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cities of tomorrow



SHORT RANGE TRANSIT PLAN (SRTP) FY 2020-2024

Submitted to Morongo Basin Transit Authority
by IBI Group

June 2020

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EXECUTIVE SUMMARY

The Short Range Transit Plan (SRTP) is an action plan developed to guide the implementation of transit service improvements over the next 5+ years. A SRTP of the Morongo Basin Transit Authority's (MBTA) transit routes is important to improve the efficiency of service, address future land use development and transportation investments, and enhance connectivity to regional bus services. Overall, the analysis has culminated in recommendations for transit route revisions that would address future population growth and transit demand, transit-dependent needs, connectivity, and anticipated financial revenue and transit investment opportunities.

The service plan maximizes the performance of existing services while responding to additional community mobility needs. The focus of the recommendations is to concentrate service on strong routes to provide a foundation for increasing ridership and generating more fare revenue, while also preserving in areas with lower ridership potential.

Most importantly, the plan responds to key issues identified by MBTA customers and others to create a system that will be more attractive to new riders in the years to come. The study process has included a great deal of outreach and facilitation with the public and key regional stakeholders. The service plan reflects input received from a variety of activities, including public workshops, multiple interviews with several agencies, and on-board and community surveys.

The SRTP final report is presented in eleven chapters. Chapters 1 and 2 describe the SRTP context and process; and provide a market analysis based on key community demographic and land use characteristics. Chapter 3 documents the survey research process conducted for the study. A copy of the on-board survey instrument is presented in Appendix A.

Chapter 4 presents a primer on transit performance measurement. Performance metrics for MBTA fixed-route and paratransit services are presented.

Evaluation of Existing Fixed-Route Transit Services: Chapter 5 provides a comprehensive evaluation of existing MBTA fixed-route transit services including operational performance and opportunities for enhancements.

Key indicators of MBTA system performance include total ridership (*i.e.*, unlinked customer boardings, and service productivity expressed as the average number of boardings per revenue service hour. A five-year summary of fixed route ridership and productivity performance is shown in Exhibit ES.1. Service productivity declined by nearly one-third since FY 2014 to less than 10 boardings per revenue service hour in FY 2018. Industry norms for small urban transit agencies are typically 13 to 15 boardings per revenue hour. This is low by transit industry performance standards by MBTA peer agencies. The decline was fueled both an increase in the level of service (13.7%) and a decrease in ridership (-22.6%) during the last five years (presented in Exhibit ES.1).

Exhibit ES.1: Fixed Route System Ridership & Productivity, FY 2014-2018

FY	Annual Boardings	Percent Change	Revenue Vehicle Hours	Boardings per Revenue Hour
2014	331,743	--	23,352	14.2
2015	300,400	-9.4%	25,779	11.7
2016	288,121	-4.1%	25,618	11.2
2017	255,411	-11.4%	23,096	11.1
2018	256,897	0.6%	26,554	9.7
Change - 5 yrs	74,846	-22.6%	13.7%	-31.9%
Change - average	14,969	-4.5%	2.7%	-6.4%

A five-year summary of Ready Ride ridership and productivity is provided in Exhibit ES.2. Total boardings declined by nearly 24% and service productivity declined by nearly 20% since FY 2014, the latter being fueled by an increase in the level of service and a decline in boardings. These data reflect the impacts of a reduction in level of service (-5.1%) and the sharp drop in ridership over the last five years.

Exhibit ES.2: Ready Ride Ridership & Productivity, FY 2014-2018

FY	Annual Boardings	Percent Change	Revenue Vehicle Hours	Boardings per Revenue Hour
2014	24,369	--	7,382	3.3
2015	21,189	-13.0%	7,034	3.0
2016	19,925	-6.0%	7,206	2.8
2017	17,804	-10.6%	6,989	2.5
2018	18,543	4.2%	7,008	2.6
Change - 5 yrs	-5,826	-23.9%	-5.1%	-19.8%
Change - average	-1,165	-4.8%	-1.0%	-4.0%

Peer and Organization Review: Chapter 6 presents an overview of peer properties highlighting MBTA's operational and financial performance¹ relative to a select number of peer agencies (Section 6.1). Included is data on staffing/employee counts relative to operations, maintenance, and vehicle volumes.

¹ MBTA data excludes JTNP RoadRunner service.

MBTA performance relative to a select number of peer/comparable size transit agencies:

- ✓ Fixed route provides close to 40% more trips per hour at a cost per trip of close to 30% less than peer agencies.
- ✓ Fixed route provides over 36% more trips per capita at a cost per capita (indicative of the amount of investment in transit) of 25% more than peer agencies.
- ✓ Demand response services are provided at a cost per trip 18% less than peer agencies with a productivity (trips per hour) the same as peer agencies.

Staffing levels relative to peer agencies staffing/employee counts by key functional areas (administration, operations, and maintenance) is presented in Exhibit ES.3.

Recognizing the limited data from peer agencies and small number used for comparisons, key observations from this comparison include:

- ✓ MBTA operate close to double the number of *vehicles operated at maximum service* (VOMS) per maintenance employee than the peer agencies.
- ✓ MBTA operates 47% more vehicle revenue hours per maintenance employee than the peer agencies.
- ✓ MBTA's total number of vehicle revenue hours per total number of employees is virtually identical to the peer average (3% higher at 781 vs. 757 peer average).

Based on the above noted findings, MBTA's staffing levels are favorable relative to peers. Of particular note is the small number of MBTA maintenance employees relative to the number of VOMS, when compared to peer transit agencies.

Exhibit ES.3: MBTA Staffing Levels Relative to Peer Agencies

City / Agency	Service Population	Vehicles Operated at Maximum Service (VOMS)	Annual Vehicle Revenue Hours (VRH)	Admin Employee Count	Operations Employee Count	Maintenance Employees Count	Total # of Employees	# of VOMS per Maintenance Employee	# of VRHs per Maintenance Employee	# of VRHs per Total Employee Count
Morongo Basin Transit Authority (MBTA)	68,800	17	35,920	7	34	3	44	5.7	11,973.3	780.9
Mountain Area Regional Transit Authority (MARTA)	48,000	11	35,390	6	45	4	55	2.8	8,847.5	643.5
Eastern Sierra Transit Authority (ESTA)	50,000	44	56,000	7	63	Contracted	80	n/a	n/a	700.0
Mendocino Transit Authority (MTA)	90,000	23	44,245	7	43	6	56	3.8	7,374.2	790.0

Recommended Service Plan: Chapter 7 presents a phased five-year transition plan to redesign existing transit services to better respond to the mobility expectations and preferences of Morongo Basin residents, employees and visitors. A schematic of the proposed system concept is illustrated in Exhibit ES.4, reflecting the proposed fixed route and flex zone concept.

Exhibit ES.4: Proposed System Concept

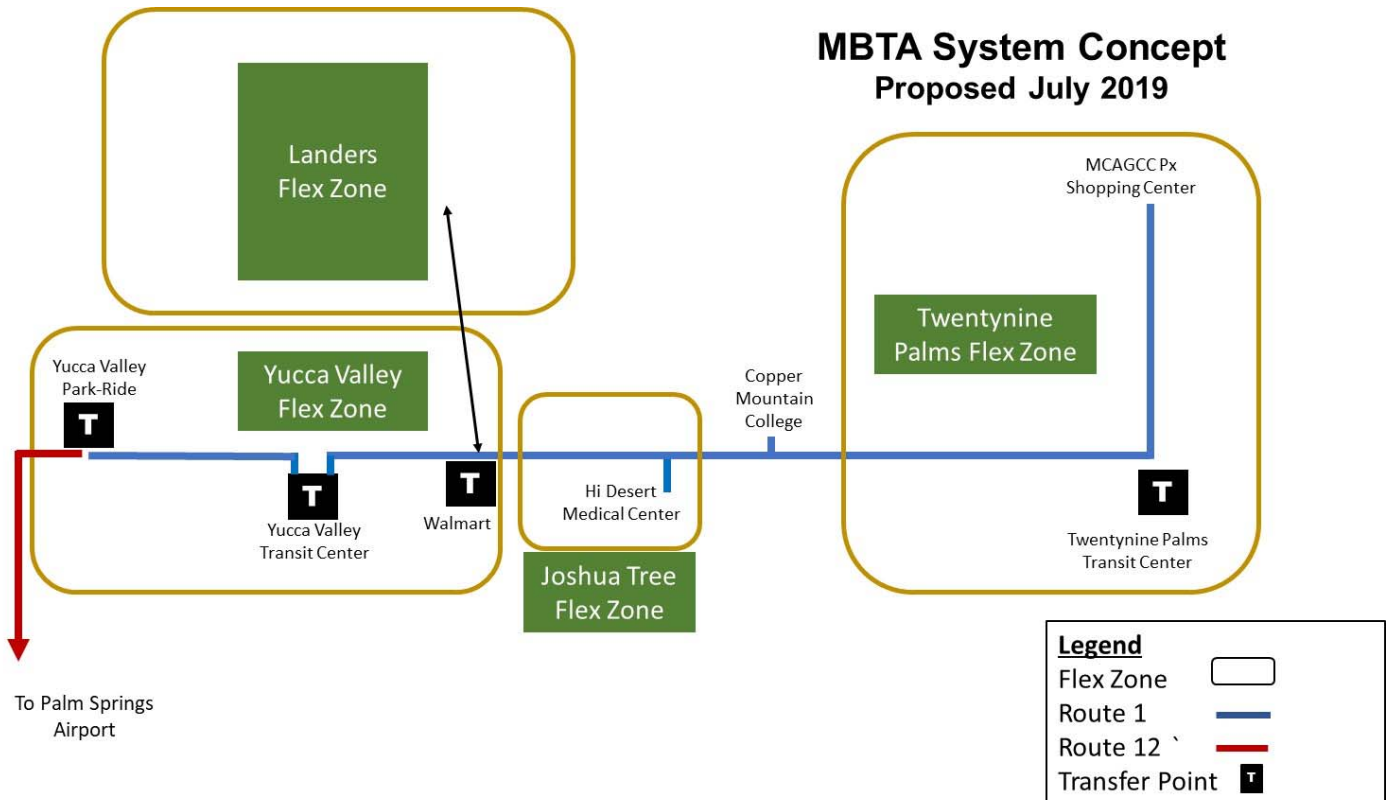


Exhibit ES.5 presents the phased Five-year Service Plan FY 2021 -2025 as described in Chapter 7.

Exhibit ES.5: MBTA Phased Five-Year Service Plan FY 2021 -2025

Hourly Services	Revenue Hours	FY 2021	FY 2022	FY 2023	FY2024	2025	Assumptions
Route	Base Year	1	2	3	4	5	
1 Weekday	7,858	9,441	9,441	9,441	12,471	18,405	Absorb Route 3A / all trips to YVPR July 2020; YV frequency upgrade July 2023; full frequency upgrade July 2024
1 Saturday	1,276	1,276	1,950	1,950	2,605	3,844	Upgrade to weekday schedule to Saturday July 2021
1 Sunday	344	344	556	556	556	556	Expand Sunday schedule July 2021
Subtotal Hwy 62	9,478	11,061	11,947	11,947	15,632	22,805	
3A	2,728	0	0	0	0	0	Consolidate with Route 1 July 2020
3B	2,747	2,747	2,747	0	0	0	Convert to Flex July 2022
7A	2,770	0	0	0	0	0	Convert to Flex July 2020
7B	2,749	0	0	0	0	0	Convert to Flex July 2020
21	2,582	2,582	2,582	2,582	0	0	Convert to Flex July 2023
Subtotal Local	13,576	5,329	5,329	2,582	0	0	
12 Weekday	1,661	2,947	2,947	2,947	2,947	2,947	Expanded schedule July 2020
12 Saturday	0	0	408	408	408	408	Implement Saturday service July 2021
15 Fri/Sat/Sun	698	312	0	0	0	0	Discontinue Friday & Sunday July 2020; discontinue Saturday July 2021
Subtotal Regional	2,360	3,259	3,355	3,355	3,355	3,355	
Subtotal Fixed Route	25,414	19,649	20,631	17,884	18,987	26,160	
Ready Ride (ADA)	7,008	7,148	7,291	7,437	7,586	7,737	Budgeted 2% annual increase in service hours
Total Revenue Hours	32,422	26,797	27,922	25,321	26,573	33,897	
Net Cost per Revenue Hour	\$77.50	\$79.05	\$80.63	\$82.24	\$83.89	\$85.57	
Cost of Hourly Services	\$2,512,684	\$2,118,315	\$2,251,389	\$2,082,486	\$2,229,142	\$2,900,474	
PMoD Services	Subsidized Rides	FY 2021	FY 2022	FY 2023	FY2024	2025	Assumptions
Route	Base FY 2020	1	2	3	4	5	
Night PMoD	0	21,795	22,231	22,676	23,129	23,592	July 2020 convert Route 1 service after 6:00 pm to PMoD feeder; 2% growth years 2-5
YV Flex	0	36,325	37,052	37,793	38,548	39,319	New service July 2020 (year 1); max. subsidized trips = 125 wkdy / 100 Saturday; 2% growth years 2-5
JT Flex	0	0	13,025	13,286	13,551	13,822	New service July 2021 (year 2); max. subsidized trips = 45 wkdy / 35 Saturday; 2% growth years 3-5
29P Flex	0	0	0	29,060	29,641	30,234	New service July 2022 (year 3); max. subsidized trips = 100 wkdy / 80 Saturday; 2% growth years 4-5
Landers Flex	0	0	0	0	11,520	11,750	New service July 2023 (year 4); max. subsidized trips = 125 wkdy / 100 Saturday; 2% growth year 5
Total Trips	0	58,120	72,307	102,814	116,390	118,718	
Average Subsidy	\$0.00	\$3.50	\$3.57	\$3.64	\$3.71	\$3.79	Year 1 subsidy = \$3.50 drop charge; 2% inflation years 2-5
Cost of Subsidized Rides	\$0	\$203,420	\$258,137	\$374,385	\$432,298	\$449,763	
Total System Cost	\$2,512,684	\$2,321,735	\$2,509,526	\$2,456,871	\$2,661,441	\$3,350,237	

Financial Plan: Chapter 8 presents a financial plan projected through FY 2025-26 supporting implementation of the recommended service plan, which is a phased five-year transition to redesign existing transit services. The system redesign encompasses enhancements to core intercommunity trunk routes and replacing MBTA's neighborhood local fixed routes with dynamically routed and scheduled personal mobility on-demand (PMoD) service offering primarily first/last mile" feeder connections between residential neighborhoods and key bus stops along the Hwy 62 corridor.

Exhibit ES.6 presents MBTA's proposed capital project plan. Presented are a listing and description of capital projects and reference to funding source, presented by fiscal year. As presented, projects include: vehicle replacement; dispatch and maintenance equipment; shop equipment; AVL/GPS equipment; fare media infrastructure; mobility management/TREP; bus stop improvements; and potential zero emission vehicle (ZEV) readiness and implementation.

Exhibit ES.7 presents MBTA's operations financial plan to FY 2026 including revenues and expenditures. The financial plan for transit operations and the capital program is prepared to ensure there is enough for funding for the proposed service, development, maintenance, and replacement of capital assets.

During this SRTP process Covid-19 pandemic was declared and there was a stay at home order enacted. SBCTA had to revise funding projections which now do not match what was originally given. With SBCTA staff MBTA will work with them annually for funding allocations. The SRTP financial plan will be updated accordingly.

Exhibit ES.6: Capital Project Plan – FY 2019–20 through FY 2025–26

Project	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Dispatch & Maintenance Equip.	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Engine Overhauls	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Shop Equipment	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$0
Bus Wash System	\$67,950	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
AVL/GPS Equipment	\$0	\$0	\$75,000	\$10,000	\$10,000	\$10,000	\$10,000
Bus Stop Improvements	\$132,463	\$70,000	\$0	\$0	\$0	\$0	\$0
Bus Shelter Rehabilitations	\$38,934	\$0	\$0	\$0	\$0	\$0	\$0
PV Stops	\$26,291	\$0	\$0	\$0	\$30,000	\$0	\$0
Fare Media Infrastructure	\$0	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Roadway Project	\$29,640	\$0	\$0	\$0	\$0	\$0	\$0
Yucca Valley Surveillance	\$16,451	\$0	\$0	\$0	\$20,000	\$0	\$0
TREP Program	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
Staff Vehicle Replacement	\$50,000	\$0	\$50,000	\$0	\$25,000	\$0	\$0
Vehicle Replacement	\$0	\$1,821,600	\$636,273	\$1,136,116	\$915,079	\$1,441,245	\$304,307
ZEV Infrastructure (125 kW Chargers)	\$0	\$0	\$0	\$0	\$67,458	\$67,458	\$67,458
Total Project Cost	\$421,729	\$2,101,768	\$956,441	\$1,316,284	\$1,237,704	\$1,688,870	\$551,932
Capital Funding Sources							
State							
LTF Article 3	\$28,524	\$29,380	\$30,261	\$31,169	\$32,104	\$33,067	\$34,059
LCTOP	\$103,939	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262
Prop 1B - PTMISEA	\$0	\$607,200	\$0	\$0	\$0	\$0	\$0
STA Operator Share 99314	\$177,950	\$68,627	\$60,351	\$61,558	\$62,790	\$64,045	\$65,326
STA Population Share 99313	\$0	\$214,578	\$72,981	\$130,312	\$104,960	\$165,311	\$34,904

Project	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
STA State of Good Repair SB-1 (SGR)	\$111,316	\$104,897	\$106,946	\$109,036	\$111,167	\$113,339	\$115,555
<i>Federal</i>							
FTA Section 5310	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
CMAQ	\$0	\$1,075,108	\$563,292	\$1,005,803	\$810,119	\$1,275,934	\$269,403
FTA Section 5339	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Funding	\$421,729	\$2,368,720	\$1,102,762	\$1,606,808	\$1,390,070	\$1,920,627	\$788,177

Exhibit ES.7: Operations Financial Plan – FY 2019–20 through FY 2025–26 *

Revenues	FY 2019-20 (Budgeted)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Fare Revenue	\$390,000	\$401,700	\$413,751	\$426,164	\$438,948	\$452,117	\$465,680
CNG Purchases	\$15,041	\$15,492	\$15,957	\$16,436	\$16,929	\$17,437	\$17,960
Local Transportation Fund (LTF)	\$2,824,270	\$3,168,785	\$3,215,552	\$3,262,490	\$3,384,815	\$3,520,220	\$3,661,041
LTF Article 3	\$28,524	\$29,380	\$30,261	\$31,169	\$32,104	\$33,067	\$34,059
Measure I	\$103,300	\$123,683	\$127,406	\$131,274	\$134,946	\$138,888	\$142,619
AB 2766	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
Copper Mountain College Student Pass Subsidy	\$47,336	\$0	\$0	\$0	\$0	\$0	\$0
STA Operator Share 99314	\$177,950	\$68,627	\$60,351	\$61,558	\$62,790	\$64,045	\$65,326
STA Population Share 99313	\$0	\$214,578	\$72,981	\$130,312	\$104,960	\$165,311	\$34,904
STA State of Good Repair SB-1 (SGR)	\$111,316	\$104,897	\$106,946	\$109,036	\$111,167	\$113,339	\$115,555
LCTOP	\$103,939	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262
Prop 1B - PTMISEA	\$0	\$607,200	\$0	\$0	\$0	\$0	\$0
FTA Section 5310	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
FTA Section 5311	\$398,562	\$402,548	\$406,573	\$410,639	\$414,745	\$418,893	\$423,082
CMAQ	\$0	\$1,075,108	\$563,292	\$1,005,803	\$810,119	\$1,275,934	\$269,403
FTA Section 5339	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Revenues	\$4,240,238	\$6,520,927	\$5,322,001	\$5,893,810	\$5,820,453	\$6,508,180	\$5,538,559
Expenditures							
Administration	\$757,144	\$781,373	\$806,377	\$832,181	\$858,810	\$886,292	\$914,654
Maintenance	\$624,701	\$644,691	\$665,322	\$686,612	\$708,583	\$731,258	\$754,658
Operations	\$2,436,664	\$2,514,637	\$2,595,106	\$2,678,149	\$2,763,850	\$2,852,293	\$2,943,566
Total Operations	\$3,818,509	\$3,940,701	\$4,066,804	\$4,196,941	\$4,331,244	\$4,469,843	\$4,612,878

Revenues	FY 2019-20 (Budgeted)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Dispatch & Maintenance Equip.	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Engine Overhauls	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Shop Equipment	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$0
Bus Wash System	\$67,950	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
AVL/GPS Equipment	\$0	\$0	\$75,000	\$10,000	\$10,000	\$10,000	\$10,000
Bus Stop Improvements	\$132,463	\$70,000	\$0	\$0	\$0	\$0	\$0
Bus Shelter Rehabilitations	\$38,934	\$0	\$0	\$0	\$0	\$0	\$0
PV-Stops	\$26,291	\$0	\$0	\$0	\$30,000	\$0	\$0
Fare Media Infrastructure	\$0	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Roadway Project	\$29,640	\$0	\$0	\$0	\$0	\$0	\$0
Yucca Valley Surveillance	\$16,451	\$0	\$0	\$0	\$20,000	\$0	\$0
TREP Program	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
Staff Vehicle Replacement	\$50,000	\$0	\$50,000	\$0	\$25,000	\$0	\$0
Vehicle Replacement	\$0	\$1,821,600	\$636,273	\$1,136,116	\$915,079	\$1,441,245	\$304,307
ZEV Infrastructure (125 kW Chargers)	\$0	\$0	\$0	\$0	\$67,458	\$67,458	\$67,458
Total Capital	\$421,729	\$2,101,768	\$956,441	\$1,316,284	\$1,237,704	\$1,688,870	\$551,932
Total Expenditures	\$4,240,238	\$6,042,469	\$5,023,245	\$5,513,225	\$5,568,948	\$6,158,714	\$5,164,811
Balance: Revenues minus Expenses	\$0	\$478,458	\$298,756	\$380,585	\$251,506	\$349,467	\$373,748

* SBCTA and MBTA will coordinate annually to revise the numbers due to funding changes related to COVID -19.

1.0 INTRODUCTION

1.1 Context

Federal transportation statutes require that the San Bernardino County Transportation Authority (SBCTA), in partnership with state and local agencies, develop and periodically update a long-range Regional Transportation Plan (RTP), and a Transportation Improvement Program (TIP) which implements the RTP by programming federal funds to transportation projects contained in the RTP. In order to effectively execute these planning and programming responsibilities, SBCTA requires that each transit operator in its region prepare, adopt, and submit to SBCTA a Short Range Transit Plan (SRTP).



The Short Range Transit Plan (SRTP) is an action plan developed to guide the implementation of transit service improvements over the next 5+ years. A SRTP of the Morongo Basin Transit Authority's



(MBTA) transit routes is important to improve the efficiency of service in the communities of the Morongo Basin and address future land use development and transportation investments. Overall, the analysis has culminated in recommendations for transit route revisions that would address future population growth and transit demand, transit-dependent needs, connectivity, and anticipated financial revenue and transit investment opportunities.

Key elements of the SRTP study approach included:

- Problem identification – an evaluation of the performance of existing MBTA transit services;
- Identification of the unmet mobility needs in the Morongo Basin;
- Identification of key local and regional origins and destinations;
- Identification of the critical markets in the study area;
- Address the type and level of transit service justified for the study area as well as future service requirements; and
- Consideration of all community input and addressed as appropriate.

The SRTP study process has included outreach/consultation with key stakeholders, an on-board survey and a community survey.

SRTP outcomes provide the foundation (recommended service restructuring) for an Action Plan (Plan) to guide the implementation of transit service improvements over the next 5+ year period.

The Plan will enhance the efficiency and effectiveness of MBTA's existing transit services while responding to the changing demands for transit throughout the service area. As the population grows and demographics shift, it is important to reshape transit service to respond to new and changing transit demands. It is also important for transit service improvements to be implemented in a fiscally responsible (and financially sustainable) manner. The Plan maximizes the performance of existing services while responding to additional community mobility needs. The focus of the recommendations is to enhance service on strong routes to increase system ridership and generate more fare revenue, in addition to maintaining appropriate transit service in lower potential ridership areas. More importantly, the recommendations respond to key issues identified by passengers and the community to create a system that is more attractive to riders.

The SRTP is an opportunity for a fresh look at MBTA services in context of delivery innovations made possible by advancing communications and vehicle location technologies.

1.2 Background



MBTA, a Joint Powers Agency, was formed in 1989 to provide transit services in the communities of Joshua Tree, Twentynine Palms, Yucca Valley, and adjoining unincorporated areas of San Bernardino County's lower desert sub region. Services include eight fixed routes, three (pilot) RoadRunner Shuttle routes, and Ready Ride complementary paratransit service. Annual system ridership is approximately 350,000 boardings.

A well-established planning framework is documented in recently completed reports including the FY 2016-2020 Focused SRTP; San Bernardino County Transportation Authority (SBCTA)'s FY2016-2020 Regional SRTP; and a 2012 Comprehensive Operational Analysis. Additionally, the Morongo Basin Active Transportation Plan provides regional context for addressing transit, bicycle, and pedestrian needs of the communities to identify basin-wide infrastructure, policy, and programming actions to foster a safe and efficient environment for these forms of transportation.

This current short-range transit plan emphasizes the fine balance between continuity built on MBTA's successful programs on one hand and charting a forward direction that responds head-on to key challenges on the other. It is difficult to simply read past several distinct concerns raised in the past SRTP -- notably declining ridership, productivity, and farebox recovery; and sufficient funding to support at most a static level of service

Consumer preferences and expectations for personal mobility are changing. Transit customers want:

- *Schedule information in real time.*
- *Direct point-to-point travel.*
- *Convenient "first mile-last mile" options integrated into transit trips.*
- *Ability to hail a ride and make same-day reservations.*

For example, the previous SRTP introduced the need for consideration and adoption of a mobility management strategy given the limitations of existing fixed route service design covering MBTA's sprawling lower-density service area. Looking ahead, this concept has been given a greater examination in the next five-year plan.



The past decade has ushered in dramatic innovations in local transit service design and service delivery methods. Following decades of disinvestment in public transportation, renewed interest is resonating across America with public and private sector participation in creating new and better options for transit travel and personal mobility. This SRTP is a pivot point toward the future for public transit services in the Morongo Basin.

Service design focused on the fixed route system, which was created in 1990 and improved incrementally over the years, subject to affordability. Ready Ride paratransit service to comply with the Americans with Disabilities Act (ADA) was included as well. The SRTP financial plan optimized the use of available federal and state transit funds to avoid adding to the MBTA's general government budget woes.

Community Demographic Profile – Relative to San Bernardino County which saw a close to seven percent increase in population over the past decade, the population of the Morongo Basin has been holding steady over this same period, just below 70,000 people. Median income of \$38,000 is also below the county average (of \$57,100). Further, the number of Morongo Basin residents who 'drive alone' to work has been increasing over the past decade. These characteristics speak to the need for new thinking about transit seems warranted in context of current and forward thinking-looking service innovations that are rapidly taking root across the U.S. transit industry.

The region is changing in other ways as well. Younger people think differently about personal mobility than did their parents and grandparents. Beyond education and marketing, the transit system must adapt to deliver services that better suit the needs and expectations of residents. A brief perspective on MBTA's current system design is illustrative. The route network emphasizes spatial coverage over schedule frequency, reflecting the classic "*walk time vs. wait time*" trade-off that confronts transit customers and planners alike. MBTA community route alignments are circuitous at times, with one-way segments. Schedule frequencies are low by today's metrics. For many customers, this service design means longer onboard travel times, longer wait times at bus stops, and a route structure that often requires a transfer. In fact, fixed route network design is one reason why MBTA ridership may be lagging.

Positive Analytical Framework – Charting the best course for the future requires a thorough understanding of the transit system at an appropriate level of detail. The SRTP work plan incorporated a solid planning framework based on a refreshed set of goals, objectives, and other performance metrics consistent with Federal Transit Administration, Caltrans, and SBCTA emphases on enhanced performance

The new SRTP should focus on making MBTA a better transit system, rather than just bigger or more expensive.

evaluation methods and tools. The approach focused on quality rather than quantity, recognizing that new sources of local funding for transit are limited.

Innovative Service Planning—Advancing technologies and new business models are expanding institutional and service delivery choices for local transit providers. This is an exciting time in terms of personal mobility options. Increasingly, the modes are converging into flexible “hybrid” services made even more convenient with the latest communications technologies for ride-hailing and reservations. New service options include “microtransit” or ride-hail services such as those provided by transportation network companies (TNCs), and traditional taxi companies; as well as publicly operated flexible services operated by MBTA’s peers, and community-based services.

Looking ahead, while autonomous vehicles may not yet have a direct role to play in MBTA service delivery, California transit systems are leading the nation in rolling out driverless service demonstrations in the coming decade. It is important to keep an eye on the long-term future as we plan for the short term.

Paratransit Program Optimization – Ready Ride paratransit is available to Americans with Disabilities Act (ADA) certified persons with disabilities and older adults who cannot independently access and use an accessible fixed route transit bus. The review discussed herein suggests several opportunities for improving the customer experience.



Continuing to manage the cost of ADA compliance is an important financial challenge for the MBTA. This requires active attention both to eligibility certification and the availability of convenient services that experience lower costs per trip than existing Ready Ride paratransit service. Elimination of barriers to fixed route access, travel training and a smart fare policy need to be part of the mix as well.

1.3 Study Process

The SRTP study began in January 2019, with a comprehensive data collection effort including historical operating and financial data, ancillary reports and a robust survey research effort. The findings from the data collection and survey research efforts provided the key inputs for an analysis of market and performance trends. This analysis was the basis of the *Existing Service Evaluation* (May 2019) report which identified key findings and strategies to improve the MBTA transit network. These findings and strategies were used to develop the service recommendations in the draft *Service Plan Working Paper* (July 2019).

1.4 Plan Organization

The SRTP is presented in nine chapters, which are described below. Captured are the salient elements of *Exhibit A – Project Overview and Scope of Services from the Authority’s* October 8, 2018 Request for Proposals (RFP).

CHAPTER 2 – MARKET ANALYSIS: provides an overview of the Morongo Basin study area including key community and demographic characteristics.

CHAPTER 3 – SURVEY RESEARCH: provides a summary of survey research efforts.

CHAPTER 4 – GOALS and PERFORMANCE STANDARDS: presents MBTA mission statements and goals. Further, provides a primer on transit performance measurement and fixed route and paratransit performance metrics.

CHAPTER 5 – OVERVIEW of TRANSIT SYSTEM: provides a comprehensive evaluation of existing fixed-route and paratransit services including operational and financial performance and opportunities for enhancements.

CHAPTER 6 – ORGANIZATION REVIEW / PEER REVIEW: provides an assessment, based on a sample period of *time logs*, of MBTA maintenance staff activities, by time of day. Further, Chapter 6 includes an overview of peer properties highlighting MBTA's operational and financial performance relative to a select number of peer agencies. Included is data on staffing/employee counts relative to operations, maintenance, and vehicle volumes.

CHAPTER 7 – RECOMMENDED SERVICE PLAN: presents a recommended system concept, service design guidelines, performance metrics, recommended network, timetables, and system resource requirements including budget – five-year operating financial plan and capital improvement program.

CHAPTER 8 – FINANCIAL PLAN: presents an overview of funding sources derived from fare revenues generated by the various service modes as well as local, state and federal grant subsidy programs.

CHAPTER 9 – FUTURE TRANSIT CENTER DEVELOPMENT: provides a commentary of the MBTA's possible land acquisition for a future transportation center within or adjacent to the Project Phoenix area.

CHAPTER 10 – TECHNOLOGY: provides a commentary on select technologies under the following broad categories: Trip planning and passenger communications; Multi-modal trip planning; Electronic ticketing and fare collection systems; and Operations and fleet management.

APPENDICES:

- A. On-Board and Community Survey Instruments
- B. Cost Allocation Study – Report

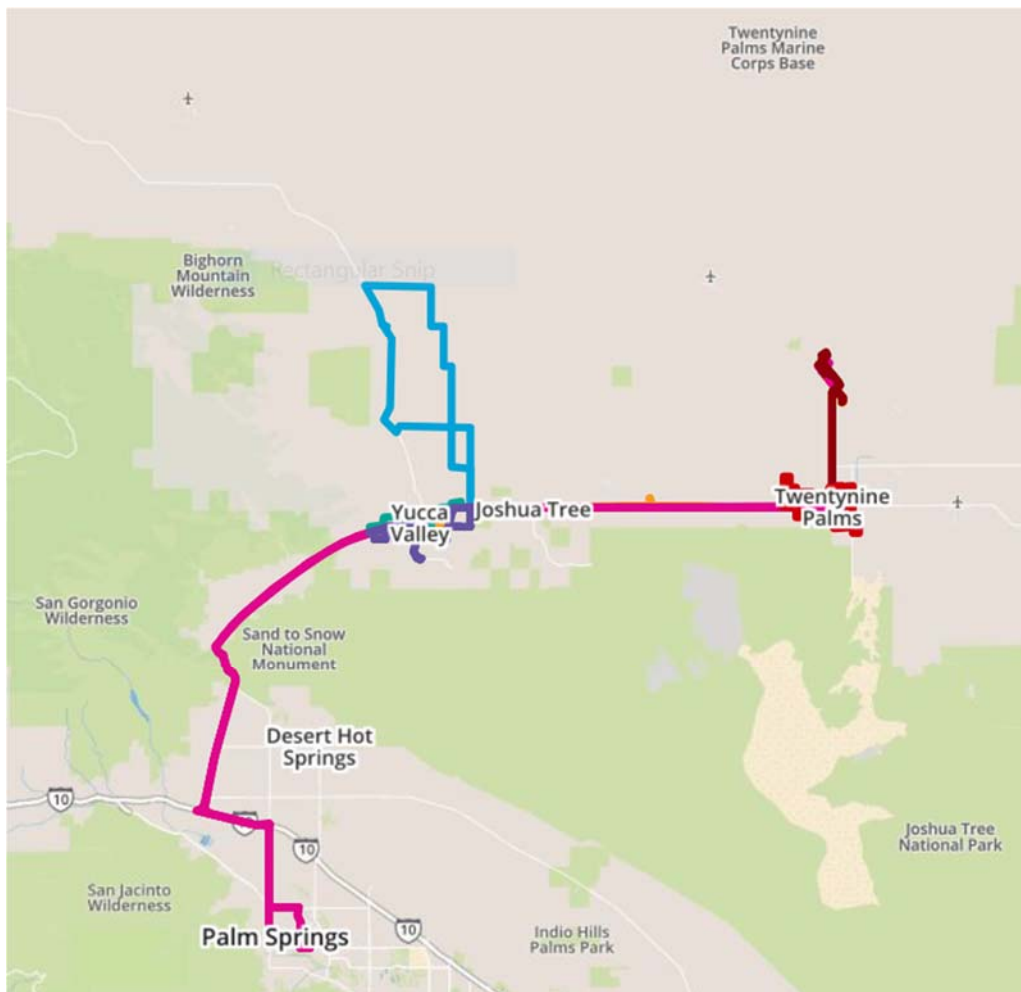
2.0 MARKET ANALYSIS

The Morongo Basin is a region located in eastern San Bernardino County, in Southern California. The Morongo Basin is part of the Inland Empire region and is considered to be the easternmost portion of the Greater Los Angeles Area, the 2nd largest metropolitan region in the United States. The basin stretches approximately from the Little San Bernardino Mountains north of Interstate 10 in the south, to the Interstate 40 area in the north. Lying within the Mojave Desert, the Morongo Basin is east of the city of San Bernardino and San Bernardino Mountains, and north of the Coachella Valley and Colorado Desert.

The MBTA provides public transit services within the communities of Joshua Tree, Twentynine Palms, Yucca Valley and unincorporated areas of the lower desert sub region of San Bernardino County (named in this report as “Morongo Basin”).

Exhibit 2-1 shows the primary MBTA – Morongo Basin study area.

Exhibit 2-1: MBTA – Morongo Basin Study Area



An analysis of the Morongo Basin’s demographic profile was prepared to identify trends that may impact future demand and the potential market for transit services. Understanding demographic

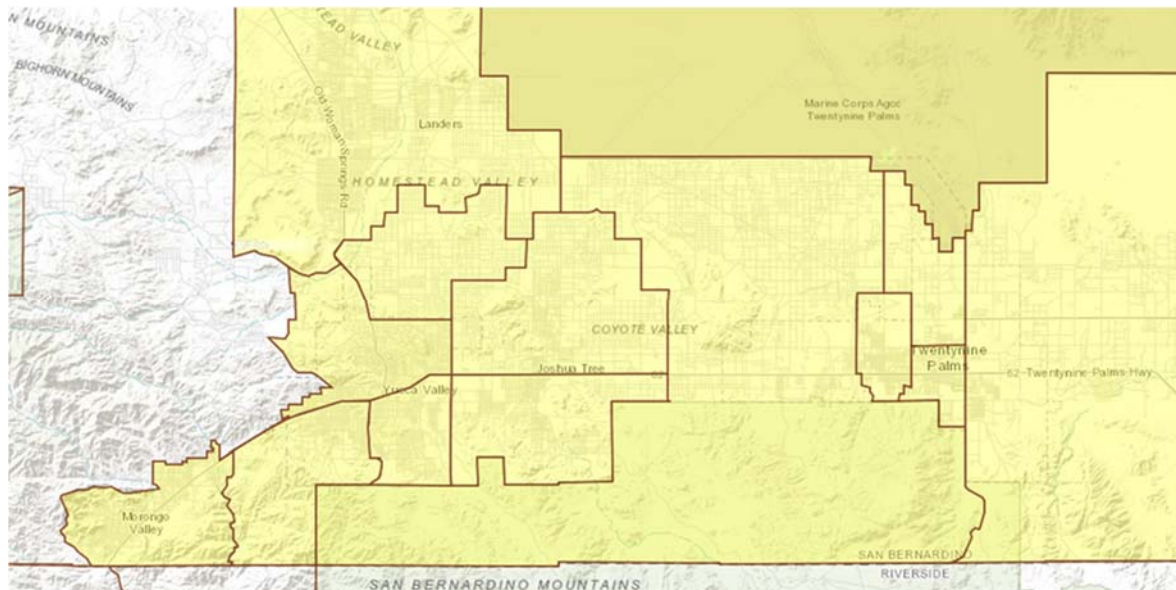
characteristics is critical in determining the level of transit dependency for a population and is beneficial in developing successful transit services that are tailored to the specialized mobility needs of the population.

This chapter examines specific demographic, socioeconomic, and transportation-related characteristics taken from the U.S. Census's American Community Survey (ACS) 5-year estimate data. This source produces raw data and condensed reports that contain a variety of demographic, economic, education, housing, and transportation information about the Morongo Basin. Pertinent factors are discussed herein.

2.1 Demographic Profile

An analysis of demographic, socioeconomic, and transportation-related data was intended to provide an initial understanding of the region's population characteristics, as well as any factors that may influence their propensity for transit use. Key metrics reviewed from the relevant data sources include population growth, age, race/ethnicity, number of households, household size, median household income, vehicles per household, and transportation mode choice. The geography boundary acting as the Morongo Basin are the fourteen (14) census tracts that make up approximately the Twentynine Palms- Yucca Valley Census County Division for San Bernardino County. While the cities of Yucca Valley, Joshua Tree, and Twentynine Palms have their own respective boundaries, the census tracts highlighted in Figure 2.1 were chosen as they also include unincorporated lands adjacent to city boundaries. Some census tract boundaries extend further than the MBTA service area, but the added population due to the extended boundary is nominal and would not skew the presented data.

Figure 2.1: Morongo Basin Census Tracts

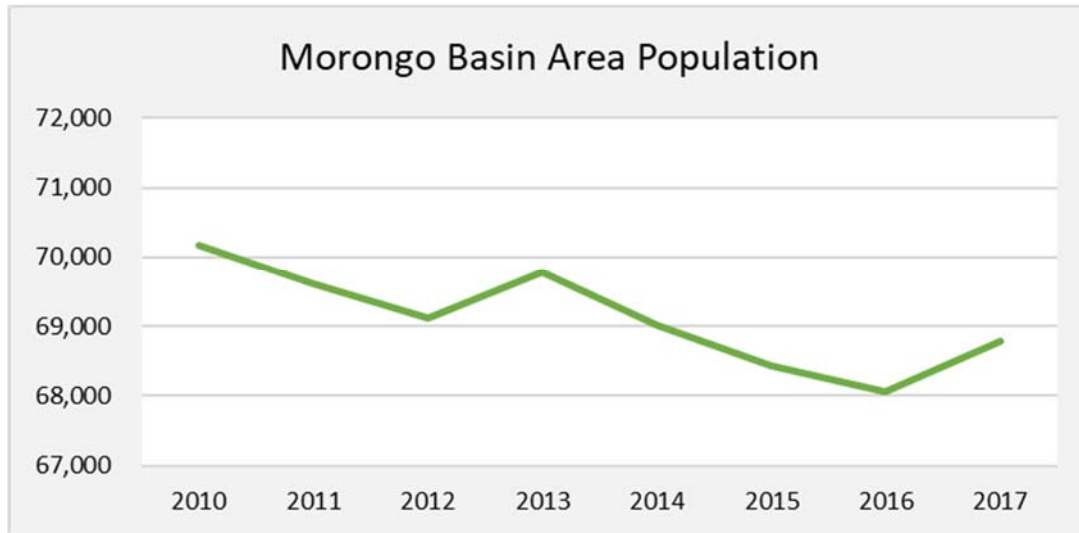


2.1.1 Population Change

The population of the Morongo Basin is approximately 68,800 (2017). This is a slight increase of 800 from the previous year, but the rate of change is on a downward trend from 2010 when the

population was approximately 70,200. However, in general, the population of the Morongo Basin has been holding steady over this last decade, hovering just below 70,000 people. 2013 was the only other year before 2017 that saw an increase in population from the previous year. Population change from 2010 to 2017 is illustrated in Figure 2.2.

Figure 2.2: Population Change (2010-2017)

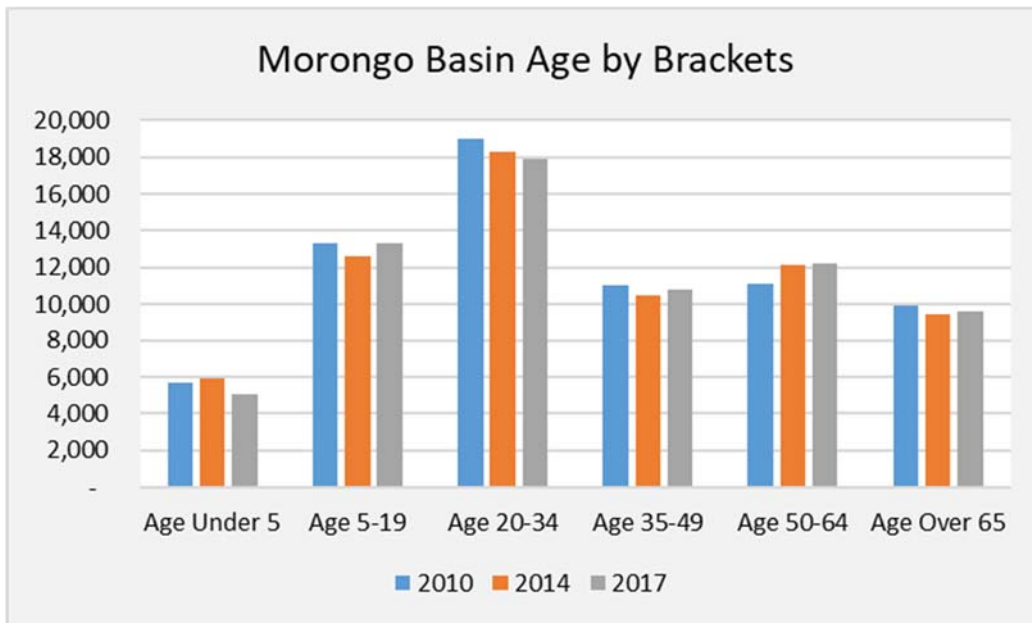


2.1.2 Age

Age is an important factor in determining transit dependency, which refers to the population of people for whom mobility may be limited, either by access to private automobiles or the ability to drive independently. Typically, transit dependent age groups include the elderly (those who are 65 years of age or older) and youth (those who are under the age of 18). Understanding age within an area also helps to determine the appropriate mobility solution to serve the population.

The age bracket with the highest population are those 20 to 34 years old. However, this bracket has slowly been losing numbers, about 1,200 people, from 2010 to 2017. There have been slight increases in all brackets of those aged 35 and over, since 2014. The second highest population bracket are children, aged 5 to 19. The fewest population bracket are newborns, at just over 5,000 children 4 years old or fewer in 2017. Figure 2.3 presents population by age for the years 2010, 2014 and 2017.

