in service. Passenger trip length has remained stable, hovering around 8.6 miles.

Many maintenance staffing and costs for SPRINTER Hybrid Rail services increased substantially over the audit period (153% and 89%, respectively). This is shown in Exhibit IV-17.

Exhibit IV-17: SPRINTER Maintenance Performance Indicators

Base Data and Performance Indicators	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Maintenance FTEs	12.0	13.0	26.0	31.0	158.3%
Maintenance Costs	\$4,624,887	\$5,431,468	\$5,065,407	\$8,734,941	88.9%
Total Car Hours	31,408	31,367	31,044	32,658	4.0%
Total Car Miles	690,288	688,177	689,222	717,931	4.0%
Peak Cars	8	8	8	8	0.0%
Total Cars	12	12	12	12	0.0%
Revenue Vehicle Failures	128	39	68	202	57.8%
Car Hours per Maintenance FTE	2,617	2,413	1,194	1,053	-59.7%
Car Miles per Maintenance FTE	57,524	52,937	26,509	23,159	-59.7%
Maintenance Cost per Active Car	\$385,407	\$452,622	\$422,117	\$727,912	88.9%
Maintenance Cost per Car Hour	\$147.25	\$173.16	\$163.17	\$267.47	81.6%
Maintenance Cost per Car Mile	\$6.70	\$7.89	\$7.35	\$12.17	81.6%
Car Hours per Active Car	2,617	2,614	2,587	2,722	4.0%
Car Miles per Active Car	57,524	57,348	57,435	59,828	4.0%
Car Miles Between Failures	5,393	17,646	10,136	3,554	-34.1%
Spare Ratio	50.0%	50.0%	50.0%	50.0%	0.0%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-17 are as follows:

- Overall maintenance costs per car hour and mile increased by nearly 82% each. The SPRINTER cars are unique in North America and a significant number of parts can only be sourced from Europe and some instances there is a long lead time to acquire parts. The new combined rail contract with Bombardier included increased maintenance responsibilities within the base contract and largely explains the cost increase for maintenance.
- Vehicle utilization improved, with an increase of 4% in service miles and hours. The spare ratio has stood constant at 50% for this unique fleet and has been needed at that level to account for poor access to parts for repair.
- The number of revenue vehicle failures in service has fluctuated significantly over the audit period, including massive growth and decline. Car miles between failures is at a four year low (3,554) and better access to parts with continued diligence on preventive maintenance and inspections should help improve performance.

NCTD increased administrative staffing for SPRINTER Hybrid Rail services during the audit period from 17 to 25 (a 47% increase). The increase in staffing was achieved with a concurrent reduction in cost (4.6%), again and example of NCTD getting more for less. This is shown in Exhibit IV-18.

Exhibit IV-18: SPRINTER Administration Performance Indicators

Base Data and Performance Indicators	Base Year	Audit Review Period			% Change FY15-FY18
	FY15	FY16	FY17	FY18	
Administration FTEs	17.0	13.0	25.0	25.0	47.1%
Administration Costs	\$4,953,254	\$6,096,784	\$6,059,638	\$4,723,585	-4.6%
Car Service Hours (CSH)	31,260	31,170	30,938	32,515	4.0%
Car Service Miles (CSM)	687,068	684,576	685,210	710,980	3.5%
Unlinked Passenger Trips	2,769,686	2,677,929	2,549,053	2,532,731	-8.6%
CSH per Administration FTE	1,839	2,398	1,238	1,301	-29.3%
CSM per Administration FTE	40,416	52,660	27,408	28,439	-29.6%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

IV-3.3. LIFT Paratransit and FLEX Demand Response Services

This audit period saw results from managed changes for the LIFT paratransit and FLEX demand response service. Ridership fell by nearly 6%, at least in part due to managed demand programs. The service provider contract limits cost growth to inflation but not to exceed 3% annually as a cost control measure. NCTD changed enrollment processes for demand responsive services to include an in-person assessment focused on physical activity required to use fixed route services (prior eligibility was determined based on a web-based application).