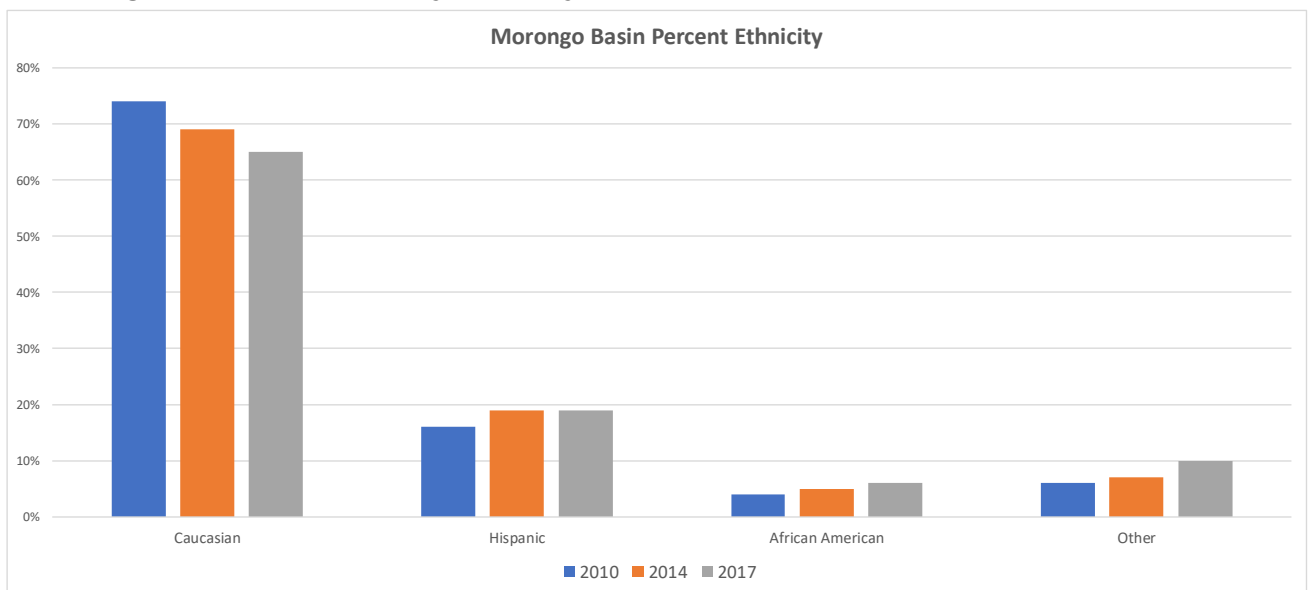
Figure 2.3: Population by Age (2010, 2014, 2017)



2.1.3 Race/ Ethnicity

It is worth noting that the Caucasian ethnicity (65% in 2017) makes up a fair majority of the Morongo Basin population has a whole, despite a slow decline in percentage since 2010. Conversely, the all other ethnic group saw increases in percentage over the same period. The Hispanic ethnicity is holding steady at about 19% in the region. American Indian/ Alaska Native, Asian, Native Hawaiian/ Pacific Islander, and two or more races makes up the Other category found in Figure 2.4.

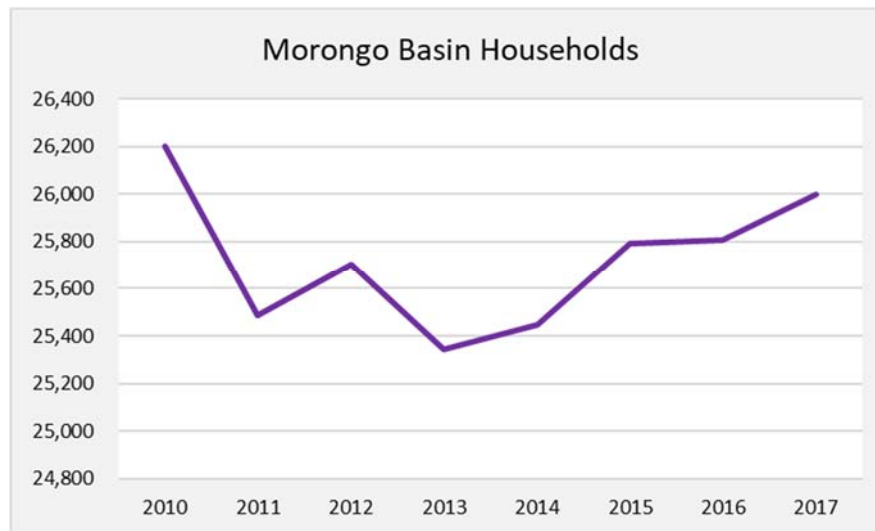
Figure 2.4: Population by Ethnicity (2010, 2014, 2017)



2.1.4 Number of Households

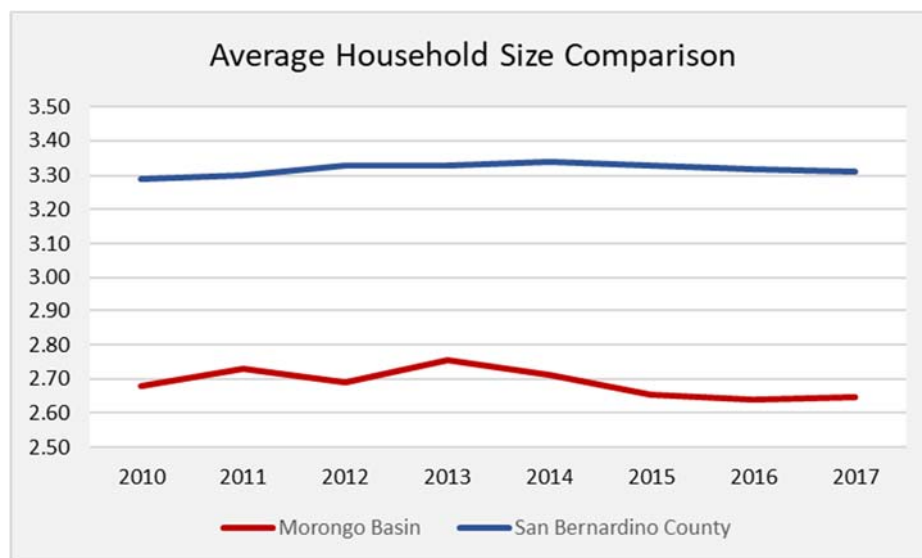
The number of households in the Morongo Basin is close to 26,000. This number is at a steady increase since 2013, when the number of households was below 25,400. The peak number of households this decade was over 26,200 in 2010. Overall, over the past 7 years, the number of households has not changed more than a range of 1,000 households in the Morongo Basin, as illustrated in Figure 2.5.

Figure 2.5: Number of Households (2010-2017)



The average household size has also remained relatively steady around most recently 2.65 in 2017. However, this figure is well below the County of San Bernardino average at approximately 3.31. The figure for San Bernardino County has remained relatively constant as well. The average household size for the years 2010 to 2017 is presented in Figure 2.6.

Figure 2.6: Average Household Size (2010-2017)

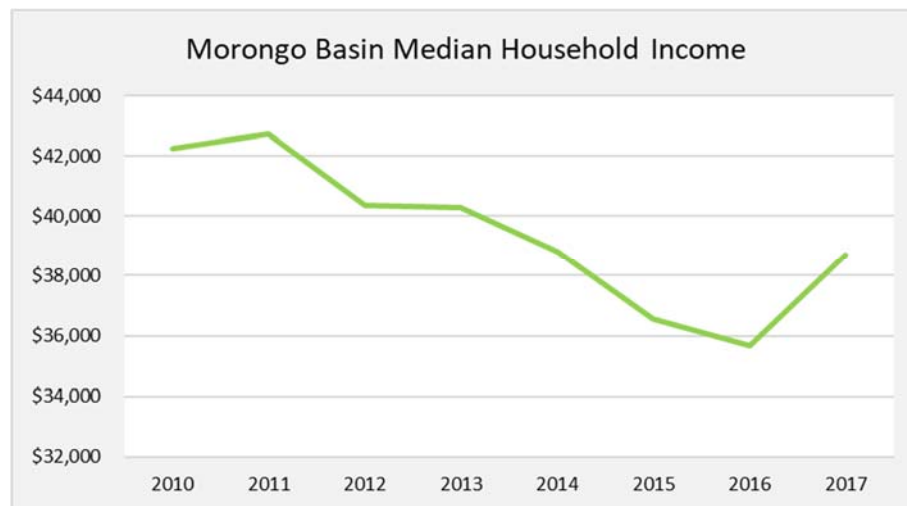


2.1.5 Median Household Income

Median household income is another demographic factor useful in determining the level of transit dependency for a population. The ability to afford private transportation and vehicles impacts and individual's propensity to utilize public transportation. Typically, individuals who lack access to private transportation are more dependent on alternative modes of transportation such as transit.

As illustrated in Figure 2.7, from 2011 to 2017 the median household income has fallen every year except for this last year where median income saw a spike. Median household income was most recently measured at \$38,714 and was a high as \$42,718 in 2011 and as low as \$35,675 in 2016. Median income in San Bernardino County is \$57,156.

Figure 2.7: Median Household Income (2010-2017)

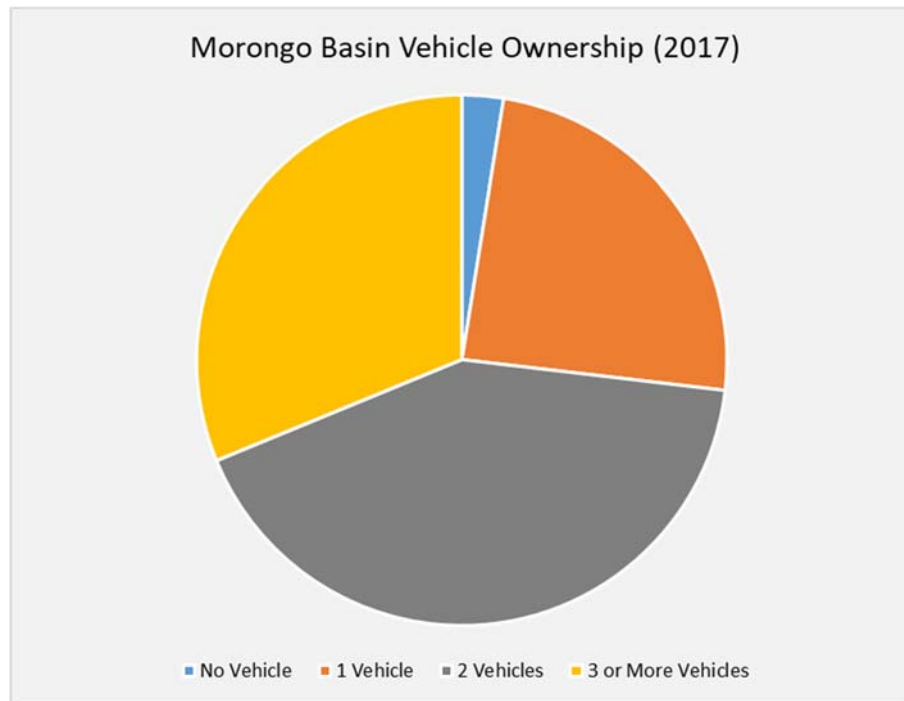


2.1.6 Vehicles Per Household

Transit dependency is often correlated with the accessibility to private transportation and automobiles. Individuals with limited or no access to private transportation are typically more dependent on public transportation as their primary mode of travel.

As presented in Figure 2.8, households who own one vehicle are 24%, those who own two take up 42%, and those who own three or more take up another 31%. The area is very dependent on driving, as only 3% of households do not own a vehicle.

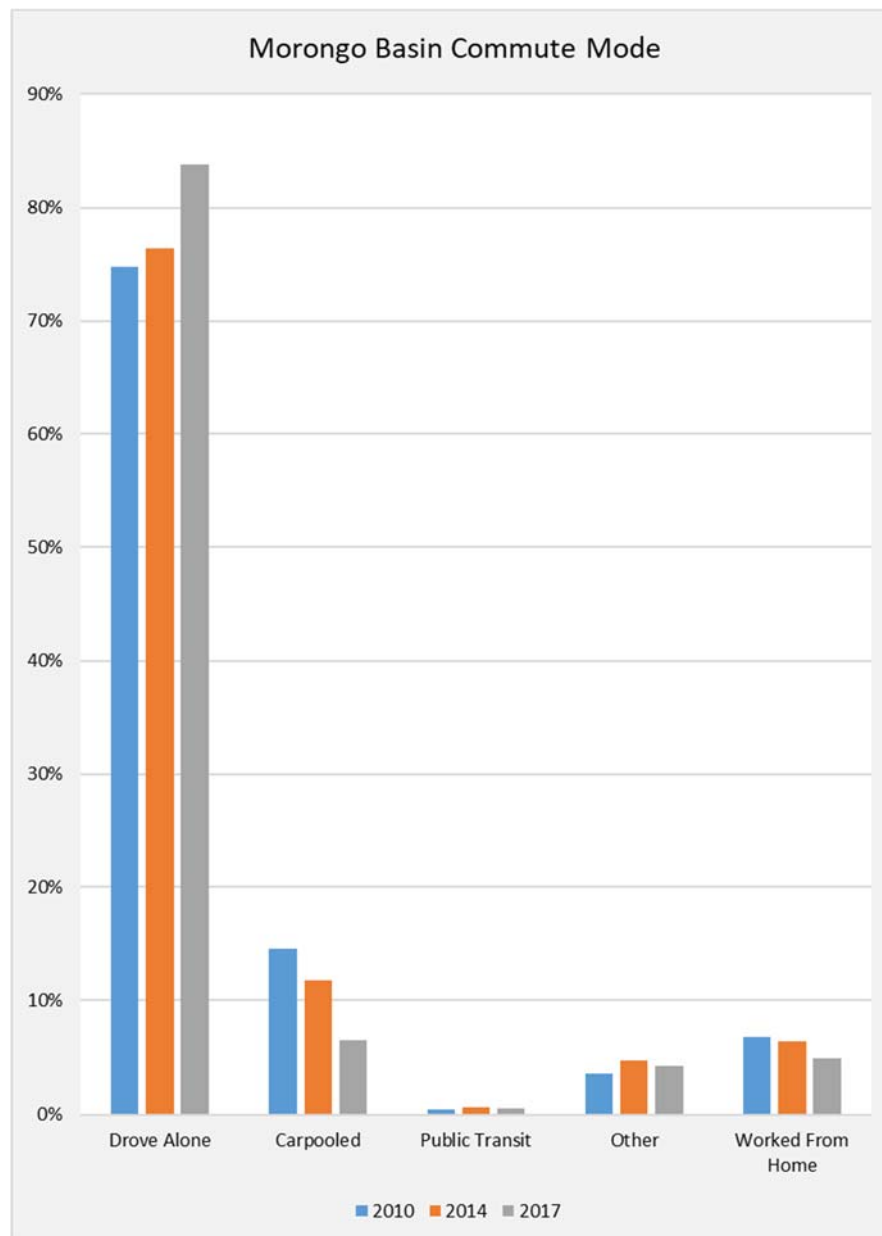
Figure 2.8: Vehicle Ownership (2017)



2.1.7 Journey to Work

Journey to work data was collected from the U.S. Census to understand mode choices for residents as they commute to work. A significant percentage of the population drives to work, above 83% in 2017, and that mode has become more popular since 2010. The second highest mode choice is carpooling, around 6%. Only 133 people or about 0.5% of people commute by using public transit. More people walk or bicycle than take public transit. Approximately 5% of workers, work from home. Journey to work data for the years 2010, 2014 and 2017 is presented in Figure 2.9

Figure 2.9: Journey to Work (2010, 2014, 2017)



2.2 Summary

The population of the Morongo Basin is approximately 68,800 people. The largest grouping of people is between 20 to 34 years old, but the median age for the region is around 38 years old. Most residents are of the White ethnicity, but other ethnicities are growing as the White ethnicity is seeing a decline in percentage from year to year. The number of households is remaining consistent at 26,000, for a rate of 2.65 persons per household, well below the county average. Median income is also below the county average at around \$38,000. Despite a lower median

income, most households, approximately 94%, own at least one vehicle. This is reflected in commute types, as over 83% of people drive to work alone, and this number is rising per year.

Given this demographic information, there is a potential to improve transit or mobility services based on journey to work ridership information. An improvement in transit services in the MBTA service area has the potential to make those who currently drive alone consider using transit or an alternate mobility service as an alternative mode of transportation.

3.0 SURVEY RESEARCH

The S RTP study process has included outreach and facilitation with the public and key stakeholders. The recommended service plan (presented in Chapter 7), reflects input received from a variety of activities, including the on-board survey of passengers and a community survey.

A copy of the on-board and community survey instruments is provided in Appendix A.

3.1 Community Survey

As a part of the initial planning process, a community survey was conducted to better understand the transit needs of the community. The survey provided information on travel behavior, quality of service, and user demographics. The survey also provided an opportunity for the community to express their concerns and make suggestions to improve transit services.

The survey was administered on-line via Survey Monkey and accessed through a link from the MBTA's home page. The on-line survey was available for a three-month period beginning in mid-March 2019 and running to mid-June.

The community survey consisted of questions targeted to solicit feedback from community members on their preferred transportation mode, typical trip destinations by mode, opinions on the quality of transit service, recommendations on potential improvements to transit service, and individual demographic data.

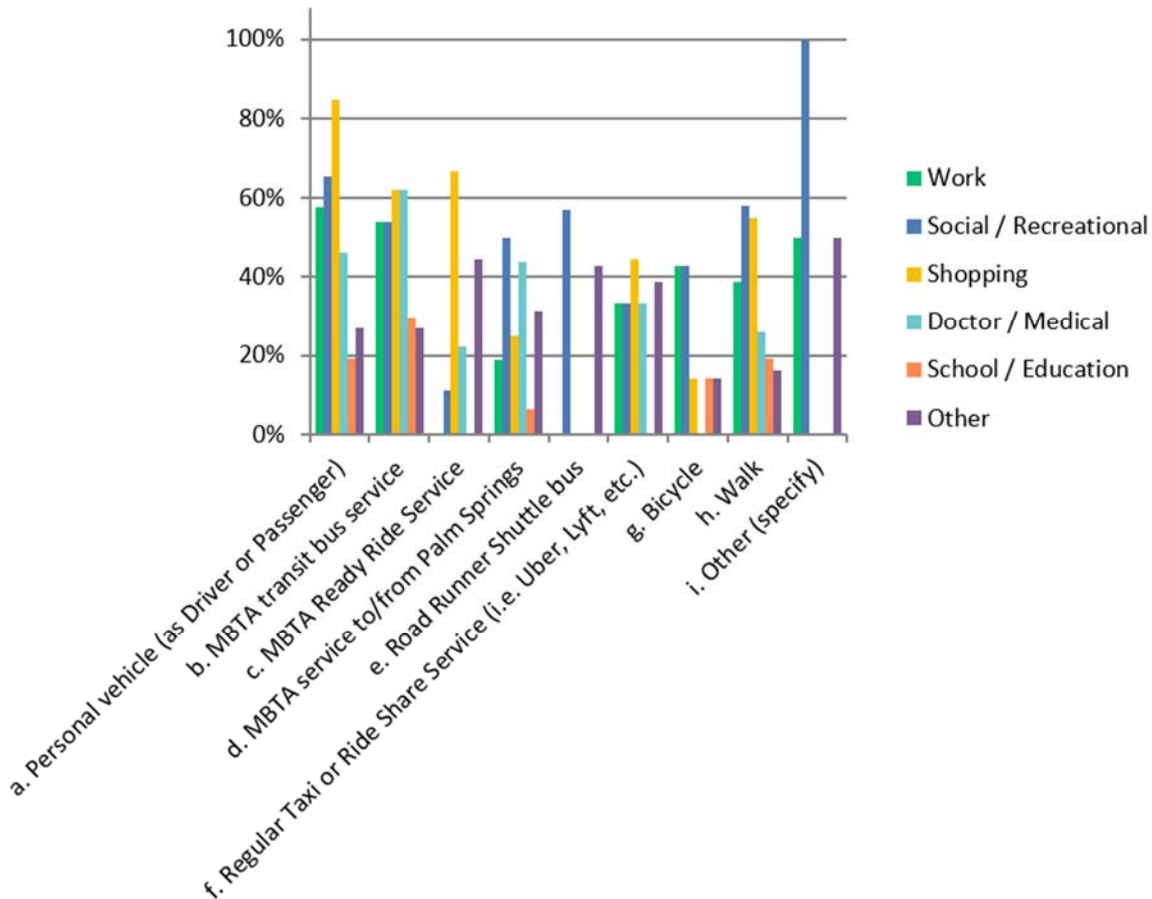
Results from the surveys were reviewed as a part of the comprehensive analysis and served as important input for the development of the recommended service enhancements.

A total of 43 people participated in the community survey. The following key findings were noted from the survey.

Question 2: What type of transportation do you or other members of your household use in a typical week and for what purpose?

This question was presented as a matrix. The columns of the matrix represented trip purpose, such as work or shopping. The rows represented transportation type, such as personal vehicle, transit, or ride share. Respondents could check multiple boxes in the matrix. All 43 participants answered this question. As shown in Figure 3.1, most respondents mainly use a personal vehicle, and the MBTA transit service with the highest trip purposes being commuting, recreation and medical. The next highest trip type for walking either to work or recreationally. The MBTA service to Palm Springs is utilized on a weekly basis as much as ride-share services. Respondents were also allowed to mark 'Other' if they had a trip purpose or trip mode different than any of the options presented. One respondent entered Church as a destination. Another respondent entered skateboarding as their mode of travel.

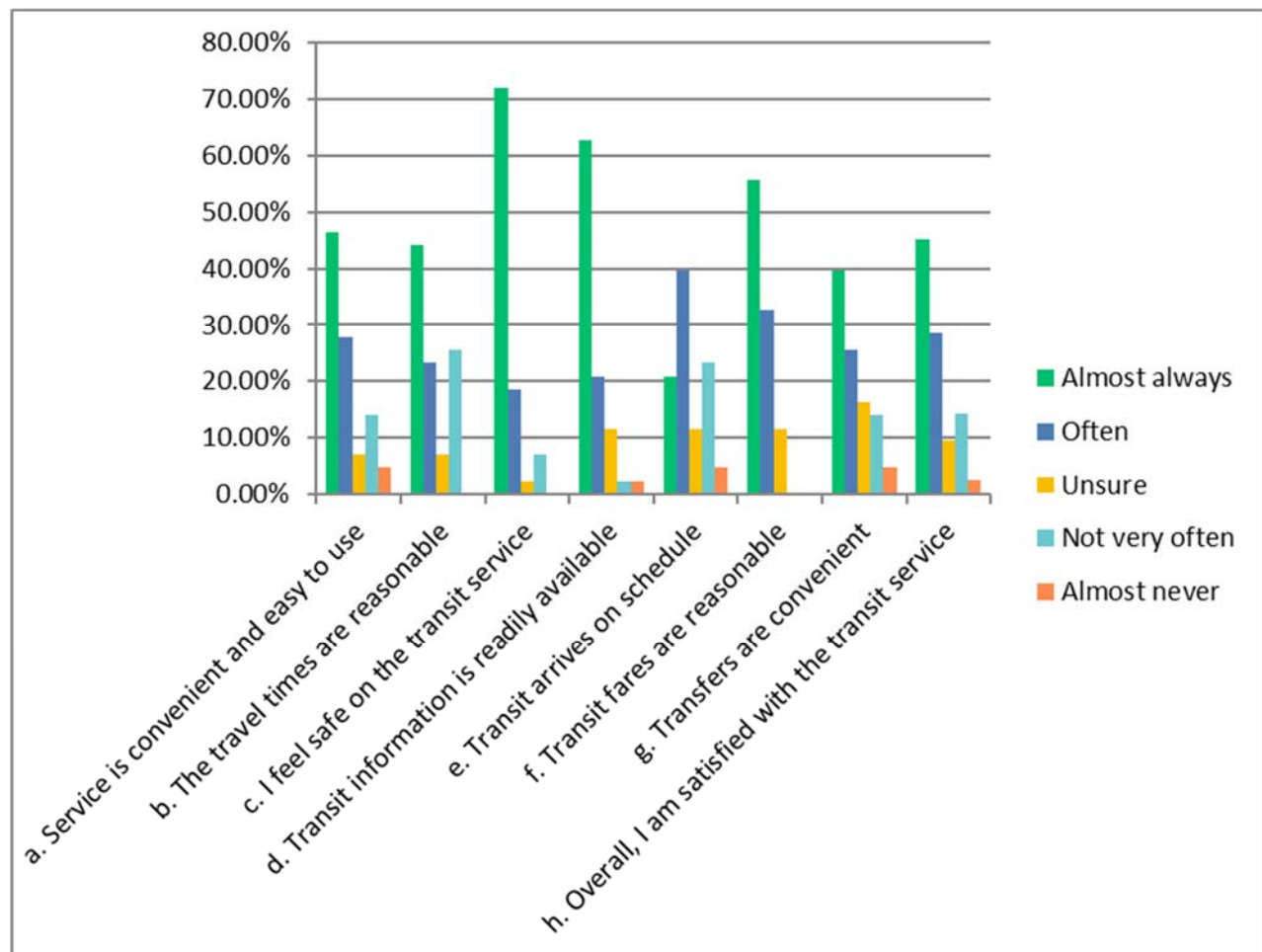
Figure 3.1: Q2: Transportation Mode and Purpose



Question 3a: If you now use MBTA bus service or have used it in the past but no longer do so, we want to know what you think of the transit service.

This question is presented as a single answer matrix for each row. Because respondents can only choose one response for each row, data was collected as percentages. All 43 respondents answered this question. The columns represented personal preference. The rows represented statements regarding transit service. For the statement, “Service is convenient and easy to use” a large portion of respondents believe that this happens almost always or often. For the statement, “Travel times are reasonable”, a large portion of respondents chose almost always, although a noticeable percentage of respondents chose not very often. Respondents overwhelmingly believe they feel safe on transit, believe transit info is readily available, fares are reasonable, and transfers are convenient. Respondents have mixed reviews of arrivals on schedule (on-time performance). In general, most respondents are often satisfied with the transit service. Results are presented in Figure 3.2.

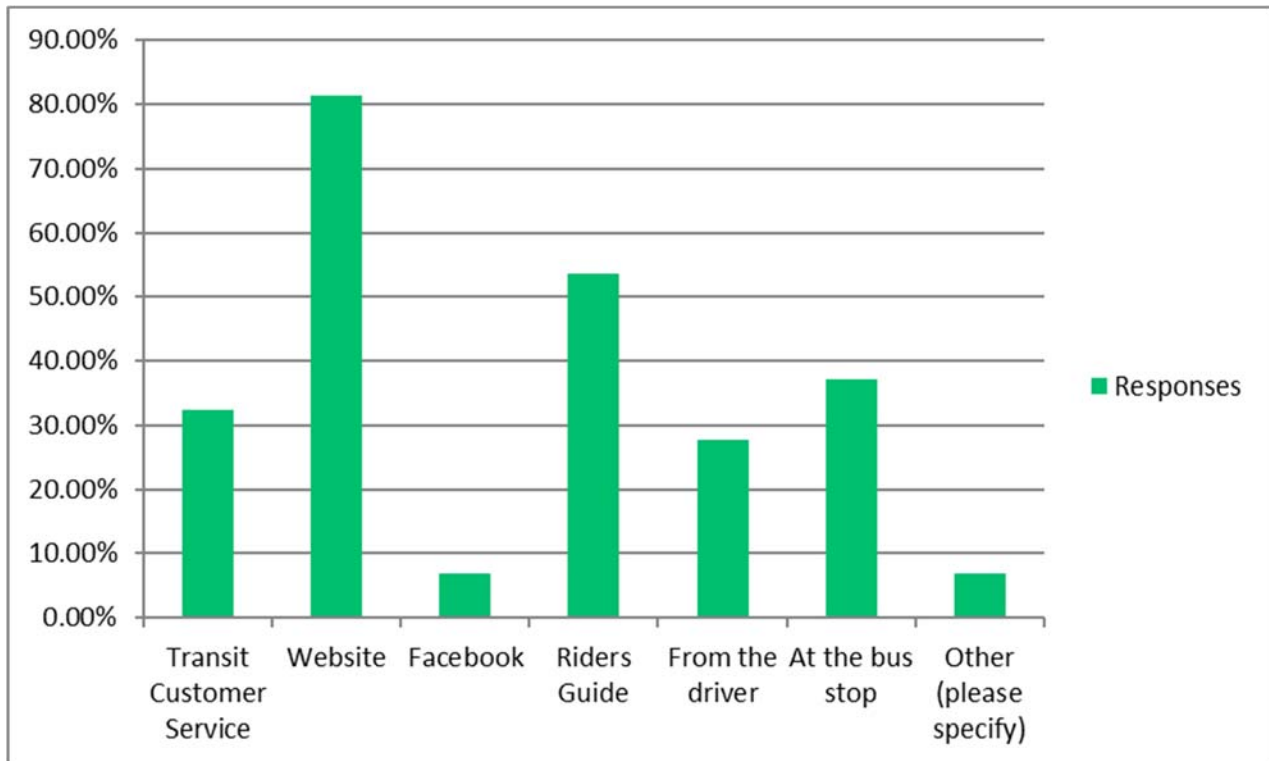
Figure 3.2: Respondents Perceptions of Service Quality



Question 3b: How do you typically locate information about transit services?

This question was presented as multiple answer multiple choice. All 43 respondents answered this question. As presented in Figure 3.3, most respondents overwhelmingly receive their information on transit service online. Over 50% of respondents receive their info from the rider's guide. Fewer respondents receive information from transit customer service, at the bus stop, or from the driver. Only three respondents said they use Facebook to receive transit information. For those who chose other, responses included google maps and from relatives.

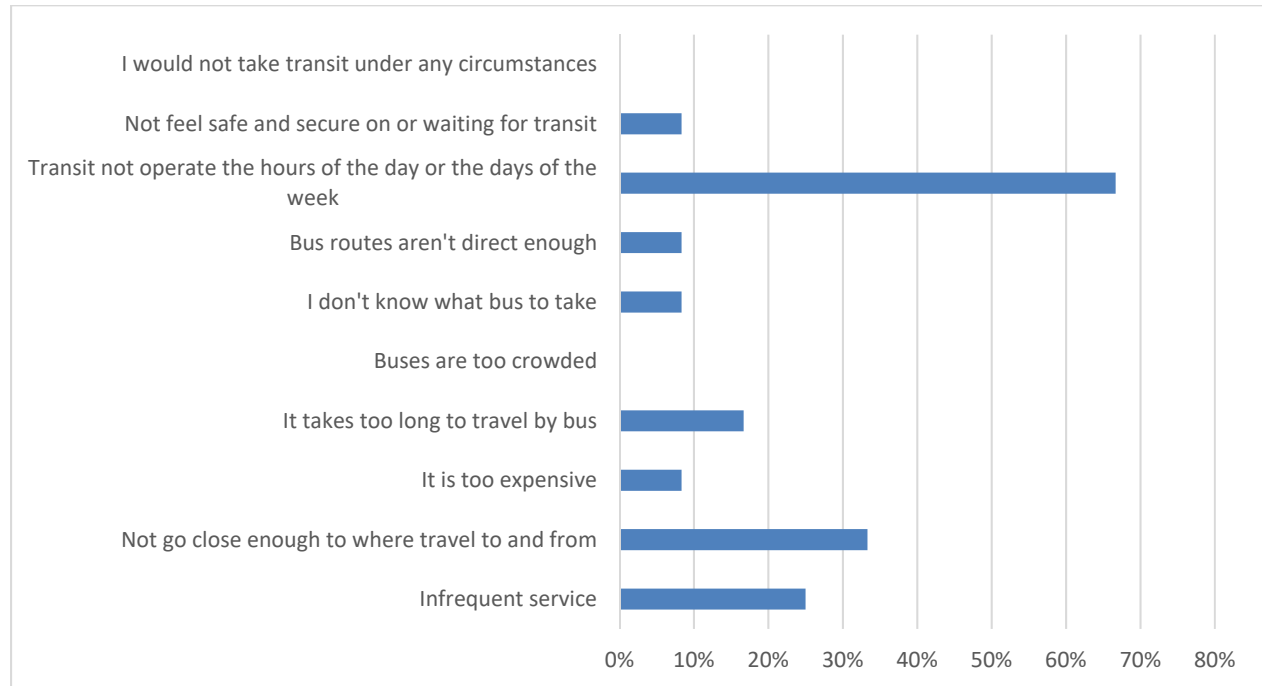
Figure 3.3: How Locate Transit Information



Question 4: If you do NOT use any public transit service, why not?

This question allowed for multiple answer, multiple choice. Only 12 out of 43 respondents answered this question. As presented in Figure 3.4, two-thirds of respondents said they do not use public transit noting that transit does not operate the hours of the day or day of the week that the users would prefer. The next highest reasoning for not using public transit is that the service does not go close enough to their origin or destination, noting the first/ last mile challenge.

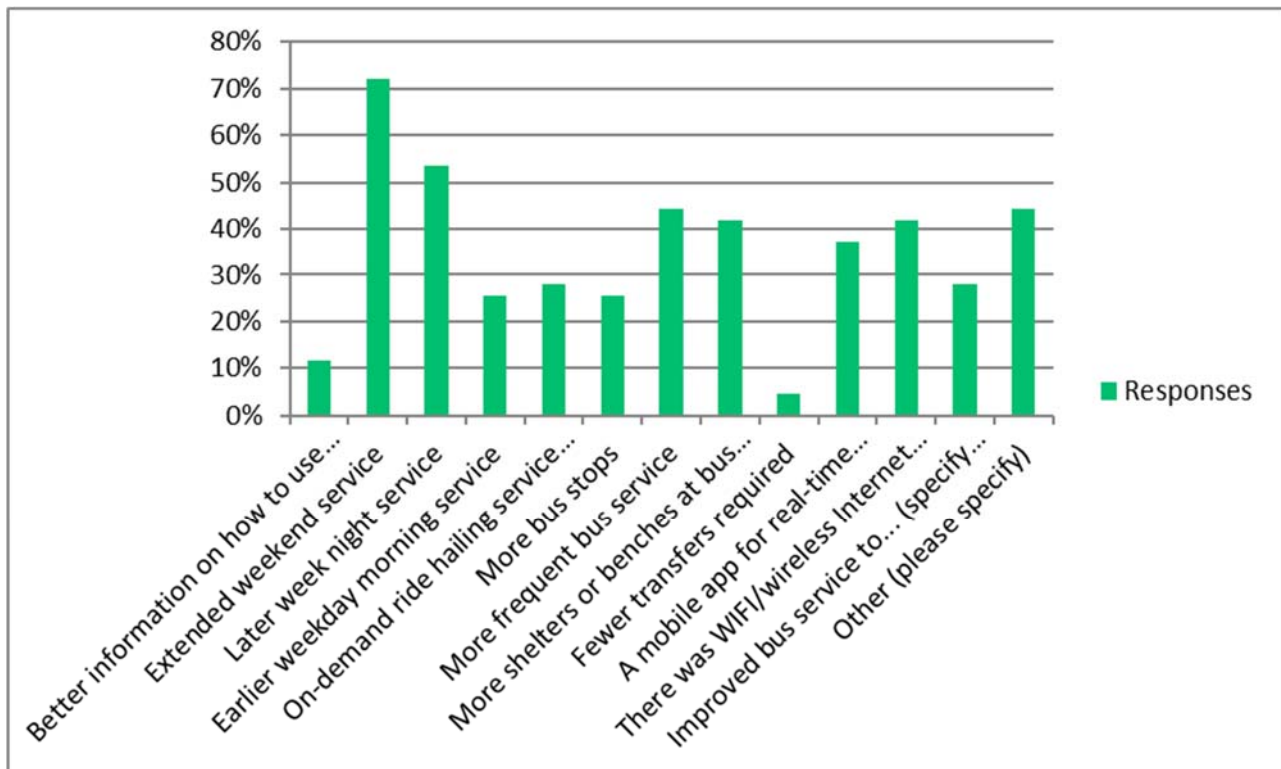
Figure 3.4: Reasons for Not Using Transit



Question 5: The types of MBTA transit service improvements that I would like to see.

This question was presented as a multiple answer, multiple choice. The rows represented a wide range of potential transit improvements, such as more bus stops or fewer transfers required. All 43 respondents answered this question. As illustrated in Figure 3.5, most respondents identified desired improvements that included extended weekend service, later week night service, and more frequent bus service. Other high-ranking improvements are: more bus stop shelters, the addition of WIFI on the bus, and the addition of a real-time mobile app. The lowest ranking improvements are better information on how to use transit, and fewer transfers required.

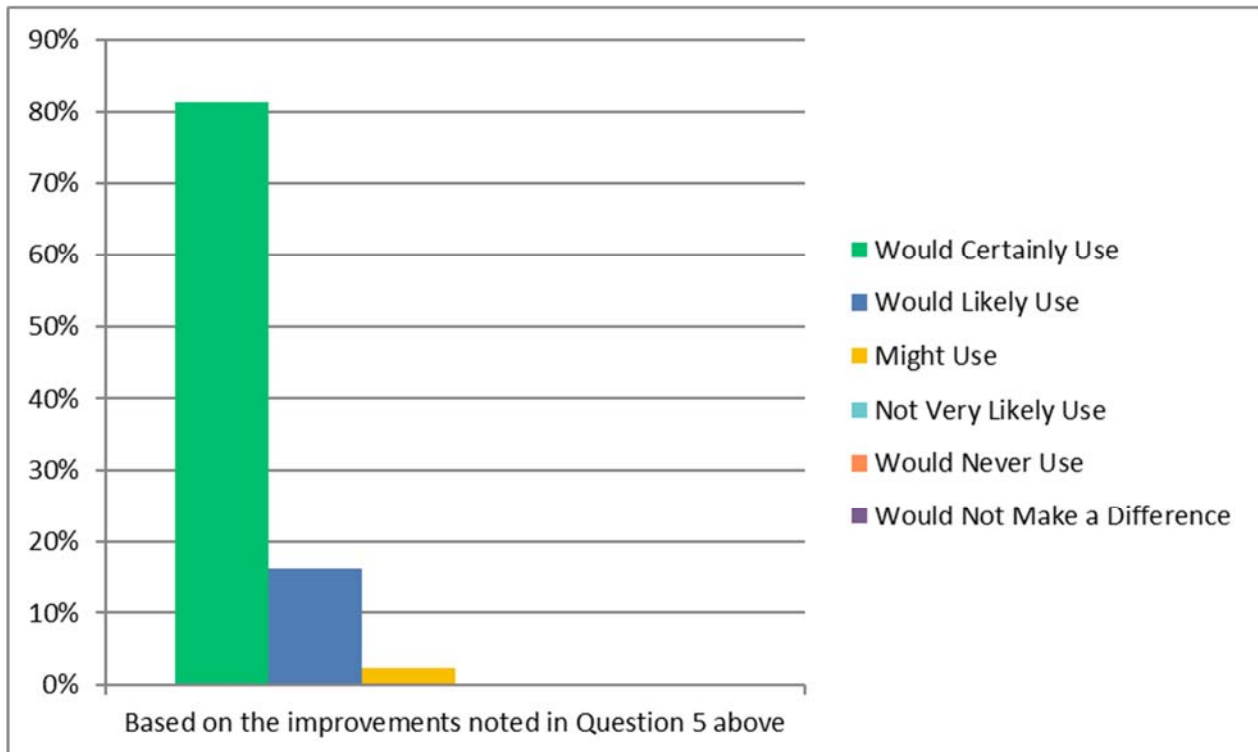
Figure 3.5: Type of Improvements Desired



Question 6: Please indicate how likely it is that you would use MBTA transit if the improvements you noted in Question 5 above were available.

This question was posed as single answer. All 43 respondents answered this question. As presented in Figure 3.6, most respondents said they would certainly use MBTA transit if the responses they identified in Question 5 were implemented. A few respondents said they would likely use MBTA public transit, while one respondent said they might use transit. No respondents were indifferent or would be less likely to use transit.

Figure 3.6: Likelihood of Using Transit If Identified Improvements Implemented



The final section of the survey presented questions to inform on demographic and socio-economic characteristics of the respondent. Answering these questions was optional.

Question 7: How many people live in your household?

42 of 43 respondents answered this question. Most respondents (38%) live in a two-person household. A similar number of respondents live alone (23%) or in a three or four-person household (17% each). Two respondents have six or more people in their household.

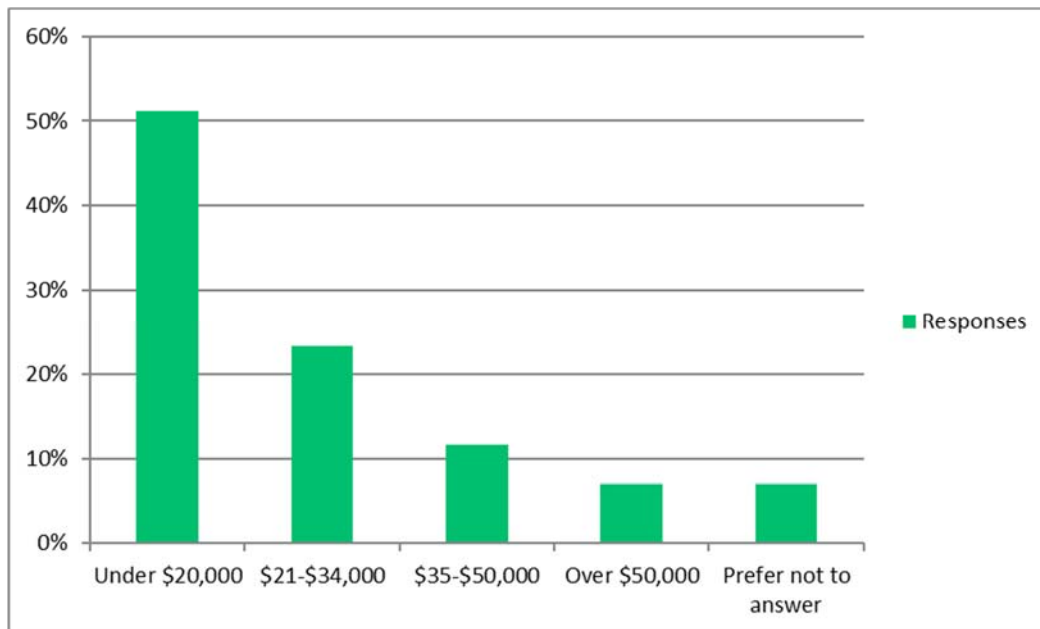
Question 8: How many cars or SUVs?

42 out of 43 respondents chose to answer this question. 20 respondents out of 42 have no private vehicles (48%). 14 respondents have one vehicle (33%). Only 8 respondents out of 42 have two vehicles (19%).

Question 9: Which of the following categories best matches your annual household income?

40 of 43 respondents answered this question. As presented in Figure 3.7, over half of respondents (51%) have a household annual income of less than \$20,000 a year. Twenty-five percent of respondents indicated a household income was \$21,000 to \$34,000, at 25%. Twenty percent of respondents have a household income more than \$35,000 a year.

Figure 3.7: Annual Household Income



Question 10: Which of the following age categories matches your age?

All 43 respondents elected to answer this question. Forty-seven percent of respondents were between 19 and 35 years of age. A lesser percentage of respondents fell into the 36 to 59 years of age cohort (33%). Those 60 years of age or older represented 21% of survey respondents.

Conclusions

In general, survey respondents use transit because a car was not available, hence reliant on transit. Transit is used primarily for commuting/access to work, social/ recreational needs, and

for access to medical appointments. While most MBTA users are satisfied with the transit service, a few users note that buses may not arrive at their scheduled times (on-time performance).

Reasons for not using transit included MBTA service doesn't operate at the times of the day or day of the week that they would like and/or that transit not travel close enough to their origin/destination.

Survey participants were generally satisfied with the quality of transit services. Most respondents felt the fares were reasonable and generally felt safe on the buses. Despite overall satisfaction with the quality of service, respondents did identify a number of areas for improvement including:

- Extended weekend service;
- Later week night service;
- More frequent bus service;
- More bus stop shelters;
- WIFI on the bus; and
- A real-time mobile app.

3.2 On-Board Survey

The on-board survey was administered over a four-day period: March 5th to 8th, 2019. A total of 326 surveys were completed.

Key findings from survey respondents include:

- 63% ride daily (86% ride at least once per week) [Figure 3.8]
- 91% make a round trip
- 59% ride to work or school [Figure 3.9]
- 57% walk to get to/from the bus stop [Figure 3.10]
- 63% did not have a personal vehicle available [Figure 3.11]

Figure 3.8: Frequency of Ridership

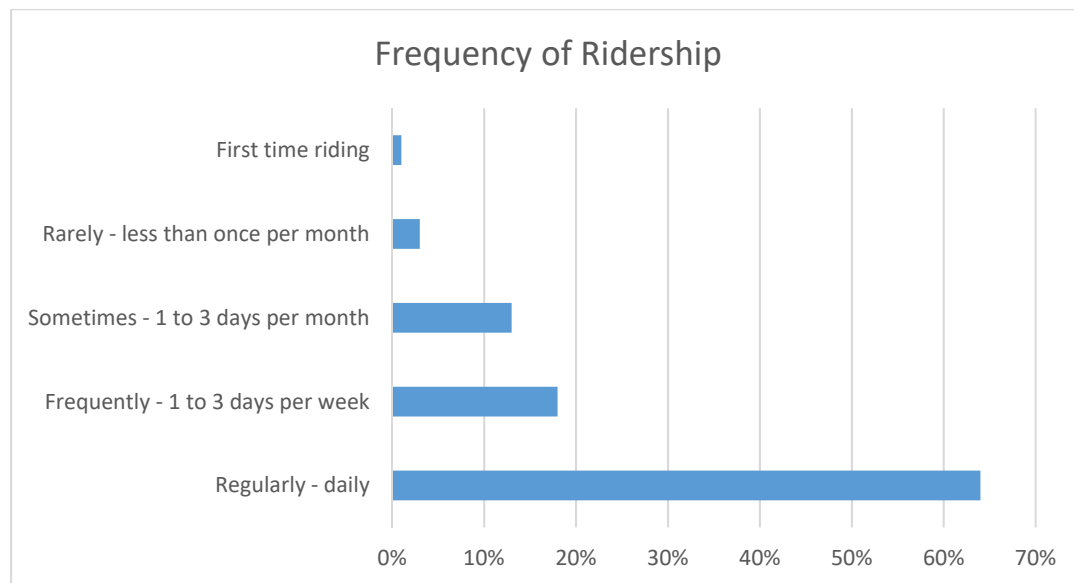


Figure 3.9: Trip Purpose

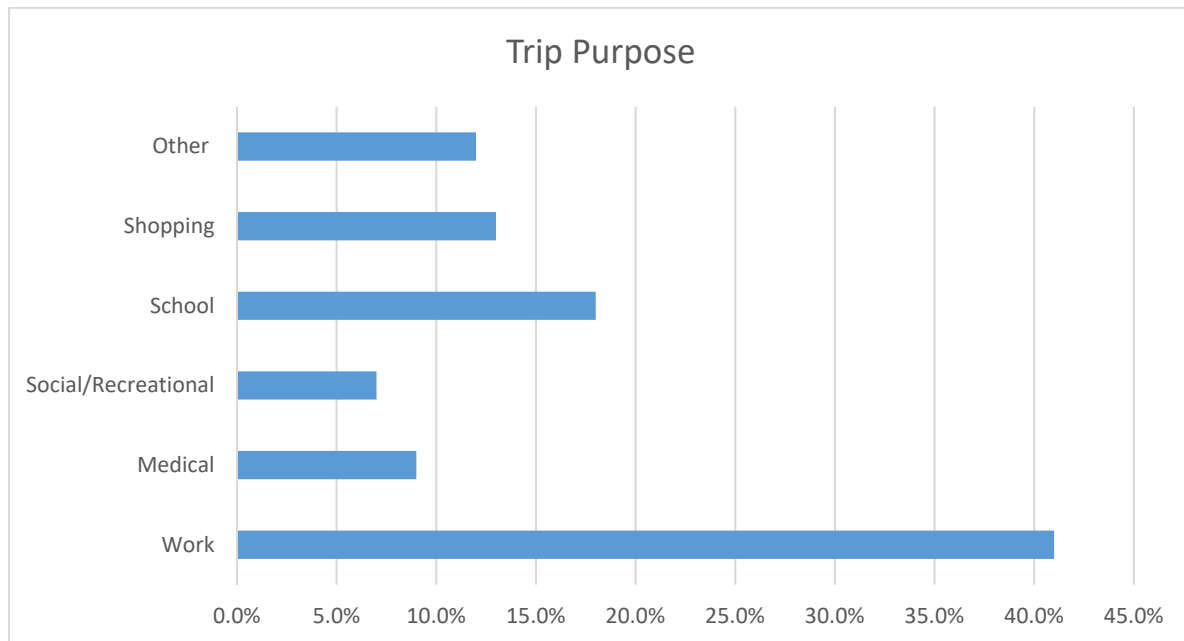


Figure 3.10: Access to Bus Stop

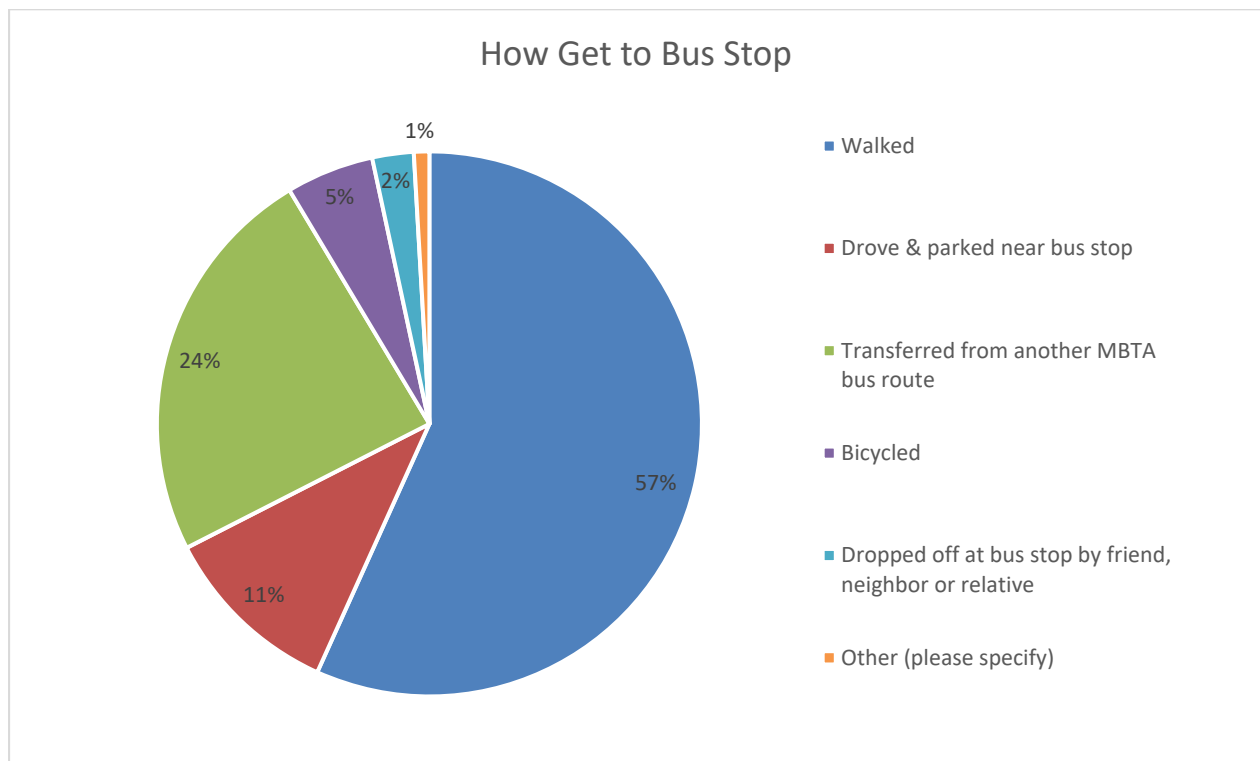
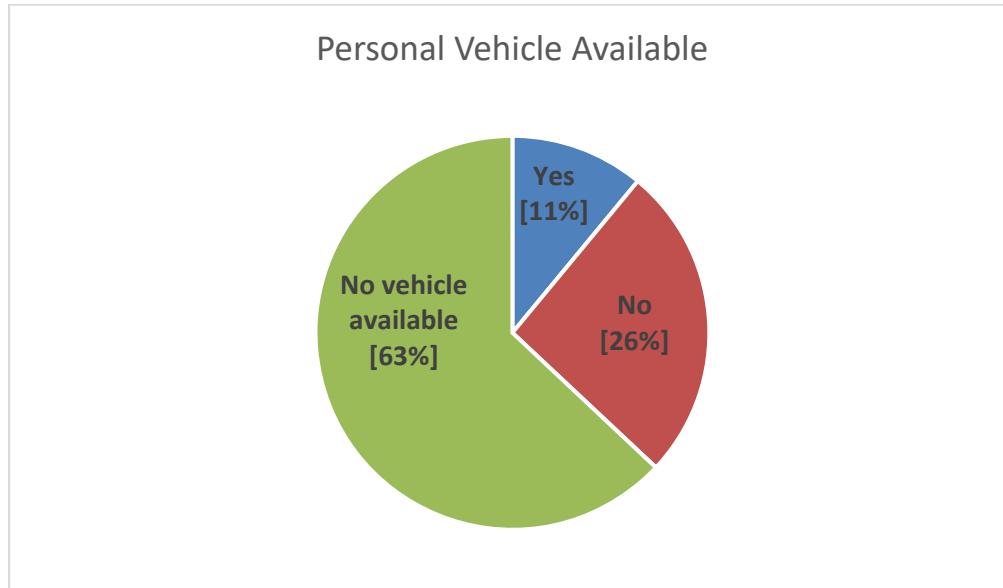


Figure 3.11: If you have a personal vehicle, could you have used it instead of riding the bus today?

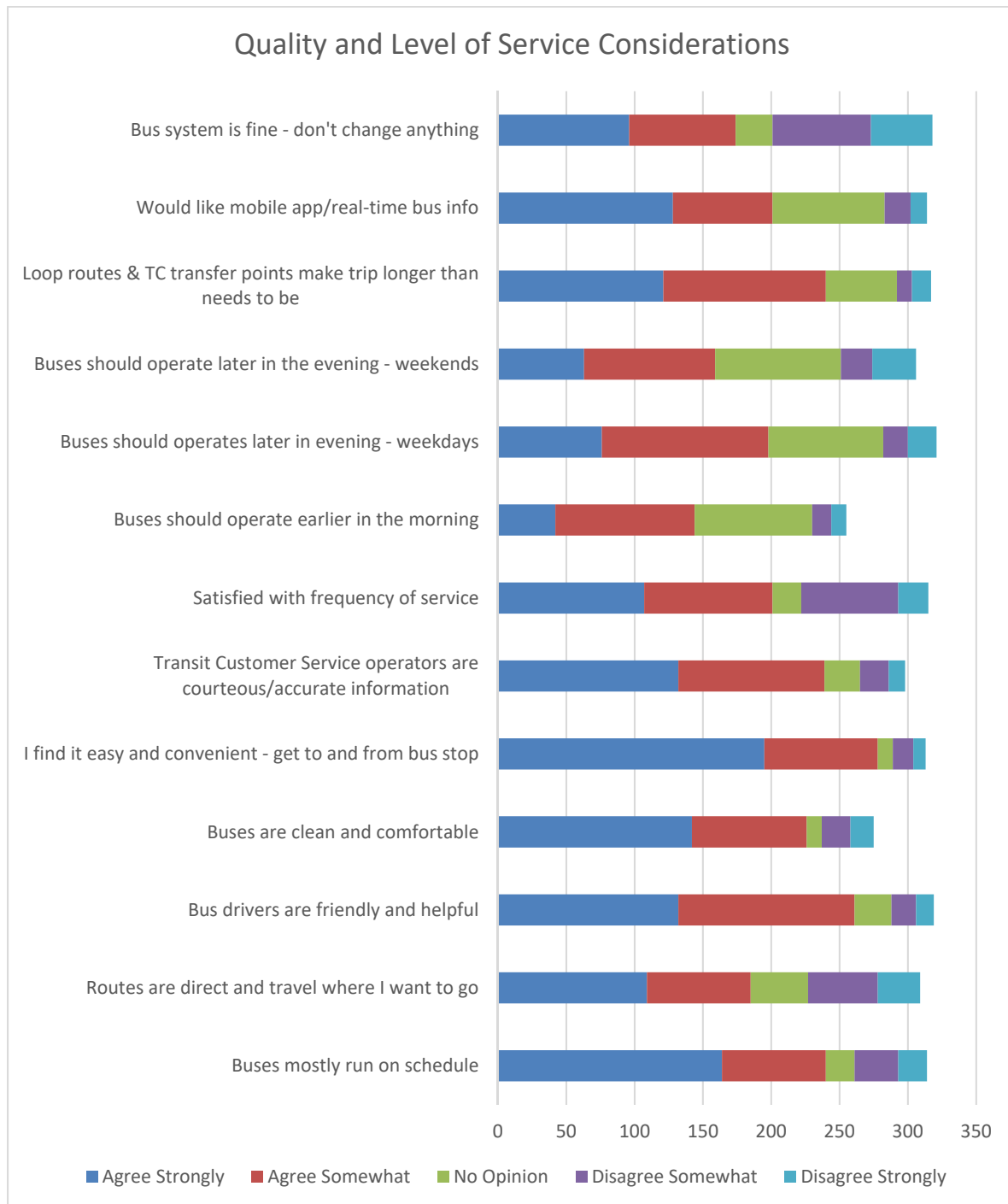


Quality of Service: Understanding the qualitative aspects of MBTA service delivery is important in the evaluation of current transit performance. As a part of the process, the survey asked participants to provide feedback on various qualitative factors including:

- Convenience of service
- Transit travel time
- On-time performance
- Level of service in terms of “should operate” earlier in the morning or later in the evening
- Overall satisfaction of transit service

As presented in Figure 3.12, the results of this question indicate that customers were generally satisfied with the overall quality of services including the majority of respondents indicating that the drivers were friendly & helpful. . The area of least satisfaction is that the loop routes and Transit Center transfer points make trip longer than it needs to be.

Figure 3.12: Quality and Level of Service Considerations



4.0 GOALS, OBJECTIVES AND PERFORMANCE EVALUATION

This chapter provides a framework for the continuing development of the public transportation system in the Morongo Basin. It consists of organizational goals and policies, managerial objectives and service design guidelines to help size and shape the transit system commensurate with local needs and aspirations through 2025 and beyond. It also addresses the need for performance metrics including key indicators, standards and targets to measure the progress of system development over time. The process builds on the performance measures that MBTA management currently utilizes in reporting performance to the MBTA Board and to the State Controller's office. The purpose of having established goals, policies and performance standards is to enable MBTA management and the Board to determine progress in achieving the overall mission of the agency.

MBTA Mission Statement:

“To provide safe and cost-effective mobility options throughout the Morongo Basin to serve the transportation needs of residents and visitors.”

4.1 Organizational Goals and Objectives

Realistic goals and objectives are necessary policy making and management tools for MBTA. Goals provide a high-level framework supporting the mission and purpose of the agency, as well as general direction to MBTA staff for moving the system forward consistent with community preferences and expectations. It is understood that some goals are long-term and may not be completely fulfilled for many years.

4.1.1 System Goals

- Offer Effective Programs and Services - Provide service designs and levels of service that positively respond to demonstrated market needs for pre-scheduled and mobility-on-demand travel in the Morongo Basin.
- Focus on Mobility Management – Engage in public-private partnerships expand mobility options for residents in areas that cannot sustain conventional fixed route and demand response services.
- Operate Efficiently and Productively - Provide public transportation services that are financially sustainable within existing local, state, and federal funding programs in a cost-efficient manner.
- Deliver High Quality Service - Ensure that all services fulfill customer expectations for high quality service including safety, reliability, convenience and comfort.

4.1.2 Objectives and Policies

Managerial objectives and operating policies supply the structure for translating goals into actions and for defining a process to monitor and evaluate system performance consistent with locally defined expectations. Objectives are intermediate targets that represent significant

accomplishments toward more generalized goals. Defined objectives should be attainable generally within the time span of perhaps two to five years, and subsequently extended, revised or replaced as warranted by conditions. Agency policies reflect the intent of the MBTA Board in the practices utilized by all employees to deliver quality transit service in all respects. Key policies are described in the following sections.

- **Safety First** - Actively implement and practice safety, training and loss prevention methods to minimize vehicle accidents and injuries to MBTA customers, employees and the public. Accidents and onboard incidents risking customer injuries should be minimized using a combination of employee training, customer education, timely vehicle maintenance, employee recognition program, and investigation of accidents and incidents, among others.
- **Reliability** - Ensure that MBTA vehicles operate as scheduled with consistently high on-time performance in all service modes. Key performance indicators include:
 - **Missed Trips** - A one-way trip not completed or arriving at the terminal point behind schedule by more than one-half of the headway for fixed route service, or outside of the scheduled pick-up window for paratransit and on-demand services. Total monthly missed trips should not exceed one percent (1%) of all scheduled trips.
 - **Late Trips** - A one-way trip that passes consecutive time points more than five minutes behind the published time for fixed route service, or more than 20 minutes behind scheduled pick-up window for paratransit and on-demand services. Total monthly late trips should not exceed five percent (5%) of all scheduled trips.
 - **Early Trips** - A one-way trip that passes consecutive time points ahead of the published time for fixed route service or arrives more than 20 minutes ahead of scheduled pick-up window for paratransit and on-demand services. Total monthly early trips should be less than one percent (1%) of all scheduled trips.
 - **Transfer Coordination** – Paratransit and on-demand services should be designed to minimize transfer wait times to/from accessible fixed route service at designated transfer points.
 - **Road Call Frequency** - The average number of vehicle miles operated between road calls is a key measure of vehicle reliability. While no standard is proposed, reasonable efforts should be made to minimize road calls. A road call is any in-service vehicle malfunction requiring a maintenance response in the field and resulting in a schedule delay of 20 minutes or more.
- **Vehicle Condition and Availability** - All buses operating in revenue service must be dependable to minimize missed trips and service disruptions. Key performance indicators include:
 - **Fleet Age** - The average age of the revenue vehicle fleet should not exceed one-half of the useful life of the vehicles by category per Federal Transit Administration definition (Circular 9030.1A).

- Spare Vehicle Ratio - MBTA should maintain spare vehicles equal to 20% of the maximum peak number required to provide for daily service. The spare ratio applies individually to vehicle types per FTA definition.
- Fleet Management Plan – Key activities including preventive maintenance inspections, running repairs, component rebuilds and rehabilitation, which are important components of asset management, shall be documented in a maintenance plan and updated annually.
- Comfort and Convenience - To be attractive to current and future customers, MBTA service should be perceived to be a comfortable travel option relative to other travel options. Key performance measures range from vehicle cleanliness to seating availability, onboard heating and air conditioning operability, condition of bus stops and waiting areas, access to real-time schedule and vehicle location information, simplified fare payment, and other amenities.
 - Seating Availability - Generally all customers should have access to a seat while riding MBTA buses. During peak hours when standees may occur, passenger loads should not exceed 125% of seated capacity on consecutive trips in the same direction.
 - Onboard Conditions - All revenue vehicles should be equipped with operable heating and air conditioning units as seasonal weather conditions warrant.
 - Bus Stop Amenities – Improvements ranging from sheltered waiting area and benches to real-time bus arrival information, to bike lockers and parking should be concentrated at major bus stops in the Hwy 62 corridor and at existing transit centers.

4.2 Service Design Criteria

Design criteria include a combination of static indicators and active measures of transit system functionality that reflect system concept, level of service preferences, customer expectations and peer performance thresholds. Design criteria define the form and function of the transit system based on three primary service characteristics:

- Service coverage refers to the effective reach of the transit network. The transit operating environment in the Morongo Valley can be challenging for fixed route service, which depends on development density and complete streets to attract large numbers of walk-up customers at bus stops. On the other hand, the concentration of commercial and institutional destinations along a single cross-valley corridor offers a solid foundation for enhanced fixed route transit service. Complementary paratransit service coverage is the same as the fixed route system. The transit system should provide convenient access to as many residents, businesses and other destinations as possible within fiscal limitations.
 - Residential Access - One measure of system coverage is the percentage of total service area residents with access to service. Access standards are defined by service mode

measured in terms of walking distance to the nearest bus stop for fixed route service; and response time for on-demand personal mobility on demand (PMOD) service.

- Access to Non-residential Destinations - Major business and institutional trip generators for employment and commercial activities are heavily concentrated in the Hwy 62 corridor. Key locations include:
 - *Medical Facilities* - Hi-Desert Medical Center, MCAGCC Base Hospital, medical offices and out-patient facilities.
 - *Schools* - Copper Mountain College, area public area high schools (Black Rock, Twentynine Palms, Yucca Valley) and middle schools (La Contenta MS, Twentynine Palms JHS).
 - *Shopping Centers* - Walmart, two Stater Brothers locations,
 - *Public Facilities* - government offices, human service agencies, libraries and senior centers are frequent destinations for transit riders, particularly youth and senior citizens.
- Service frequency refers to the interval of time or “headway” between consecutive buses passing a given point along a route. Transit users universally prefer high-frequency service, which by industry definition means 15 minutes or better headways. As long-range design objective targets 15-minute weekday service frequency is an appropriate long-range design target for MBTA’s cross-valley Route 1. The recommended five-year objective is to improve headways to 30 minutes on weekdays and Saturdays on all segments of Route 1, and to implement hourly service on Sundays. Because complementary paratransit and on-demand Flex services do not operate on a fixed schedule, service frequency is best defined by the percentage of passenger demand that cannot be accommodated on the system.
- Service span refers to the days and hours during which transit service is provided on a route. Beginning and ending times for complementary paratransit service should be comparable to the fixed route service.

4.3 Performance Monitoring and Evaluation Framework

Performance metrics provide the mechanisms needed to monitor and evaluate whether adopted objectives are being achieved. When possible, performance measures should include quantifiable indicators based on frequently reported operating statistics, such as total ridership, service hours and miles operated, capital and operating costs incurred, fare revenues collected, schedule reliability, system safety, or similar parameters. There are four main features of the performance monitoring framework:

1. **The performance monitoring system should build upon the foundation of performance measures required by state and federal laws and regulations.** The following provides the performance measures that are required by either Title VI or the Transportation Development Act. Please note that some of the performance measures below are not recommended for

being part of the core set of performance standards. Several of the performance standards are required but may not be as important to track on a regular basis by MBTA management and reviewed by the MBTA Board. The following performance standards are required by Transportation Development Act in the State Controller report and Triennial Performance Audit:

- Farebox recovery ratio
- Operating cost per passenger
- Operating cost per vehicle service hour
- Passengers per vehicle service hour
- Passengers per vehicle service mile (every three years: Triennial Performance Audit)
- Vehicle service hours per employee (every three years: Triennial Performance Audit)

Required by Title VI Program:

- Vehicle load (every three years: annual report)
- Vehicle headways (every three years: annual report)
- On-time performance
- Service availability standard (every three years: annual report)
- Vehicle assignment policy (every three years: annual report)

2. **Establish a minimum and target performance standard.** A target performance standard is what MBTA would strive to achieve over a five-year period. A minimum standard is the floor of what would be considered acceptable performance.
3. **Distinguish Performance among different service types.** Different performance measures for systemwide, fixed route and Ready Ride. Performance be tracked by Highway Route, Palm Springs Intercity, Neighborhood Shuttles, and Ready Ride services, and systemwide to reflect the different service objectives.
4. **Not meeting minimum performance standards should trigger a review of performance and evaluate potential mitigating measures.** It is important to establish a feedback loop when performance is not met or when evaluating pilot projects recommended in this SRTP.

4.4 Performance Metrics

Transit industry performance measurement best practices are reflected in *TCRP Report 88: A Guidebook for Developing a Transit Performance-Measurement System*, and the *Report on California Transit Performance Measures* prepared for Caltrans by the Mineta Institute. TCRP Report 88 identifies over 400 transit performance measures divided into seven categories:

1. Service Availability measures the quantity of transit access based on when (*i.e.*, span), where (*i.e.*, coverage and stop location), and how often (*i.e.*, frequency) transit services are available. These are primarily design criteria that do not fluctuate except when consciously reset by budgetary or policy changes. Therefore, they do not need to be monitored, measured and reported on a routine basis.
2. Service Delivery measures the quality of customers' day-to-day transit travel experience in terms of service reliability, comfort and convenience. Key service quality indicators

include network coverage, service span and frequency, available capacity (loading condition), and utilization (ridership and productivity). This group includes both measures of dynamic conditions that require continual monitoring and frequent reporting on a monthly or quarterly basis, as well as relatively static design criteria.

3. Safety/Security measures the likelihood that an accident will occur involving customers, or that a customer or employee will become a crime victim while using transit. Examples of performance measures in this category include accident rates per 100,000-mile, injury accidents per passenger miles, and quantity of safety devices and personnel. These are dynamic measures of preferred outcomes that warrant continual monitoring and quarterly reporting.
4. Community Impact measures quality-of-life impacts on service area communities in terms of access to employment, economic growth and productivity, personal mobility and finances, pollution reduction, and equitable distribution of transit service. These are primarily preferred outcomes that are attainable over a multi-year timeframe. As such, they require regular monitoring and periodic reporting.
5. Maintenance measures the safety, reliability and condition of revenue vehicles in terms of average fleet age and mileage, road calls per 100,000 miles, conformance to scheduled maintenance inspections, among others. These are dynamic measures of preferred outcomes that warrant continual monitoring and quarterly reporting.
6. Financial Performance measures how efficiently resources are deployed to meet travel demand within budgetary constraints. Key performance measures include net cost per revenue hour and per customer boarding applied to individual routes, and farebox recovery generally applied to the system.
7. Agency Administration measures organizational efficiency in terms of employee productivity (e.g., vehicle miles per employee), employee relations, and the percentage of the total operating budget consumed by general and administrative (G&A) expenses. These are dynamic measures of preferred outcomes that warrant ongoing monitoring and annual reporting.

4.4.1 Fixed Route Performance Indicators

Key performance indicators for MBTA fixed route services are summarized in Exhibit 4.1. These metrics provide the basis for service evaluation and most directly influence proposed changes to the level of service operated on individual routes at various times of the service day. Transit monitors key performance indicators on an ongoing basis through monthly reports.

Exhibit 4.1: MBTA Fixed Route Key Performance Indicators

Key Performance Indicator	Measure	Standard
Cost Efficiency	Cost per revenue hour	Base year + CPI
Service Effectiveness	Passengers per revenue hour	15 per hour New service (< 2 yrs.) – 10 per hour

Preferred outcome metrics are summarized in Exhibit 4.2. These are active indicators of dynamic performance of system functions such as transportation operations, maintenance, and administration. A new measure – annual transit rides per capita – replaces Percentage annual increase in total boardings as an indicator of ridership growth,

Exhibit 4.2. MBTA Fixed Route Preferred Outcomes

Preferred Outcome	Measure	Target
Ridership Growth	Annual Rides per Capita	
Reliability	Schedule adherence (percent on-time)	95% >
	Missed trips	< 1%
	Miles between road calls	14,000
Safety	Preventable accidents per 100K miles	< 1.5
	Passenger injuries per 100K miles	< 1.0
Customer Service	Bi-annual survey results	Rating of 3.0 or better
	Complaints per 100K customer boardings	< 100

The SRTP also identified various management and marketing initiatives as part of the performance measurement system. These actions are inherent to transit system management and do not necessarily demand dynamic quantitative measurement. Examples cited in the SRTP include:

- Employ technology cost effectively
- Annual marketing program
- Public information program
- Community association memberships and attendance
- Participation in community events
- Participation in industry conferences

4.2.2 Ready Ride Performance Metrics

Key performance indicators for Ready Ride (paratransit) services are summarized in Exhibit 4.3.

Exhibit 4.3: Ready Ride Key Performance Indicators

Key Performance Indicator	Measure	Standard
Cost Efficiency	Cost per revenue hour	Base year + CPI
	Cost per revenue mile	
Service Effectiveness	Passengers per revenue hour	2.5 >
	Net cost per passenger	Base year + CPI
Cost Effectiveness	Farebox recovery (% of total operating cost)	10%

Ready Ride service design guidelines are summarized in Exhibit 4.4. These are static measures used to shape service design and optimize the distribution of system resources as well as ensure legislative compliance. The targets indicate desired FY 2024 attainment thresholds.

Exhibit 4.4: Ready Ride Service Design Criteria

Design Criteria	Measure	Target
Service Coverage	Percent residents served within $\frac{3}{4}$ -mile of a fixed route bus route	100%
Service Span	Operating days of service	Same as fixed route system
Average Wait Time		
Transit Travel Time	Time relative to comparable travel via personal vehicle	< 1.5x personal vehicle travel time

Preferred outcome metrics are summarized in Exhibit 4.5. These are active indicators of dynamic performance of system functions such as transportation operations, maintenance, and administration.

Exhibit 4.5: Ready Ride Service Preferred Outcomes

Preferred Outcome	Measure	Target
Ridership Growth	Percentage annual increase in total boardings	Population growth
Reliability	Schedule adherence (percent on-time)	90% >
	Missed trips	< 2%
	Miles between road calls	10,000
Safety	Preventable accidents per 100K miles	< 1.5
	Passenger injuries per 100K miles	< 1.0
Customer Service	Percentage of calls handled w/i 5 seconds	
	Complaints per 100K customer boardings	< 100

5.0 OVERVIEW OF TRANSIT SYSTEM

This chapter provides a foundation for understanding MBTA's existing services and programs including fixed route local and commuter operations, Ready Ride paratransit service, and regional taxicab administration.

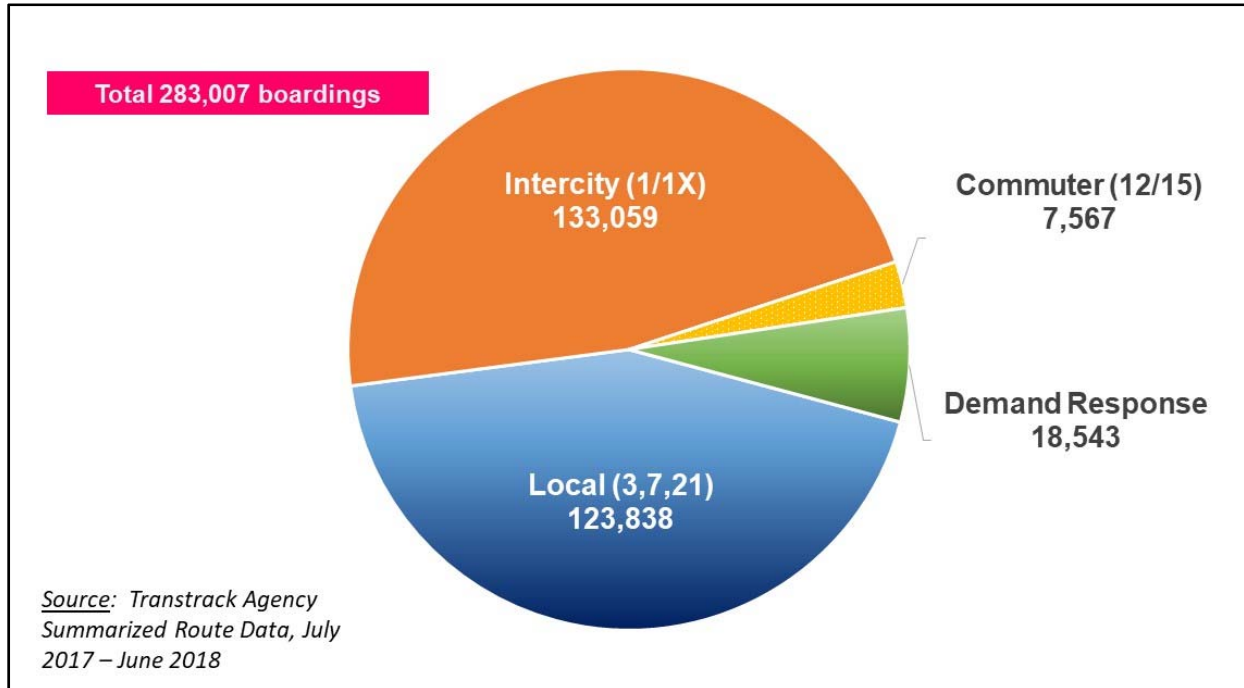
5.1 Services and Programs

MBTA operates three transit service modes:

- Local bus (MB) consisting of a cross-valley route and five neighborhood circulator routes;
- Commuter bus (CB) with two regional routes to Palm Springs; and
- Ready Ride demand responsive (DR) service primarily for older adults and persons with disabilities.

These services generated a total of 283,007 customer boardings in FY 2018. Seen in Exhibit 5.1, intercity (cross-valley) and neighborhood local fixed routes covering Twentynine Palms, Joshua Tree, Yucca Valley and Landers accounted for nearly 91% of total ridership. Ready Ride generated 6.5% and commuter fixed routes less than three percent of total system boardings.

Exhibit 5.1: MBTA System Ridership by Service Mode, FY 2018



5.2 Financial Profile

Historical financial performance statistics are compiled in Exhibit 5.2. Total FY 2018 operating expenses for all modes were slightly over \$3.0 million, offset by \$383,000 of farebox revenue

resulting in a net operating cost of \$2.62 million. Total operating expenses increased by one-third in the past five years; averaging 6.7% per year.

Service expansion accounted for one-quarter of the increase in system cost. Revenue hours operated increased by 8.3% (1.7% annually) and revenue miles increased by 4.9% (1.0% annually) in the last five years. Farebox revenue increased by 6.8% during the same period (1.4% annually), although a comparison to FY 2014, which was the year before the most recent fare increase, belies the fact that fare revenues have declined by 19.8% since FY 2015, the first year of the fare increase. Farebox recovery declined by 20% (4% annually) during the five-year period to 12.7% of total operating expenses, reflecting the combined effects of operating expenses rising at roughly twice the general inflation rate and a 23% ridership decline from FY 2014 to FY 2018. These data suggest the need for further fare adjustments early in the next five-year planning cycle.

Exhibit 5.2: MBTA System Financial Results, FY 2014-2018

FY	Total Operating Cost	Fare Revenue	Net Operating Cost	Farebox Recovery	Average Fare	Annual Boardings	Net Cost per Boarding	Revenue Vehicle Hours	Net Cost per Hour	Revenue Vehicle Miles	Net Cost per Mile
2014	\$2,249,875	\$358,445	\$1,891,430	15.9%	\$0.98	366,700	\$5.16	33,174	\$57.02	684,367	\$2.76
2015	\$2,815,295	\$477,396	\$2,337,899	17.0%	\$1.45	329,218	\$7.10	35,239	\$66.34	757,666	\$3.09
2016	\$2,662,446	\$410,637	\$2,251,809	15.4%	\$1.33	308,046	\$7.31	32,824	\$68.60	655,623	\$3.43
2017	\$2,838,638	\$405,251	\$2,433,387	14.3%	\$1.45	280,247	\$8.68	32,447	\$75.00	644,084	\$3.78
2018	\$3,002,411	\$382,646	\$2,619,765	17.7%	\$1.35	283,007	\$9.26	35,922	\$72.93	718,199	\$3.65
Change - 5 yrs	33.4%	6.8%	38.5%	11.1%	38.3%	-22.8%	79.5%	8.3%	27.9%	4.9%	32.0%
Change - average	6.7%	1.4%	7.7%	2.2%	7.7%	-4.6%	15.9%	1.7%	5.6%	1.0%	6.4%

Exhibit 5.3 isolates FY 2018 operating expenses for local (*i.e.*, intercity and neighborhood) routes from the system total. These routes cost \$2.2 million or nearly 73% of total system operating expenses. They generated nearly \$290,000 of farebox revenue resulting in a net operating cost of \$1.9 million. Total operating expenses increased by 41% between FY 2014 and FY 2018; averaging 8.2% per year.

Service expansion accounts for one-third of the increase. Revenue hours operated increased by 13.7% (2.7% annually) and revenue miles increased by 12.1% (2.4% annually) in the last five years. Farebox revenue increased by 6.1% during the same period (1.4% annually), although a four-year comparison to FY 2015 is more indicative of current trends, as noted above. Farebox recovery declined by 25% (5% annually) to 13.3% of total operating expenses, reflecting both the rise in operating costs and a 25.7% decline in FY 2018 revenue compared to FY 2015, the first year of the most recent fare increase.

Exhibit 5.3: Local / Intercity Service Financial Results, FY 2014-2018

FY	Total Operating Cost	Fare Revenue	Net Operating Cost	Farebox Recovery	Average Fare	Annual Boardings	Net Cost per Boarding	Revenue Vehicle Hours	Net Cost per Hour	Revenue Vehicle Miles	Net Cost per Mile
2014	\$1,546,749	\$273,312	\$1,273,437	17.7%	\$0.82	331,743	\$3.84	23,352	\$54.53	499,385	\$2.55
2015	\$2,017,763	\$390,273	\$1,627,490	19.3%	\$1.30	300,400	\$5.42	25,779	\$63.13	578,856	\$2.81
2016	\$1,987,516	\$316,608	\$1,670,908	15.9%	\$1.13	279,324	\$5.98	23,258	\$71.84	491,556	\$3.40
2017	\$2,024,413	\$309,547	\$1,714,866	15.3%	\$1.21	255,411	\$6.71	23,096	\$74.25	484,365	\$3.54
2018	\$2,183,610	\$289,914	\$1,893,696	13.3%	\$1.13	256,897	\$7.37	26,554	\$71.31	559,914	\$3.38
Change - 5 yrs	41.2%	6.1%	48.7%	-24.9%	37.0%	-22.6%	92.0%	13.7%	30.8%	12.1%	32.6%
Change - average	8.2%	1.2%	9.7%	-5.0%	7.4%	-4.5%	18.4%	2.7%	6.2%	2.4%	6.5%

Exhibit 5.4 isolates FY 2018 operating expenses for MBTA commuter routes (12, 15) from the system total. These routes cost almost \$259,000, representing 8.6% of total system operating expenses. Commuter routes generated nearly \$55,000 of farebox revenue resulting in a net operating cost approaching \$204,000. Total operating expenses increased by 32% between FY 2014 and FY 2018; averaging 6.4% per year.

Level of service nominally declined during the same period. Total revenue hours operated decreased by 3.3% (0.7% annually) and revenue miles decreased by 5.9% (1.2% annually) since FY 2018. Farebox revenue declined by 8.3% (1.7% annually) during the same period, while farebox recovery declined by more than 30% reflecting the rise in operating costs and a 28.5% decline in commuter ridership over the past five years.

Exhibit 5.4: Commuter Service Financial Results, FY 2014-2018

FY	Total Operating Cost	Fare Revenue	Net Operating Cost	Farebox Recovery	Average Fare	Annual Boardings	Net Cost per Boarding	Revenue Vehicle Hours	Net Cost per Hour	Revenue Vehicle Miles	Net Cost per Mile
2014	\$195,761	\$59,845	\$135,916	30.6%	\$5.65	10,588	\$12.84	2,440	\$55.70	78,440	\$1.73
2015	\$223,441	\$54,116	\$169,325	24.2%	\$7.09	7,629	\$22.19	2,426	\$69.80	78,168	\$2.17
2016	\$311,240	\$63,162	\$248,078	20.3%	\$7.18	8,797	\$28.20	2,359	\$105.16	75,174	\$3.30
2017	\$257,816	\$54,285	\$203,531	21.1%	\$7.72	7,032	\$28.94	2,362	\$86.17	74,817	\$2.72
2018	\$258,557	\$54,887	\$203,670	21.2%	\$7.25	7,567	\$26.92	2,360	\$86.30	73,777	\$2.76
Change - 5 yrs	32.1%	-8.3%	49.8%	-30.6%	28.3%	-28.5%	109.7%	-3.3%	54.9%	-5.9%	59.3%
Change - average	6.4%	-1.7%	10.0%	-6.1%	5.7%	-5.7%	21.9%	-0.7%	11.0%	-1.2%	11.9%

Exhibit 5.5 isolates FY 2018 operating expenses for Ready Ride paratransit service from the system total. Ready Ride cost about \$560,000, representing 18.7% of total system operating expenses. It generated nearly \$38,000 of farebox revenue resulting in a net operating cost over \$522,000. Total operating expenses increased by 10.4% between FY 2014 and FY 2018; averaging 2.1% per year.

Level of service declined during this period. Revenue hours operated decreased by 5.1% (1.0% annually) and revenue miles decreased by 20.7% (4.1% annually) since FY 2014. Farebox revenue increased by nearly 50% (9.9% annually), while farebox recovery increased by 35.5%. However, the comparison to FY 2014 overstates recent revenue gains. When compared to FY 2015, the first year of the most recent fare increase, revenue gain is 14.7% (2.9% annually) over four years.

Exhibit 5.5: Ready Ride Service Financial Results, FY 2014-2018

FY	Total Operating Cost	Fare Revenue	Net Operating Cost	Farebox Recovery	Average Fare	Annual Boardings	Net Cost per Boarding	Revenue Vehicle Hours	Net Cost per Hour	Revenue Vehicle Miles	Net Cost per Mile
2014	\$507,365	\$25,288	\$482,077	5.0%	\$1.04	24,369	\$19.78	7,382	\$65.30	106,542	\$4.52
2015	\$574,091	\$33,007	\$541,084	5.7%	\$1.56	21,189	\$25.54	7,034	\$76.92	100,642	\$5.38
2016	\$363,690	\$30,867	\$332,823	8.5%	\$1.55	19,925	\$16.70	7,207	\$46.18	88,893	\$3.74
2017	\$556,409	\$41,419	\$514,990	7.4%	\$2.33	17,804	\$28.93	6,989	\$73.69	84,902	\$6.07
2018	\$560,244	\$37,845	\$522,399	6.8%	\$2.04	18,543	\$28.17	7,008	\$74.54	84,508	\$6.18
Change - 5 yrs	10.4%	49.7%	8.4%	35.5%	96.7%	-23.9%	42.4%	-5.1%	14.1%	-20.7%	36.6%
Change - average	2.1%	9.9%	1.7%	7.1%	19.3%	-4.8%	8.5%	-1.0%	2.8%	-4.1%	7.3%

5.3 Fleet and Facilities

Revenue Vehicles – MBTA owns a total of 33 revenue vehicles listed in Exhibit 5.6. Most are assigned interchangeably between service modes. The fleet is comprised mostly of small light-duty buses with seating capacity ranging from 14 to 16 passengers, and medium duty



buses with seating capacity ranging from 22 to 31 passengers. All vehicles are CNG-powered and fully accessible to customers boarding using wheelchairs or other mobility aids. The average of age of the fleet is 6.1 years. The fleet includes eight buses over 10 years old that are rarely deployed, and six new small buses that are just entering fixed route service.

Exhibit 5.6: MBTA Active Revenue Vehicle Fleet, March 2019

Number of Vehicles	Manufacturer - Brand - Type	Model Year	Fuel Type	Length (feet)	Capacity (seats + standees)	FY 2018 Mileage	Total Mileage	Modal Assignment		
								MB	CB	DR
6	SPC Senator Startrans II	2018	CNG	25	14 + 0	0	0	x	x	
1	GLV Entourage cutaway	2016	CNG	33	28 + 0	11,920	66,536	x		x
6	El Dorado Class C cutaway	2015	CNG	24	16 + 0	37,844	91,001	x		x
1	Goshen G Force	2013	CNG	36	24 + 0	0	196,010	x		x
3	El Dorado Class H bus	2012	CNG	36	27 = 0	40,356	258,457	x		x
4	Goshen Class G	2011	CNG	33	30 + 0	30,264	226,638	x		x
1	GMC ARBOC Spirit	2011	CNG	22	15 + 0	4,058	156,255			x
3	GMC Glaval SM cutaway	2009	CNG	28	22 + 2	7,048	282,686	x	x	
2	GMC Glaval cutaway	2008	CNG	33	30 + 2	0	326,210		x	
2	GMC Glaval SM cutaway	2008	CNG	22	16 + 0	5,465	221,631	x	x	
1	ZZZ Transmark	2007	CNG	33	31 + 0	0	247,732	x	x	
1	Ford Aerotech	2006	CNG	25	14 + 0	0	47,923	x		
1	El Dorado Ford cutaway	2004	CNG	25	16 + 0	0	148,841	x		
1	FRD MST bus	2004	CNG	31	26 + 0	0	318,220	x		
33	Total Revenue Vehicles									

Source: FY 2019 NTD Form A-30 per MBTA staff

Maintenance Facility - MBTA's Operations Center located at 62405 Verbena Road in Joshua Tree is a modern facility constructed on roughly 3.5 acres containing a dispatch/operations area and administrative offices, maintenance shop, an exterior CNG fueling station, and outside parking for 35-40 buses. Public access to the facility is via Verbena Drive from Sunburst Street to the west. Bus-only access to Hwy 62 is available via an 800-foot long access-controlled roadway extending south from the facility. Exiting buses turn west on Hwy 62 with assistance of a short acceleration lane.

Customer Facilities – MBTA owns two transit centers serving as hubs for the fixed route network and contributing to system visibility.

- Twentynine Palms Transit Center (TPTC)** is located on the south side of Cactus Drive between Adobe Road and Ocotillo Avenue. The 0.4-acre off-street facility contains four bus stops on opposite sides of a two-way concrete driveway running between Cactus Drive and Adobe Road. The facility is equipped with shelters, benches, landscaping and operator restroom.



- Yucca Valley Transit Center (YVTC) is located on the north side of Yucca Trail opposite Joshua View Drive. The 1.3-acre off-street facility contains eight bus stops around an island platform with shelters, benches, landscaping and restroom.



Additionally, three MBTA routes serve Caltrans' Yucca Valley Park-Ride lot located at the northeast corner of CA 62 and Kickapoo Trail. The facility contains 136 commuter parking spaces and is accessed from the north via Benicia Trail and from the west via Kickapoo Trail.

Bus Stops – MBTA serves over 200 posted bus stops and allows flag stops at safe locations. All posted stops are denoted by bus stop signs and most stops are equipped with benches, shelters, advertising frames and trash cans as indicated. Solar power is installed at 13 stops, although currently none have lighting. Similarly, none of the stops currently have bike racks.



5.4 Fixed Route System

MBTA's fixed route operations are comprised of six local routes and two commuter routes covering the communities of Twentynine Palms, Joshua Tree, Yucca Valley and Landers; and connecting to the Marine Corps Air Ground Combat Center (MCAGCC) and to the City of Palm Springs. Transit has a long history in the Morongo Basin, beginning in 1938 with the Twentynine Palms Stage & Express running a single bus between Twentynine Palms to Banning with stops in Joshua Tree, Yucca Valley and Morongo Valley along the way. The bus provided passenger service, package delivery, and even patient transport in the years before there was an ambulance in the region, which was sparsely populated until the 1950s.