Additionally, moving LIFT from a brokerage operating model to a dedicated fleet model in close proximity to the beginning of the audit period combined with increasing ridership led to significant increases in operating costs for NCTD. NTD statistics include both FLEX and LIFT.

Exhibit IV-19 provides LIFT paratransit / FLEX demand response TDA performance indicators.

Exhibit IV-19: LIFT Paratransit/ FLEX Demand Response TDA Performance Indicators

Verified TDA Statistics & Performance Indicators	Base Year	Audit Review Period			% Change FY15-FY18
	FY15	FY16	FY17	FY18	
Operating Costs	\$7,879,557	\$8,803,836	\$9,863,176	\$10,186,310	29.3%
Unlinked Passengers	199,012	213,603	213,936	187,965	-5.6%
Vehicle Service Hours	118,790	122,706	124,878	116,639	-1.8%
Vehicle Service Miles	2,045,439	2,095,384	2,052,107	1,826,205	-10.7%
Employee FTEs	102	122	121	122	19.5%
Operating Cost per Service Hour	\$66.33	\$71.75	\$78.98	\$87.33	31.7%
Operating Cost per Passenger	\$39.59	\$41.22	\$46.10	\$54.19	36.9%
Passengers per Service Hour	1.68	1.74	1.71	1.61	-3.8%
Passengers per Service Mile	0.10	0.10	0.10	0.10	5.8%
Service Hours per Employee FTE	1,165	1,007	1,032	957	-17.8%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-19 are as follows:

- The demand for LIFT / FLEX fell modestly during the audit period, largely the result of focused management efforts to move people who are able to fixed route services. From FY2015 to FY2018, ridership decreased by 5.6%.
- Concurrent with the ridership decline was a nearly 2% drop in service hours, and almost 11% drop in service miles.

- The productivity of the system has remained fairly constant at about 1.7 passengers per hour and 0.1 passengers per mile. NCTD management is working diligently on raising productivity above 2 passengers per hour with improved scheduling, procedures and guidelines for trip booking. A site visit witnessed real time data showing more than 2 riders per hour currently, which is outside of the audit period and represents good progress.

Exhibit IV-20 provides LIFT paratransit / FLEX demand response revenue performance indicators.

Exhibit IV-20: LIFT Paratransit / FLEX Demand Response Revenue Performance Indicators

Data Item and Farebox Ratio	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Operating Costs	\$7,879,557	\$8,803,836	\$9,863,176	\$10,186,310	29.3%
Farebox Revenues	\$727,977	\$813,273	\$820,106	\$754,843	3.7%
Net Cost	\$7,151,580	\$7,990,563	\$9,043,070	\$9,431,467	31.9%
Unlinked Passenger Trips	199,012	213,603	213,936	187,965	-5.6%
Farebox Recovery Ratio	9.2%	9.2%	8.3%	7.4%	-19.8%
Average Fare per Passenger Trip	\$3.66	\$3.81	\$3.83	\$4.02	9.8%
Net Cost per Passenger Trip	\$35.94	\$37.41	\$42.27	\$50.18	39.6%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports

Main findings from Exhibit IV-20 are as follows:

- Although ridership declined 5.6%, fare revenues grew 3.7% over the audit period.
- Average fare per passenger trip increased from \$3.66 in FY15 to \$4.02 in FY18, reflecting about 9% growth. These numbers compare to the cost per passenger trip of \$54 in FY18.
- The total demand response cost growth of about 29% undermined the positive ridership and fare revenue trends, yielding declines in year over year farebox recovery of nearly 20% (from 9.2% to 7.4%).

Exhibit IV-21 provides LIFT paratransit / FLEX demand response operations performance indicators.