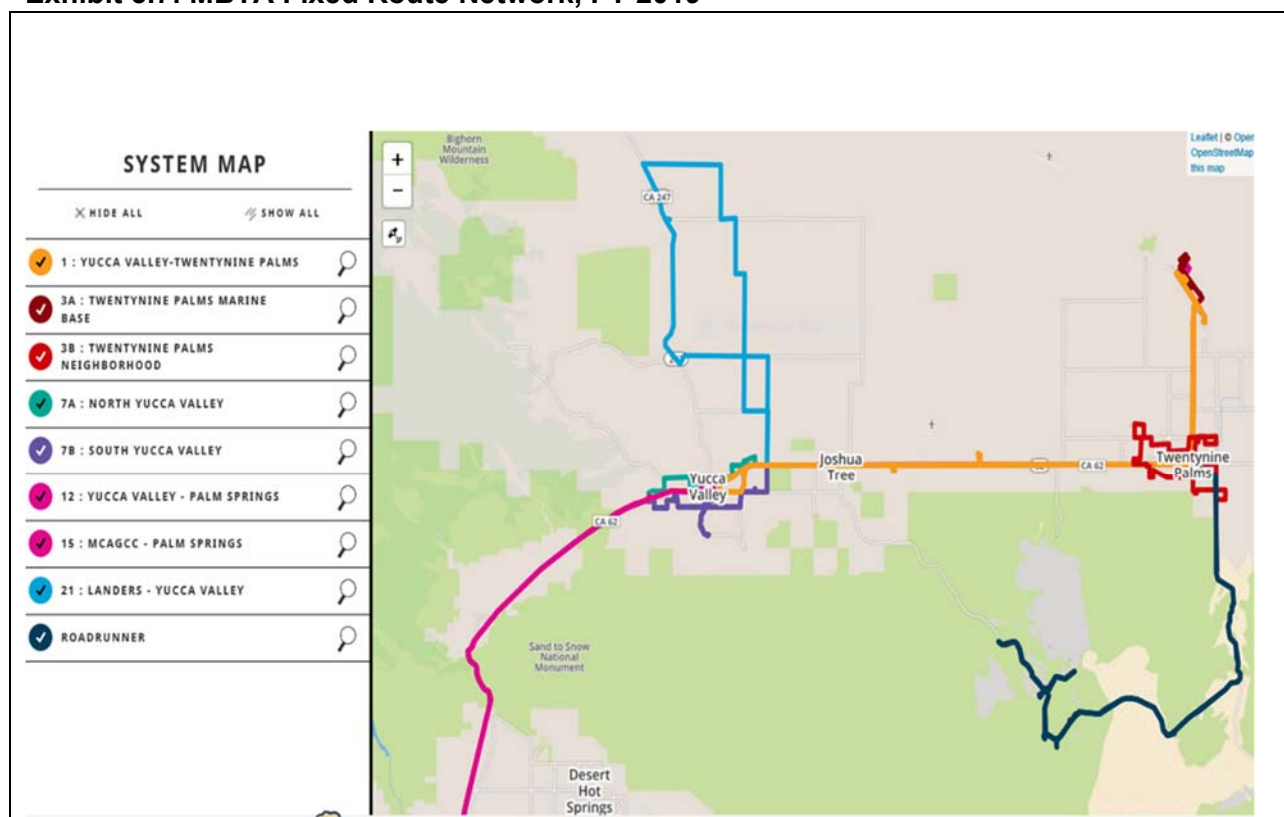


With the influx of military personnel to the region during the Korean War, bus service expanded with new stops at Morongo, Twentynine Palms Junction, Whitewater, Palm Springs Junction, and Cabazon. Service to Palm Springs was added around 1955 after daily commercial airline service began at the Palm Springs Municipal Airport. The Marine Corps Training Center (now MCAGCC) was commissioned in 1957. MBTA was formed in 1989 to take responsibility for local transit suited to an expanding geographic footprint, diversification of travel patterns and discontinuation of private sector service; followed by designation of Joshua Tree National Park in 1994.

5.4.1 System Design / Route Characteristics

The 2019 route network reflects the origins of pre-MBTA service with spinal coverage along Hwy 62 and regional transit connections to Palm Springs and MCAGCC. Displayed in Exhibit 5.7, the network is built around two transit hubs located 21 miles apart in Twentynine Palms (TPTC) and Yucca Valley (YVTC). Route 1/1X operates cross-valley service in the Hwy 62 corridor between transit centers, where timed transfers between neighborhood routes occur at the top of each hour. Routes 3A and 3B connect at TPTC and Routes 7A, 7B and 21 connect at YVTC. Route 12 provides commuter service (weekday peak-only) between YVTC and Palm Springs Airport; and Route 15 operates on Fridays, Saturdays and Sundays between MCAGCC and Palm Springs Airport via TPTC and YVTC.

Exhibit 5.7: MBTA Fixed Route Network, FY 2019



Level of service characteristics are presented by service day and route in Exhibit 5.8. Some fixed route service is available seven days per week; however early morning, evening and weekend schedules are limited. Core system operating hours are weekdays between 7:00 am and 6:00 pm, during which seven of eight routes are in service. MBTA does not operate on New Year's Day, Memorial Day, Independence Day, Labor Day, Thanksgiving Day, or Christmas. Regular day service is provided on all other holidays. Joshua Tree National Park Shuttle Service operated on all holidays during the Park's operational peak season.

Exhibit 5.8: MBTA Fixed Route Level of Service Characteristics, FY 2019

Route	Span	Frequency (minutes)	Terminal Hub	Alignment
<u>Weekday</u>				
1 Hwy 62	6:00a – 10:07p	60	TPTC, YVTC	Hwy 62 (3A night)
3A Twentynine Palms - MCAGCC	7:00a – 5:50p	60	TPTC	Adobe, on base loop
3B Twentynine Palms	7:00a – 5:55p	60	TPTC	1-way loop
7A Yucca Valley North	7:00a – 5:50p	60	YVTC	Hwy 62, Paxton, Sunnyslope
7B Yucca Valley South	7:00a – 5:50p	60	YVTC	Hwy 62, Onaga Trail, Palomar
12 Yucca Valley – Palm Springs	7:00a – 6:45p	3 round trips	YVTC	Hwy 62, Indian Cyn
15 MCAGCC – Palm Springs	5:00p – 8:30p	1 round trip	TPTC, YVTC	Adobe, Hwy 62, Indian Cyn
21 Landers Loop	6:45a – 6:16p	75 - 160	YVTC	Yucca Mesa, “fig 8” loop
<u>Saturday</u>				
1 Hwy 62	7:15a – 10:00p	60 -120	TPTC, YVTC	Adobe, Hwy 62
15 MCAGCC – Palm Springs	10:00a – 7:35p	2 round trips	TPTC, YVTC	Adobe, Hwy 62, Indian Cyn
<u>Sunday</u>				
1X Hwy 62	10:00a – 4:40p	2 round trips	TPTC, YVTC	Adobe, Hwy 62
15 MCAGCC – Palm Springs	10:00a – 7:35p	2 round trips	TPTC, YVTC	Adobe, Hwy 62, Indian Cyn

Route 1 Hwy 62 operates daily service between the TPTC and YVTC. The alignment covers the predominant commercial corridor containing most employment, institutional, retail and other non-residential destinations in the Morongo Basin service area. The alignment is mostly direct with deviations from Hwy 62 limited to Copper Mountain College and Hi Desert Medical Center.

- Weekday service runs hourly from 6:00 am until 10:07 pm with 15 trips in each direction. Selected trips (1 morning, 3 evening) extend east from YVTC three miles to the Yucca Valley Park-Ride lot at Kickapoo Trail. Three evening trips extend north from TPTC eight miles to the Marine Base overlaying the daytime alignment of Route 3A, which stops running around 6:00 pm.
- Saturday service runs alternating hourly and two-hourly from 7:15 am until about 10:00 pm. The schedule includes eight trips in each direction. All trips operate between MCAGCC and the Yucca Valley Park-Ride lot.

- Sunday service consists of one morning and one afternoon round trip operating between MCAGCC and the Yucca Valley Park-Ride lot.

In addition to MBTA transit centers, key destinations served by Route 1/1X include:

- Avalon Urgent Care Center
- Bella Vista Mobile Home Park
- Copper Mountain College
- Hi Desert Medical Center
- Joshua Tree National Park Visitor Center
- Joshua Tree Post Office
- San Bernardino County Court House
- Stater Brothers Markets – Yucca Valley & Twentynine Palms
- Twentynine Palms Plaza
- Vons Market Plaza
- Walmart / Home Depot Supercenter
- Yucca Valley Civic Center / Library / Senior Center
- Yucca Valley Park-Ride Lot
- Route 3A destinations (weeknights and weekends only)

Route 3A Twentynine Palms Marine Base provides weekday-only service on Adobe Road (both directions) between the TPTC and MCAGCC. The schedule includes 11 round trips with hourly departures between 7:00 am and 5:00 pm. The service day ends at 5:50 pm. Key destinations accessed by Route 3A include:

- Adobe Villa Apartments (Raymond Way)
- Hacienda Mobile Home Park (Raymond Way)
- Himalaya Plaza / DMV office (Indian Trail)
- MCAGCC Commissary
- MCAGCC Hospital
- MCAGCC Post Exchange
- Twentynine Palms Civic Center and Library

Route 3B Twentynine Palms provides weekday-only service on a one-way (clockwise) loop circulating through Twentynine Palms neighborhoods situated within a generally rectangular eight-square mile area bounded by Two Mile Road on the north, Utah Trail on the east, Baseline Road on the south, and Encelia Drive on the west. The schedule includes 11 loop trips with hourly departures from TPTC between 7:00 am and 5:00 pm. The service day ends at 5:55 pm. Key destinations accessed by Route 3B include:

- Joshua Tree National Park Visitor Center
- Monument Alternative High School
- Stater Brothers Market (Encelia Drive)
- Twentynine Palms Civic Center / Library



- Twentynine Palms High School
- Twentynine Palms Junior High School
- US Post Office – Twentynine Palms

Route 7A Yucca Valley North provides weekday-only service on a one-way (counter-clockwise) loop circulating through Yucca Valley neighborhoods situated within a roughly seven-square area north of Hwy 62 between La Contenta Road and Kickapoo Trail. Route 7A operates one-way eastbound on Hwy 62 and one-way westbound primarily along Paxton Road and Sunnyslope Drive. The schedule includes 11 round trips with hourly departures from YVTC between 7:00 am and 5:00 pm. The service day ends at 5:50 pm. Key destinations accessed by Route 7A include:

- Airway Medical Center
- Avalon Urgent Care Center
- Civic Center / Library / Museum / Senior Center
- Mohawk Apartments
- Social Security Office
- Stater Brothers Market
- US Post Office
- Walmart / Home Depot
- Yucca Valley Park-Ride Lot

Route 7B Yucca Valley South provides weekday-only service on a one-way (counter-clockwise) loop circulating through Yucca Valley neighborhoods situated within a roughly six-square area located south of Hwy 62 between La Contenta Road and Kickapoo Trail. Route 7B operates one-way westbound on Hwy 62 and eastbound along primarily Onaga Trail and Palomar Avenue. School-day route deviations serve Blackrock High School, La Contenta Middle School, and Joshua Springs School at bell times only. The schedule includes 11 round trips with hourly departures from YVTC between 7:00 am and 5:00 pm. The service day ends at 5:50 pm. Key destinations accessed by Route 7B include:

- Airway Medical Center
- Avalon Urgent Care Center
- Black Rock High School
- Civic Center / Library / Museum / Senior Center
- County Department of Social Services Complex
- Joshua Springs School
- La Contenta Middle School
- Social Security Office
- Stater Brothers Market – Yucca Valley West
- US Post Office – Yucca Valley
- Yucca Valley High School

Route 12 Yucca Valley - Palm Springs provides weekday-only commuter service with three round trips departing from YVTC at 7:00 am, 9:00 am and 4:40 pm; and departing from Palm

Springs Airport at 7:50 am, 10:10 am, and 5:40 pm. The service day ends at 6:45 pm. The schedule allows 50 minutes for the 31-mile one-way trip via Hwy 62 and Indian Canyon Road.

Route 15 MCAGCC – Yucca Valley – Palm Springs operates limited service on Fridays, Saturdays and Sundays between the MCAGCC and Palm Springs Airport. Friday service consists of one round trip departing from the base at 5:00 pm and departing from Palm Springs Airport at 7:00 pm. Saturday service consists of two trips departing from the Base at 10:00 am and 4:00 pm; and departing from Palm Springs Airport at noon and 6:00 pm. Sunday service consists of one round trip departing from the Base at 10:00 am and departing from Palm Springs Airport at noon; and one round trip departing from TPTC at 4:40 pm and departing from Palm Springs Airport at 6:00 pm.

Route 21 Landers Loop provides weekday-only route deviation service along a one-way “figure 8” loop covering a roughly 40-square mile area north of Yucca Valley bounded by Linn Road on the north, Yucca Mesa Road on the east, Buena Vista Drive on the south, and Old Woman Springs Road on the west. The daily schedule consists of six departures from YVTC between 6:45 am and 5:10 pm. The service day ends at 6:16 pm. Key destinations accessed by Route 21 include:

- Avalon Medical Center
- Halliday Market
- Mojave Market
- Stater Brothers Market – Yucca Valley East
- US Post Office - Landers
- US Post Office – Yucca Valley
- Walmart / Home Depot Center

5.4.2 Fixed Route Ridership and Productivity

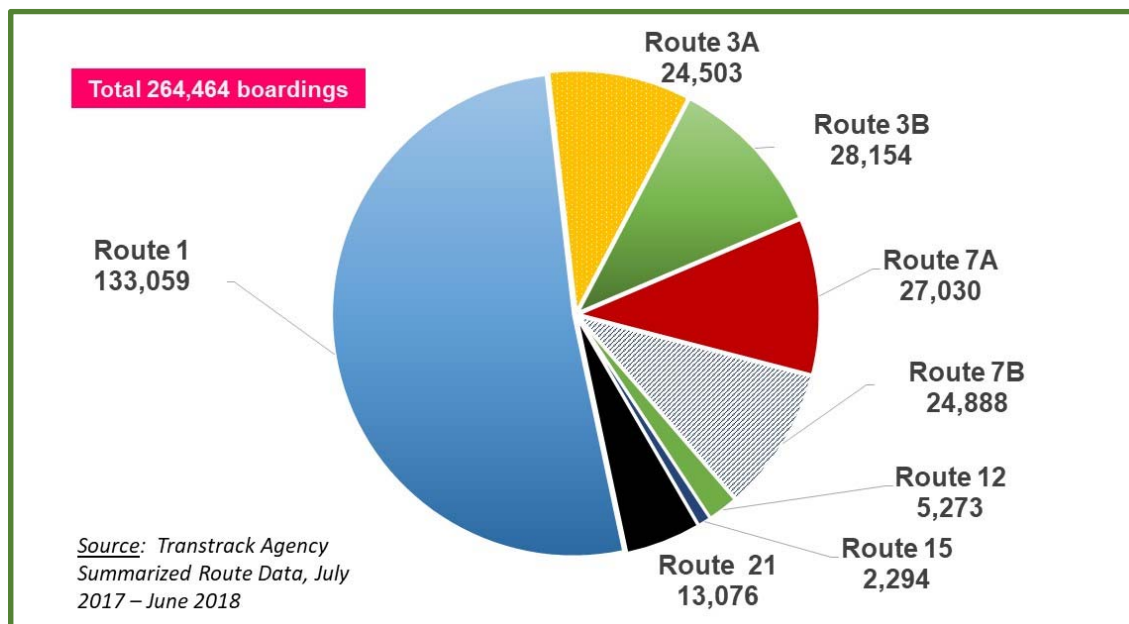
Key indicators of MBTA system performance include total ridership (*i.e.*, unlinked customer boardings, and service productivity expressed as the average number of boardings per revenue service hour. A five-year summary of fixed route ridership and productivity performance is shown in Exhibit 5.9. Service productivity declined by nearly one-third since FY 2014 to less than 10 boardings per revenue service hour in FY 2018. This is low by transit industry performance standards by MBTA peer agencies. The decline was fueled both decreased level of service (-13.7%) and ridership (-22.6%) during the last five years.

Exhibit 5.9: Fixed Route System Ridership & Productivity, FY 2014-2018

FY	Annual Boardings	Percent Change	Revenue Vehicle Hours	Boardings per Revenue Hour
2014	331,743	--	23,352	14.2
2015	300,400	-9.4%	25,779	11.7
2016	288,121	-4.1%	25,618	11.2
2017	255,411	-11.4%	23,096	11.1
2018	256,897	0.6%	26,554	9.7
Change - 5 yrs	74,846	-22.6%	13.7%	-31.9%
Change - average	14,969	-4.5%	2.7%	-6.4%

A distribution of FY 2018 total boardings by route is displayed in Exhibit 5.10. Intercity Route 1/1X accounted for half of all fixed route boardings; Twentynine Palms (3A/B) and Yucca Valley (7A/B) local route pairs each accounted for about 20%. Landers (21) generated five percent, and the commuter routes (12,15) less than three percent of total fixed route network boardings in FY 2018.

Exhibit 5.10: Fixed Route Ridership Distribution, FY 2018



Bicycles on Board – A total of 4,960 customers took their bicycles along with them on MBTA buses in FY 2018, representing 1.9% of total fixed route boardings. Nearly two-thirds of these



occurred on Route 1/1X, and less than two percent occurred on the regional commuter Routes 12 and 15. Among the neighborhood routes, bicycle usage was more common in Twentynine Palms (3A/3B) and Landers (21), and less prevalent in Yucca Valley (7A/7B).

Lift-assisted Boardings - A total of 11,757 customers boarded with lift assistance in FY 2018, representing 4.6% of total fixed route boardings. Nearly 55% of these occurred on Route 1/1X, and 1.4% occurred on the regional commuter Routes 12 and 15. Among the neighborhood routes, lift-assisted boardings were heavily skewed toward Yucca Valley where Routes 7A and 7B collectively accounted for almost 35% of the system total, compared to 8.5% in Twentynine Palms (3A/3B), and just 0.4% in Landers (21).

Route Deviation Boardings – The MBTA website indicates that deviated fixed route service is available within ¾-mile of any route for persons unable to reach a regular fixed route bus stop. However, MBTA fare-type data records deviation boardings for Route 21 only because an incremental fare is charged. These data indicate that 4.3% (538) of total Route 21 boardings (13,076) in FY 2018 involved a deviation at the transit trip origin or destination. Route 21 Landers Loop will deviate up to 1.5 miles from the published route. Deviations are by reservation only and requests must be made at least one prior to scheduled travel time. All deviations are subject to approval due to distance and road conditions.

Ridership trends are reflected in monthly boarding data displayed by route in Exhibit 5.11 for the 30-month period of July 1, 2016 through December 31, 2018. Average daily ridership by route covering the same period is displayed in Exhibit 5.12. These data point to nominally increasing ridership in the Hwy 62 corridor (1/1X) and nominally declining ridership on the other routes in the network. When compared to the overall decline since FY 2014, the data suggest that the rate of decline in ridership and productivity is leveling off. Route-specific observations include:

- Cross-valley Route 1/1X ridership is trending upward with a significant spike above 13,000 monthly boardings in October 2018.
 - Average weekday ridership increased from 395 boardings in December 2016 to 433 boardings in December 2017 and 484 boardings in December 2018.
 - Average Saturday ridership increased from 182 boardings in December 2016 to 195 boardings in December 2017 and 213 boardings in December 2018.
 - Average Sunday ridership increased from 28 boardings in December 2016 to 50 boardings in December 2017 and 45 boardings in December 2018.
- Neighborhood local route (Routes 3A/B, 7A/B, 21) ridership ranges between 2,000 – 3,000 monthly boardings, or 100 – 150 boardings per weekday per route.

- Average ridership in Twentynine Palms (3A/B) declined from 192 boardings in December 2016 to 182 boardings in December 2017 and 167 boardings in December 2018.
- Average ridership in Yucca Valley (7A/B) increased from 180 boardings in December 2016 to 206 boardings in December 2018.
- Average ridership in Landers (21) increased slightly from 48 boardings in December 2016 to 49 boardings in December 2017 but declined to 41 boardings in December 2018.
- Commuter Routes 12 and 15 providing service to Palm Springs are basically flat over the 30-month period with low ridership and productivity.
 - Average weekday ridership between Yucca Valley and Palm Springs (12) increased from 17 boardings in December 2016 to 22 boardings in December 2017 and 20 boardings in December 2018.
 - Average Route 15 ridership on Fridays was flat with two boardings for three consecutive years in December 2016, 2017 and 2018.
 - Average Route 15 ridership on Saturdays increased from 16 boardings in December 2016 to 25 boardings in December 2017 but declined to 11 boardings in December 2018.
 - Average Route 15 ridership on Sundays increased from one boarding in December 2016 to four boardings in December 2017 but declined to two boardings in December 2018.

Exhibit 5.11: Fixed Route Monthly Ridership Trends, July 2016 – December 2018

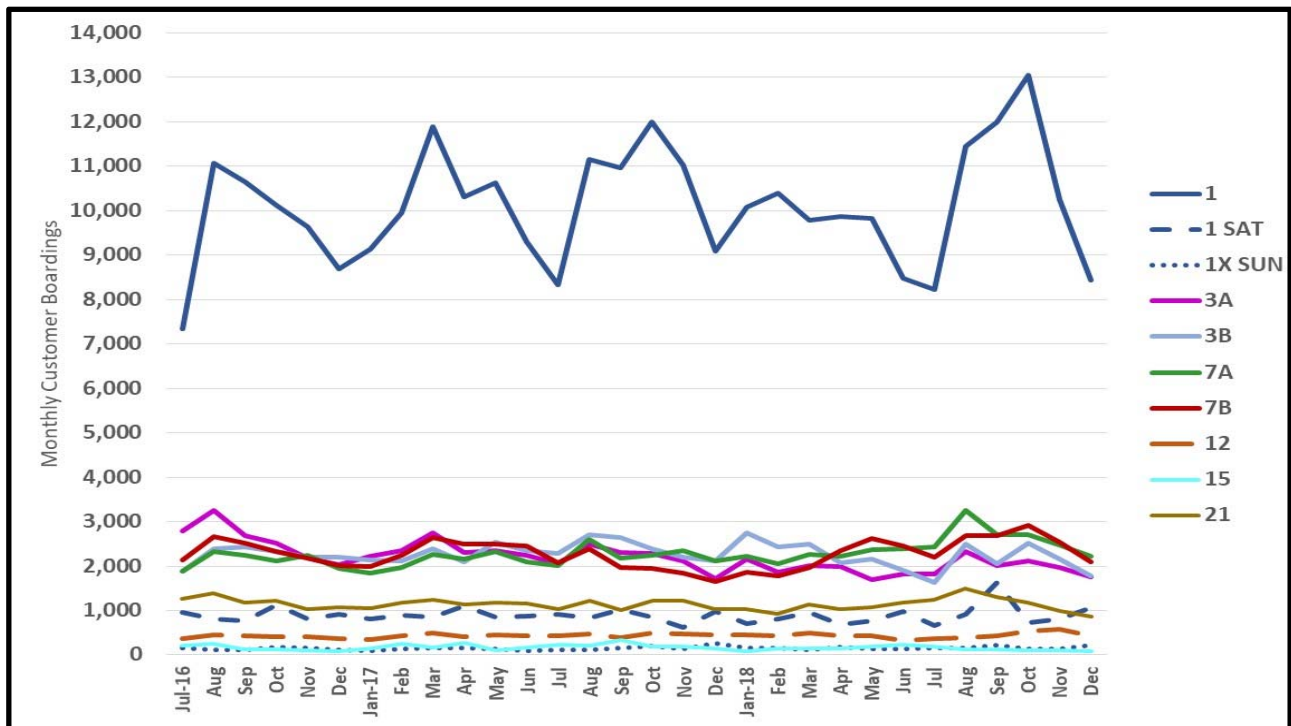
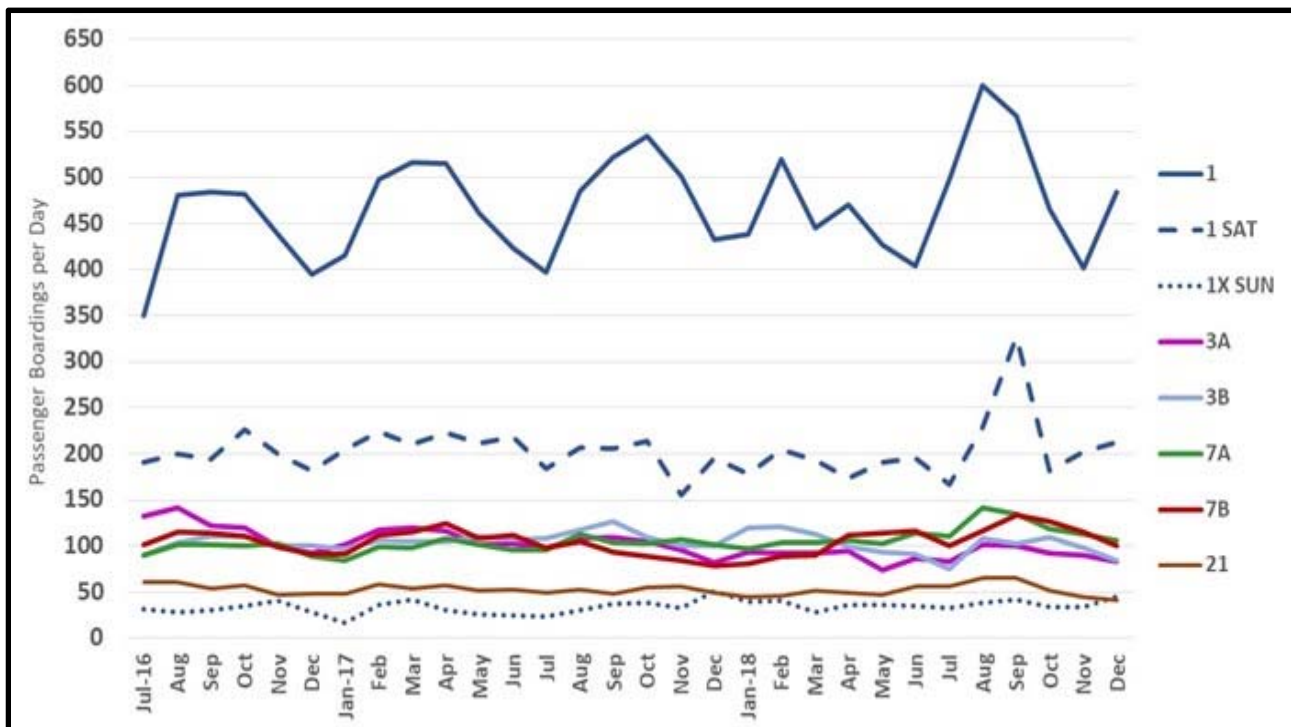


Exhibit 5.12: Average Daily Ridership by Route, July 2016 – December 2018



These graphics are based on monthly and average daily ridership statistics compiled in tabular format in Exhibits 5.13 and 5.14.

Exhibit 5.13: Fixed Route Monthly Ridership by Route and Service Day, July 2016 – December 2018

Fiscal Year	Route / Month	1	1 SAT	1X SUN	3A	3B	7A	7B	12	15	21	Total
2017	Jul '16	7,346	956	155	2,783	1,886	1,893	2,134	362	214	1,263	18,992
	Aug	11,063	800	111	3,245	2,390	2,321	2,658	457	249	1,381	24,675
	Sep	10,654	775	122	2,676	2,432	2,236	2,510	435	123	1,183	23,146
	Oct	10,128	1132	174	2,524	2,325	2,109	2,327	409	115	1,211	22,454
	Nov	9,633	801	160	2,182	2,202	2,250	2,181	414	104	1,024	20,951
	Dec	8,686	910	111	2,030	2,200	1,947	2,009	366	92	1,065	19,416
	Jan '17	9,141	817	84	2,228	2,131	1,843	1,996	354	141	1,044	19,779
	Feb	9,949	897	145	2,353	2,120	1,977	2,239	424	242	1,169	21,515
	Mar	11,885	842	165	2,742	2,396	2,258	2,652	487	174	1,239	24,840
	Apr	10,314	1,112	153	2,315	2,091	2,155	2,487	415	278	1,134	22,454
	May	10,622	847	127	2,339	2,543	2,324	2,488	459	113	1,180	23,042
	Jun	9,307	873	100	2,247	2,355	2,099	2,444	431	174	1,149	21,179
2018	Jul	8,331	922	117	2,059	2,279	2,001	2,064	432	235	1,039	19,479
	Aug	11,161	827	122	2,489	2,710	2,591	2,397	469	217	1,214	24,197
	Sep	10,974	1,026	150	2,296	2,651	2,183	1,960	397	341	1,009	22,987
	Oct	12,000	854	189	2,295	2,399	2,247	1,952	490	198	1,214	23,838
	Nov	11,039	619	130	2,106	2,198	2,350	1,852	470	195	1,221	22,180
	Dec	9,094	977	252	1,724	2,106	2,119	1,652	453	153	1,037	19,567
	Jan '18	10,089	714	157	2,152	2,756	2,221	1,853	451	93	1,023	21,509
	Feb	10,394	820	160	1,854	2,427	2,063	1,771	432	142	918	20,981
	Mar	9,794	963	112	2,018	2,489	2,272	1,968	500	152	1,127	21,395
	Apr	9,879	693	177	1,992	2,076	2,220	2,347	427	141	1,021	20,973
	May	9,820	763	142	1,701	2,154	2,368	2,620	429	197	1,075	21,269
	Jun	8,483	978	137	1,817	1,909	2,395	2,452	323	230	1,178	19,902
2019	Jul	8,237	665	161	1,821	1,639	2,438	2,207	368	178	1,235	18,949
	Aug	11,440	913	154	2,318	2,486	3,248	2,682	395	115	1,494	25,245
	Sep	12,005	1,634	211	2,011	2,060	2,697	2,678	423	130	1,310	25,159
	Oct	13,047	727	134	2,112	2,517	2,714	2,909	533	101	1,186	25,980
	Nov	10,254	808	136	1,970	2,154	2,470	2,540	569	99	989	21,989
	Dec	8,444	1,065	223	1,753	1,774	2,226	2,095	421	73	861	18,935
FY 17	6 mos.	118,728	10,762	1,607	29,664	27,071	25,412	28,125	5,013	2,019	14,042	262,443
FY 18		121,058	10,156	1,845	24,503	28,154	27,030	24,888	5,273	2,294	13,076	258,277
FY 19		63,427	5,812	1,019	11,985	12,630	15,793	15,111	2,709	696	7,075	136,257
Total		303,213	26,730	4,471	66,152	67,855	68,235	68,124	12,995	5,009	34,193	656,977

Exhibit 5.14: Fixed Route Average Daily Ridership by Route and Service Day, July 2016 – December 2018

Fiscal Year	Route / Month	1	1 SAT	1X SUN	3A	3B	7A	7B	12	15 FRI	15 SAT	15 SUN	21	Total
2017	Jul '16	350	191	31	133	90	90	102	17	3	38	2	60	1,106
	Aug	481	200	28	141	104	101	116	20	2	59	2	60	1,312
	Sep	484	194	31	122	111	102	114	20	1	29	1	54	1,261
	Oct	482	226	35	120	111	100	111	19	0	21	2	58	1,286
	Nov	438	200	40	99	100	102	99	19	1	22	4	47	1,170
	Dec	395	182	28	92	100	89	91	17	2	16	1	48	1,060
	Jan '17	416	204	17	101	97	84	91	16	1	33	2	47	1,108
	Feb	497	224	36	118	106	99	112	21	2	57	2	58	1,333
	Mar	517	211	41	119	104	98	115	21	2	39	2	54	1,323
	Apr	516	222	31	116	105	108	124	21	3	51	3	57	1,355
	May	462	212	25	102	111	101	108	20	1	25	2	51	1,220
	Jun	423	218	25	102	107	95	111	20	1	40	2	52	1,197
2018	Jul	397	184	23	98	109	95	98	21	2	42	3	49	1,122
	Aug	485	207	31	108	118	113	104	20	1	51	2	53	1,293
	Sep	523	205	38	109	126	104	93	19	2	65	3	48	1,334
	Oct	545	214	38	104	109	102	89	22	2	44	3	55	1,327
	Nov	502	155	33	96	100	107	84	21	11	34	1	56	1,199
	Dec	433	195	50	82	100	101	79	22	2	25	4	49	1,143
	Jan '18	439	179	39	94	120	97	81	20	1	21	1	44	1,134
	Feb	520	205	40	93	121	103	89	22	1	33	1	46	1,273
	Mar	445	193	28	92	113	103	89	23	2	28	1	51	1,168
	Apr	470	173	35	95	99	106	112	20	3	31	1	49	1,194
	May	427	191	36	74	94	103	114	19	1	46	3	47	1,152
	Jun	404	196	34	87	91	114	117	15	1	42	3	56	1,160
2019	Jul	497	166	32	83	75	111	100	17	2	41	2	56	1,181
	Aug	600	228	39	101	108	141	117	17	3	23	2	65	1,444
	Sep	567	327	42	101	103	135	134	21	1	23	2	66	1,521
	Oct	466	182	34	92	109	118	126	23	2	20	3	52	1,227
	Nov	402	202	34	90	98	112	115	26	3	20	2	45	1,148
	Dec	484	213	45	83	84	106	100	20	2	11	2	41	1,192

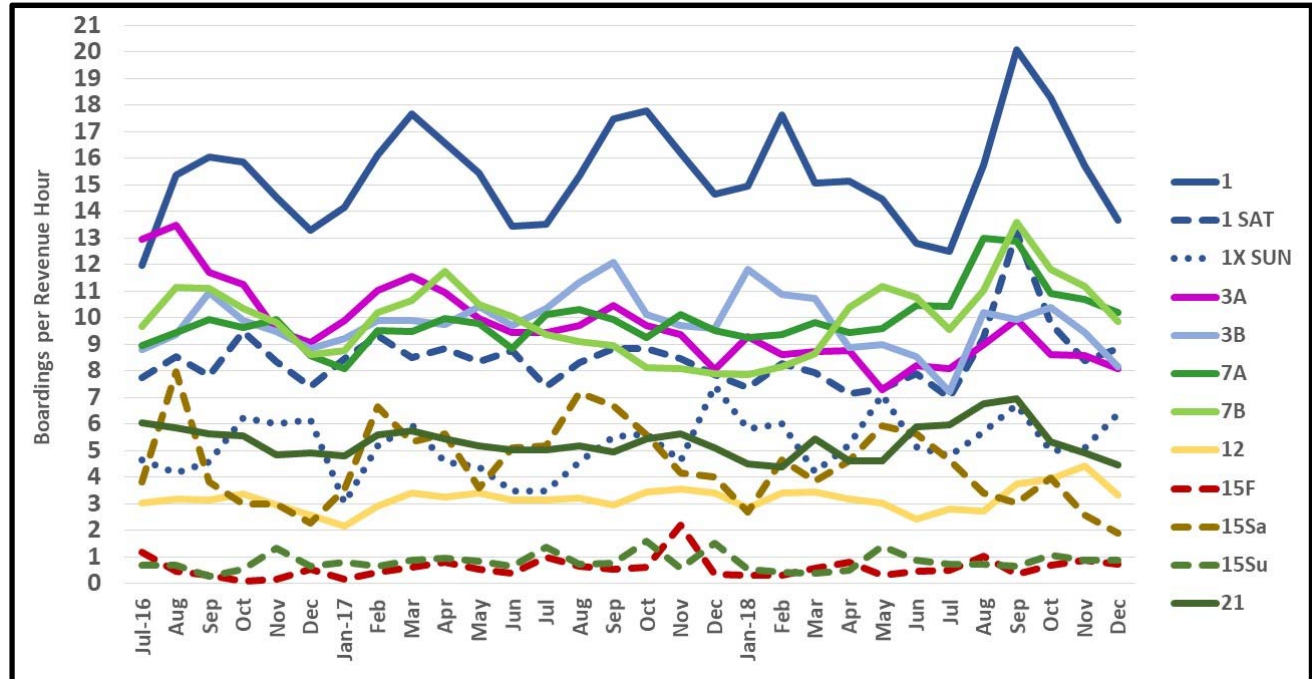
Service productivity by route is displayed over the 30-month period ending December 31, 2018 in tabular format in Exhibit 5.15 and graphically in Exhibit 5.16. Route-specific observations include:

- Intercity Route 1/1X is trending higher within a seasonal pattern of generally higher service productivity in the winter months.
 - Weekday service productivity ranges between 15- 18 boardings per hour in recent winter months, including a spike above 20 boardings per revenue hour in October 2018. Productivity averages 12 - 15 boardings per hour during the summer months.
 - Saturday service productivity ranges between 7 – 9 boardings per hour and similarly spiked to 13 boardings per hour in October 2018.
 - Sunday service productivity averages 3 -7 boardings per hour.
- Neighborhood route 3A/B, 7A/B, 21 productivities have not changed significantly during the period. The data suggests that the sharp productivity decline since FY 2014 is leveling off.
 - Twentynine Palms local routes 3A and 3B are trending slightly lower with average productivity ranging between 8 and 10 boardings per hour in recent months.
 - Yucca Valley local routes 7A and 7B are trending higher with average productivity improving from the 9-10 boardings per hour range in 2016 to 10-12 boardings per hour in recent months.
 - Landers local route 21 productivity is stable within a range of 4 – 7 boardings per hour.
- Commuter routes (12, 15) providing service to Palm Springs are basically flat over the 30-month period with low ridership and productivity.
 - Route 12 averages 2-4 boardings per revenue hour
 - Route 15 Saturday productivity is trending downward with a recent range of 2 – 6 boardings per revenue hour.
 - Route 15 Friday and Sunday services average less than one boarding per revenue hour.

Exhibit 5.15: Fixed Route Service Productivity by Route and Service Day, July 2016 – December 2018

Fiscal Year	Route / Month	1	1 SAT	1X SUN	3A	3B	7A	7B	12	15 FRI	15 SAT	15 SUN	21
2017	Jul '16	12.0	7.7	4.7	13.0	8.8	9.0	9.7	3.0	1.2	3.8	0.7	6.1
	Aug	15.4	8.5	4.2	13.5	9.4	9.5	11.2	3.2	0.5	8.0	0.7	5.9
	Sep	16.0	7.8	4.6	11.7	11.0	10.0	11.1	3.1	0.3	3.8	0.3	5.6
	Oct	15.9	9.5	6.2	11.3	9.9	9.6	10.4	3.4	0.1	3.0	0.6	5.6
	Nov	14.5	8.4	6.0	9.5	9.5	9.9	9.8	3.0	0.2	3.0	1.3	4.8
	Dec	13.3	7.4	6.2	9.1	8.8	8.6	8.6	2.6	0.5	2.3	0.6	4.9
	Jan '17	14.2	8.5	3.0	9.9	9.2	8.1	8.8	2.2	0.2	3.6	0.8	4.8
	Feb	16.1	9.3	5.2	11.0	9.9	9.5	10.2	2.9	0.4	6.6	0.7	5.6
	Mar	17.7	8.5	6.0	11.6	9.9	9.5	10.6	3.4	0.6	5.3	0.9	5.7
	Apr	16.6	8.8	4.6	11.0	9.7	10.0	11.8	3.2	0.8	5.6	1.0	5.5
	May	15.5	8.3	4.4	10.0	10.4	9.8	10.5	3.4	0.5	3.6	0.8	5.2
	Jun	13.5	8.8	3.5	9.4	9.7	8.9	10.1	3.1	0.4	5.1	0.7	5.0
2018	Jul	13.5	7.4	3.5	9.4	10.3	10.1	9.4	3.2	1.0	5.2	1.4	5.0
	Aug	15.3	8.3	4.6	9.7	11.3	10.3	9.1	3.2	0.6	7.2	0.7	5.2
	Sep	17.5	8.8	5.5	10.5	12.1	9.9	9.0	3.0	0.5	6.7	0.8	5.0
	Oct	17.8	8.8	5.6	9.7	10.1	9.3	8.1	3.5	0.6	5.6	1.6	5.4
	Nov	16.2	8.5	4.6	9.4	9.7	10.1	8.1	3.6	2.2	4.2	0.6	5.6
	Dec	14.6	7.9	7.4	8.1	9.6	9.5	7.9	3.4	0.3	4.0	1.5	5.1
	Jan '18	15.0	7.4	5.8	9.3	11.8	9.2	7.9	2.8	0.3	2.7	0.5	4.5
	Feb	17.6	8.3	6.0	8.6	10.9	9.4	8.2	3.4	0.3	4.7	0.4	4.4
	Mar	15.1	7.9	4.2	8.7	10.7	9.8	8.7	3.5	0.6	3.9	0.4	5.4
	Apr	15.2	7.1	5.2	8.8	8.9	9.4	10.4	3.2	0.8	4.6	0.5	4.6
	May	14.5	7.3	7.1	7.3	9.0	9.6	11.2	3.0	0.3	5.9	1.4	4.6
	Jun	12.8	7.9	5.1	8.2	8.5	10.4	10.8	2.4	0.5	5.6	0.9	5.9
2019	Jul	12.5	7.0	4.8	8.1	7.2	10.4	9.6	2.8	0.5	4.7	0.7	6.0
	Aug	15.7	9.3	5.7	9.0	10.2	13.0	11.0	2.7	1.0	3.4	0.7	6.8
	Sep	20.1	13.2	6.7	9.9	9.9	12.9	13.6	3.8	0.3	3.0	0.7	7.0
	Oct	18.3	9.8	5.0	8.6	10.4	10.9	11.8	4.0	0.7	4.0	1.1	5.3
	Nov	15.7	8.4	5.1	8.6	9.5	10.7	11.2	4.4	0.9	2.6	0.9	4.9
	Dec	13.7	8.8	6.4	8.1	8.2	10.2	9.9	3.3	0.7	1.9	0.9	4.4

Exhibit 5.16: Fixed Route Service Productivity Trends, July 2016 – December 2018

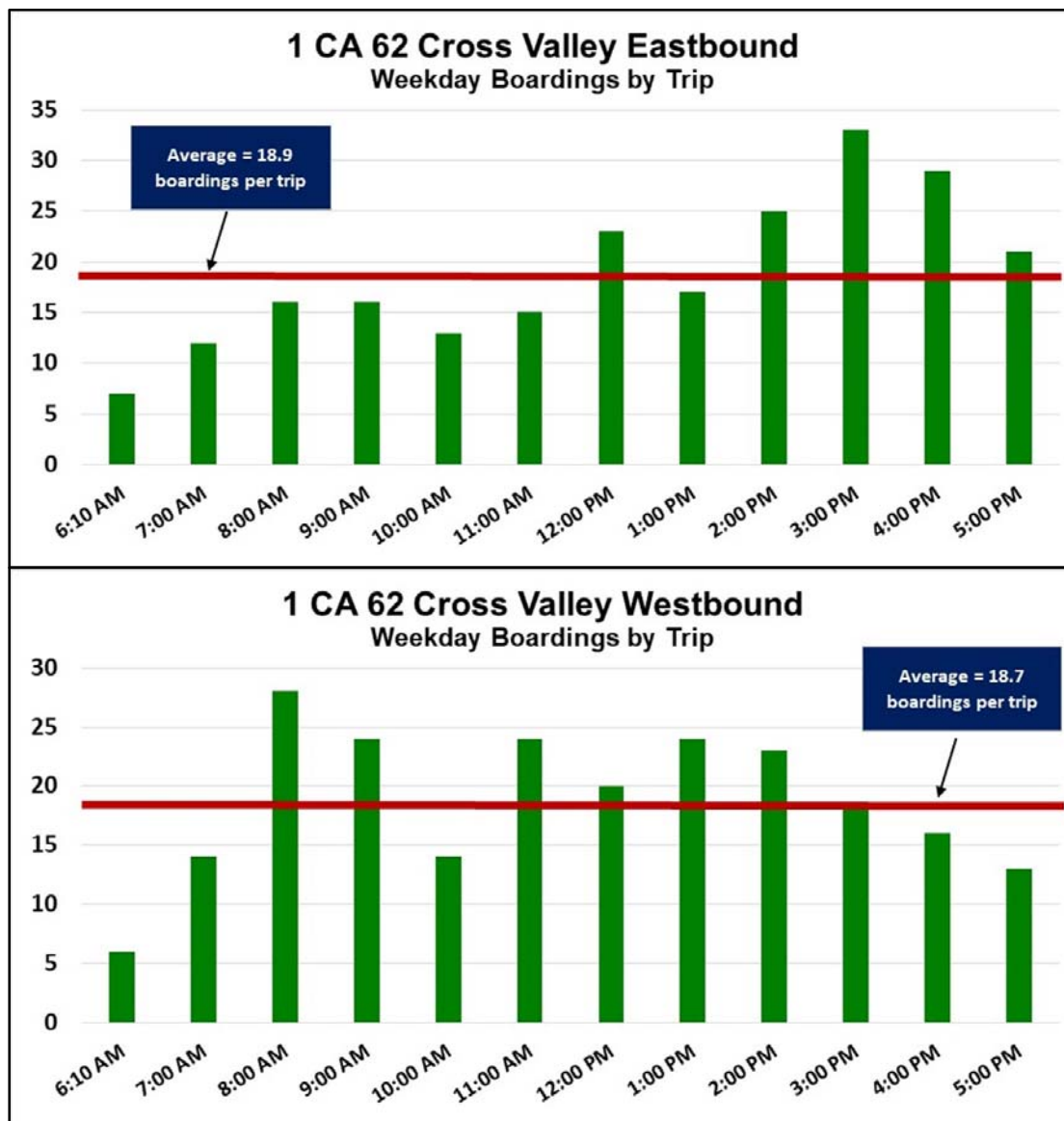


5.4.3 Capacity Analysis

This section examines capacity utilization of MBTA's fixed route services using the average number of boardings per scheduled trip as a key performance metric. The data is based on detailed onboard ridership counts (boardings and alightings) conducted in March 2019 for this SRTP.