Exhibit IV-21: LIFT Paratransit / FLEX Demand Response Operations Performance Indicators

Operations Data	Base Year FY15	Audit Review Period			% Change FY15-FY18
		FY16	FY17	FY18	
Employee FTEs	102.0	121.9	121.0	121.9	19.5%
Operating Costs	\$7,879,557	\$8,803,836	\$9,863,176	\$10,186,310	29.3%
Vehicle Service Hours (VSH)	118,790	122,706	124,878	116,639	-1.8%
Vehicle Service Miles (VSM)	2,045,439	2,095,384	2,052,107	1,826,205	-10.7%
Total Vehicle Hours	145,290	141,259	142,118	139,060	-4.3%
Total Vehicle Miles	2,300,829	2,496,555	2,410,369	2,173,230	-5.5%
Unlinked Passenger Trips	199,012	213,603	213,936	187,965	-5.6%
Passenger Miles	2,426,256	2,823,855	2,774,140	2,100,136	-13.4%
Total Vehicles	61	61	63	55	-9.8%
Operating Cost per Service Hour	\$66.33	\$71.75	\$78.98	\$87.33	31.7%
Operating Cost per Passenger Trip	\$39.59	\$41.22	\$46.10	\$54.19	36.9%
Passengers per Service Hour	1.68	1.74	1.71	1.61	-3.8%
Passengers per Service Mile	0.10	0.10	0.10	0.10	5.8%
Vehicle Hours per Employee FTE	1,424	1,159	1,175	1,141	-19.9%

Vehicle Miles per Active Vehicle	37,719	40,927	38,260	39,513	4.8%
Passenger Miles per Passenger Trip	12.2	13.2	13.0	11.17	-8.4%
% Change in Consumer Price Index (CPI-All)		2.2%	2.6%	2.8%	7.9%

Source: NTD Reports, B-10 Reports

Main findings from Exhibit IV-21 are as follows:

- Passenger miles per passenger trip varied over the audit period and ended in FY18 with an 8.4% decline in trip length to 11.17 miles.
- Operations FTEs increased nearly 20% during the audit period, with the growth being largely attributable to changes in the scope of work and contractual requirements for MV.
- The number of total vehicles decreased by almost 10% from 61 to 55 vehicles during the audit period, reflecting the ridership, hours and miles decline.

SECTION V: CONCLUSIONS AND RECOMMENDATIONS

NCTD is in compliance with all but one PUC requirement and has made satisfactory progress to implement prior audit recommendations:

- Compliance with PUC Requirements: NCTD is in compliance with applicable PUC requirements with the exception of farebox recovery for paratransit services. The PUC mandates that paratransit services maintain a farebox recovery ratio of 10.0%. In FY 2018, the paratransit farebox recovery ratio was 7.4%. NCTD readily met and exceeded the fixed route blended TDA recovery rate of 18.80% using the safe harbor calculation (adding locally generated revenues and subtracting some operating costs).
- Progress to Implement Prior Audit Recommendations:
 - 1) NCTD was recommended to implement strategies to minimize operating cost for LIFT. They have done so by purchasing new software from Trapeze. The new software allows a potential passenger to book a trip online or through an interactive voice response system. Previously, NCTD had schedulers and reservationists that would handle these duties. They have also added an in-person functional assessment to their ADA service eligibility process. The in-person assessment is only necessary if a person's eligibility cannot be determined solely from their supporting medical documents.
 - 2) NCTD was recommended to institute a robust tracking and management system for excess capital inventory at their rail maintenance facilities. The recommendation was completed with the implementation of an Asset Management Plan, which is required by the Federal Transit Administration. NCTD awarded a contract to a consultant to develop Asset Management Plan. This recommendation was completed in October 2018.
 - 3) The final recommendation was to work with SANDAG on developing a digital database for storing NCTD right of way information. The district currently uses a variety of data sources for researching right of way information. One such source is an NCTD GIS database that identifies right of way parcels and boundaries, surveys, and real property agreements. The information is electronically stored in NCTD's document management system, LaserFiche. Additionally, NCTD is implementing a real estate module in its Enterprise System, JD Edwards. The module will allow real estate agreements to be saved along the right of way by milepost and use type, along with critical terms and conditions of the agreements.