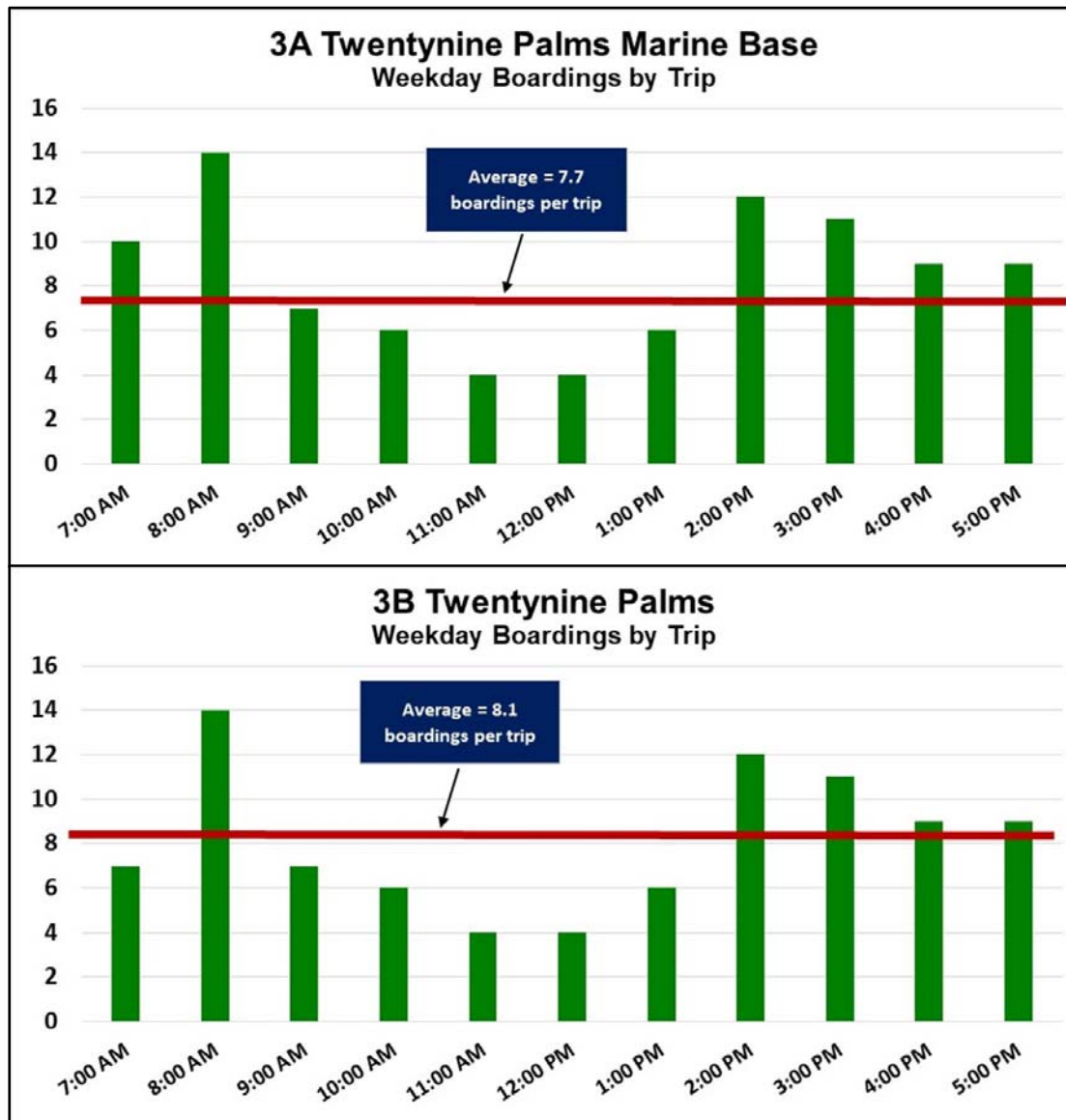
By a wide margin Route 1 is MBTA's best-utilized service averaging nearly 19 customer boardings per one-way trip (38 per round trip). Seen in Exhibit 5.17, the prevailing direction of customer travel is westbound toward Yucca Valley on morning trips, and eastbound toward Twentynine Palms on afternoon trips. Boarding volumes range from a high of 33 boardings on the 3:00 pm eastbound departure from Yucca Valley Walmart, to a low of six boardings on the 6:00 am westbound departure from MCAGCC and TPTC toward Joshua Tree and Yucca Valley. Four of 24 trips in the weekday schedule average 25 or more boardings, and half exceed the daily average boardings per trip.

Exhibit 5.17: Route 1 Weekday Boardings per One-way Trip, March 2019



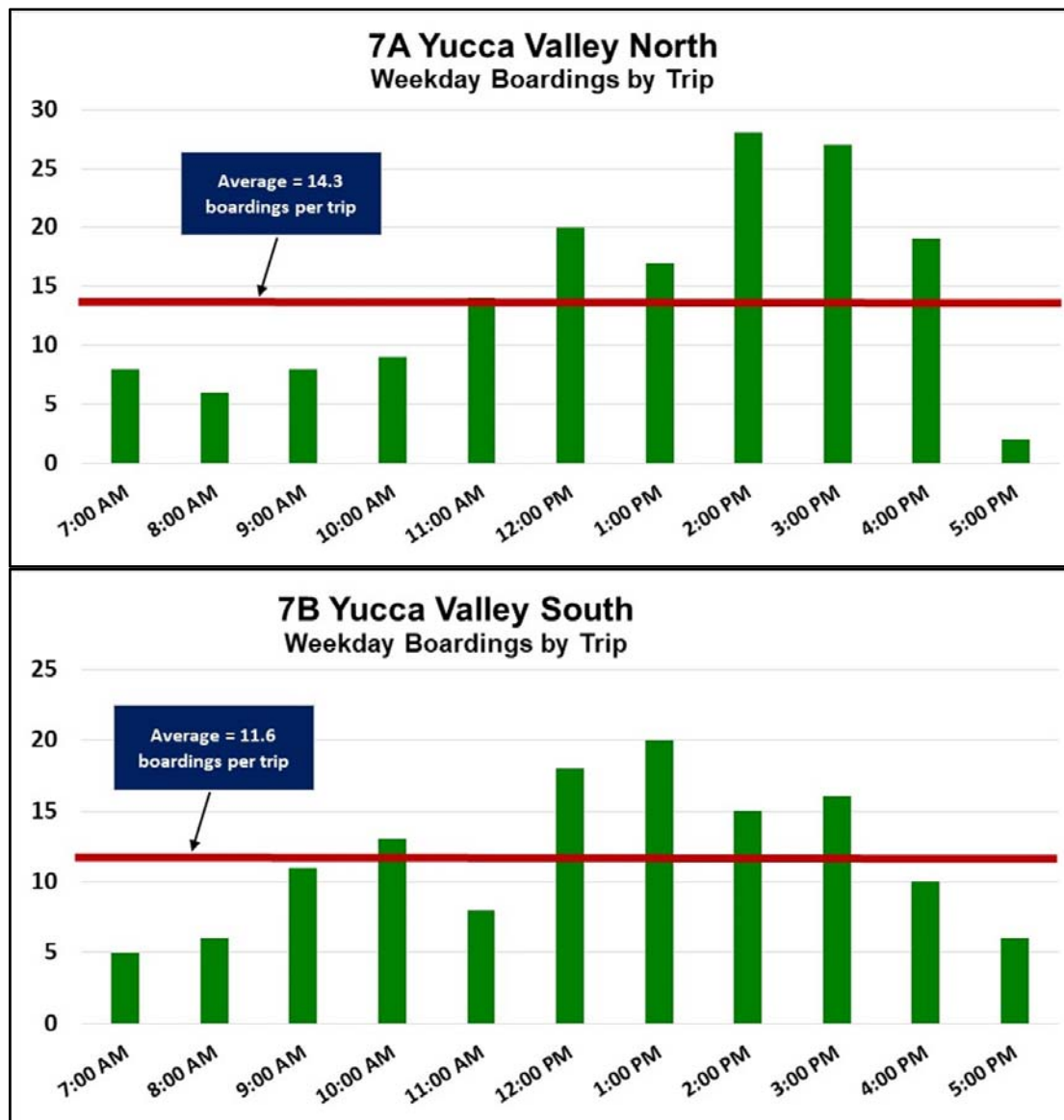
MBTA neighborhood routes serving Twentynine Palms (3A/3B) generate approximately eight customer boardings per round trip (*i.e.*, trip begins and ends at TPTC). Seen in Exhibit 5.18, both routes reflect a traditional pattern of higher ridership during peak hours and lower ridership during the midday. This pattern is indicative of customers traveling to work, school and institutional destinations during peak periods. Boarding volumes range from a high of 14 boardings on both 8:00 am departures, to a low of four boardings on the 11:00 am and noon departures. Seven of 22 trips in the daily schedule average 10 or more boardings, and half exceed the daily average.

Exhibit 5.18: Routes 3A/3B Weekday Boardings per Round Trip, March 2019



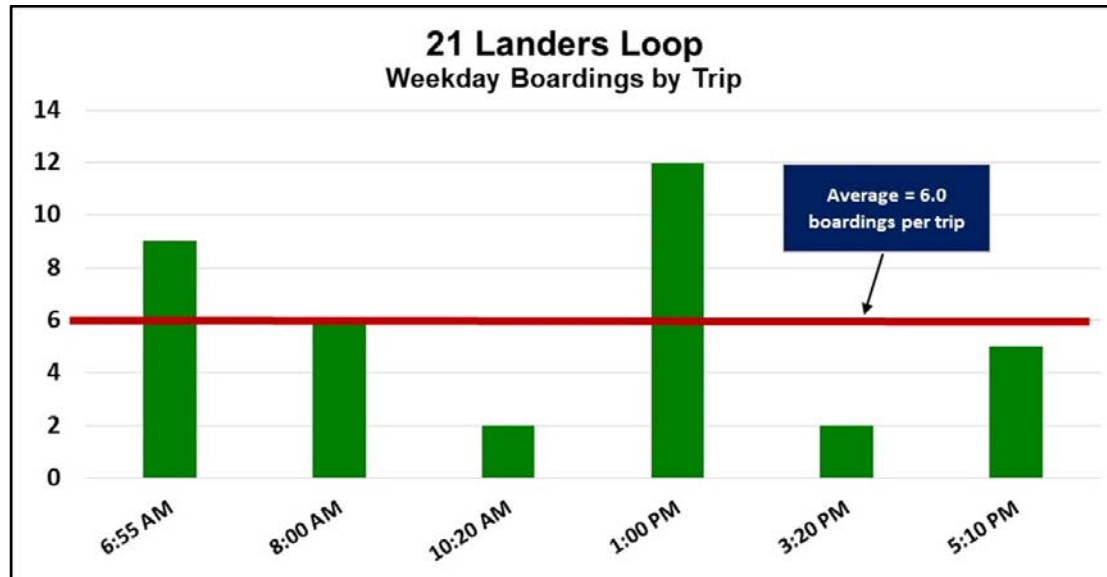
MBTA neighborhood routes serving Yucca Valley (7A/7B) generate approximately 13 customer boardings per round trip (*i.e.*, trip begins and ends at YVTC). Seen in Exhibit 5.19, ridership is marginally higher on the north side (7A) than on the south side (7B) of town. Both routes reflect a non-traditional pattern of higher ridership during afternoon peak hours only with lower ridership aboard morning peak as well as on midday trips. This pattern is indicative of customers traveling to medical and other personal appointments, shopping destinations, after-school activities, social services, and one-way trips to work (PM shifts). Boarding volumes range from a high of 28 boardings on both 2:00 pm departures, to just two boardings on the 5:00 pm departure (7A). Four of 22 trips in the weekday schedule average 20 or more boardings, and 10 trips exceed the daily average.

Exhibit 5.19: Routes 7A/7B Weekday Boardings per Round Trip, March 2019



MBTA neighborhood service in Landers (21) generates six customer boardings per round trip (*i.e.*, trip begins and ends at YVTC) on six daily trips in the weekday schedule. Seen in Exhibit 5.20, ridership ranges from a high of 12 boardings on the 1:00 pm departure to a low of two boardings on the 10:20 am and 3:20 pm departures.

Exhibit 5.20: Route 21 Weekday Boardings per Round Trip, March 2019



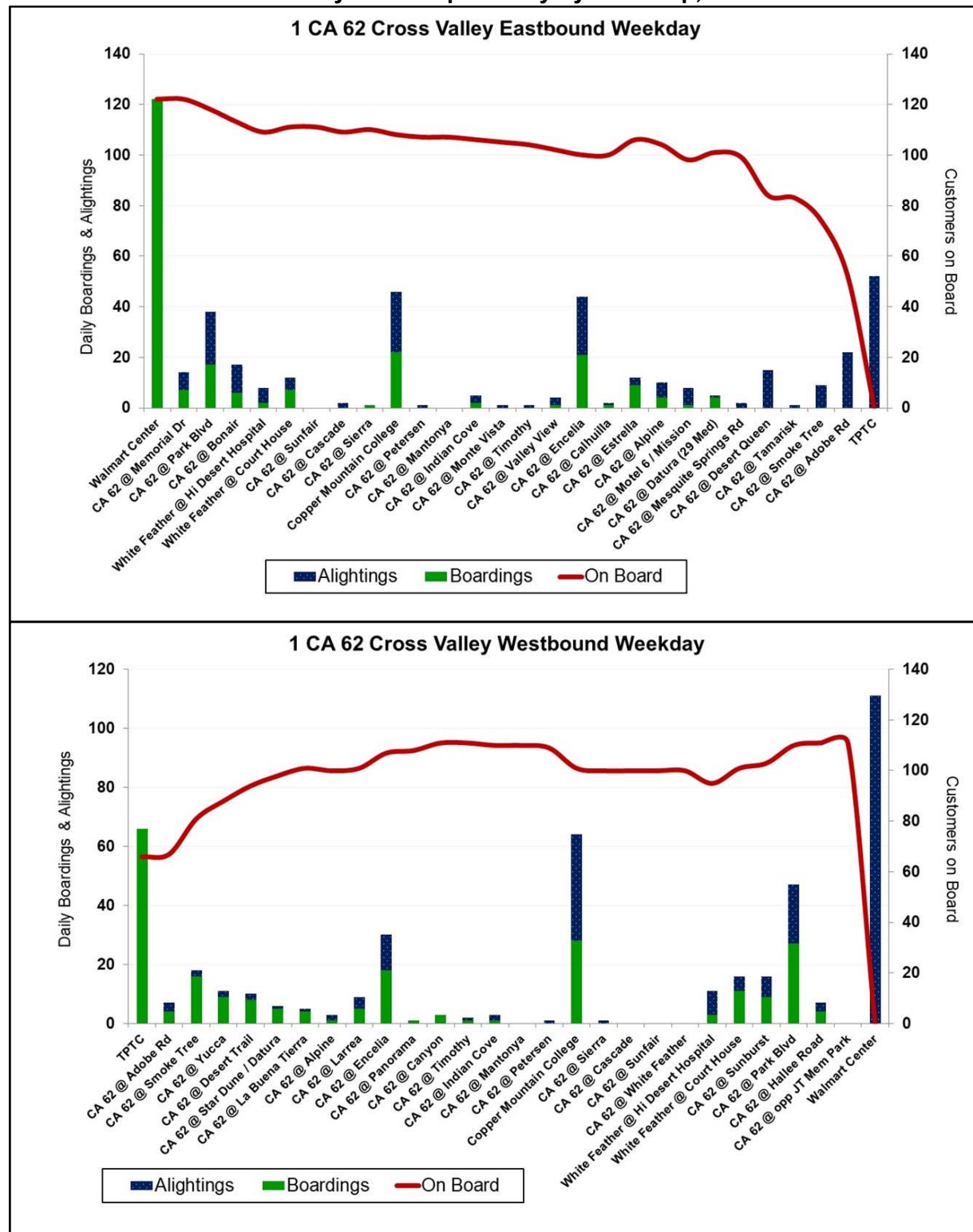
5.4.4 Route Segment Analysis

The S RTP study process included a 100% ridership count of customers boarding and alighting at every bus stop on all weekday trips. The results appear in the following pages as graphs showing the total weekday boardings (shown as green bars), alightings (blue bars), and total number of passengers remaining on board upon departing each stop (shown as a red line with right-hand scale). Tabular summaries by route and trip are provided as an attachment to this report. For those routes normally serving YCTC, it should be noted that the facility was closed at the time of the data collection effort (March 2019) with Yucca Valley terminal functions temporarily relocated to the Walmart Center.

Route 1/1X operates daily service on Hwy 62 between the TPTC and YVTC. Exhibit 5.21 displays average weekday customer boarding and alighting activity by direction of travel and bus stop. It shows the concentration of ridership at the two route terminals, Copper Mountain College, and retail shopping centers in the corridor. The maximum load point (*i.e.*, point where onboard passenger volume is greatest) occurs in Yucca Valley immediately west of Walmart Center in both directions. The five most active bus stops on the route are:

- Walmart Center 122 on / 111 off (per day)
- TPTC 66 on / 52 off
- Copper Mountain College 50 on / 60 off
- CA 62 @ Park Blvd (Joshua Tree) 44 on / 41 off
- Stater Brothers / 29 Palms Plaza 39 on / 35 off

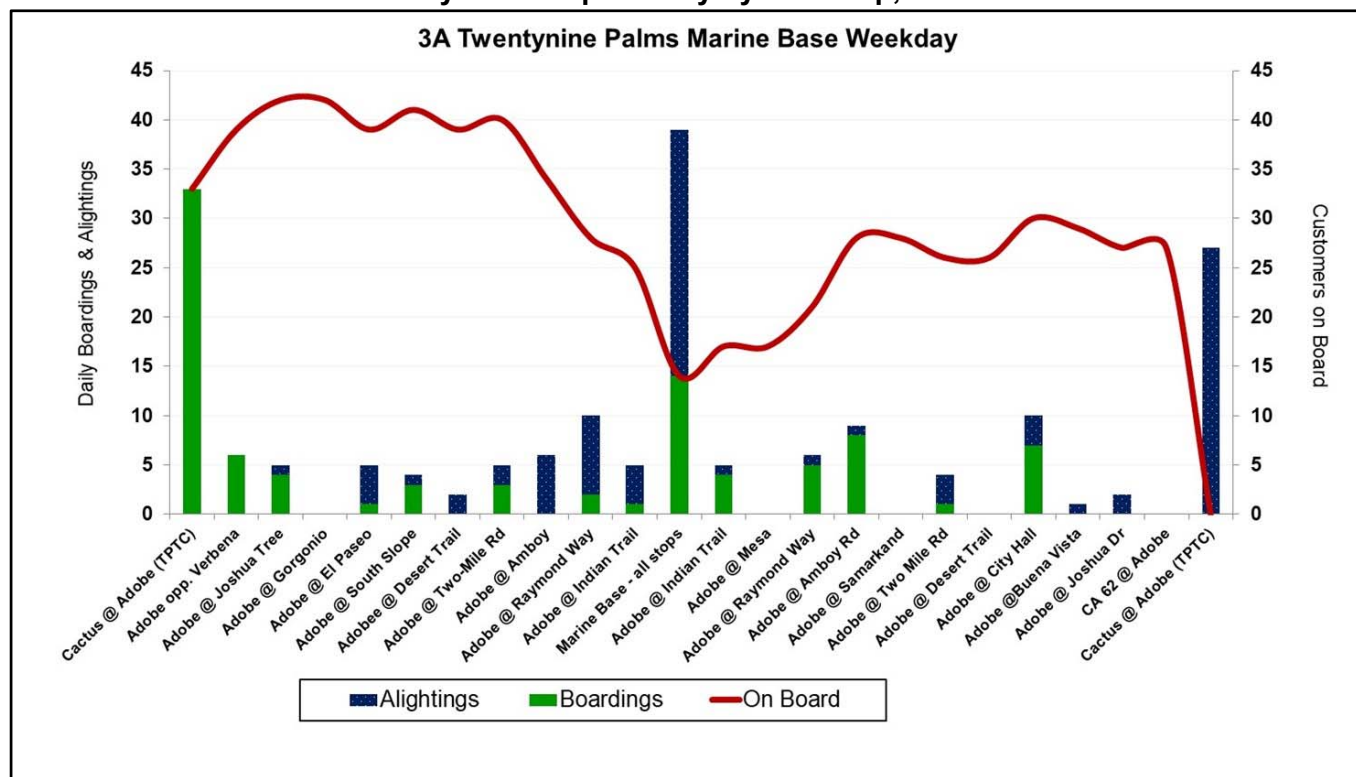
Exhibit 5.21: Route 1 Weekday Ridership Activity by Bus Stop, March 2019



Route 3A Twentynine Palms Marine Base provides weekday-only service on Adobe Road between the TPTC and MCAGCC. Exhibit 5.22 displays recent weekday customer boarding and alighting information by bus stop in both directions. Nearly 60% of daily transit trips are in the northbound direction. The maximum load point occurs on Adobe Road northbound at Gorgonio Drive. Northbound customer destinations evenly distributed between on-base and off-base locations. The five most active bus stops served by Route 3A are:

- TPTC 33 on / 27 off
- MCAGCC (all on-base stops) 14 on / 25 off`
- Adobe @ Raymond 7 on / 9 off
- Adobe @ Amboy 8 on / 7 off
- City Hall 8 on / 7 off

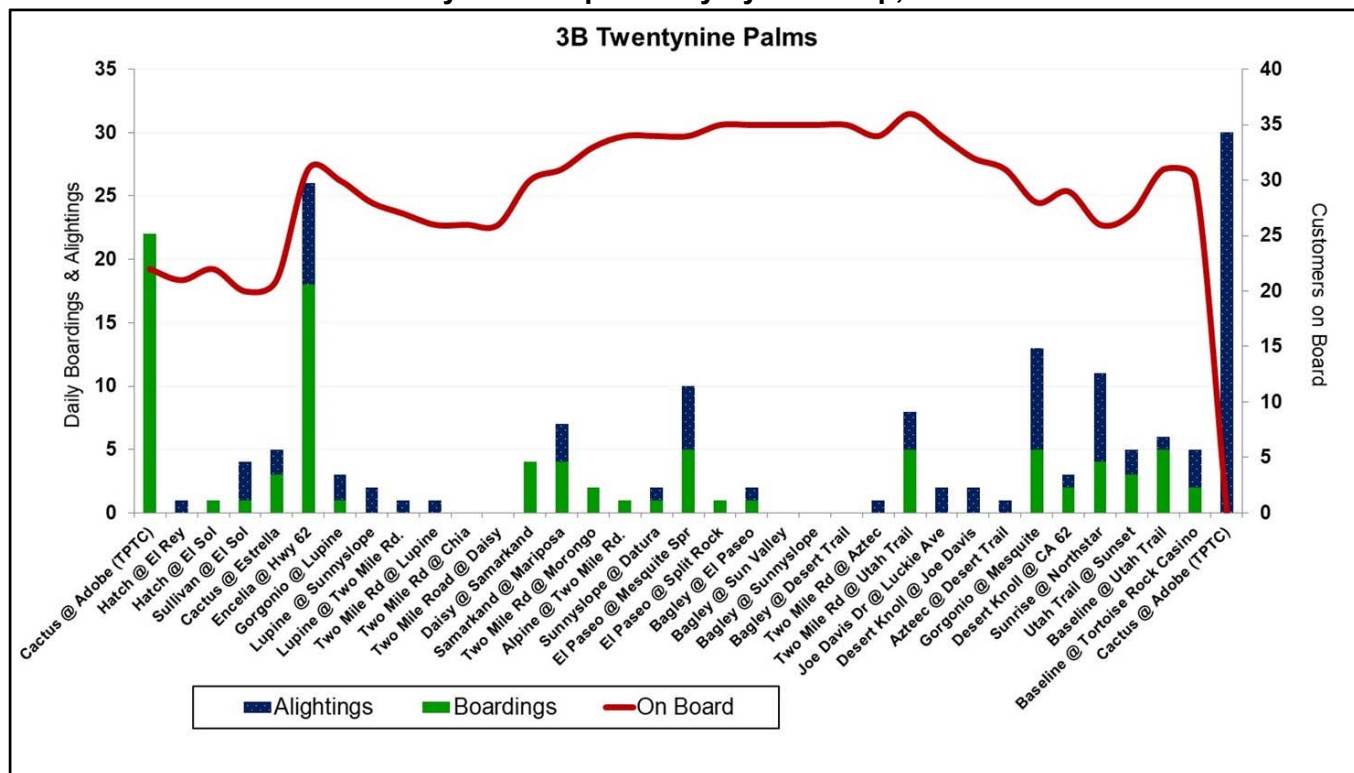
Exhibit 5.22: Route 3A Weekday Ridership Activity by Bus Stop, March 2019



Route 3B Twentynine Palms provides weekday-only service on a one-way (clockwise) loop circulating through mostly residential neighborhoods located north of Baseline Road, east of Encelia Drive, south of Two-Mile Road, and west of Utah Trail. Exhibit 5.23 displays recent weekday customer boarding and alighting information by bus stop. The maximum load point occurs near the middle of the loop where transit travel times are relatively balanced by direction. Ridership activity is minimal along north-side route segments Two Mile Road and Bagley Road. The five most active bus stops served by Route 3B are:

- TPTC 22 on / 30 off
- Stater Brothers (Encelia Dr) 18 on / 8 off
- Gorgonio Dr @ Mesquite 5 on / 8 off
- Sunrise Dr @ NorthStar 4 on / 7 off
- El Paseo @ Mesquite Springs 5 on / 5 off

Exhibit 5.23: Route 3B Weekday Ridership Activity by Bus Stop, March 2019

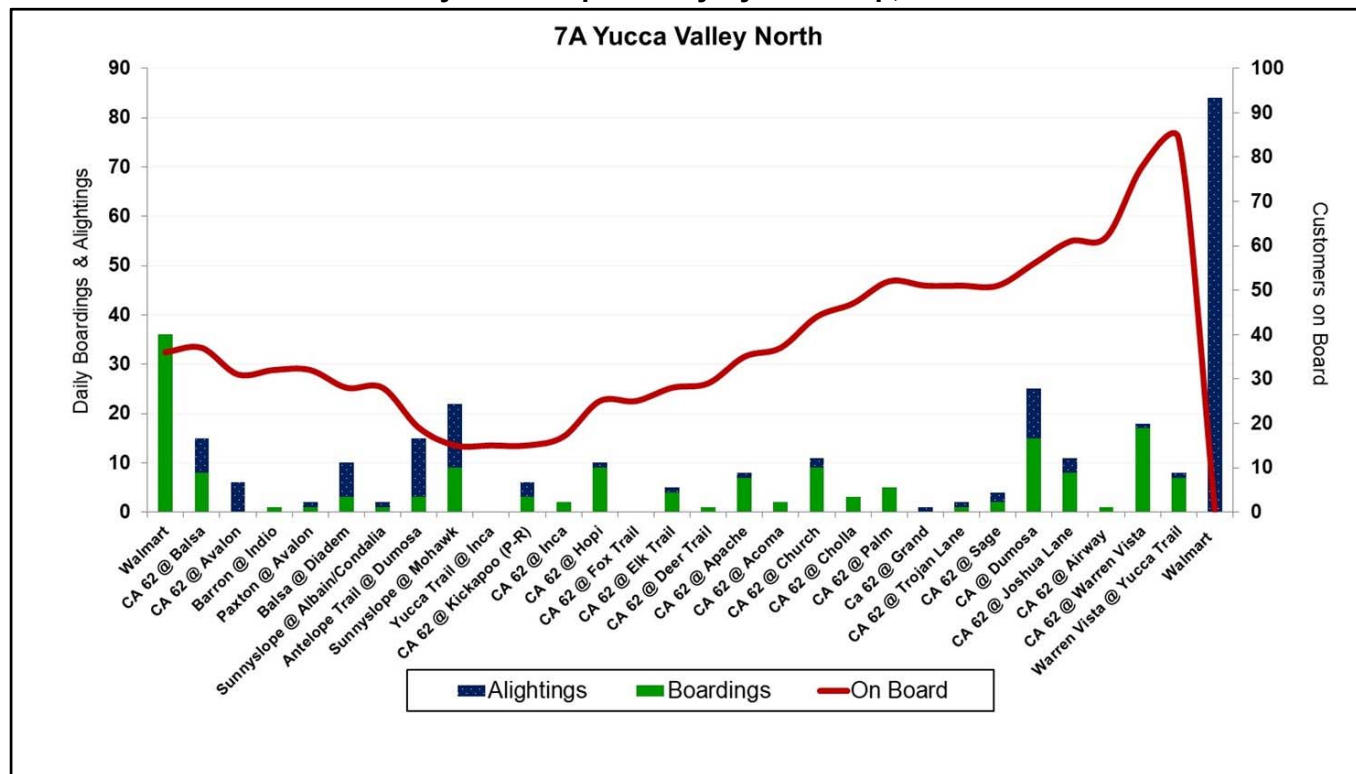


Route 7A Yucca Valley North provides weekday-only service on a one-way (counter-clockwise) loop circulating through Yucca Valley neighborhoods situated within a roughly seven-square area north of CA 62 between La Contenta Road and Kickapoo Trail. Exhibit 5.24 displays recent weekday customer boarding and alighting information by bus stop. The maximum load point occurs near the end of the loop as customers board for relatively short travel times to Walmart. Minimum loading near the mid-point of the route is illustrative of a design flaw inherent to one-way loop alignments. Ridership activity declines as bus travel time to and from the transfer point increases. Boarding activity builds along Hwy 62 as buses travel eastbound toward Walmart Center. These data suggest that many customers could be using Routes 7A and 7B in combination to make two-way trips in the CA 62 corridor. Presumably, these trips also could be made on Route 1 and customers choose to take whichever route comes along first. The five most active bus stops served by Route 7A are:

- Walmart / Home Depot Center 36 on / 84 off
- CA 62 @ Dumosa (Stater Brothers) 15 on / 10 off

- CA 62 @ Warren Vista 17 on / 1 off
- Sunnyslope @ Mohawk (Apts) 9 on / 13 off
- Antelope Trail @ Dumosa (Library) 3 on / 12 off

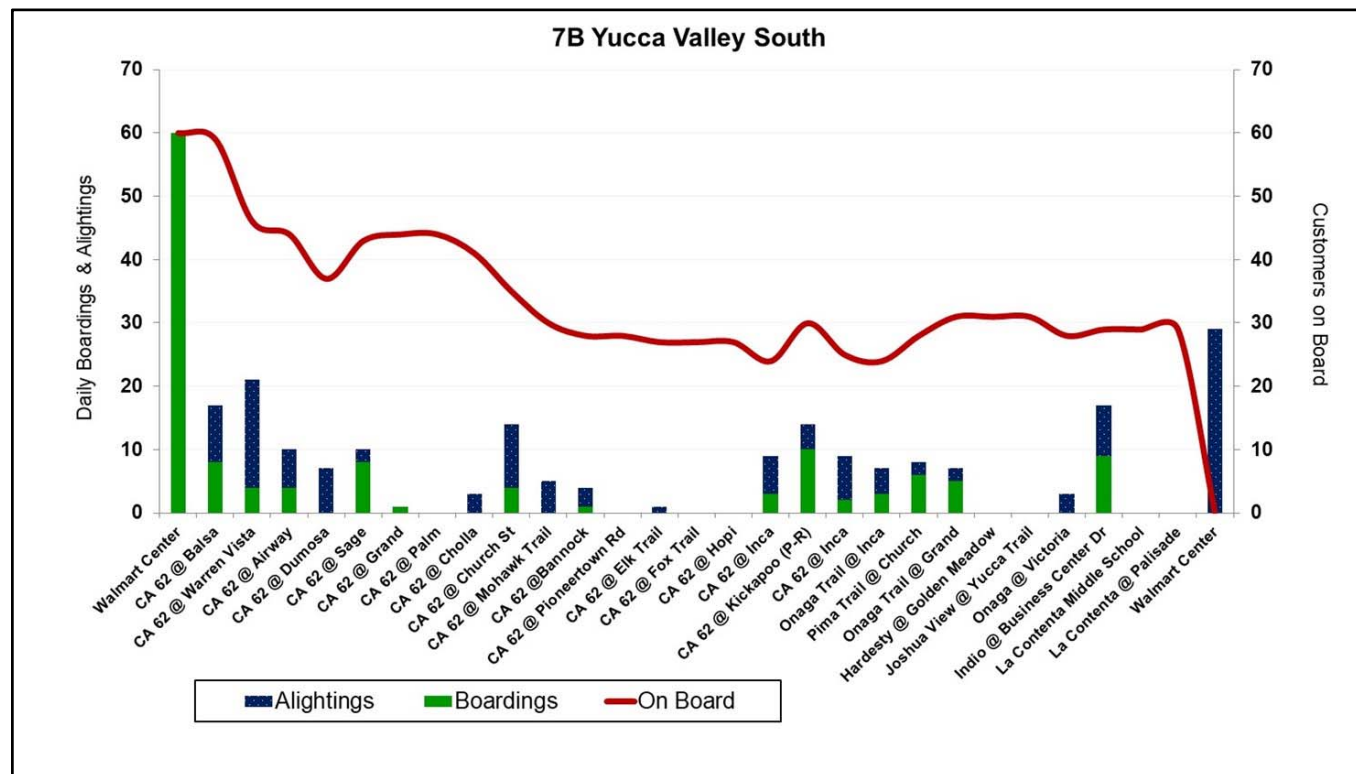
Exhibit 5.24: Route 7A Weekday Ridership Activity by Bus Stop, March 2019



Route 7B Yucca Valley South provides weekday-only service on a one-way (counter-clockwise) loop circulating through Yucca Valley neighborhoods within a roughly six-square mile area located south of Hwy 62 between La Contenta Road and Kickapoo Trail. Exhibit 5.25 displays recent weekday customer boarding and alighting information by bus stop. The maximum load point occurs near the beginning of the loop as customers boarding at Walmart travel westbound along Hwy 62 to mostly commercial destinations. Minimum passenger loading near the mid-point and extending through the end of the loop suggests that many customers could be using Routes 7A and 7B in combination to make two-way trips in the Hwy 62 corridor, as noted above. The five most active bus stops served by Route 7B are:

- Walmart / Home Depot Center 60 on / 29 off
- CA 62 @ Warren Vista 4 on / 17 off
- Indio @ Business Center Dr 9 on / 8 off
- CA 62 @ Balsa (Stater Brothers) 8 on / 9 off
- Park-Ride lot – Kickapoo Trail 10 on / 4 off

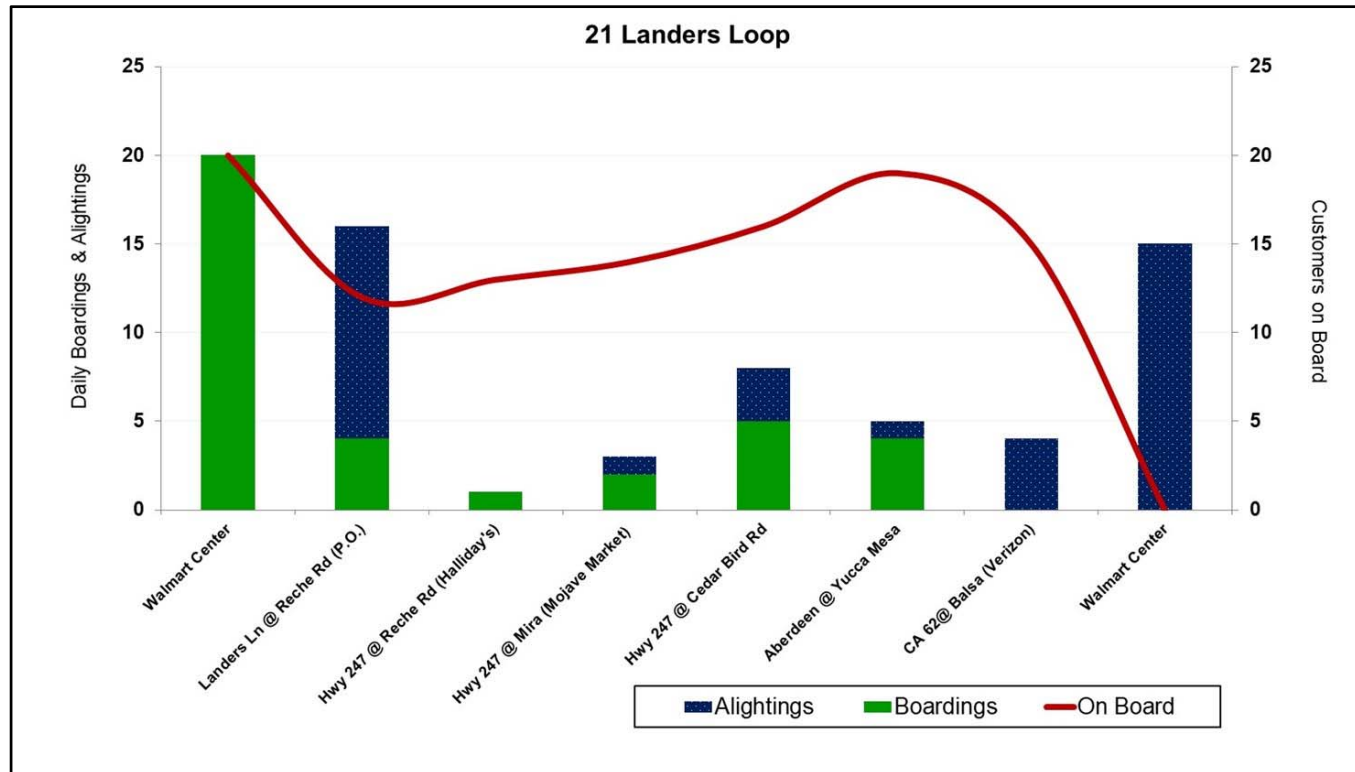
Exhibit 5.25: Route 7B Weekday Ridership Activity by Bus Stop, March 2019



Route 21 Landers Loop provides weekday-only service along a one-way “figure 8” loop covering a roughly 40-square mile area bounded by Linn Road on the north, Yucca Mesa Road on the east, Buena Vista Drive on the south, and Old Woman Springs Road on the west. Exhibit 5.26 displays recent weekday customer boarding and alighting information by bus stop. The data reflects the “lifeline” function that Route 21 plays in connecting a large rural service area to the Walmart Center transfer point in Yucca Valley. The five most active bus stops served by Route 21 are:

- | | |
|-------------------------------|----------------|
| • Walmart / Home Depot Center | 20 on / 15 off |
| • Landers Post Office | 4 on / 12 off |
| • Dollar General (Hwy 247) | 5 on / 3 off |
| • Aberdeen @ Yucca Valley | 4 on / 1 off |
| • CA 62 @ Balsa | 0 on / 4 off |

Exhibit 5.26: Route 21 Weekday Ridership Activity by Bus Stop, March 2019



5.5 Ready Ride

5.5.1 Service Design

Ready Ride provides an origin-to-destination service available primarily for Senior and Disabled passengers at a discounted rate but is available for all passengers at a premium rate. Ready Ride requires reservations at least 24 hours in advance. Ready Ride trips are provided by dedicated vehicles operating on dynamic schedules, except in Landers where Route 21 will deviate from the published route to pick up and drop off customers upon request. The Landers route deviation service is by reservation only and an extra fare is charged for the deviation.

Program operating hours are summarized in Exhibit 5.27.



Exhibit 5.27: Ready Ride Service Characteristics, FY 2019

Coverage Area	Operating Days	Operating Hours
Joshua Tree	Monday - Friday	7:30 am – 3:00 pm
Landers*	Monday - Friday	7:00 am – 5:00 pm
Morongo Valley	Monday & Thursday only	8:00 am – 12:00 pm
Twentynine Palms	Monday - Friday	7:30 am – 1:00 pm
Wonder Valley	Tuesday & Friday only	7:00 am – 12:00 pm
Yucca Valley	Monday - Friday	7:30 am – 4:15 pm

5.5.2 Ridership and Productivity

A five-year summary of Ready Ride ridership and productivity is provided in Exhibit 5.28. Total boardings declined by nearly 24% and service productivity declined by nearly 20% since FY 2014. These data reflect the impacts of a reduction in level of service (-5.1%) and the sharp drop in ridership over the last five years.

Exhibit 5.28: Ready Ride Ridership & Productivity, FY 2014-2018

FY	Annual Boardings	Percent Change	Revenue Vehicle Hours	Boardings per Revenue Hour
2014	24,369	--	7,382	3.3
2015	21,189	-13.0%	7,034	3.0
2016	19,925	-6.0%	7,206	2.8
2017	17,804	-10.6%	6,989	2.5
2018	18,543	4.2%	7,008	2.6
Change - 5 yrs	-5,826	-23.9%	-5.1%	-19.8%
Change - average	-1,165	-4.8%	-1.0%	-4.0%

5.5.3 Mobility Vision – A Way Forward

Through multiple initiatives addressing quality of life considerations, the MBTA ensures a healthy, connected, supportive environment for its residents. It is within this spirit that the following *guiding principles* will provide the foundation for recommended Ready Ride (paratransit) service plan strategies:

**Ready Ride Paratransit:
shared ride public transit
for those unable to use
accessible public transit**

Universal access including an accessible infrastructure;

Flexible mobility options with a cost-effective mix of accessible shared-ride, public transportation services; and

Maximize the utility and investment in accessible conventional transit (mobility management strategies) to encourage a shift from ADA paratransit to conventional public transit.

As a transit provider, MBTA has facilitated a more integrated approach between accessible conventional transit services and Ready Ride services. Transit has created a user friendly, accessible conventional transit service that may provide additional mobility options for many paratransit service registrants. MBTA's accessible public transit system provides a higher degree of trip making flexibility and facilitates greater travel spontaneity and independence. A truly accessible transit system can become the preferred choice for many people with a disability.

The longer-term vision is to move towards the concept of *universal access* to conventional public transit/mobility services. While preserving the integrity of Ready Ride paratransit services for those with no alternatives, universal access to conventional transit services requires the need to address ancillary considerations including an accessible infrastructure, streetscape, audible signals, etc.

5.6 Fare Policy Analysis

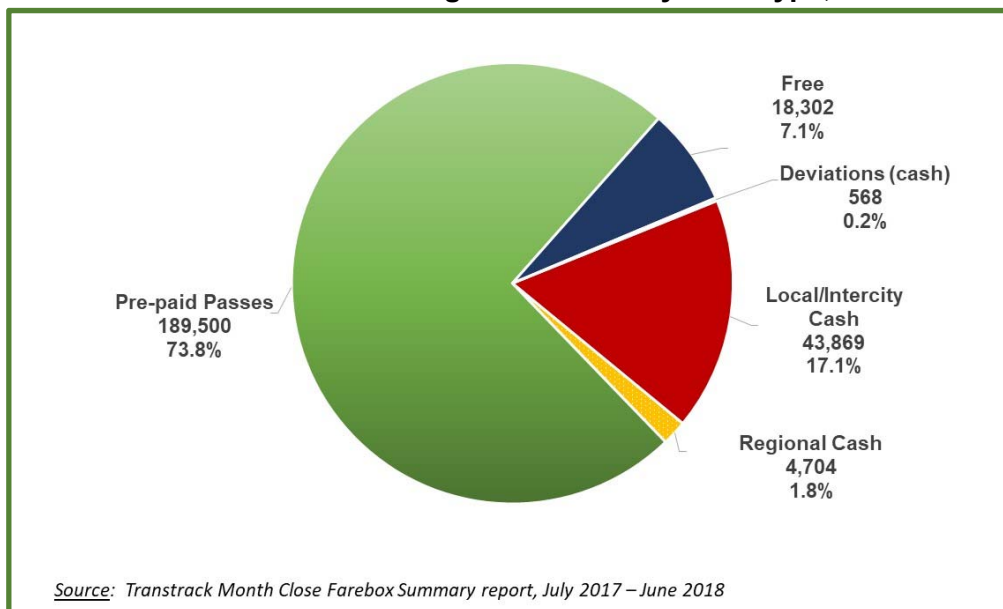
The declines noted in fare revenue and farebox recovery level invites detailed consideration of MBTA fare policy and rates. MBTA has a three-tier pricing structure for local, intercity, and regional fixed route services. Current fares for local and intercity service are listed in Exhibit 5.29. These rates took effect in July 2014 after 15 years without a fare increase. Fare payment options include cash and two pre-paid fare media: Day Pass and 31-day Go Pass, both allowing unlimited boardings within the defined time period. MBTA does not issue paper transfers; therefore, a cash fare is required for every boarding unless a pre-paid pass is used. Introduction of a non-cash transfer option may increase ridership given enhanced passenger convenience and fare concession beyond that currently provided by the Day Pass. Children under five years old ride free when accompanied by an adult, and travel companions to customers with disabilities also ride free.

Exhibit 5.29: MBTA Local and Intercity Fares, FY 2019

Fare Type	Route 1/1X	Routes 3, 7 & 21
	Intercity	Local
Cash – full fare	\$2.50	\$1.25
Cash – discount (senior/disabled)	\$1.25	\$1.00
Day Pass – full fare	\$3.75	\$3.75
Day Pass - discount (senior/disabled)	\$3.00	\$3.00
Day Pass – discount (student)	\$3.00	\$3.00
Go Pass (31-day)	\$40.00	\$40.00
Go Pass – discount (senior/disabled)	\$25.00	\$25.00
Accompanied Child < 5	\$0.00	\$0.00
Companion	\$0.00	\$0.00

FY 2018 ridership distributed by fare type is displayed in Exhibit 5.30. Almost three-quarters of all customer boardings used a pre-paid fare instrument; about 19% paid cash and seven percent boarded fare-free. Use of pre-paid fare media by MBTA customers generally is higher than experienced among peer transit agencies.

Exhibit 5.30: Customer Boarding Distribution by Fare Type, FY 2018



A distribution of pass-related fare transactions during FY 2018 is displayed in Exhibit 5.31. The 31-day unlimited ride Go Pass is used by 54% of all pre-paid boardings with full-fare users (29%) only slightly greater than discount pass users (24.5%). Day Pass users account for over 30% of all pre-paid boardings; mostly full-fare customers. Copper Mountain College passes and special services account for 15.5% of total pre-paid boardings. Compiled FY 2018 fare type data is provided in Exhibit 5.32.