The system-wide TDA performance trends are the result of two primary drivers – costs were managed at or near inflation, and passenger demand dropped by 15.6%, reflecting national transit industry trends. While service hours and miles were reduced modestly, the significant drop in ridership yields lower productivity, higher than inflationary costs per passenger, and lowered farebox recovery overall. Note that NCTD did exceed the minimum TDA farebox recovery requirement in every year using the safe harbor calculation (i.e., with locally generated revenue plus ups and operating expense deductions). NCTD operates a diverse and complicated system of fixed route bus, light rail, commuter rail and demand response vans. The performance results vary by mode, reflecting the specific situation and management focus on each.

NCTD has enjoyed many successes over the past three years as a result of diligent and focused management attention. A few of those include:

- NCTD continues to innovate and act as an industry leader in effective service contracting/outsourcing. In the current audit period, NCTD restructured contracts to achieve efficiencies and improve control across its operating modes, with two primary contracts – Bombardier for COASTER and MV for all other modes of service. Contract performance measures and monitoring have improved, and costs managed within inflationary growth. NCTD also expanded outsourced services to include security in FY17, with an overall result of more staff focused on customers for cost within inflation.
- NCTD was one of only four rail transit operators in the United States to implement full train control by the mandated deadline (12/31/2018), reflecting its commitment to safety and superior project/program management capabilities.
- There was a focus on fine tuning the bus system, and schedules were improved, unproductive service cut, and some service added back to productive routes. NCTD also expended effort on moving able riders from demand responsive services to fixed route, opening a customer service center with in-person screening of eligibility (the prior process used an internet application) with successful results. Management is now focused on improving demand response passenger productivity to more than 2 passengers per hour with early successes.
- During the audit period, the SPRINTER was at the beginning stages of a comprehensive overhaul program, NCTD struggled to identify all of the funding that was required for the overhaul program that is estimated at \$18,478,870.10. Additionally, NCTD encountered long lead times for acquisition of certain parts. NCTD transitioned all of the capital work to Bombardier for oversight or direct implementation. NCTD was able to identify and cash flow the overhaul program which is expected to be largely completed by 2021.
- A fleet replacement plan is under implementation to update the fleets. COASTER (average car age is 25 years with a 30-year life) is in line for new engines and new double decker cars, partnered with two other transit operator car procurements to allow NCTD flexibility and low cost in buying cars. The bus fleet (average age is 11 years with a federally-mandated minimum 12-year useful life) is getting an influx of 26 replacement vehicles, 6 of which will be electric providing a bridge to a future all electric fleet.
- Most departments reported progress in documenting standard operating procedures and business processes, leveraging current data capabilities to produce more meaningful performance reports, and cleaning up legacy spreadsheets and databases. As an agency that contracts for service extensively, timely, accurate and useful information is paramount to success.
- SANDAG's Board recently adopted a regional fare policy and pricing change to take effect in September 2019, which should help boost revenues and better integrate all services regionally. There are some concerns over the potential impact on ridership.
- Double tracking of the COASTER is proceeding well under the leadership of SANDAG, affording future opportunities for service expansion.
- NCTD is investigating and experimenting with innovative solutions to first and last mile transit trip solutions, to include bike, scooter, LYFT, UBER, and micro-transit among others. They are also examining micro-transit as an option to serve low population areas efficiently.

The following recommendations are provided for consideration by NCTD:

- 1) Expand efforts to understand what riders want and how to grow demand.

Recommendation 1: Expand efforts to understand what riders want and how to grow demand.