Exhibit 5.31: Pre-paid Customer Boarding Distribution by Pass Type Used, FY 2018

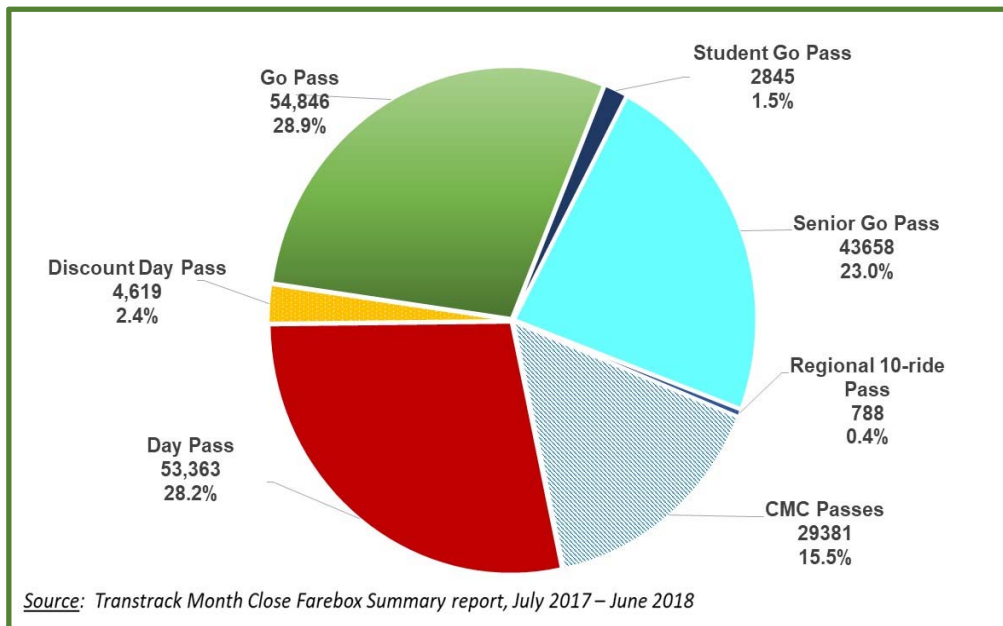


Exhibit 5.32: MBTA Fixed Route Fare Type Distribution, FY 2018

	Intercity					Twentynine Palms				Yucca Valley				Palm Springs Regional						Landers		System Total	Percent		
Fare Type	Route	1 Weekday	1 Saturday	1X Sunday	1/1X Total	1/1X Percent	3A	3B	3 Total	3A/B Percent	7A	7B	7 Total	7A/B Percent	12	12 Percent	15 Fri	15 Sat	15 Sun	15 Total	15 Percent			21	21 Percent
Local / Intercity Cash Fares																									
Adult Cash (\$1.25 / \$2.50)		7,647	1,462	449	9,558	7.2%	5,352	3,622	8,974	17.3%	3,555	3,544	7,099	13.8%	140	2.7%	3	34	11	48	2.1%	1,787	13.7%	27,606	10.7%
Student Cash (\$1.25 / \$2.50)		3	2	17	22	0.0%	13	89	102	0.2%	11	11	22	0.0%	0	0.0%	0	0	0	0	0.0%	0	0.0%	146	0.1%
Senior Cash (\$1.00 / \$1.25)		3,919	650	130	4,699	3.5%	264	982	1,246	2.4%	2,400	1,982	4,382	8.5%	722	13.9%	2	14	6	22	0.9%	2,298	17.6%	13,369	5.2%
Disabled Cash (\$1.00 / \$1.25)		815	185	52	1,052	0.8%	41	254	295	0.6%	381	461	842	1.6%	116	2.2%	0	0	0	0	0.0%	443	3.4%	2,748	1.1%
Subtotal, Local / Intercity Cash		12,384	2,299	648	15,331	11.5%	5,670	4,947	10,617	20.4%	6,347	5,998	12,345	24.0%	978	18.9%	5	48	17	70	3.0%	4,528	34.6%	43,869	17.1%
Regional Cash Fares (Routes 12 & 15)																									
PS - 29P 1-way (\$10)		50			50	0.0%	5	2	7	0.0%	0	0	0	0.0%	138	2.7%	19	266	20	305	13.2%	1	0.0%	501	0.2%
PS-29P round trip (\$15)		25		1	26	0.0%	1	1	2	0.0%	0	0	0	0.0%	28	0.5%	32	926	3	961	41.5%	3	0.0%	1,020	0.4%
PS-29-RTR Adult					0	0.0%	0	0	0	0.0%	0	0	0	0.0%	788	15.2%	28	636	26	690	29.8%	0	0.0%	1,478	0.6%
PS - JT - YV 1-way (\$17)		6			6	0.0%	0	0	0	0.0%	0	0	0	0.0%	815	15.7%	12	61	21	94	4.1%	0	0.0%	915	0.4%
PS - JT - YV round trip (\$21)		5	1		6	0.0%	0	0	0	0.0%	0	0	0	0.0%	236	4.6%	5	12	1	18	0.8%	0	0.0%	260	0.1%
PS - MV 1-way (\$5 / \$15)					0	0.0%	0	0	0	0.0%	0	0	0	0.0%	0	0.0%	3	3	3	9	0.4%	0	0.0%	9	0.0%
PS - MV round trip (\$9 / \$19)					0	0.0%	0	0	0	0.0%	0	0	0	0.0%	19	0.4%	3	2	0	5	0.2%	0	0.0%	24	0.0%
Senior/Disabled round trip (\$9.00 / \$19)		13			13	0.0%	3	0	3	0.0%	1	0	1	0.0%	413	8.0%	8	48	9	65	2.8%	2	0.0%	497	0.2%
Subtotal, Regional Cash		99	1	1	101	0.1%	9	3	12	0.0%	1	0	1	0.0%	2,437	47.0%	110	1,954	83	2,147	92.7%	6	0.0%	4,704	1.8%
Pre-paid Passes & Tickets																									
Day Pass (\$3.75)		28,675	1,988	215	30,878	23.2%	5,630	4,223	9,853	19.0%	4,440	4,667	9,107	17.7%	760	14.7%	3	42	10	55	2.4%	2,710	20.7%	53,363	20.8%
Discount Day Pass (3.00)		2,532	368	37	2,937	2.2%	227	612	839	1.6%	488	259	747	1.5%	93	1.8%	0	3	0	3	0.1%	0	0.0%	4,619	1.8%
Adult Go Pass (\$40)		25,945	1,891	342	28,178	21.2%	7,289	5,996	13,285	25.6%	6,108	5,164	11,272	21.9%	0	0.0%	0	0	0	0	0.0%	2,111	16.1%	54,846	21.3%
Student Go Pass (\$25)		1,651	75	26	1,752	1.3%	113	216	329	0.6%	247	362	609	1.2%	0	0.0%	0	0	0	0	0.0%	155	1.2%	2,845	1.1%
Senior Go Pass (\$25)		17,723	2,077	320	20,120	15.1%	3,505	6,573	10,078	19.4%	6,402	5,238	11,640	22.7%	9	0.2%	0	0	0	0	0.0%	1,811	13.8%	43,658	17.0%
PS 10-ride Punch Pass (\$42)		0	0	0	0	0.0%	6	0	6	0.0%	0	2	2	0.0%	780	15.0%	0	0	0	0	0.0%	0	0.0%	788	0.3%
CMC Pass		15,574	389	76	16,039	12.1%	298	656	954	1.8%	460	536	996	1.9%	0	0.0%	0	0	0	0	0.0%	338	2.6%	18,327	7.1%
CMC Punch		6,921	168	22	7,111	5.3%	239	1,022	1,261	2.4%	343	331	674	1.3%	12	0.2%	2	1	0	3	0.1%	191	1.5%	9,252	3.6%
CMC Special		1,354	35	3	1,392	1.0%	70	103	173	0.3%	83	47	130	0.3%	4	0.1%	0	3	0	3	0.1%	100	0.8%	1,802	0.7%
Subtotal, CMC Pre-paid fares		100,375	6,991	1,041	108,407	81.5%	17,377	19,401	36,778	70.8%	18,571	16,606	35,177	68.5%	1,658	32.0%	5	49	10	64	2.8%	7,416	56.7%	189,500	73.8%
Fare Free																									
Companion (free)		3,675	498	95	4,268	3.2%	696	1,251	1,947	3.7%	947	1,034	1,981	3.9%	110	2.1%	4	1	2	7	0.3%	360	2.8%	8,673	3.4%
Children < 5 Years (free)		3,536	358	56	3,950	3.0%	565	1,986	2,551	4.9%	778	1,061	1,839	3.6%	1	0.0%	2	1	3	6	0.3%	165	1.3%	8,512	3.3%
PS Transfer		871	4	0	875	0.7%	16	8	24	0.0%	8	1	9	0.0%	0	0.0%	4	19	0	23	1.0%	22	0.2%	953	0.4%
Special (e.g., Can-a-Ride, etc.)		116	9	4	129	0.1%	1	13	14	0.0%	2	8	10	0.0%	0	0.0%	0	0	0	0	0.0%	11	0.1%	164	0.1%
Subtotal, Fare free		8,198	869	155	9,222	6.9%	1,278	3,258	4,536	8.7%	1,735	2,104	3,839	7.5%	111	2.1%	10	21	5	36	1.6%	558	4.3%	18,302	7.1%
21- Deviation Cash																						48	0.4%	48	0.0%
21- Discount Deviation Cash																						128	1.0%	128	0.0%
21- Pass Deviation																						97	0.7%	97	0.0%
21- Discount Pass Deviation																						295	2.3%	295	0.1%
Subtotal, Landers Deviations		0	0	0	0	0.0%	0	0	0	0.0%	0	0	0	0.0%	0	0.0%	0	0	0	0	0.0%	568	4.3%	568	0.2%
Total		121,056	10,160	1,845	133,061	100.0%	24,334	27,609	51,943	100.0%	26,654	24,708	51,362	100.0%	5,184	100.0%	130	2,072	115	2,317	100.0%	13,076	100.0%	256,943	100.0%

Source: TransTrack Monthly Farebox reports, July 2017 - June 2018

Aside from the actual amounts charged to ride MBTA, this analysis focuses on pricing strategy as reflected in the relationships between cash fares and pre-paid fares, as well as the level of discounts offered to various customer segments based on the fare media used to pay the fare. Current cash and pass pricing extend variable discounts to local, intercity, and regional transit customers. With intercity customers (Route 1/1X) representing over half of total fixed route ridership, the “base fare” (*i.e.*, 1-way full-fare cash) is \$2.50 for purposes of assessing the effects of the discounts.

Cash Fares

Nearly 44,000 boardings paid a cash fare in FY 2018, representing 17.1% of total fixed route ridership. Use of cash is more common on the neighborhood routes, which have lower fares and less compelling discounts offered on Day Pass and Go Pass purchases.

While MBTA is not subject to the FTA half-fare requirement, it follows prevailing industry practice with a 50% discount of the base fare offered to reduced fare-eligible customers on intercity Route 1/1X service. The reduced-fare local cash fare is discounted 20% from the \$1.25 full-fare cash fare, or 60% from the base fare. Consistent with prevailing transit industry practice, regional cash fares are higher than the base fare and calculated generally in relation to distance traveled.

Day Pass

The Day Pass is valid for unlimited boardings on MBTA local and intercity routes within a given service day. During FY 2018, Day Pass boardings accounted for 22.6% of total boardings and 30.6% of all pass boardings. The average Day Pass was used for 4.17 times (57,982 boardings and 13,909 passes sold).

- The \$3.75 full-fare Day Pass is priced at 1.5 times the base fare, meaning that Route 1/1X customers using a Day Pass begin to experience a discount on the second boarding of the day. This translates into relatively deep discounts for intercity customers ranging from 25% if they make a round trip, to 50% if they make a round trip using intercity and neighborhood local buses in combination to travel between origin and destination (*i.e.*, four boardings). These discounts are reflected in utilization levels; for example, 25.4% of intercity Route 1/1X customers use a Day Pass, compared to a range of 17.7% - 20.7% on the neighborhood local routes.
- The \$3.00 reduced fare Day Pass is priced at 2.4 times the \$1.25 intercity discount cash fare, meaning that senior citizens and persons with disabilities who ride Route 1/1X begin to experience a discount on their third boarding of the service day. This translates into a 16.7% discount for customers who make a round trip using neighborhood local and intercity buses in combination to travel between origin and destination. However, the Day Pass does not offer a cost-effective option for reduced fare-eligible customers using either local or intercity service alone. This explains why so few discount Day Passes are in use by reduced fare-eligible customers; just 4,619 boardings in FY 2018.
- The \$3.75 Day Pass is priced at 3.0 times the \$1.25 full-fare local cash fare, meaning that customers who ride Route 3A/B, 7A/7B and 21 “break even” on their third boarding and begin to experience a discount on their fourth boarding of the service day. This

translates into a 50% discount if they make a round trip using neighborhood local and intercity buses in combination to travel between origin and destination.

- The \$3.00 reduced fare Day Pass is priced at 3.0 times the \$1.00 reduced fare local cash fare, meaning that senior citizens and persons with disabilities who ride Route 3A/B, 7A/7B and 21 begin to experience a discount on their fourth boarding of the service day. This translates into relatively modest discounts for reduced fare local customers ranging from 6.3% if they make two round trips on a local bus in a single day; and 16.7% if they make a single round trip using neighborhood local and intercity buses in combination to travel between origin and destination.

Current fare policy warrants reconsideration to potentially better align with agency objectives and industry best practices. For example, current Day Pass pricing is a concern to the extent that it conflicts with other MBTA objectives such as increasing ridership. While senior citizens often are more likely to take short transit trips, the discount Day Pass represents a value only to a small fraction of older transit customers. Moreover, the discounts offered to full-fare customers overall are greater than those offered to reduced fare-eligible customers.

Go Pass

The Go Pass is valid for unlimited boardings on MBTA local and intercity routes within a given 31-day period. During FY 2018, Go Pass boardings accounted for 39.4% of total boardings and 53.5% of all pass boardings.

- The \$40 full-fare Go Pass is priced at 16 times the \$2.50 base fare, meaning that Route 1/1X customers making a daily round trip break even on their eighth day of use and begin experiencing a discount on the ninth day. Regular weekday use (average 21 weekdays per month) would result in a 61.9% discount off the base cash fare if riding Route 1/1X only, and 74.6% if riding neighborhood local and intercity buses in combination to travel between origin and destination.
- The \$25 reduced-fare Go Pass is priced at 20 times the \$1.25 intercity reduced cash fare, meaning that Route 1/1X customers making a daily round trip break even on their tenth day of use and begin experiencing a discount on their 11th day of use. Regular weekday use (average 21 weekdays per month) yields a 52.4% discount off the reduced cash fare.
- The \$40 full-fare Go Pass is priced at 32 times the local cash full fare, meaning that Route 3A/B, 7A/B and 21 customers making a round trip break even on their 16th day of use and begin experiencing a discount on their 17th day. Regular weekday use (average 21 weekdays per month) yields a 23.9% discount off the local cash fare when riding only local routes, and up to 74.6% when riding neighborhood local and intercity buses in combination to travel between origin and destination.
- The \$25 reduced-fare Go Pass is priced at 25 times the \$1.00 reduced local cash fare, meaning that Route 3A/B, 7A/B and 21 customers making a round trip begin experiencing a discount on their 13th day of use. Regular weekday use (average 21 weekdays per month) yields a 40.5% discount off the reduced cash local fare when

riding Routes 3A/B, 7A/B and 21 only, and up to 73.5% when riding neighborhood local and intercity buses in combination to travel between origin and destination.

Regional Commuter Fares

Current MBTA fares for regional routes are listed in Exhibit 5.33. These rates took effect in July 2014 after 15 years without a fare increase. Fare payment options include cash and a pre-paid 10-ride punch pass valid on Route 12 only. Route 12 customers using the 10-ride punch pass receive a 58% discount from the \$10.00 one-way fare, or a 44% discount from the \$15.00 round trip fare. Route 15 customers currently do not have a prepaid fare payment option.

Exhibit 5.33: MBTA Regional Commuter Fares, FY 2019

Trip Origin	Route 12	Route 15
	(1-way / Round Trip)	(1-way / Round Trip)
Twentynine Palms	\$10.00 / \$15.00	\$20.00 / \$25.00
Joshua Tree or Yucca Valley	\$7.00 / \$11.00	\$17.00 / \$21.00
Morongo Valley	\$5.00 / \$9.00	\$15.00 / \$19.00
All Locations - Sr/Dis	\$4.50 / \$9.00	\$14.50 / \$19.00
PS 10-Ride Punch Pass	\$42.00	NA

MBTA fare type data indicates that 14.7% of all Route 12 customers boarded using a Day Pass during FY 2018. If true, this would be a significant concern since MBTA's website 'Fares' page indicates that the Day Pass is not valid for boarding Route 12. This restriction is for good reason - the cost of a Day Pass is substantially less than a one-way cash fare.

Transfers – The data reflects 953 SunLine Transit transfers accepted as a valid fare. Most are accepted on Route 1, which does not directly connect with SunLine buses in Palm Springs.

5.7 Taxicab Administration

MBTA is responsible for regional administration of California law mandating regulation of taxicab companies through issuance of permits to taxicab companies, drivers and vehicle owners, as well as monitoring and enforcement. The permitting process for drivers includes a criminal history investigation and drug screen; and for vehicles includes a yearly vehicle inspection, and insurance verification. All permitted vehicles display an MBTA-issued permit on the left side of the windshield, and drivers must post their permits in plain view. Taxi fares are computed by taximeter for exclusive ride service.

6.0 PEER REVIEW / ORGANIZATION REVIEW

This chapter presents an overview of peer properties highlighting MBTA's operational and financial performance relative to a select number of peer agencies (Section 6.1). Included is data on staffing/employee counts relative to operations, maintenance, and vehicle volumes. An assessment of MBTA maintenance staff activities is provided in Section 6.2.

6.1 Peer Review

Operating and Financial Performance: For comparative purposes, Exhibits 6.1 (a) and (b) presents salient operating and financial characteristics of MBTA performance² relative to a select number of peer/comparable size transit agencies.

For adjusted figures³, key observations from this comparison include:

MBTA's:

- ✓ Fixed route provides close to 40% more trips per hour at a cost per trip of close to 30% less than peer agencies.
- ✓ Fixed route provides over 36% more trips per capita at a cost per capita (indicative of the amount of investment in transit) of 25% more than peer agencies.
- ✓ Demand response services are provided at a cost per trip 18% less than peer agencies with a productivity (trips per hour) the same as peer agencies.

Organization/Staffing Levels: MBTA's organization chart is presented in Exhibit 6.2. Staffing levels relative to peer agencies staffing/employee counts by key functional areas (administration, operations, and maintenance) is presented in Exhibit 6.3.

Recognizing the limited data from peer agencies and small number used for comparisons, key observations from this comparison include:

- ✓ MBTA operate close to double the number of *vehicles operated at maximum service* (VOMS) per maintenance employee than the peer agencies.
- ✓ MBTA operates 47% more vehicle revenue hours per maintenance employee than the peer agencies.
- ✓ MBTA's total number of vehicle revenue hours per total number of employees is virtually identical to the peer average (3% higher at 781 vs. 757 peer average).

Based on the above noted findings, MBTA's staffing levels are favorable relative to peers. Of particular note is the small number of MBTA maintenance employees relative to the number of VOMS, when compared to peer transit agencies.

² MBTA data excludes JTNP RoadRunner service.

³ Operating and financial performance data for the Eastern Sierra Transit Authority (ESTA) was excluded as their trip volumes artificially skewed the results of the peer comparison.

Exhibit 6.1 (a): MBTA Operating Performance Relative to Peer Agencies

City / Agency	Type of Service	Service Population	Vehicles Operated at Maximum Service (VOMS)	Unlinked Passenger Trips		Vehicle Revenue Hours	
				Fixed Route	Demand-Response	Fixed Route	Demand-Response
Morongo Basin Transit Authority (MBTA)	DO ¹	68,800	17	262,374	17,789	25,457	6,989
Mountain Area Regional Transit Authority (MARTA)	DO	48,000	11	140,687	17,679	25,916	9,474
Eastern Sierra Transit Authority (ESTA)	DO	50,000	44	1,146,733	57,134	38,701	17,303
Mendocino Transit Authority (MTA)	DO	90,000	23	257,939	33,217	35,722	8,522
City of Humboldt (HTA)	DO	135,000	16	595,981	N/A	46,666	N/A
City of Cottonwood (AZ)	DO	40,000	10	135,577	18,216	15,181	8,304
City of Coolidge (CART)	DO	75,000	11	26,347	10,060	10,073	4,949
City of Tracy (TRACER)	PT ²	90,000	13	150,358	17,126	26,900	9,543
Yosemite Area Regional Transit System (YARTS)	PT	245,585	10	106,744	N/A	17,131	N/A
Fresno County Rural Transit Agency (FCRTA)	PT	950,000	86	93,575	297,560	20,101	51,596
	1. Directly Operated						
	2. Purchased Transportation						

Exhibit 6.1 (b): MBTA Operating and Financial Performance Metrics Relative to Peer Agencies

City / Agency	Total Operating Expenses		Fixed Route Trips per Capita	Fixed Route Cost per Capita	Trips per (Revenue) Hour		Cost per Trip	
	Fixed Route	Demand-Response			Fixed Route	Demand-Response	Fixed Route	Demand-Response
Morongo Basin Transit Authority (MBTA)	\$ 2,497,173	\$ 379,152	3.81	\$ 36.30	10.31	2.55	\$ 9.52	\$ 21.31
Mountain Area Regional Transit Authority (MARTA)	\$ 2,214,404	\$ 543,079	2.93	\$ 46.13	5.43	1.87	\$ 15.74	\$ 30.72
Eastern Sierra Transit Authority (ESTA)	\$ 3,465,810	\$ 1,179,830	22.93	\$ 69.32	29.63	3.30	\$ 3.02	\$ 20.65
Mendocino Transit Authority (MTA)	\$ 2,941,758	\$ 929,668	2.87	\$ 32.69	7.22	3.90	\$ 11.40	\$ 27.99
Humboldt Transit Authority (HTA)	\$ 3,635,006	N/A	4.41	\$ 26.93	12.77	N/A	\$ 6.10	N/A
City of Cottonwood (AZ)	\$ 1,195,609	\$ 352,105	3.39	\$ 29.89	8.93	2.19	\$ 8.82	\$ 19.33
City of Coolidge (CART)	\$ 675,846	\$ 260,297	0.35	\$ 9.01	2.62	2.03	\$ 25.65	\$ 25.87
City of Tracy (TRACER)	\$ 2,707,502	\$ 550,588	1.67	\$ 30.08	5.59	1.79	\$ 18.01	\$ 32.15
Yosemite Area Regional Transit System (YARTS)	\$ 2,298,999	N/A	0.43	\$ 9.36	6.23	N/A	\$ 21.54	N/A
Fresno County Rural Transit Agency (FCRTA)	\$ 1,374,244	\$ 3,526,770	0.10	\$ 1.45	4.66	5.77	\$ 14.69	\$ 11.85
	Peer Agency Average		6.15	\$ 35.66	11.10	2.66	\$ 11.79	\$ 24.91
	Adjusted to exclude ESTA		2.79	\$28.93	7.39	2.5	\$13.54	\$25.98

Exhibit 6.2: MBTA Organization Chart

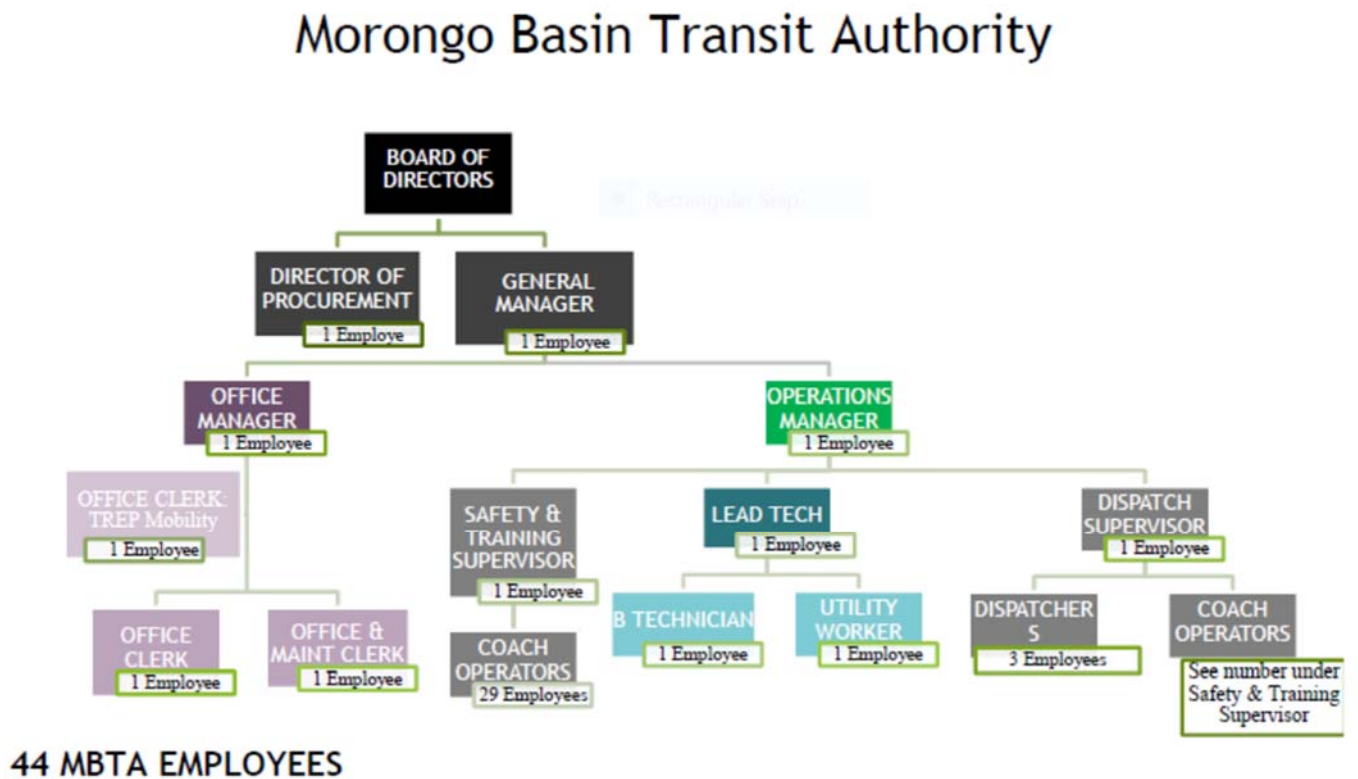


Exhibit 6.3: MBTA Staffing Levels Relative to Peer Agencies

City / Agency	Service Population	Vehicles Operated at Maximum Service (VOMS)	Annual Vehicle Revenue Hours (VRH)	Admin Employee Count	Operations Employee Count	Maintenance Employees Count	Total # of Employees	# of VOMS per Maintenance Employee	# of VRHs per Maintenance Employee	# of VRHs per Total Employee Count
Morongo Basin Transit Authority (MBTA)	68,800	17	35,920	7	34	3	44	5.7	11,973.3	780.9
Mountain Area Regional Transit Authority (MARTA)	48,000	11	35,390	6	45	4	55	2.8	8,847.5	643.5
Eastern Sierra Transit Authority (ESTA)	50,000	44	56,000	7	63	Contracted	80	n/a	n/a	700.0
Mendocino Transit Authority (MTA)	90,000	23	44,245	7	43	6	56	3.8	7,374.2	790.0

6.2 Maintenance Staff Time Allocation Review

This section presents the results of maintenance and clerical staff tracking of time and function for a select period in June/July 2019.

Objective: In an effort to ensure adequate staff resources are available for core maintenance and clerical functions to support MBTA operations, four staff were requested to complete a daily *Maintenance Time Log* for a six to eight day period spanning from June 29 to July 13, 2019.

Methodology: *Maintenance Time Log* forms comprised a one-page table. One column presented the span of work for each employee in one-half hour increments. Employees were requested to indicate their activities in each row (for each ½ hour increment). Separate forms for Saturday and Weekday, for the Utility Worker, were provided.

Staff were requested to: complete one *Maintenance Time Log* form per day; insert the date; note activities in ½ hour increments; and turn in their completed Log each day at the end of their shift.

Results: Exhibit 6.4 presents the results of the completed Log forms, presenting percentages of time allocated to core functional requirements and competencies. Following the table is discussion and key observations for each of the participating staff positions.

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Core Functions and Allocation of Time: The following presents discussion of each of the participant's allocation of time and reference to salient aspects of their job description.

This tracking of time and activity did not include a review of volume of work completed and assumes that the fleet (and facilities) are in a state of good repair with no impact on the number of vehicles available for daily pull-outs.

Utility Services Worker

Job Description: This full-time position is primarily responsible for the cleaning, of both the inside and outside of MBTA buses. The position also entails janitorial and landscaping duties at the MBTA Operations Center, and other duties as assigned by the Lead Technician and or the Operations Manager, including bus stop cleaning and minor repair work on MBTA buildings and equipment. This position is considered AT-WILL.

Competencies:

1. Performs cleaning of MBTA vehicles, both inside and out
2. Performs landscaping duties at MBTA
3. Performs janitorial duties at MBTA Operations Center, and at other MBTA facilities as assigned
4. Performs maintenance, cleaning, and trash removal at MBTA bus stops
5. Perform minor maintenance work on MBTA fleet and facilities when necessary
6. Performs other duties as assigned

Given that this position is *primarily responsible for the cleaning of both the inside and outside of MBTA buses*, as illustrated below, less than thirteen percent of time was spent washing buses. The majority of time (46.4%) was spent doing janitorial duties, including cleaning and trash removal.

Utility Worker			Activity												
Date	Sat./ Wkday	Hrs. Worked	wash windows	trade out buses	clean offices	clean bathrooms	errands, misc.	mop floors	trash - TCs	wash- rooms - TCs	wash van	paperwork	bus wash	lunch	TOTAL
	Percent of Time		6.80%	10.50%	21.80%	2.80%	12.90%	3.20%	8.90%	9.70%	2.40%	2.40%	12.90%	5.70%	100.00%

Maintenance Clerk

A job description for the Maintenance Clerk was not provided. In reviewing the Office Clerk job description, it is assumed that the Maintenance Clerk has primary responsibility for compiling maintenance reports including processing invoices/ROs, and related maintenance administrative support functions.

The allocation of time spent on the activities (as illustrated below) appear consistent with the requirements of the job. It is important to note however, that this tracking of time and activity did

not include a review of volume of work completed, (i.e., how many invoices were processed over what period of time?).

Clerk			Activity								
Date	Sat./ Wkday	Hrs. Worked	mileage in TransTrack	Process invoices	enter ROs	research orders	admin duties	order parts	enter PM history	lunch	TOTAL
	Percent of Time		2.60%	26.30%	43.40%	10.50%	7.90%	3.90%	5.30%		99.90%

Shop Supervisor

Job Description (Mechanic “A” Lead Technician): Works with little or no supervision. Serves as an inspector and troubleshooter to determine proper corrective maintenance procedures prior to attempting repairs. Is proficient in using all tools and test equipment normally used during maintenance and inspection, is proficient in repairs, electrical, engine, transmissions and air conditioning systems; is knowledgeable in component rebuilding and/or repairs.

Job Content:

1. Performs all vehicle inspections and repairs as directed by Maintenance Manager.
2. Performs trouble shooting of electrical, fuel, drive-line, engine, and transmission problems. Corrects deficiencies to keep all agency vehicles in a safe and efficient operating condition.
3. Troubleshoots, services, and repairs air-conditioning systems and components.
4. Inspects, troubleshoots and repairs exterior and interior lighting, pneumatic, electrical, hydraulic cooling and lubricating systems.
5. Assists and instructs level B mechanics whenever it is necessary.

As illustrated below, the Shop Supervisor spent over 71% of their time doing bus inspections and maintenance/repair activities. This appears reasonable and consistent with duties as articulated in job description. The remainder of time spent in administrative duties including new unit intake, and paperwork appear reasonable.

Shop Supervisor												
			Activity									
Date	Sat./ Wkday	Hrs. Worked	Pick up dispatch paperwork	inspect bus	maintenance/ repair	paperwork/ Zonar	test drive	order parts	intake new unit	travel	lunch	TOTAL
	Percent of Time		5.30%	31.90%	39.40%	7.50%	1.10%	4.25%	4.25%	1.10%	5.30%	100.10%

Mechanic "B"

Job Description: Works under supervision or detailed instruction and performs vehicle inspections and repairs as directed. Assists "A" or Lead Mechanics with more difficult tasks. Works within the framework of the agency's policies and procedures.

As illustrated below (allocation of time by activity), the Mechanic "B" spends 82.6% of their time directly involved in maintenance activities including PM inspections and repairs. Less than eight percent of their time is spent on administrative duties of reports and information entering.

Mechanic B												
			Activity									
Date	Sat./ Wkday	Hrs. Worked	check reports	test drive	PM inspect- ions	oil	maintenace	enter evir mileage	PM repairs	tools/misc	lunch	TOTAL
	Percent of Time		3.80%	1.90%	26.90%	9.60%	42.30%	3.80%	3.80%	1.90%	6.00%	100.00%

7.0 RECOMMENDED SERVICE PLAN

This chapter presents a phased five-year transition plan to redesign existing transit services to better respond to the mobility expectations and preferences of Morongo Basin residents, employees and visitors. The proposed system concept is illustrated in schematic format in Exhibit 7.1.

The plan builds on the historical success of cross-valley service operating for decades in the Hwy 62 corridor. Substantial investment in Route 1 coverage, span and frequency upgrades are intended to create a simple, convenient and reliable “mainline” extending across the MBTA service area offering more one-seat ride travel opportunities between key trip generators. Standardized routing and more frequent schedules are recommended to make transit travel more comparable to personal vehicle travel with itineraries chosen primarily to minimize travel time and distance, and particularly to avoid out-of-direction travel and unnecessary transfers. Once the basic cross-valley mainline is in place, MBTA will have the ability to expand service span and frequency on key segments or along the entire alignment as customer demand warrants and funding levels permit. The plan targets 30-minute headways on all segments of Route 1 on weekdays and Saturdays by FY 2025.

Further recommendations include replacing MBTA’s neighborhood local fixed routes with dynamically routed and scheduled personal mobility on-demand (PMoD) service offering primarily first/last mile” feeder connections between residential neighborhoods and key bus stops along the Hwy 62 corridor. The new service (referred to as “Flex Feeder” in this report) will operate in four zones encompassing Joshua Tree, Landers, Twentynine Palms, and Yucca Valley. Service delivery options include area taxi and TNC operators, as well as Ready Ride.

Consolidation of regional service into a single route providing weekday and Saturday service to Palm Springs Airport. Consideration should be given to replacing the one-way loop alignment in Palm Springs with a bi-directional service along a linear alignment.

New fare policy designed to support the service plan is proposed.

Section 7.5 presents the phased implementation of the Five-Year Service Plan FY 2021 -2025.

7.1 Route 1 Service Upgrades

Phased improvements to existing Route 1 are proposed to create a high-quality transit service in the Hwy 62 corridor. Key design objectives include simplified routing, seven-day service, more frequent schedules, and enhanced bus stops at major boarding and transfer locations.

The 32-mile one-way alignment connects the MCAGCC Px Shopping Center and Yucca Valley Park-Ride Lot (YVPR) primarily via Adobe Road and Hwy 62 except between Airway Drive and Joshua Lane in Yucca Valley. Fixed-point deviations off Hwy 62 include Hi-Desert Hospital at White Feather Road and Copper Mountain College at Rotary Way.

The five-year plan envisions Route 1 improvements in three phases. Phase 1 improvements include end-to-end operation of all trips to form a consistent pattern on a single timetable. This is comparable to existing Route 1 service running on weeknights after 6:30 pm and on weekends. Route 3A is discontinued as a separate timetable. All westbound trips of Route 1 to YVPR and

all eastbound trips to MCAGCC along a simplified alignment consisting of Adobe Road, Brown Road and 5th Street to the Px Shopping Center. Expedited on-base routing as proposed is contingent on the further collection and analysis by MBTA of on-base boarding and alighting activity occurring on existing Route 3A daytime and Route 1 weeknight/weekend service.⁴

Ideally, two additional fixed-point deviations (served by Flex services) from Hwy 62 to high-value destinations should be considered, while recognizing that these locations currently cannot be served by the standard heavy-duty buses typically deployed on Route 1. These include the San Bernardino Department of Public Social Services (DPSS) office at 56376 Pima Trail near Church Street, and the Yucca Valley Civic Center on Antelope Trail and Dumosa Avenue.

Three buses are needed to support a 60-minute frequency on weekdays and Saturday in Phase 1. One bus is needed to support a 180-minute frequency on Sunday. A 63-mile round trip requires 151 - 164 minutes of scheduling running time, depending on time of day. Scheduling assumptions include line speed (23-25 mph); schedule cycle (180 minutes); and minimum 10% scheduled recovery time per cycle. Preliminary (*i.e.*, unadjusted) timetables are provided in Exhibit 7.2.

Future year investment in service frequency improvements to Route 1 are recommended leading to 30-minute headways on weekdays and Saturdays implemented by FY 2024. The timing of frequency improvements should be linked to ridership productivity performance targets. The five-year plan envisions a Phase 2 addition of a fourth bus to Route 1 weekday and Saturday schedules in FY2024 to upgrade service frequency in Yucca Valley (YVPR – Walmart) to 30 minutes. Preliminary (*i.e.*, unadjusted) timetables are provided in Exhibit 7.3.

In Phase 3, two additional buses are deployed as early as FY 2025 to upgrade the entire line to 30 minutes. Phase 3 requires a total of six buses to operate Route 1. Preliminary (*i.e.*, unadjusted) timetables are provided in Exhibit 7.4. It is noted that the phasing of weekday and Saturday improvements do not necessarily need to occur at the same time and may be tied to performance-based trigger points including meeting performance standards (as presented in Chapter 4).

⁴ March 2019 ride check data collectors were restricted from riding on base to record Route 3A boardings and alightings at various on-base bus stops.

Exhibit 7.1: Proposed System Concept

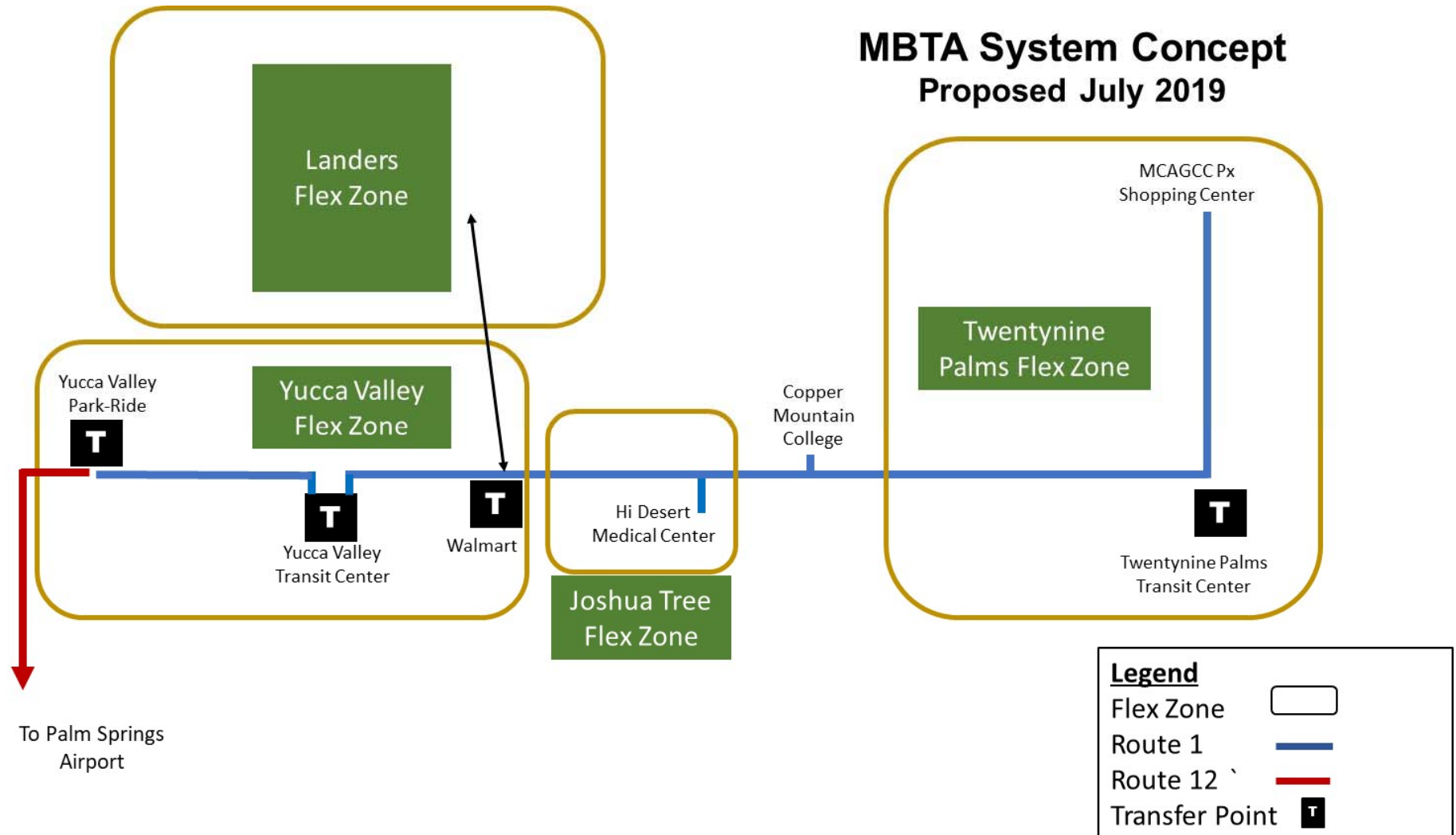


Exhibit 7.2: Preliminary Route 1 Timetables – Phase 1

Route 1 Weekday / Saturday Schedule

Block	PO	Westbound					Eastbound					PI
		MCAGCC Px	29TC	Walmart	YVTC	YVPR	YVPR	YVTC	Walmart	29TC	MCAGCC Px	
1	5:20 AM									5:40 AM	5:55 AM	
3	6:15 AM									6:35 AM	6:50 AM	
2	5:45 AM			6:00 AM	6:10 AM	6:20 AM	6:30 AM	6:40 AM	6:50 AM	7:35 AM	7:50 AM	
1		6:00 AM	6:15 AM	7:00 AM	7:10 AM	7:20 AM	7:30 AM	7:40 AM	7:50 AM	8:35 AM	8:50 AM	
3		7:00 AM	7:15 AM	8:00 AM	8:10 AM	8:20 AM	8:30 AM	8:40 AM	8:50 AM	9:35 AM	9:50 AM	
2		8:00 AM	8:15 AM	9:00 AM	9:10 AM	9:20 AM	9:30 AM	9:40 AM	9:50 AM	10:35 AM	10:50 AM	
1		9:00 AM	9:15 AM	10:00 AM	10:10 AM	10:20 AM	10:30 AM	10:40 AM	10:50 AM	11:35 AM	11:50 AM	
3		10:00 AM	10:15 AM	11:00 AM	11:10 AM	11:20 AM	11:30 AM	11:40 AM	11:50 AM	12:35 PM	12:50 PM	
2		11:00 AM	11:15 AM	12:00 PM	12:10 PM	12:20 PM	12:30 PM	12:40 PM	12:50 PM	1:35 PM	1:50 PM	
1		12:00 PM	12:15 PM	1:00 PM	1:10 PM	1:20 PM	1:30 PM	1:40 PM	1:50 PM	2:35 PM	2:50 PM	
3		1:00 PM	1:15 PM	2:00 PM	2:10 PM	2:20 PM	2:30 PM	2:40 PM	2:50 PM	3:35 PM	3:50 PM	
2		2:00 PM	2:15 PM	3:00 PM	3:10 PM	3:20 PM	3:30 PM	3:40 PM	3:50 PM	4:35 PM	4:50 PM	
1		3:00 PM	3:15 PM	4:00 PM	4:10 PM	4:20 PM	4:30 PM	4:40 PM	4:50 PM	5:35 PM	5:50 PM	
3		4:00 PM	4:15 PM	5:00 PM	5:10 PM	5:20 PM	5:30 PM	5:40 PM	5:50 PM	6:35 PM	6:50 PM	
2		5:00 PM	5:15 PM	6:00 PM	6:10 PM	6:20 PM	6:30 PM	6:40 PM	6:50 PM	7:35 PM	7:50 PM	
1		6:00 PM	6:15 PM	7:00 PM	7:10 PM	7:20 PM	7:30 PM	7:40 PM	7:50 PM	8:35 PM	8:50 PM	
3		7:00 PM	7:15 PM	8:00 PM	8:10 PM	8:20 PM	8:30 PM	8:40 PM	8:50 PM	9:35 PM		9:55 PM
2		8:00 PM	8:15 PM	9:00 PM	9:10 PM	9:20 PM	9:30 PM	9:40 PM	9:50 PM			10:05 PM
1		9:00 PM	9:15 PM	10:00 PM								10:15 PM

BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs
1	5:20 AM	5:40 AM	10:00 PM	10:15 PM	16:20	0:35	16:55
2	5:45 AM	6:00 AM	9:50 PM	10:05 PM	15:50	0:30	16:20
3	6:15 AM	6:35 AM	9:35 PM	9:55 PM	15:00	0:40	15:40
						Total	48:55

Route 1 Sunday Schedule

Block	PO	Westbound					Eastbound					PI
		MCAGCC Px	29TC	Walmart	YVTC	YVPR	YVPR	YVTC	Walmart	29TC	MCAGCC Px	
1	8:20 AM									8:40 AM	8:55 AM	
1		9:00 AM	9:15 AM	10:00 AM	10:10 AM	10:20 AM	10:30 AM	10:40 AM	10:50 AM	11:35 AM	11:50 AM	
1		12:00 PM	12:15 PM	1:00 PM	1:10 PM	1:20 PM	1:30 PM	1:40 PM	1:50 PM	2:35 PM	2:50 PM	
1		3:00 PM	3:15 PM	4:00 PM	4:10 PM	4:20 PM	4:30 PM	4:40 PM	4:50 PM	5:35 PM	5:50 PM	
1		6:00 PM	6:15 PM									6:35 PM

BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs
1	8:20 AM	8:40 AM	6:15 PM	6:35 PM	9:35	0:40	10:15