Issues and Opportunities – During the audit period, NCTD experienced a ridership loss of 15.6%. SANDAG’s Board adopted a fare policy and pricing change scheduled for September 2019 which simplifies and harmonizes transit fares county-wide. The change also imposes a significant price hike to some ridership groups (e.g., 42% increase for adult cash payers on bus), likely driving additional demand reductions.

NCTD is not alone in experiencing a decline in ridership. There has been a national trend of transit ridership loss, due in part to a robust economy, low gas prices, sprawled development (employment and housing), and changes in where immigrants choose to reside. Many regions are beginning to recover – some through aggressive redesign of services, introduction of innovative services and amenities, and through natural growth. Many of these regions enjoy some characteristics not found in significant supply in NCTD’s service area (e.g., growing millennial population in densely developed areas easy to serve by transit, growing retirement population amenable to transit, high costs of parking). NCTD’s five year service plan includes adding service to reduce headway’s, adding first and last mile mobility solutions and other customer benefits.

Note that not all demand reduction is bad – moving able riders from demand responsive services to fixed route provides benefits – cost reduction, capacity management, flexibility.

Recommended Actions – NCTD should complete studies that are designed to garner information regarding what riders currently want and what new riders desire to support utilization of transit. NCTD should publicly share the implementation plan and report progress on a routine basis. Using the information on what riders and potential riders want, NCTD should implement improvements to realize growth in demand.

Expected Results – Slow and then reverse the ridership loss trend. New riders may have different needs, travel patterns and reasons for riding transit than the current base. Partnering with SANDAG can provide assistance and greater impact faster than NCTD could achieve alone.

NCTD Response – NCTD agrees and will establish a page on its website to track and report progress in completing studies and implementing service improvement plans. NCTD will also execute contract options for its Strategic Multimodal Transit Implementation Plan to support collection of enhanced data to understand travel patterns derived from cell phones and social media that will provide key information about what riders and potential riders want. NCTD will also collect information from current users to understand their needs via a transfer survey that is also included in the Strategic Multimodal Transit Implementation Plan. NCTD will use data from the on-board survey that will be led by SANDAG in 2020 to provide additional data to understand what current riders want.

Recommendation 2: Closely track and document Farebox recovery ratio both with traditional calculation and according to SB 508 provisions

Issues and Opportunities – NCTD suffered fare erosion across its system and not raised fares during the last three years. In FY2015 and FY2016, NCTD systemwide “pure” farebox recovery ratio was above 20%, but below in FY2017 and FY2018. Senate Bill 508 provides an opportunity to report differently, by allowing revenue and expense adjustments in making the calculation. Using these assumptions, for FY2018, the blended fixed route farebox recovery ratio is 34.7%. The exclusions and additions are compliant with state rules, and NCTD does a good job documenting them annually. When there is a question about exclusions, NCTD contacts Caltrans to gain clarity.

The farebox recovery minimum target is fixed at 18.8%, based on the mix of urban and rural services when the TDA requirement began. While other transit operators use a fixed TDA target if above the minimum, most calculate the actual minimum blended rate annually based on the state requirements and actual mix of urban and rural services. Urban fixed route services must deliver at least 20% farebox recovery, and rural fixed route/paratransit at least 10%.

Recommended Actions – NCTD should track and document the farebox recovery ratio requirement and results very closely over the next several years. The fare increase is expected bring farebox revenue up starting in September 2019. Given other conditions (regional ballot initiatives, coordination with new regional fare structure, new fare collection system implementation) it is a good time to strengthen farebox recovery reporting. Further, recent bus service adjustments focused on high productive routes may have changed the mix of urban and rural services.

Expected Results – Better reporting and control, consistent with peers in the state.

NCTD Response – NCTD agrees. NCTD will continue to track and report the farebox recovery ratio on an annual basis not only according to traditional calculations (pure), but also under the provisions of SB 508 (state). NCTD's farebox recovery requirement is established by statute at 18.8%, with that said, NCTD in collaboration with SANDAG, will analyze the current mix of urban and rural services to understand the impact on farebox recovery performance and reporting.