Exhibit 7.3: Preliminary Route 1 Timetables – Phase 2

Block	PO	Westbound						Eastbound						PI
		MCAGCC Px	29TC	Hwy 62 Sunburst	Walmart	YVTC	YVPR	YVPR	YVTC	Walmart	Hwy 62 Sunburst	29TC	MCAGCC Px	
1	5:00 AM										5:05 AM	5:40 AM	5:55 AM	
3	5:55 AM										6:00 AM	6:35 AM	6:50 AM	
2	5:45 AM			5:50 AM	6:00 AM	6:10 AM	6:20 AM	6:30 AM	6:40 AM	6:50 AM	7:00 AM	7:35 AM	7:50 AM	
4	6:15 AM			6:20 AM	6:30 AM	6:40 AM	6:50 AM	7:00 AM	7:10 AM	7:20 AM				
1		6:00 AM	6:15 AM	6:50 AM		7:00 AM	7:10 AM	7:20 AM	7:30 AM	7:40 AM	7:50 AM	8:00 AM	8:35 AM	8:50 AM
4					7:30 AM	7:40 AM	7:50 AM	8:00 AM	8:10 AM	8:20 AM				
3		7:00 AM	7:15 AM	7:50 AM	8:00 AM	8:10 AM	8:20 AM	8:30 AM	8:40 AM	8:50 AM	9:00 AM	9:35 AM	9:50 AM	
4					8:30 AM	8:40 AM	8:50 AM	9:00 AM	9:10 AM	9:20 AM				
2		8:00 AM	8:15 AM	8:50 AM	9:00 AM	9:10 AM	9:20 AM	9:30 AM	9:40 AM	9:50 AM	10:00 AM	10:35 AM	10:50 AM	
4					9:30 AM	9:40 AM	9:50 AM	10:00 AM	10:10 AM	10:20 AM				
1		9:00 AM	9:15 AM	9:50 AM	10:00 AM	10:10 AM	10:20 AM	10:30 AM	10:40 AM	10:50 AM	11:00 AM	11:35 AM	11:50 AM	
4					10:30 AM	10:40 AM	10:50 AM	11:00 AM	11:10 AM	11:20 AM				
3		10:00 AM	10:15 AM	10:50 AM	11:00 AM	11:10 AM	11:20 AM	11:30 AM	11:40 AM	11:50 AM	12:00 PM	12:35 PM	12:50 PM	
4					11:30 AM	11:40 AM	11:50 AM	12:00 PM	12:10 PM	12:20 PM				
2		11:00 AM	11:15 AM	11:50 AM	12:00 PM	12:10 PM	12:20 PM	12:30 PM	12:40 PM	12:50 PM	1:00 PM	1:35 PM	1:50 PM	
4					12:30 PM	12:40 PM	12:50 PM	1:00 PM	1:10 PM	1:20 PM				
1		12:00 PM	12:15 PM	12:50 PM	1:00 PM	1:10 PM	1:20 PM	1:30 PM	1:40 PM	1:50 PM	2:00 PM	2:35 PM	2:50 PM	
4					1:30 PM	1:40 PM	1:50 PM	2:00 PM	2:10 PM	2:20 PM				
3		1:00 PM	1:15 PM	1:50 PM	2:00 PM	2:10 PM	2:20 PM	2:30 PM	2:40 PM	2:50 PM	3:00 PM	3:35 PM	3:50 PM	
4					2:30 PM	2:40 PM	2:50 PM	3:00 PM	3:10 PM	3:20 PM				
2		2:00 PM	2:15 PM	2:50 PM	3:00 PM	3:10 PM	3:20 PM	3:30 PM	3:40 PM	3:50 PM	4:00 PM	4:35 PM	4:50 PM	
4					3:30 PM	3:40 PM	3:50 PM	4:00 PM	4:10 PM	4:20 PM				
1		3:00 PM	3:15 PM	3:50 PM	4:00 PM	4:10 PM	4:20 PM	4:30 PM	4:40 PM	4:50 PM	5:00 PM	5:35 PM	5:50 PM	
4					4:30 PM	4:40 PM	4:50 PM	5:00 PM	5:10 PM	5:20 PM				
3		4:00 PM	4:15 PM	4:50 PM	5:00 PM	5:10 PM	5:20 PM	5:30 PM	5:40 PM	5:50 PM	6:00 PM			6:05 PM
4					5:30 PM	5:40 PM	5:50 PM	6:00 PM	6:10 PM	6:20 PM	6:30 PM			6:35 PM
2		5:00 PM	5:15 PM	5:50 PM	6:00 PM									6:15 PM
1		6:00 PM	6:15 PM	6:50 PM										6:55 PM

BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs
1	5:00 AM	5:05 AM	6:50 PM	6:55 PM	13:45	0:10	13:55
2	5:45 AM	5:50 AM	6:00 PM	6:15 PM	12:10	0:20	12:30
3	5:55 AM	6:00 AM	6:00 PM	6:05 PM	12:00	0:10	12:10
Subtotal					37:55	0:40	38:35
4	6:15 AM	6:20 AM	6:30 PM	6:35 PM	12:10	0:10	12:20
Total					50:05	0:50	50:55

Exhibit 7.4: Preliminary Route 1 Timetables – Phase 3

Block	PO	Westbound						Eastbound						PI
		MCAGCC Px	29TC	Hwy 62 Sunburst	Walmart	YVTC	YVPR	YVPR	YVTC	Walmart	Hwy 62 Sunburst	29TC	MCAGCC Px	
1	5:00 AM										5:05 AM	5:40 AM	5:55 AM	
3	6:00 AM										6:05 AM	6:40 AM	6:55 AM	
6	6:30 AM										6:35 AM	7:10 AM	7:25 AM	
2	5:45 AM			5:50 AM	6:00 AM	6:10 AM	6:20 AM	6:30 AM	6:40 AM	6:50 AM	7:00 AM	7:35 AM	7:50 AM	
4	6:15 AM			6:20 AM	6:30 AM	6:40 AM	6:50 AM	7:00 AM	7:10 AM	7:20 AM	7:30 AM	8:05 AM	8:20 AM	
1		6:00 AM	6:15 AM	6:50 AM	7:00 AM	7:10 AM	7:20 AM	7:30 AM	7:40 AM	7:50 AM	8:00 AM	8:35 AM	8:50 AM	
5	7:15 AM			7:20 AM	7:30 AM	7:40 AM	7:50 AM	8:00 AM	8:10 AM	8:20 AM	8:30 AM	9:05 AM	9:20 AM	
3		7:00 AM	7:15 AM	7:50 AM	8:00 AM	8:10 AM	8:20 AM	8:30 AM	8:40 AM	8:50 AM	9:00 AM	9:35 AM	9:50 AM	
6		7:30 AM	7:45 AM	8:20 AM	8:30 AM	8:40 AM	8:50 AM	9:00 AM	9:10 AM	9:20 AM	9:30 AM	10:05 AM	10:20 AM	
2		8:00 AM	8:15 AM	8:50 AM	9:00 AM	9:10 AM	9:20 AM	9:30 AM	9:40 AM	9:50 AM	10:00 AM	10:35 AM	10:50 AM	
4		8:30 AM	8:45 AM	9:20 AM	9:30 AM	9:40 AM	9:50 AM	10:00 AM	10:10 AM	10:20 AM	10:30 AM	11:05 AM	11:20 AM	
1		9:00 AM	9:15 AM	9:50 AM	10:00 AM	10:10 AM	10:20 AM	10:30 AM	10:40 AM	10:50 AM	11:00 AM	11:35 AM	11:50 AM	
5		9:30 AM	9:45 AM	10:20 AM	10:30 AM	10:40 AM	10:50 AM	11:00 AM	11:10 AM	11:20 AM	11:30 AM	12:05 PM	12:20 PM	
3		10:00 AM	10:15 AM	10:50 AM	11:00 AM	11:10 AM	11:20 AM	11:30 AM	11:40 AM	11:50 AM	12:00 PM	12:35 PM	12:50 PM	
6		10:30 AM	10:45 AM	11:20 AM	11:30 AM	11:40 AM	11:50 AM	12:00 PM	12:10 PM	12:20 PM	12:30 PM	1:05 PM	1:20 PM	
2		11:00 AM	11:15 AM	11:50 AM	12:00 PM	12:10 PM	12:20 PM	12:30 PM	12:40 PM	12:50 PM	1:00 PM	1:35 PM	1:50 PM	
4		11:30 AM	11:45 AM	12:20 PM	12:30 PM	12:40 PM	12:50 PM	1:00 PM	1:10 PM	1:20 PM	1:30 PM	2:05 PM	2:20 PM	
1		12:00 PM	12:15 PM	12:50 PM	1:00 PM	1:10 PM	1:20 PM	1:30 PM	1:40 PM	1:50 PM	2:00 PM	2:35 PM	2:50 PM	
5		12:30 PM	12:45 PM	1:20 PM	1:30 PM	1:40 PM	1:50 PM	2:00 PM	2:10 PM	2:20 PM	2:30 PM	3:05 PM	3:20 PM	
3		1:00 PM	1:15 PM	1:50 PM	2:00 PM	2:10 PM	2:20 PM	2:30 PM	2:40 PM	2:50 PM	3:00 PM	3:35 PM	3:50 PM	
6		1:30 PM	1:45 PM	2:20 PM	2:30 PM	2:40 PM	2:50 PM	3:00 PM	3:10 PM	3:20 PM	3:30 PM	4:05 PM	4:20 PM	
2		2:00 PM	2:15 PM	2:50 PM	3:00 PM	3:10 PM	3:20 PM	3:30 PM	3:40 PM	3:50 PM	4:00 PM	4:35 PM	4:50 PM	
4		2:30 PM	2:45 PM	3:20 PM	3:30 PM	3:40 PM	3:50 PM	4:00 PM	4:10 PM	4:20 PM	4:30 PM	5:05 PM	5:20 PM	
1		3:00 PM	3:15 PM	3:50 PM	4:00 PM	4:10 PM	4:20 PM	4:30 PM	4:40 PM	4:50 PM	5:00 PM	5:35 PM	5:50 PM	
5		3:30 PM	3:45 PM	4:20 PM	4:30 PM	4:40 PM	4:50 PM	5:00 PM	5:10 PM	5:20 PM	5:30 PM	6:05 PM	6:20 PM	
3		4:00 PM	4:15 PM	4:50 PM	5:00 PM	5:10 PM	5:20 PM	5:30 PM	5:40 PM	5:50 PM	6:00 PM			6:05 PM
6		4:30 PM	4:45 PM	5:20 PM	5:30 PM	5:40 PM	5:50 PM	6:00 PM	6:10 PM	6:20 PM	6:30 PM			6:35 PM
2		5:00 PM	5:15 PM	5:50 PM	6:00 PM									6:15 PM
4		5:30 PM	5:45 PM	6:20 PM	6:30 PM									6:35 PM
1		6:00 PM	6:15 PM	6:50 PM										6:55 PM
5		6:30 PM	6:45 PM	7:20 PM										7:25 PM

BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs
1	5:00 AM	5:05 AM	6:50 PM	6:55 PM	13:45	0:10	13:55
2	5:45 AM	5:50 AM	6:00 PM	6:15 PM	12:10	0:20	12:30
3	6:00 AM	6:05 AM	6:00 PM	6:05 PM	11:55	0:10	12:05
Total					37:50	0:40	38:30
4	6:15 AM	6:20 AM	6:30 PM	6:35 PM	12:10	0:10	12:20
5	7:15 AM	7:20 AM	7:20 PM	7:25 PM	12:00	0:10	12:10
6	6:30 AM	6:35 AM	6:30 PM	6:35 PM	11:55	0:10	12:05
Total					36:05	0:30	36:35
Total					73:55	1:10	75:05

7.2 Regional Service to Palm Springs

The five-year plan includes modification of existing Route 12 and discontinuation of Route 15. Consolidation of the two routes into a single Route 12 timetable operating a longer service span on weekdays and Saturday with even coverage across the service day is recommended.

Truncation of coverage between YVTC and YVPR is recommended to eliminate duplication with Route 1 as proposed, and to ensure schedule integrity throughout the service day. The new northern terminus at YVPR shortens the alignment to 57 miles round trip requiring between 98 and 107 minutes per cycle, depending on time of day. Scheduling assumptions include line speed (35 mph); schedule cycle (120 minutes); and minimum 10% scheduled recovery time per cycle. In contrast, existing weekday round trips are allowed between 85 and 100 minutes between Palm Springs Airport and YVPR.

Improved weekday service frequency to 120 minutes is proposed with six round trips (currently three) in the weekday schedule requiring deployment of one bus in revenue service between 7:00 am and 6:55 pm. New Saturday service with timed transfer connections between Routes 1 and 12 at YVPR replaces existing Route 15 direct trips; and service frequency increases from two round trips to four round trips per Saturday. Preliminary (*i.e.*, unadjusted) timetables are provided in Exhibit 7.5. Route 15 Friday and Sunday trips are discontinued due to low ridership.

Exhibit 7.5: Preliminary Route 12 Timetables

Route 12 Weekday Schedule								
		Route 1	Route 12 Southbound			Route 12 Northbound		Route 1
Block	PO	YVPR Arr	YVPR Lv	Palm Springs Airport Arr	Palm Springs Airport Lv	YVPR Arr	YVPR Lv	PI
1	7:10 AM	7:20 AM	7:30 AM	8:20 AM	8:30 AM	9:20 AM	9:30 AM	
1		9:20 AM	9:30 AM	10:20 AM	10:30 AM	11:20 AM	11:30 AM	
1		11:20 AM	11:30 AM	12:20 PM	12:30 PM	1:20 PM	1:30 PM	
1		1:20 PM	1:30 PM	2:20 PM	2:30 PM	3:20 PM	3:30 PM	
1		3:20 PM	3:30 PM	4:20 PM	4:30 PM	5:20 PM	5:30 PM	
1		5:20 PM	5:30 PM	6:20 PM	6:30 PM	7:20 PM	7:30 PM	7:40 PM
BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs	
1	7:10 AM	7:30 AM	7:20 PM	7:40 PM	11:50	0:40	12:30	
Route 12 Saturday Schedule								
		Route 1	Route 12 Southbound			Route 12 Northbound		Route 1
Block	PO	YVPR Arr	YVPR Lv	Palm Springs Airport Arr	Palm Springs Airport Lv	YVPR Arr	YVPR Lv	PI
1	11:10 AM	11:20 AM	11:30 AM	12:20 PM	12:30 PM	1:20 PM	1:30 PM	
		1:20 PM	1:30 PM	2:20 PM	2:30 PM	3:20 PM	3:30 PM	
		3:20 PM	3:30 PM	4:20 PM	4:30 PM	5:20 PM	5:30 PM	
		5:20 PM	5:30 PM	6:20 PM	6:30 PM	7:20 PM	7:30 PM	7:40 PM
BLK	PO	IN	OUT	PI	Rev Hrs	Deadhead	Veh Hrs	
1	11:10 AM	11:30 AM	7:20 PM	7:40 PM	7:50	0:40	8:30	

7.3 Neighborhood Local Service

As a group, MBTA's neighborhood local fixed routes operate at the lower end of the range for ridership productivity observed among peer systems. In Twentynine Palms, Routes 3A and 3B operate within a monthly productivity range of eight to 10 boardings per service hour. In Yucca Valley, Routes 7A and 7B productivities range between 10 and 12 boardings per hour. In Landers, Route 21 monthly productivity ranges between four and seven boardings per hour.

Marginal productivity is a key concern to MBTA in part because it impedes further investment in service span and frequency improvements required to attract more customers seeking convenience. This relegates MBTA neighborhood fixed routes to a negative cycle of low level of service and correspondingly low ridership. Customers served by the neighborhood locals are indefinitely saddled with hourly weekday service and no weeknight or weekend service. Prospects for improvement are unlikely in the context of prevailing service area characteristics including low population density, sizeable tracts of undeveloped property along MBTA fixed routes, and incomplete pedestrian infrastructure.

Accordingly, the five-year service plan recommends a transition of neighborhood services from fixed route to Flex in Twentynine Palms (3B), Yucca Valley (7A/B); and from deviated fixed route (21) to Flex in Landers. Existing Route 3A is integrated into Route 1 as proposed.

Flex service is on-demand and advance reservation personal mobility service combined with customer-friendly technologies to provide "first mile/last mile" access to mainline fixed routes. Transit agencies increasingly are turning toward Flex services as an alternative to incremental fixed route coverage in low density service areas with limited walk-on ridership potential. Adapted to MBTA operating environment, defining service attributes include:

- Shared-ride feeder connections with Route 1 and direct travel perpendicular to the Hwy 62 corridor and Adobe Road.
- Zone-based travel within four zones: Twentynine Palms; Yucca Valley; Joshua Tree; and Landers.
- Low flat-fare to incentivize feeder trips to the Hwy 62 corridor.
- Seamless transfers to Route 1 at selected enhanced bus stops.
- Premium fare for point-to-point (direct) service within a zone.
- Diversified service delivery using TNCs, smart taxis, and MBTA Ready Ride.



AC Transit's Flex program lets customers book rides on demand, schedule them in advance, or hop on board without a reservation at a BART station. Photo Credit: Aris Credit, Bay Area News Group



The diversified service offerings (i.e., use of TNCs and/or taxis) requires the development of performance based agreements articulating service standards. Currently there is limited

availability of TNCs in the basin area. Creation of a business opportunity may foster additional participation.

Alternatively, Flex service may be provided by the MBTA with staff drivers and Authority owned vehicles. One in-service vehicle would be required for each of the four Flex zones. Authority provided service may require establishing availability parameters different from that of TNCs or taxis. Further, the Authority would require procuring a mobile app platform from a third-party vendor.

Key customer service characteristics of Flex service include:

- Book trips on-demand (*i.e.*, next bus available) or in advance using a branded mobile app; and by telephone. Industry experience suggests that the majority of trips will be booked through a mobile app and hence limited impact on current dispatch capabilities.
- Track vehicle arrival status using the mobile app.
- Pay fare electronically with credit card, debit card or pre-paid fare card (branded gift card) using the mobile phone app. Cash accepted as “last resort” (*i.e.*, customers without mobile device).

7.3.1 Twentynine Palms Flex

March 2019 ridership data collected for the SRTP reflect nearly 290 weekday boardings and 280 alightings on all scheduled trips of Routes 1, 3A and 3B within Twentynine Palms.

- Route 1 weekday service generated 185 boardings and 179 alightings within Twentynine Palms on 24 one-way trips (both directions); an average of 7.7 boardings and 7.5 alightings per trip. Westbound service generated 142 boardings and 32 alightings at 15 bus stops; eastbound service generated 43 boardings and 147 alightings at 17 bus stops.
- Route 3A weekday service generated 92 boardings and alightings within Twentynine Palms on 22 one-way trips (both directions); an average of 4.2 boardings per trip.
- Route 3B weekday service generated 91 boardings and alightings within Twentynine Palms on 11 loop trips; an average of 8.3 boardings per loop.

Flex replaces primarily existing Route 3B, which operates as a one-way (clockwise) loop on parallel streets both north and south of Hwy 62. The route crosses Hwy 62 at Encelia Drive (Stater Brothers) on the west side of the loop, intersects with Route 1 at 29TC one block south of Hwy 62 at Adobe Road, and overlays Hwy 62 eastbound for 0.5 mile between Desert Knoll Avenue and Utah Trail near the east end of the loop. These three stops account for 46% of total weekday boardings and 43% of total weekday alightings.

Shown in Exhibit 7.6, the Twentynine Palms Flex zone is approximately 40 square miles bounded by Indian Trail on the north, Wilshire Avenue on the east, Rocky Road and Baseline Road on the south, and Lee Road on the west. The zone encompasses areas served presently by Route 3B

and a portion of Route 3A, including developed subdivisions and open land. MCAGCC is not included in the Flex zone.

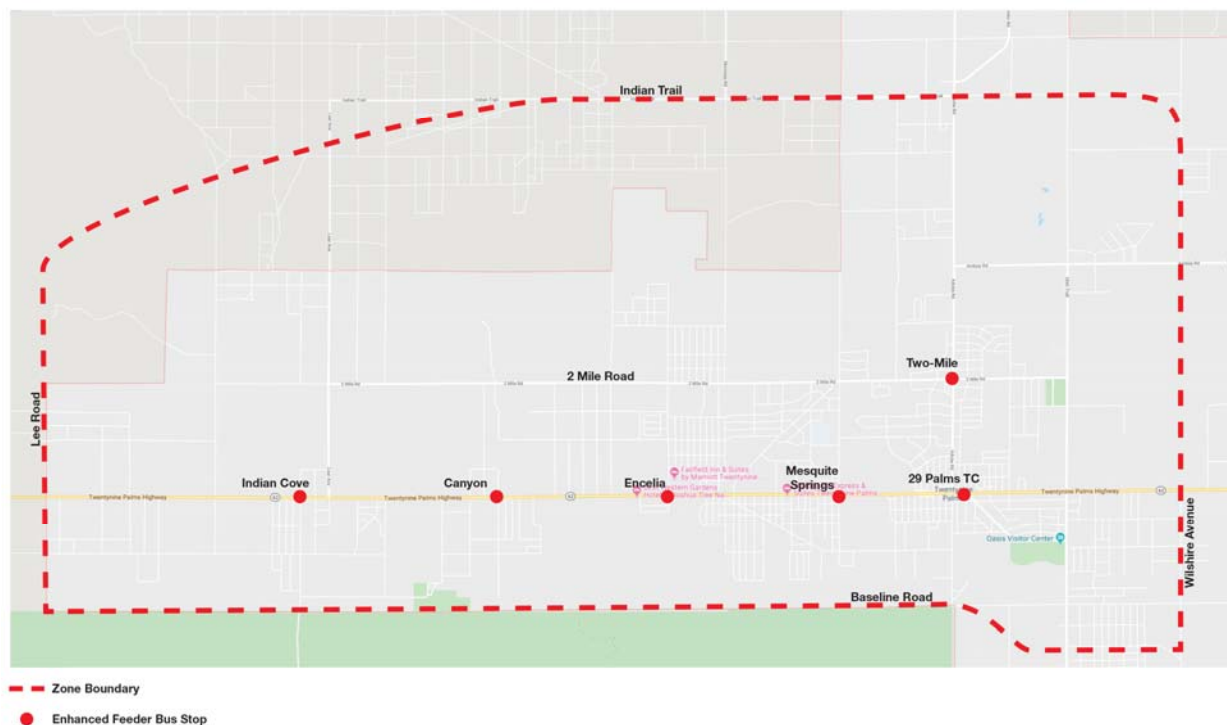
Six locations are proposed as primary feeder points to Route 1 in Twentynine Palms:

- Adobe Road and Two-Mile Road
- 29TC (Cactus & Adobe)
- Hwy 62 @ Mesquite Spring
- Hwy 62 @ Encelia Drive (29 Palms Plaza / Stater Brothers)
- Hwy 62 @ Canyon Road
- Hwy 62 @ Indian Cove Road

Exhibit 7.6: Twentynine Palms Flex Zone

Twentynine Palms

Flex Service Area and Enhanced Feeder Stops



Twentynine Palms Flex weekday service capacity is set initially at 100 one-way feeder trips to and from Hwy 62; and 50 direct trips (*i.e.*, point-to-point other than Hwy 62) within the zone. These estimates are based on existing ridership observed on Route 3B and tempered by several assumptions. The data indicates that Route 3B generates 91 boardings and a like number of alightings per weekday; a total of 182 trip ends. Of these, 52 trip ends occur at 29TC mostly to transfer to either Route 1 or Route 3A. An additional 29 trip ends occur at the two points where Route 3B intersects Hwy 62 (Encelia Drive and Desert Knoll). These data suggest current potential demand of 81 one-way feeder trips, and the estimate of 100 trips allows for up to 25% growth. The remaining 101 trip ends on Route 3B are more likely to be direct and represent about

50 one-way trips between origin and destination. Saturday Flex service capacity is set at 80 one-way feeder trips and 40 one-way direct trips.

7.3.2 Yucca Valley

March 2019 ridership data collected for the SRTP reflect over 400 weekday boardings and a like number of alightings on Routes 1, 7A and 7B within Yucca Valley. The temporary closure of YVTC and truncation of Route 1 west of the Walmart Center during the data collection period affects normal ridership patterns by forcing transfers between Route 1 and Routes 7A/B at Walmart for an unknown number of customers to complete their travel. The data indicates that 122 customers boarded Route 1 eastbound trips at Walmart and 111 customers alighted from westbound trips arriving at Walmart.⁵ These numbers, which reflect 54% of total weekday boardings and 50% of all alightings, likely overstate ridership activity at Walmart and inflate total boardings and alightings by the number of transfers forced by the truncation.

The data further shows the concentration of local ridership activity along Hwy 62 in Yucca Valley. Neighborhood circulator Routes 7A North and 7B South each run one-way alignments and share coverage of the Hwy 62 corridor in opposing directions (7A eastbound; 7B westbound) generate considerably more activity on their Hwy 62 segments than on residential segments. For example, 84% of Route 7A boardings and 78% of alightings occur at bus stops along Hwy 62. Similarly, 82% of Route 7A boardings and 85% of alightings occur at bus stops along Hwy 62. In absolute terms, the circulators generate approximately 290 customer boarding per average weekday, of which 240 occur along Hwy 62 (both directions) and 50 board at bus stops along mostly residential streets in Yucca Valley to the north and south of the Hwy 62 corridor.

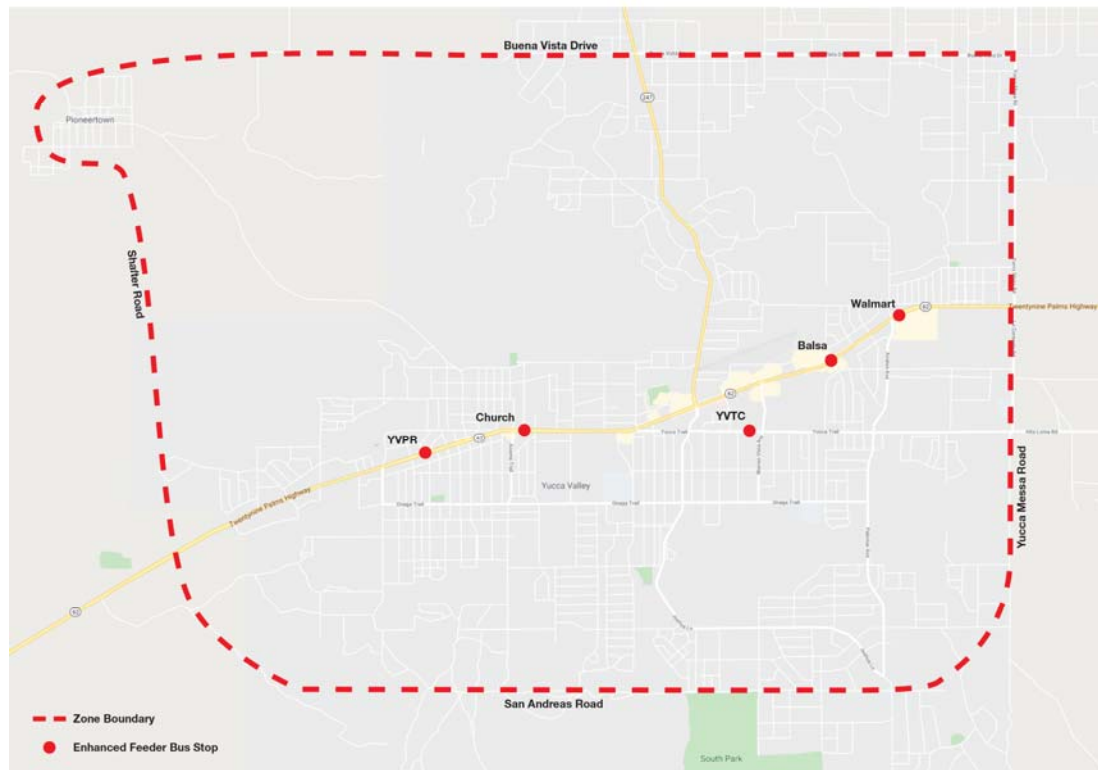
The five-year service plan replaces existing Routes 7A and 7B with Flex service. Shown in Exhibit 7.7, the Yucca Valley Flex zone encompasses approximately 40-square miles bounded by Buena Vista Drive on the north, Yucca Mesa Road on the east, San Andreas Road on the south, and Shafter Avenue and Pioneertown on the west.

⁵ Excludes service after 6:00 pm.

Exhibit 7.7: Yucca Valley Flex Zone

Yucca Valley

Flex Service Area and Enhanced Feeder Stops



Six locations are proposed as primary feeder points to Route 1 in Yucca Valley:

- Yucca Valley Park-Ride (YVPR)
- Hwy 62 @ Church Street
- Hwy 62 @ Dumosa Avenue
- Yucca Valley Transit Center (YVTC)
- Hwy 62 @ Balsa Avenue
- Walmart Center

Yucca Valley Flex weekday service capacity is set initially 125 one-way feeder trips to and from Hwy 62. This estimate is approximately 25% greater than existing ridership observed on Routes 7A/B occurring at bus stops away from Hwy 62. Current activity includes 23 boardings and 19 alightings on Route 7A, and 25 boardings and 35 alightings on Route 7B; at total of 102 trip ends. Saturday Flex service capacity is set at 100 one-way feeder trips. Current local ridership patterns do not reveal significant demand for Flex direct trips; however, a nominal number of 10 direct trips per day in Yucca Valley are included for budget purposes.

7.3.3 Joshua Tree

March 2019 ridership data collected for the SRTP recorded a total of 63 boardings and 69 alightings within Joshua Tree on 24 one-way weekday trips (both directions); an average of 2.6

boardings and 2.9 alightings per scheduled one-way trip. Eastbound service generated 23 boardings and 39 alightings at two bus stops (Park, Bonair); westbound service generated 40 boardings and 30 alightings at three bus stops (Sunburst, Park, Halee). The data reflects significantly greater demand for transit trips to Yucca Valley than Twentynine Palms.

Shown in Exhibit 7.8, the Joshua Tree Flex zone is approximately 35 square miles bounded by Aberdeen Road on the north, Sunfair Road on the east, Skyline Drive on the south, and Olympic Road on the west. Two locations are proposed as primary feeder points to Route 1 in Joshua Tree:

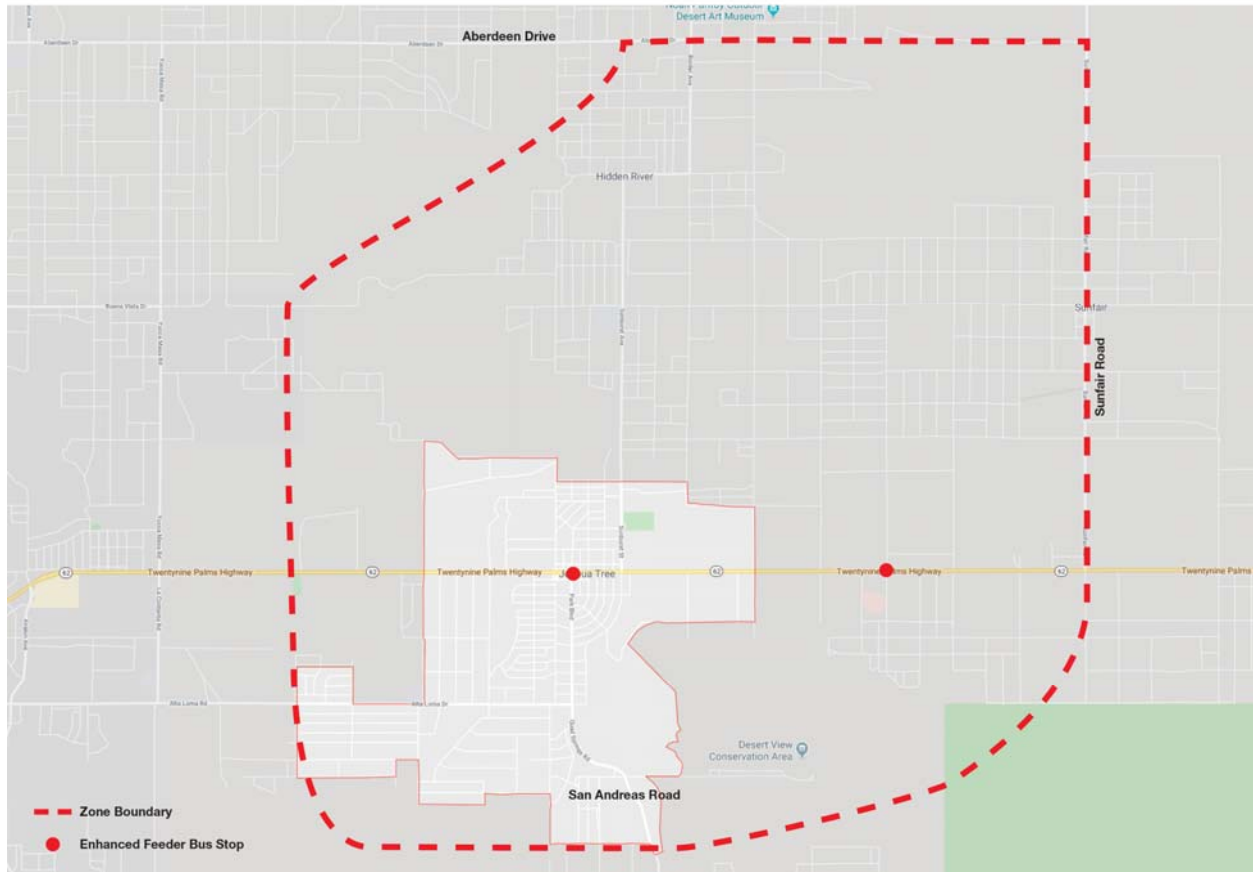
- Hwy 62 and Park Boulevard
- Hwy 62 and White Feather / Courthouse

Joshua Tree Flex weekday service capacity is set initially 45 one-way feeder trips to and from Hwy 62. This estimate is approximately one-third of the total Route 1 weekday customer activity within Joshua Tree (132 trip ends as noted above). Saturday Flex service capacity is set at 35 one-way feeder trips. As there is no existing local circulator service in the defined Joshua Tree Flex zone, no direct trips are budgeted initially.

Exhibit 7.8: Joshua Tree Flex Zone

Joshua Tree

Flex Service Area and Enhanced Feeder Stops



7.3.4 Landers

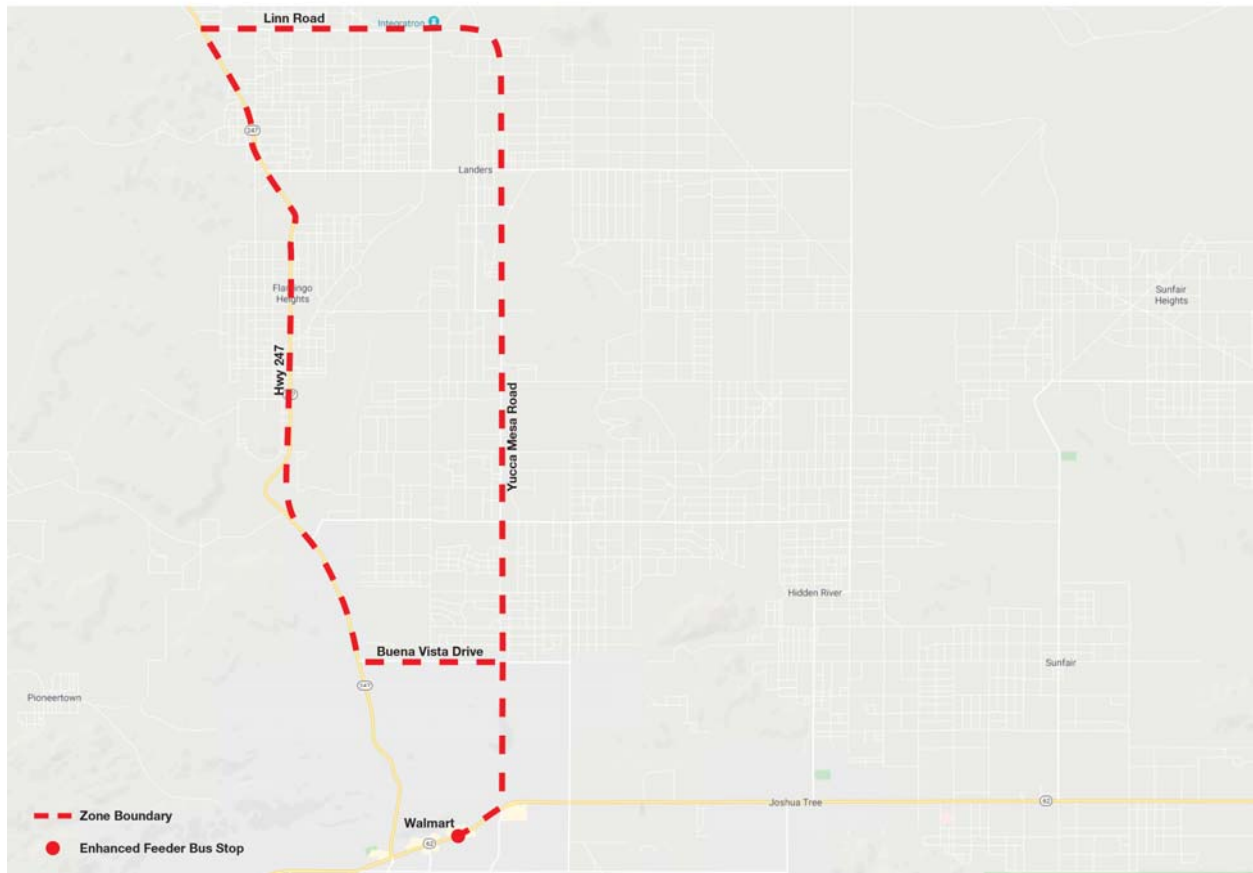
March 2019 ridership data collected for the S RTP recorded a total of 36 boardings and a like number of alightings on six weekday loop trips serving the unincorporated area of Landers; an average of six boardings per trip. The temporary closure of YVTC and truncation of Route 21 west of the Walmart Center during the data collection period affects normal ridership patterns by forcing transfers between Routes 1 and 21 at Walmart for an unknown number of customers to complete their travel.

Landers Flex mostly rebrands existing Route 21 and truncates the fixed route segment at Walmart. Shown in Exhibit 7.9, the Landers Flex zone is approximately 35 square miles bounded generally by Linn Road on the north, Yucca Mesa Road on the east, Buena Vista Drive on the south, and Hwy 247 on the west. The zone extends to an enhanced feeder bus stop near the Walmart Center on Hwy 62 for access to Route 1.

Exhibit 7.9: Landers Flex Zone

Landers

Flex Service Area and Enhanced Feeder Stops



Landers Flex weekday service capacity is set initially 40 one-way feeder trips to and from Hwy 62. This estimate is approximately 10% greater than ridership presently observed on Route 21. Available ridership data indicates 36 daily boardings and a like number of alightings; a total of 72 trip ends. Half of these occur at Walmart (20 on / 15 off) and the others occur at various locations in Landers (16 on / 21 off), including the Post Office and three area grocery stores. These data suggest few if any direct transit trips within Landers. New Saturday Flex service capacity is set at 75% of weekday capacity, or 30 one-way trips.

7.4 Recommended Fare Policy

Independent of the need for periodic rate increases, this section provides a framework for improvements affecting fare structure, fare collection practices, prepaid fare media sales, distribution and redemption channels, and a transition to “easy-to-pay” technologies that are increasingly expected by consumers. Key objectives of MBTA fare policy include:

- Attain a more equitable distribution of user fees based on the value of benefits received (*i.e.*, distance traveled);

- Optimize the relationship between ridership and revenue to reflect MBTA goals and values
- *“Pay Once”* - Customers pay the entire fare on the first vehicle they board or use prepaid media
- Encourage PMoD feeder access to Route 1 mainline service on Hwy 62 to increase ridership and support further investment in corridor service improvements;
- Shift fare transactions away from the farebox to offboard locations (e.g., retail, website, mobile app);
- Transition customers to prepaid fare media using measured discounts as incentives;
- Minimize onboard cash transactions while continuing to accept cash for fare payment.

7.4.1 Hwy 62 Corridor Fixed Route Service

Retaining a flat fare for one-way travel up to 32 miles on Route 1 would overly discount the cost of longer cross-valley trips and counter-intuitively charge a premium for short trips taken within one city or the other. The five-year service plan envisions a simplified three-zone fare structure to ensure a more equitable distribution of value for MBTA customers than is possible by retaining a flat fare structure. Variable pricing may be used to encourage more short-distance ridership on Route 1 and to enhance other ridership opportunities. An example is that of zone boundaries at Copper Mountain College and Walmart Center. These key mid-route trip generators are each part of two adjacent zones for fare purposes.

A revenue-neutral example of the zone fare concept applied to Route 1 would be to replace the \$2.50 flat fare with a \$2.00 fare for travel within a single-zone travel to \$2.00; maintain the current \$2.50 fare for two-zone travel; and increase the fare to \$3.00 for three-zone travel.

Zone fares pose operational issues that must be addressed through fare policy. Collecting the correct fare is a major concern shared by MBTA bus operators and managers alike. Zone fares can increase dwell times at boarding stops to ensure accurate fare collection, thereby slowing bus travel speeds for customers on board. They also increase the potential for fare disputes between customers and bus operators. Depending on the operating environment, transit systems adopt various enforcement policies ranging from the “honor system” to issuance of printed fare receipts, to channeling all alightings through the front door. The honor system least impacts operating speeds and customer interactions but offers greater exposure to revenue loss due to underpayment of fares. This approach is preferred by most rural and many small urban transit systems. Random checks may mitigate concern of potential revenue loss. More assertive enforcement practices are commonly found among larger urban transit systems.

7.4.2 Flex Feeder PMoD Service

The five-year plan recommends implementation of Flex Feeder PMoD service in four zones primarily to provide “first/last mile” connections for Route 1 customers between selected bus stops and any point inside the zone.

The emerging industry business model for Flex Feeder service based on recent experience relies strongly on engaging private taxi companies, Transportation Network Companies (TNC), and other livery service providers in PMoD service delivery. New contractual relationships with compensation based on the number of trips by actually provided rather than on an hourly rate for dedicated use of a vehicle are enabling transit systems to set fares or subsidize market-based rates for PMoD service with cost-effective outcomes. This does not preclude a strategic role for MBTA Ready Ride in PMoD service delivery. A smaller number of transit systems elect to operate PMoD service directly or under conventional hourly cost agreements.

Understanding current taxi and TNC fares in the Morongo Basin is beneficial to establishing Flex Feeder user fees. Taxi fares are based on a three-part pricing formula consisting of a drop (or flag) charge to commission the cab; a mileage charge for distance traveled; and a waiting charge when applicable. A sampling of prevailing taxi prices in the MBTA service area is provided in Exhibit 7.10. TNC provider rates for Lyft and Uber basic shared ride service are based on a combination of time, distance, and other factors.

Exhibit 7.10: Prevailing Taxi / TNC Rates in the MBTA Service Area

Taxi Provider	Drop / Flag Charge	Rate per Mile	3-mile trip
Cloud 29	\$2.50	\$2.50	\$10.00
Jason's	\$2.50	\$2.50	\$10.00
Top's	\$2.50	\$2.50	\$10.00
Desert City	\$3.00	\$3.12	\$12.36
Yellow	\$3.00	\$3.12	\$12.36
Lucky 777	\$3.50	\$3.00	\$12.50

TNC Provider	Service Fee	Rate per Mile	Rate per Minute	3-mile trip (30 mph)	Minimum Fare
Lyft Standard	\$3.30	\$1.01	\$0.15	\$5.21	\$4.00
Uber X	\$3.30	\$1.01	\$0.15	\$5.21	\$7.30

Source: Company websites

Two alternative fare and subsidy approaches for Flex Feeder service are presented as examples for consideration.

Example A – Cost-share Subsidy – Under this approach MBTA would pay the drop charge and the customer would pay a flat mileage charge negotiated by MBTA with providers for feeder trips. The four proposed Flex zones each are generally rectangular 35-40 square miles in size with potential to generate feeder trips ranging from less than a mile to several miles in length. Assuming an average three-mile one-way trip and a least-cost market-based fare of \$10.00, MBTA would pay the drop charge (\$2.50) and negotiate a flat rate near the midpoint of the \$7.50 mileage charge to be paid by the customer. The negotiated rate should take into consideration the potential for grouping rides around key MBTA bus stops, potential access to new customers, and other benefits that can be monetized by private sector service providers. Determination of an initial rate could be made using a competitive procurement process, and future year rates could be subject to periodic adjustment based on surveys of actual feeder trips taken in a preceding fiscal year.

Example B - Fare-based Subsidy – Under this approach, customers would pay a flat fare set by MBTA and MBTA would pay the incremental market-based fare up to a maximum defined amount. Any amount above the maximum for longer trips would be paid by the customer. For example, a three-mile taxi trip at market rates is approximately \$10.00 assuming a \$2.50 drop charge and \$2.50 per mile traveled. The customer pays a flat fare (e.g., \$4.00) for a feeder trip (including transfer to Route 1). MBTA pays the difference (\$6.00). Any amount for travel longer than three miles is the customer's responsibility.

7.4.3 Prepaid Fare Media

MBTA passes should be priced to support MBTA's fiscal and administrative priorities.

7.4.3.1 Day Pass

The current Day Pass price (\$3.75) is 1.5x the Route 1 base fare (\$2.50) and 3.0x the neighborhood local fixed route fare (\$1.25). The low multiple provides a strong incentive for round trip customers to buy a Day Pass at a 25% discount to cash plus free transfers to local routes. However, the Day Pass does not offer value to most neighborhood local riders unless they also ride Route 1.

The current discount Day Pass price (\$3.00) is 2.4x the Route 1 discount cash fare (\$1.25) and 3.0x the neighborhood local route discount cash fare (\$1.00). This incentivizes a smaller group of round-trip customers who need to transfer to a local route to buy a discount Day Pass. Round trip customers who do not need to transfer would be inclined to pay cash. The discount Day Pass does not offer value to most neighborhood local riders unless they also ride Route 1.

The current discount Student Day Pass price (\$3.00) is 1.2x the Route 1 student cash fare (\$2.50) and 3.0x the neighborhood local route discount cash fare (\$1.00). The low multiple provides a strong incentive for round trip students to buy a Day Pass at a 40% discount to cash plus free transfers to local routes. However, it does not offer value to students who ride neighborhood local buses only.

The five-year service plan recommendation to phase out all neighborhood local fixed routes by FY 2025 simplifies Day Pass pricing going forward. However, both the zone fare option for Route 1 and Flex Feeder service add new complexity to pass sales and distribution.

The Day Pass should be priced at 2.0x the Route 1 base fare to maximize fare pre-payment and minimize onboard cash fare transactions. At this price, the Day Pass is offered as a convenience (no discount) to round trip customers and a 33% discount to customers making three or more one-way trips per day.

7.4.3.2. Go Pass

Current Go Pass price (\$40.00) is 16x the Route 1 base fare. The pass offers savings beginning on the ninth day of use in a 31-period and a discount from cash that increases with the total number of trips taken.

Current discount Go Pass price (\$25.00) is 20x the Route 1 discount cash fare. The discount Go Pass offers savings beginning on the 11th day of use in a 31-period and a discount from cash that increases with the total number of trips taken.

Recognizing that present Go Pass prices are deeply discounted, it is recommended that future fare adjustments gradually normalize the monthly pass price in relationship to the base fare and the price of a Day Pass. Go Pass prices should rise toward a 30.0x multiple of the base fare by FY 2025 extending a 25% discount to cash for frequent customers who ride at least four days per week and increasing with the total of trips taken in the 31-day period.

7.4.4 Proposed Fare Structure

The recommended FY 2025 fare structure is summarized in Exhibit 7.11.

Exhibit 7.11: Proposed MBTA Fare Structure

Fare	Single Zone	Two Zones	Three zones
Route 1 cash	\$2.00	\$3.00	\$4.00
Route 1 plus Flex Feeder cash	\$5.00	\$6.00	\$7.00
Route 1 discount cash	\$1.00	\$1.50	\$2.00
Route 1 discount plus Flex Feeder	\$4.00	\$4.50	\$5.00
Day Pass Route 1	\$4.00	\$6.00	\$8.00
Day Pass plus Flex Feeder	\$10.00	\$12.00	\$14.00
Go Pass Route 1	\$60.00	\$90.00	\$120.00
Go Pass plus Flex Feeder	\$150.00	\$180.00	\$210.00
Go Pass Route 1 discount	\$30.00	\$45.00	\$60.00
Go Pass plus Flex Feeder	\$120.00	\$135.00	\$150.00
Flex Direct	\$5.00	NA	NA
Route 12 regional fare	\$8.00	NA	NA
Route 12 discount regional fare	\$4.00	NA	NA
Accompanied child 5 years and under	free	free	free
Mobility companion / aide	free	free	free

7.5 Five-Year Service Plan – FY 2021-2025

Exhibit 7.12 presents the phased Five-year Service Plan FY 2021 -2025 as described herein.

Exhibit 7.12: MBTA Phased Five-Year Service Plan FY 2021 -2025

Hourly Services	Revenue Hours	FY 2021	FY 2022	FY 2023	FY2024	2025	Assumptions
Route	Base Year	1	2	3	4	5	
1 Weekday	7,858	9,441	9,441	9,441	12,471	18,405	Absorb Route 3A / all trips to YVPR July 2020; YV frequency upgrade July 2023; full frequency upgrade July 2024
1 Saturday	1,276	1,276	1,950	1,950	2,605	3,844	Upgrade to weekday schedule to Saturday July 2021
1 Sunday	344	344	556	556	556	556	Expand Sunday schedule July 2021
Subtotal Hwy 62	9,478	11,061	11,947	11,947	15,632	22,805	
3A	2,728	0	0	0	0	0	Consolidate with Route 1 July 2020
3B	2,747	2,747	2,747	0	0	0	Convert to Flex July 2022
7A	2,770	0	0	0	0	0	Convert to Flex July 2020
7B	2,749	0	0	0	0	0	Convert to Flex July 2020
21	2,582	2,582	2,582	2,582	0	0	Convert to Flex July 2023
Subtotal Local	13,576	5,329	5,329	2,582	0	0	
12 Weekday	1,661	2,947	2,947	2,947	2,947	2,947	Expanded schedule July 2020
12 Saturday	0	0	408	408	408	408	Implement Saturday service July 2021
15 Fri/Sat/Sun	698	312	0	0	0	0	Discontinue Friday & Sunday July 2020; discontinue Saturday July 2021
Subtotal Regional	2,360	3,259	3,355	3,355	3,355	3,355	
Subtotal Fixed Route	25,414	19,649	20,631	17,884	18,987	26,160	
Ready Ride (ADA)	7,008	7,148	7,291	7,437	7,586	7,737	Budgeted 2% annual increase in service hours
Total Revenue Hours	32,422	26,797	27,922	25,321	26,573	33,897	
Net Cost per Revenue Hour	\$77.50	\$79.05	\$80.63	\$82.24	\$83.89	\$85.57	
Cost of Hourly Services	\$2,512,684	\$2,118,315	\$2,251,389	\$2,082,486	\$2,229,142	\$2,900,474	
PMoD Services	Subsidized Rides	FY 2021	FY 2022	FY 2023	FY2024	2025	Assumptions
Route	Base FY 2020	1	2	3	4	5	
Night PMoD	0	21,795	22,231	22,676	23,129	23,592	July 2020 convert Route 1 service after 6:00 pm to PMoD feeder; 2% growth years 2-5
YV Flex	0	36,325	37,052	37,793	38,548	39,319	New service July 2020 (year 1); max. subsidized trips = 125 wkdy / 100 Saturday; 2% growth years 2-5
JT Flex	0	0	13,025	13,286	13,551	13,822	New service July 2021 (year 2); max. subsidized trips = 45 wkdy / 35 Saturday; 2% growth years 3-5
29P Flex	0	0	0	29,060	29,641	30,234	New service July 2022 (year 3); max. subsidized trips = 100 wkdy / 80 Saturday; 2% growth years 4-5
Landers Flex	0	0	0	0	11,520	11,750	New service July 2023 (year 4); max. subsidized trips = 125 wkdy / 100 Saturday; 2% growth year 5
Total Trips	0	58,120	72,307	102,814	116,390	118,718	
Average Subsidy	\$0.00	\$3.50	\$3.57	\$3.64	\$3.71	\$3.79	Year 1 subsidy = \$3.50 drop charge; 2% inflation years 2-5
Cost of Subsidized Rides	\$0	\$203,420	\$258,137	\$374,385	\$432,298	\$449,763	
Total System Cost	\$2,512,684	\$2,321,735	\$2,509,526	\$2,456,871	\$2,661,441	\$3,350,237	

8.0 FINANCIAL PLAN

This chapter provides a financial plan projected through FY 2025-26 supporting implementation of the recommended service plan, which is a phased five-year transition to redesign existing transit services. The system redesign encompasses enhancements to core intercommunity trunk routes and replacing MBTA's neighborhood local fixed routes with dynamically routed and scheduled personal mobility on-demand (PMoD) service offering primarily first/last mile" feeder connections between residential neighborhoods and key bus stops along the Hwy 62 corridor.

The new PMoD service, referred to as "Flex Feeder," will operate in four zones encompassing Joshua Tree, Landers, Twentynine Palms, and Yucca Valley. The PMoD service would be directly-operated but could possibly be supplemented by local taxi and transportation network company (TNC) operators as well as the Ready Ride demand response service. The cross-valley trunk route, Route 1, will gradually be upgraded to include streamlined routing, increased frequencies, daily service, and enhance bus stops at major boarding and transfer nodes.

Exhibit 8.1 presents MBTA's proposed capital project plan. Presented are a listing and description of capital projects and reference to funding source, presented by fiscal year. As presented, projects include: vehicle replacement; dispatch and maintenance equipment; shop equipment; AVL/GPS equipment; fare media infrastructure; mobility management/TREP; bus stop improvements; and potential zero emission vehicle (ZEV) readiness and implementation.

Exhibit 8.2 presents MBTA's operations financial plan to FY 2026 including revenues and expenditures. The financial plan for transit operations and the capital program is prepared to ensure there is enough for funding for the proposed service, development, maintenance, and replacement of capital assets.

During this SRTP process Covid-19 pandemic was declared and there was a stay at home order enacted. SBCTA had to revise funding projections which now do not match what was originally given. With SBCTA staff MBTA will work with them annually for funding allocations. The SRTP financial plan will be updated accordingly.

Following are summary descriptions of the funding sources and assumptions for the financial plan. The assumptions are conservative in recognition of shifts in general economic conditions that impact actual revenue generation and the competitiveness of discretionary transit grant programs. Funding sources had previously been identified and described in an earlier chapter. This chapter presents the financial plan tables and revenue strategies. The latter, reflects transit's financial condition and meet performance standards.

8.1 Operating and Capital Expenditures

MBTA relies on a variety of funding sources to operate and sustain its public transit services to the community. Fares comprise just under 20 percent of net operating costs. The net cost of operations is funded through a combination of local, state and federal grant subsidy programs. Actual and projected transit system operating revenues and expenses through FY 2026 are compiled in Exhibit 8.2.

Operating expenditures are inclusive of administration, maintenance and operations. The financial plan uses FY 2019-20 budget data as a baseline. Expenditures are forecasted to increase at a 3.2 percent annually indexed to inflation and cost-of-living adjustments (COLA).

Capital expenditures encompass vehicle replacement, bus stop and shelter improvements, dispatch and maintenance office equipment, engine overhauls, shop equipment, AVL/GPS equipment and roadway improvements as well as ZEV planning and infrastructure. The financial plan uses FY 2019-20 budget data as baseline as well as projected capital forecasts based on MBTA's fleet purchasing and capital improvement plans.

Zero-Emission Vehicle Infrastructure: The San Bernardino County Transportation Authority (SBCTA) in collaboration with the Center for Sustainable Energy released the *San Bernardino County Zero-Emission Vehicle Readiness and Implementation Plan* in August 2019. The ZEV Plan inventories current ZEV infrastructure and usage in San Bernardino County and projects future demand and infrastructure requirements.

The Plan identified significant spatial gaps in areas along travel corridors in the eastern portion of the county, which provides direct access to points of interest such as Joshua Tree National Park, Lake Havasu and Las Vegas. These corridors have been identified as opportunity areas for both Level 2 (3.3 kilowatts – 7.6 kilowatts) charging (to extend the range of plug-in hybrid vehicles on long-distance trips) and direct current fast chargers (50 kilowatts+ chargers) for battery-electric vehicles. As it pertains to the MBTA service area, the Plan identified two potential sites for ZEV charging infrastructure along the SR-62 corridor in the City of Twentynine Palms and the Town of Yucca Valley. Southern California Edison is currently implementing pilot programs to install infrastructure to support electric vehicle charging at multi-unit dwellings, workplaces, and public interest destinations.

The California Air Resources Board (CARB) voted in December 2018 to require all new buses be carbon-free by 2029 under its Innovative Clean Transit Rule. As a small transit operator (fewer than 65 vehicles in revenue service), MBTA must develop a rollout plan to show how it will transition to a 100 percent ZEV fleet by 2040. The rollout plan must be submitted to CARB in 2023.

Burlingame-based Proterra, Inc is one of the leading manufacturers of ZEV transit vehicles and energy charging infrastructure in the United States. The Proterra website was queried for charging systems and pricing. For example, the Proterra 60 Charging System can recharge a Proterra Catalyst E2 electric bus in approximately 6 hours. The Saf-T-Liner C2 Jouley electric school bus powered by Proterra technology can charge in less than 3 hours with the Proterra 60 Kilowatt Charging System. A Proterra Catalyst E2 can charge in approximately 3 hours using the Proterra 125-Kilowatt Charging System. With two dispensers, the 125 Kilowatt system can charge two Proterra Catalyst vehicles in approximately 6 hours. The financial plan includes costs for the procurement of the 125 Kilowatt charging system starting in FY 2023-24 based on a cost of \$67,458 per unit.

8.2 Local Transit Funding Sources

8.2.1 Fare Revenues

Fare revenues will continue to be an important revenue source that help support operations and meet state-required performance measures. Farebox revenues are composed of cash fares and pass sales encompassing three fare categories: adults, students, and senior/disabled.

As the fare policy is implemented, there would be a transition from onboard cash transactions to prepaid fare media. In addition, fare transactions would gradually be shifted from the farebox to offboard locations and media such as retail outlets, the MBTA website and mobile apps.

The five-year service plan envisions a simplified three-zone fare structure along the Route 62 corridor. Variable pricing may be used to encourage more short-distance ridership on Route 1 and to enhance other ridership opportunities. Two alternative fare structures have been proposed for the Flex Feeder service: cost-share subsidy and a fare-based subsidy. Under the cost-share subsidy model, MBTA would pay the drop charge and the customer would pay a flat mileage charge negotiated by MBTA with the service providers. With the fare-based subsidy model, customers would pay a flat fare set by MBTA and MBTA would pay the incremental market-based fare up to a maximum defined amount. Any amount above the maximum for longer trips would be paid by the customer.

The FY 2019–20 MBTA budget provides base year data for the fare revenues. The financial plan projects a 3 percent annual growth rate in passenger fare revenue. Senate Bill (SB) 508 (Beall) was passed in October 2015 and amends key provisions of the Transportation Development Act (TDA). SB 508 allows for other locally generated revenues in the farebox ratio. Examples of possible other local support revenues include gains on the sale of capital assets, lease revenues generated by transit-owned property, fuel sales, and advertising revenues.

8.2.2 Transportation Development Act - Local Transportation Fund (LTF)

TDA funds are the largest sole source of operating revenue for most public transportation systems in the state. The spirit of the TDA statute guiding the use of LTF intends for the revenue to be prioritized for transit. This means that the funds are intended to be spent on transit projects to the extent that such projects are needed to fill “unmet transit needs that are reasonable to meet” before any LTF is spent on local streets and roads.

LTF revenues are derived from a one-quarter cent sales tax, which is collected by the Board of Equalization but administered locally through the SBCTA, which then allocates the revenue to local jurisdictions based on population. Pursuant to TDA, the MBTA received LTF proceeds under Article 4 for operations and capital expenditures. The agency also received LTF Article 3 funds toward bus stop amenities and improvements.

On average, LTF revenues comprise approximately 58 percent of MBTA’s revenues and are primarily allocated toward operations. The annual LTF revenues shown in this financial plan are based on SBCTA’s projected apportionment schedule through FY 2025-26.

8.2.3 LTF and TNC Funding

The Flex Feeder service option presented in the service plan would be directly-operated by MBTA but could include supplemental service by local taxi and TNC providers. A growing number of

transit operators are implementing this model of supplemental service to provide service to areas where it is not cost-effective to operate fixed route.

Potentially TDA could be a source although these new programs would be competing against existing services for the TDA. The research on transit and TNCs includes several public transit agencies in California that partner or have partnered with TNCs to supplement existing service. Examples are presented below.

Transit Agency/Public Agency	TNC/Service Provider
San Diego Metropolitan Transit System	Uber
City of Los Angeles Department of Transportation	Xerox State & Local Solutions/Lyft
Livermore Amador Valley Transit Authority	Uber/Lyft/Local Taxi Services
Solano Transportation Authority	Lyft
Transportation Authority of Marin	Lyft
Sacramento Regional Transit District	Uber/Lyft
City of Monrovia	Lyft
Orange County Transportation Authority/City of San Clemente	Lyft

8.2.4 Other Local Support Revenues

The financial plan includes other local support revenues from local county Measure I, AB 2766 – Motor Vehicle Subvention Program, Cooper Mountain College student pass subsidies, and CNG fuel sales.

Local county Measure I, the one-half cent sales tax collected in San Bernardino County, is another source of local revenue for MBTA. Measure I funds are allocated based on a strategic plan that defines the policy framework for delivery of the projects as articulated in the Ten-Year Delivery Plan. MBTA determines how the monies are spent.

The Measure I 2010-2040 Transportation Expenditure Plan includes \$20 million in estimated revenue for the Rural Mountain/Desert Senior and Disabled Transit Program. In addition, the Measure I Expenditure Plan requires that a proportional share of state and federal funds be reserved for use within each sub-area of the county. The financial plan shows \$103,000 in local Measure I funds budgeted in FY 2019-20. Based on SBCTA projections, Measure I funding ranges from \$123,683 in FY 2020-21 to \$142,619 in FY 2025-26.

Projects funded by AB 2766 have many additional benefits including increasing transportation alternatives, relieving traffic congestion, conserving scarce energy resources, and reducing greenhouse gas emissions. MBTA budgeted \$40,000 in FY 2019-20, which has been extended for each year of the financial plan.

The financial plan includes an annual contribution that MBTA receives from the Copper Mountain College (CMC) Foundation where the foundation subsidizes rides for students enrolled at the college. MBTA was able to negotiate this subsidy from the college that amounted to \$20,000 annually starting in FY 2014–15. With the inclusion of Low Carbon Transit Operations Program (LCTOP) funds, MBTA budgeted \$47,336 in revenues, which provides free rides for CMC students.

MBTA has an on-site CNG fueling facility for its vehicle fleet. The facility asset has been available to the public for fuel purchase for many years, although MBTA staff indicated demand for the fuel has been limited. To mitigate declines in future passenger revenue, MBTA could further evaluate the market for CNG fuel and review opportunities for increasing fuel sales to the public without compromising fleet operations. In its FY 2019-20 budget, MBTA shows CNG purchase revenues of \$15,000. The financial plan forecast a 3 percent annual growth rate in CNG revenues.

8.3 State Transit Funding Sources

The State funding sources shown in the financial plan are primarily applied to the capital expenditures. The State Transit Assistance (STA) program is a second funding component of TDA. Revenues are derived primarily through the state sales tax on diesel fuel and are allocated by the state legislature. As STA funding is primarily based on diesel fuel sales taxes collected by the State, the regional or population share of funds (PUC Section 99313) is allocated by the State Controller based on each county's population, while the operator share of STA (PUC Section 99314) is determined by each eligible transit system's revenues in proportion to those in the rest of the State. Based on SBCTA projections, the financial plan shows the STA population share funding (PUC Section 99313) fluctuating between \$35,000 and \$214,600 annually. After the initial allocation of \$177,950 budgeted in FY 2019-20, the operator share (PUC Section 99314) is projected to range between \$60,000 and \$69,000 annually.

The most recent development at the state level concerns the passage and signing into law of SB 1 (Beall) in April 2017. SB 1, The Road Repair and Accountability Act of 2017, provides the first significant, stable, and ongoing increase in state transportation funding in more than two decades. SB 1 is composed of a series of measures and revenue enhancements such as increases in the diesel and gasoline excise and sales taxes and vehicle registration fees.

The law is projected to provide \$5.2 billion annually, including \$750 million toward transit capital and operations, also known as the State of Good Repair (SGR) program. Included in this amount is an additional \$250 million in STA that is allocated via current funding formulas based on agency revenue and population.

The financial plan shows \$111,333 being budgeted in FY 2019-20 with future allocations forecasted from \$104,897 in FY 2020-21 to \$115,555 in FY 2025-26. MBTA was awarded \$104,272 in SGR funding during the FY 2017–18 cycle for bus stop, facility lighting, and security surveillance upgrades as well as vehicle rehabilitation. For the FY 2018–19 cycle, MBTA was awarded \$107,995 for facility lighting upgrades, bus stop improvements and lighting, lot resurfacing, and engine overhauls.

Among the programs contained in Proposition 1B is the \$3.6 billion Public Transportation Modernization, Improvement, and Service Enhancement Account (PTMISEA). PTMISEA funds are to be used to fund various mass transportation projects, including rehabilitation, safety, or modernization improvements, capital enhancements or expansion, rail transit improvement, bus rapid transit improvements, the acquisition of rolling stock, and other similar investments. PTMISEA funds are to be dispersed according to the same formula used to distribute STA funds. Management and administration costs are not allowable for Proposition 1B funds.

The final appropriation of PTMISEA funds was made in the FY 2014–15 state budget. The Budget Act of 2016 re-appropriated the remaining balances of the FY 2008–09 through FY 2014–15 PTMISEA appropriations, extending the deadline for allocations until June 30, 2018. One final cycle of allocations occurred in FY 2017–18 with a deadline of November 15, 2017, for claimants to submit allocation requests for funding in the spring of 2018. The financial plan shows Proposition 1B PTMISEA funds for vehicle procurement and capital improvements of \$607,200 in FY 2020-21.

The California Air Resources Board (CARB) issues competitive grant solicitations for the Air Quality Improvement Program (AQIP) and Low Carbon Transportation Greenhouse Gas Reduction Fund Investments pursuant to AB 118. Each fiscal year, CARB must submit a proposed funding plan to its board for approval. The funding plan serves as the blueprint for expending the AQIP funds appropriated to CARB in the state budget.

One key component of the Cap-and-Trade Program is LCTOP, which was created to provide operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with an emphasis on serving disadvantaged communities. Approved projects in LCTOP support new or expanded bus or rail services, expanding intermodal transit facilities, and potentially equipment acquisition, fueling, maintenance, and other costs to operate those services or facilities, with each project intended to reduce greenhouse gas emissions. SB 862 continuously appropriates 5 percent of the annual auction proceeds in the Greenhouse Gas Reduction Fund for LCTOP, beginning in FY 2015–16.

As was previously mentioned, LCTOP funding is being used to subsidize free rides for Copper Mountain College students. The college generates approximately 4,000 riders on MBTA. LCTOP funding is based on auction proceeds and the amount can vary annually. The amount awarded to MBTA will be an actual share of LCTOP received. Based on SBCTA projections, the financial plan shows MBTA receiving \$151,262 in LCTOP annually between FY 2020-21 and FY 2025-26.

8.4 Federal Revenue Sources

The Federal Transit Administration (FTA) provides financial and technical assistance to local public transit systems. Since 1964, the FTA has partnered with state and local governments to create and enhance public transportation systems, investing more than \$11 billion annually to support and expand public transit services. The FTA provides annual formula grants to transit agencies nationwide as well as discretionary funding in competitive processes. The financial plan shows funding from three FTA programs. Most of the federal funding will be applied towards capital expenditures.

The FTA Section 5310 program is administered by the California Department of Transportation. Locally these funds are applied toward TREP and demand-response transportation modes. TREP is a driver reimbursement program that allows for eligible participants to be reimbursed at \$0.30 per mile. MBTA has been instrumental in supporting TREP through an FTA Section 5310 grant. The financial plan shows MBTA receiving \$117,668 in FTA Section 5310 program funds annually between FY 2020-21 and FY 2025-26. New Freedom 5317 was merged into the Section 5310 program.

FTA Section 5311 provides capital, planning, and operating assistance to states and federally recognized Indian tribes to support public transportation in rural areas with populations less than 50,000. The Morongo Basin qualifies for such funding based on its areawide population and uses this funding to support operations. The Job Access and Reverse Commute (JARC), FTA Section 5316 program has been merged into the Section 5311 program. Projects formerly eligible under the JARC program are eligible under the Section 5311 program.

Revenue from the sale of advertising and concessions may be used as local match. Recipients may now use up to 20 percent of their FTA Section 5311 allocation (previously 10 percent) for the operation of paratransit service, if certain conditions are met. MBTA submits an annual Program of Projects for its FTA Section 5311 allocation, which it uses for operations. FTA Section 5311 program funds comprise 7 percent of MBTA's revenues in the financial plan and are projected to grow by a conservative 1 percent annual rate.

The Congestion Management and Air Quality (CMAQ) Improvement Program funds transportation projects or programs that reduce carbon monoxide, ozone, and particulate matter emissions. Operating assistance is limited to new transit, commuter and intercity passenger rail services, intermodal facilities, and travel demand management strategies, including traffic operation centers, inspection and maintenance programs, and the incremental cost of expanding these services. MBTA utilizes CMAQ funding as available for the purposes of replacing CNG buses. The program requires a 11.47 percent local match. CMAQ program funds comprise 13 percent of MBTA's revenues in the financial plan.

Exhibit 8.1: Capital Project Plan – FY 2019–20 through FY 2025–26

Project	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Dispatch & Maintenance Equip.	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Engine Overhauls	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Shop Equipment	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$0
Bus Wash System	\$67,950	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
AVL/GPS Equipment	\$0	\$0	\$75,000	\$10,000	\$10,000	\$10,000	\$10,000
Bus Stop Improvements	\$132,463	\$70,000	\$0	\$0	\$0	\$0	\$0
Bus Shelter Rehabilitations	\$38,934	\$0	\$0	\$0	\$0	\$0	\$0
PV Stops	\$26,291	\$0	\$0	\$0	\$30,000	\$0	\$0
Fare Media Infrastructure	\$0	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Roadway Project	\$29,640	\$0	\$0	\$0	\$0	\$0	\$0
Yucca Valley Surveillance	\$16,451	\$0	\$0	\$0	\$20,000	\$0	\$0
TREP Program	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
Staff Vehicle Replacement	\$50,000	\$0	\$50,000	\$0	\$25,000	\$0	\$0
Vehicle Replacement	\$0	\$1,821,600	\$636,273	\$1,136,116	\$915,079	\$1,441,245	\$304,307
ZEV Infrastructure (125 kW Chargers)	\$0	\$0	\$0	\$0	\$67,458	\$67,458	\$67,458
Total Project Cost	\$421,729	\$2,101,768	\$956,441	\$1,316,284	\$1,237,704	\$1,688,870	\$551,932
Capital Funding Sources							
State							
LTF Article 3	\$28,524	\$29,380	\$30,261	\$31,169	\$32,104	\$33,067	\$34,059
LCTOP	\$103,939	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262
Prop 1B - PTMISEA	\$0	\$607,200	\$0	\$0	\$0	\$0	\$0
STA Operator Share 99314	\$177,950	\$68,627	\$60,351	\$61,558	\$62,790	\$64,045	\$65,326
STA Population Share 99313	\$0	\$214,578	\$72,981	\$130,312	\$104,960	\$165,311	\$34,904
STA State of Good Repair SB-1 (SGR)	\$111,316	\$104,897	\$106,946	\$109,036	\$111,167	\$113,339	\$115,555
Federal							

Project	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
FTA Section 5310	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
CMAQ	\$0	\$1,075,108	\$563,292	\$1,005,803	\$810,119	\$1,275,934	\$269,403
FTA Section 5339	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total Capital Funding	\$421,729	\$2,368,720	\$1,102,762	\$1,606,808	\$1,390,070	\$1,920,627	\$788,177

Exhibit 8.2: Operations Financial Plan – FY 2019–20 through FY 2025–26 ⁶

Revenues	FY 2019-20 (Budgeted)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Fare Revenue	\$390,000	\$401,700	\$413,751	\$426,164	\$438,948	\$452,117	\$465,680
CNG Purchases	\$15,041	\$15,492	\$15,957	\$16,436	\$16,929	\$17,437	\$17,960
Local Transportation Fund (LTF)	\$2,824,270	\$3,168,785	\$3,215,552	\$3,262,490	\$3,384,815	\$3,520,220	\$3,661,041
LTF Article 3	\$28,524	\$29,380	\$30,261	\$31,169	\$32,104	\$33,067	\$34,059
Measure I	\$103,300	\$123,683	\$127,406	\$131,274	\$134,946	\$138,888	\$142,619
AB 2766	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000	\$40,000
Copper Mountain College Student Pass Subsidy	\$47,336	\$0	\$0	\$0	\$0	\$0	\$0
STA Operator Share 99314	\$177,950	\$68,627	\$60,351	\$61,558	\$62,790	\$64,045	\$65,326
STA Population Share 99313	\$0	\$214,578	\$72,981	\$130,312	\$104,960	\$165,311	\$34,904
STA State of Good Repair SB-1 (SGR)	\$111,316	\$104,897	\$106,946	\$109,036	\$111,167	\$113,339	\$115,555
LCTOP	\$103,939	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262	\$151,262
Prop 1B - PTMISEA	\$0	\$607,200	\$0	\$0	\$0	\$0	\$0
FTA Section 5310	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
FTA Section 5311	\$398,562	\$402,548	\$406,573	\$410,639	\$414,745	\$418,893	\$423,082
CMAQ	\$0	\$1,075,108	\$563,292	\$1,005,803	\$810,119	\$1,275,934	\$269,403
FTA Section 5339	\$0	\$0	\$0	\$0	\$0	\$0	\$0

IBI GROUP
SHORT RANGE TRANSIT PLAN
Prepared for the Morongo Basin Transit Authority

Revenues	FY 2019-20 (Budgeted)	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26
Total Revenues	\$4,240,238	\$6,520,927	\$5,322,001	\$5,893,810	\$5,820,453	\$6,508,180	\$5,538,559
Expenditures							
Administration	\$757,144	\$781,373	\$806,377	\$832,181	\$858,810	\$886,292	\$914,654
Maintenance	\$624,701	\$644,691	\$665,322	\$686,612	\$708,583	\$731,258	\$754,658
Operations	\$2,436,664	\$2,514,637	\$2,595,106	\$2,678,149	\$2,763,850	\$2,852,293	\$2,943,566
Total Operations	\$3,818,509	\$3,940,701	\$4,066,804	\$4,196,941	\$4,331,244	\$4,469,843	\$4,612,878
Dispatch & Maintenance Equip.	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Engine Overhauls	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Shop Equipment	\$25,000	\$0	\$25,000	\$0	\$0	\$0	\$0
Bus Wash System	\$67,950	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
AVL/GPS Equipment	\$0	\$0	\$75,000	\$10,000	\$10,000	\$10,000	\$10,000
Bus Stop Improvements	\$132,463	\$70,000	\$0	\$0	\$0	\$0	\$0
Bus Shelter Rehabilitations	\$38,934	\$0	\$0	\$0	\$0	\$0	\$0
PV-Stops	\$26,291	\$0	\$0	\$0	\$30,000	\$0	\$0
Fare Media Infrastructure	\$0	\$50,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Roadway Project	\$29,640	\$0	\$0	\$0	\$0	\$0	\$0
Yucca Valley Surveillance	\$16,451	\$0	\$0	\$0	\$20,000	\$0	\$0
TREP Program	\$0	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668	\$117,668
Staff Vehicle Replacement	\$50,000	\$0	\$50,000	\$0	\$25,000	\$0	\$0
Vehicle Replacement	\$0	\$1,821,600	\$636,273	\$1,136,116	\$915,079	\$1,441,245	\$304,307
ZEV Infrastructure (125 kW Chargers)	\$0	\$0	\$0	\$0	\$67,458	\$67,458	\$67,458
Total Capital	\$421,729	\$2,101,768	\$956,441	\$1,316,284	\$1,237,704	\$1,688,870	\$551,932
Total Expenditures	\$4,240,238	\$6,042,469	\$5,023,245	\$5,513,225	\$5,568,948	\$6,158,714	\$5,164,811
Balance: Revenues minus Expenses	\$0	\$478,458	\$298,756	\$380,585	\$251,506	\$349,467	\$373,748

⁴ SBCTA and MBTA will coordinate annually to revise the numbers due to funding changes related to COVID -19.

9.0 Future Transit Center Development

The City of Twentynine Palms has a plan for economic stimulation within their downtown area, referred to as Project Phoenix. The project focuses on public buildings, pedestrian paseos, public parking, and other infrastructure. The Project Phoenix area is south of Hwy 62, between Cholla Avenue and Tamarisk Avenue, 3 full blocks. The entire impact area is north and south of Hwy 62 from Adobe Road to Bullion Avenue, 9 full blocks. Parcels in this geographic area are from .25 acre to 3 acres; acquiring and assembling parcels may be required. The City plans to fund this project with Redevelopment Bonds (\$10M) and other public and private resources.



Proposed private uses are restaurants, retail, entertainment, and other uses that would complement the public buildings and serve the needs of tourists, military personnel, and locals that in turn would help create a more energetic inviting downtown area.

The MBTA is in the early stages of possible land acquisition for a future transportation center within or adjacent to the Project Phoenix area.

While at the time of preparing this SRTP, we understand that the Authority has yet to acquire the land within the time frame of this SRTP. It is recommended that land acquisition take place by the final year of this SRTP. That said, the following provides a commentary on necessary next steps should the MBTA choose to advance land acquisition and transit center development.

1. Project Management Plan – The MBTA should develop an overall project management structure and establish key milestones necessary to carry out the proposed project. The plan should assign an internal project manager and develop a project framework consisting of initial budget, funding distribution, completion schedule, list of candidate sites, and a process for selecting a preferred site.
2. TIP / STIP Inclusion - Eligibility for FTA Section 5339 requires that SBCTA include the project with an initial cost estimate in the approved Transportation Improvement Plan (TIP), and that Caltrans include it in the Statewide TIP (STIP). As the designated recipient, the MBTA is responsible for developing a Program of Projects (PoP) for submission to SBCTA.
3. Transit Center Feasibility Assessment – The MBTA should conduct an internal study to determine the feasibility and parameters of a transit center. The study process should include compiling a list of spatial and functional requirements.
4. Environmental Assessment - Environmental due diligence should be completed to provide the MBTA with reasonable assurance that either a CE will be granted, or that an EA will result in a finding of no significant impacts to the environment.

5. Submit Grant Application – The MBTA should apply for Section 5339 following confirmation of site selection adequate environmental due diligence has been completed on the property. If necessary, land acquisition could be federally assisted.
6. Phase 1: Preliminary Design and Engineering – Following project approval, the MBTA should retain a consultant to conduct a preliminary design and engineering study resulting in detailed project description, key design features, line-item cost estimate, and timeline for project completion.
7. Phase 2: Facility Construction – The MBTA would use formal competitive selection to procure final design and construction services leading to project completion.

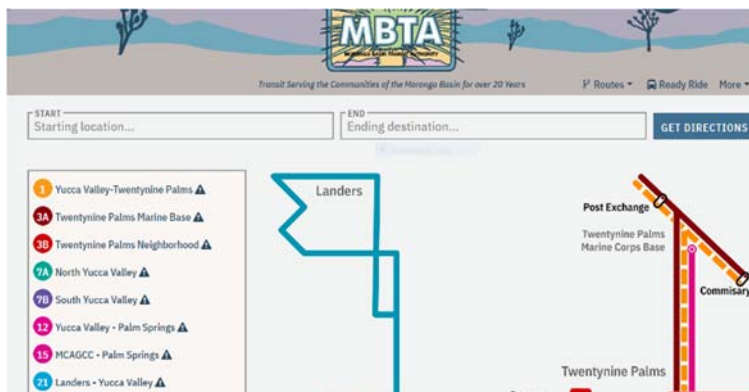
10.0 Technology

Technologies specific to public transportation are changing the way people interact with transit service, as well as increasing the efficiency of providing that service for public transportation agencies. This chapter provides a commentary on select technologies under the following broad categories:

- Trip planning and passenger communications
- Multi-modal trip planning
- Electronic ticketing and fare collection systems
- Operations and fleet management

Trip Planning and Passenger Communications:

A major hurdle for many potential public transportation riders is access to easy-to-understand bus schedules and routes. Technologies to address this challenge are proliferating rapidly and are ever more available on mobile devices. Websites with scheduling information allow passengers to



plan a trip, reduce wait times, and coordinate transfers. An ever-increasing number of people have access to the internet and are using it to get directions and other transportation information. Smart phones are quickly outpacing traditional computers for activities such as directions, and studies have reported that smart phone usage in the United States is higher among populations who are minorities than other groups. In addition, conventional public transportation timetables and maps can be confusing to many riders. As a result, it is important that public transportation schedule and geographic information be user-friendly and easy to navigate – even for those with limited reading ability or English language proficiency. GTFS (General Transit Feed Specification which defines a common format for public transportation schedules and associated geographic information) enables this type of information to be provided by Google Maps or other third party mapping applications. The MBTA uses GTFS (developed by Trillium Solutions, Inc.) for its trip planning functionality.

Real-time Travel Information: Providing real-time information on mobile devices allows customers throughout the public transportation network to conveniently plan their trip, reduce wait times, and improve transfers. Real time information requires transit vehicles to be outfitted with GPS automatic vehicle location (AVL). GTFS real-time is an open source feed



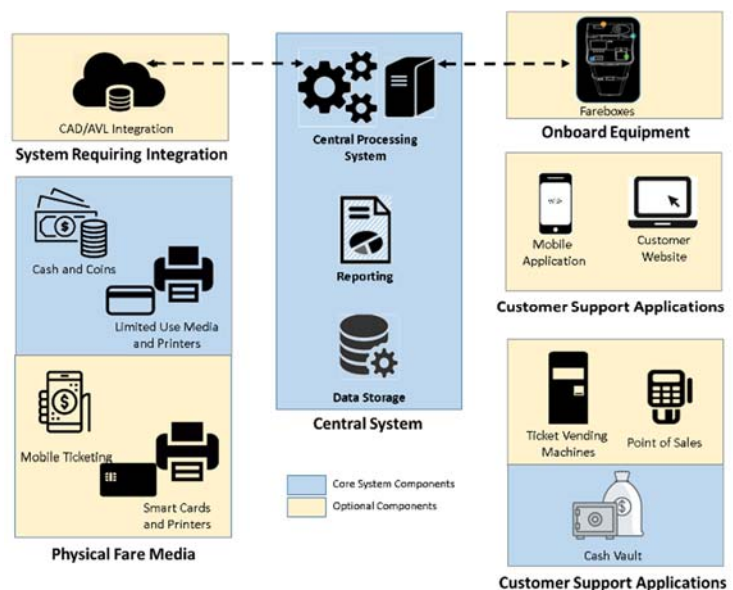
specification that allows public transportation agencies to provide application developers with real-time updates about their fleet. To be included in Google Maps or other mapping applications, arrival predictions and service advisories would need to be published using GTFS-real-time format.

Multimodal Trip Planning: Most public transportation trips begin or end with another mode – and increasingly, millennials and others want to consider multiple transportation options. The ability to include other modes, such as bike share and TNCs in trip planning software, represents a major opportunity. There is as yet no comprehensive app that includes all modes, although more limited versions exist. One of the barriers to comprehensive multimodal journey planners is the lack of standardized data format for all modes.

Demand Responsive (Flex and ready Ride) Transit: Demand responsive transit services (DRT) can be difficult to use due to the need to schedule trips in advance. Several public transportation agencies, are planning projects to allow DRT services described in GTFS-flex to be included in their OpenTripPlanner. In addition, web-portal access for trip booking, cancellations, confirmations, vehicle arrival, etc. will further enhance the customer experience and reduce the administrative burden on dispatch staff.

Electronic Ticketing and Fare Collection Systems: The inconvenience of purchasing tickets or lack of understanding of fares can be a barrier to public transportation use.

A major industry trend over the past decade has been implementing smartcard fare collection systems, also known as Automated Fare Collection (AFC) systems. Two fundamental architectures for how AFC systems operate are: "card-based" and "account-based". In card-based systems, user and account information are stored on the smartcard. In account-based systems, the card serves as an account identifier and the account information is stored at a back office. Open Payment, which leverages an account-based architecture, allows using bankcards issued by financial institutions as a means for payment. There is also a trend to allow NFC (Near Field Communication) -enabled smartphones to act as fare media for transactions, allowing customers to pay with their smart phone. However, given the limited penetration of NFC-enabled smartphones, agencies still accept barcodes as mobile tickets.



Example of a Typical Fare Collection System Architecture

Regardless of the system architecture, AFC systems enable functionality that is attractive to customers and that simplifies data reconciliation and financial operations. Customers may purchase fare media online or over the telephone and have it added directly to their smartcard.

This reduces costs associated with printing fare media and dealing with cash transactions, while allowing customers to buy passes from home.

AFC systems constitute a key element in transit technology deployments. They streamline agency fare collection business processes and greatly reduce operating costs. Major vendors of fare collection systems include Cubic, Delerrok, SPX-Genfare, Scheidt and Bachmann, Trapeze, Vix Technology, and Conduent. There is a bigger pool of vendors providing mobile payment solutions and include Masabi, Bytemark, Token Transit, Passport and Moovel.

Electronic payment systems, while offering numerous customer and agency benefits, have also raised equity concerns, including the lack of a smart phone, a bank account, or difficulty in understanding new systems for certain riders. Mitigation measures include maintaining the ability to purchase paper tickets and receive paper transfers at no added cost.

Operations and Fleet Management: Implementation of automated vehicle location (AVL) and computer aided dispatch (CAD) systems can improve public transportation system reliability, coordinate transfers and reduce passenger wait times. Data from AVL/CAD systems and automatic passenger counter systems and other technologies can assist in the planning of new and modified public transportation services. In-vehicle self-diagnostic equipment can automatically alert maintenance personnel of potential problems.

The MBTA currently uses Zonar's fleet management (deployment/ assignment/asset tracking) capabilities.



Automated Vehicle Locators/Computer Aided Dispatch Automatic vehicle location (AVL) and computer aided dispatch (CAD) systems facilitate the management of public transportation operations, providing up-to-date information on vehicle locations to assist transit dispatchers as well as inform travelers of bus status. AVL, combined with dispatching and reservation technologies, facilitates the implementation of flexible public transportation routing and scheduling. Many agencies have implemented these types of systems and also use the information they provide in route planning.

The cost of demand-responsive operational software and computer-aided dispatching systems can range from \$10,000 to greater than \$50,000 per deployment. Low-end systems can facilitate scheduling, accounting, and report generation activities. Higher-end systems provide more advanced transit demand management features including automated passenger registration, real-time trip scheduling, communications with digital mobile messaging systems, and data exchange with GIS and AVL fleet management systems.

Appendix A:

On-Board and Community Survey Instruments



Welcome Aboard!

Thinking about the one-way trip you are making now, please answer the following questions:

1. Where did you begin the trip you are taking now?

Please be as specific as possible - **Examples:** Twentynine Palms Transit Center, Copper Mountain College, Yucca Valley Transit Center, Wal-Mart, Landers Post Office, etc.

Street address or Nearest intersection or Name of place or Another City/community

2. How did you get to the bus stop where you first boarded?

- | | |
|--|---|
| <input type="checkbox"/> ₁ Walked - how many minutes? _____ | <input type="checkbox"/> ₂ Bicycled - how many minutes? _____ |
| <input type="checkbox"/> ₃ Drove and parked near bus stop | <input type="checkbox"/> ₄ Dropped off at bus stop by friend, neighbor or relative |
| <input type="checkbox"/> ₅ Transferred from another MBTA bus route - Which route? _____ | <input type="checkbox"/> ₆ Other Specify: _____ |

3. Did you or will you transfer to or from another bus route to complete your trip?

- ☐ ₁ No ☐ ₂ Yes -please specify from or to what route: _____

4. When you get off this bus, how will you get to your destination?

- | | |
|---|--|
| <input type="checkbox"/> ₁ Transfer to another MBTA bus route - Which route? _____ | <input type="checkbox"/> ₂ Walk - how many minutes? _____ |
| <input type="checkbox"/> ₃ Bicycle | <input type="checkbox"/> ₄ Drive alone |
| <input type="checkbox"/> ₅ Get picked up by friend, neighbor or relative | <input type="checkbox"/> ₆ Other - specify: _____ |

5. What is the final destination of the trip you are taking now?

Please be as specific as possible - **Examples:** Twentynine Palms Transit Center, Copper Mountain College, Yucca Valley Transit Center, Wal-Mart, Landers Post Office, etc.

Street address or Nearest intersection or Name of place or Another City/community

6. How did you pay for this trip?

- | | |
|--|--|
| <input type="checkbox"/> ₁ Adult/Student - Route 1 - Cash Fare (\$2.50) | <input type="checkbox"/> ₂ Senior/Disabled - Route 1 - Cash Fare (\$1.25) |
| <input type="checkbox"/> ₃ Adult/Student - Neighborhood Shuttles Cash Fare (\$1.25) | <input type="checkbox"/> ₄ Senior/Disabled - Neighborhood Shuttles - Cash Fare (\$1.00) |
| <input type="checkbox"/> ₅ Adult Day Pass - (\$3.75) | <input type="checkbox"/> ₆ Student/Senior/Disabled - Day Pass (\$3.00) |
| <input type="checkbox"/> ₇ Adult 31-Day Go Pass (\$40.00) | <input type="checkbox"/> ₈ Student/Senior/Disabled 31-Day Go Pass (\$25.00) |
| <input type="checkbox"/> ₉ Other - Specify: _____ | |

7. Did you or will you make this trip in reverse sometime today?

- ☐ ₁ No, only going one-way ☐ ₂ Yes, going and coming back today

8. What is the main reason for your trip today? (Please check one only)

- | | |
|---|--|
| <input type="checkbox"/> ₁ Commuting to / from work | <input type="checkbox"/> ₂ Attending school - which school? _____ |
| <input type="checkbox"/> ₃ Medical / health care appointment | <input type="checkbox"/> ₄ Shopping |
| <input type="checkbox"/> ₅ Personal business, recreation or social | <input type="checkbox"/> ₆ Other - specify _____ |

9. How often do you use MBTA transit buses? (Please check one only)

- | | |
|---|---|
| <input type="checkbox"/> ₁ Regularly - daily | <input type="checkbox"/> ₂ Frequently - 1 to 3 days per week |
| <input type="checkbox"/> ₃ Sometimes - 1 -3 days per month | <input type="checkbox"/> ₄ Rarely - less than once per month |
| <input type="checkbox"/> ₅ First time riding | |

10. If you have a personal vehicle, could you have used it instead of riding the bus today?

- ☐ ₁ Yes ☐ ₂ No ☐ ₃ No vehicle available

OVER

11. What do you think about the following statements - *agree or disagree?*

Statement	Agree Strongly	Agree Somewhat	No opinion/ Don't know	Disagree Somewhat	Disagree Strongly
Buses mostly run on schedule.					
Routes are direct and travel where I want to go					
Bus drivers are friendly and helpful.					
Buses are clean and comfortable.					
I find it easy and convenient to get to and from the nearest bus stop.					
Transit Customer Service telephone operators are courteous and provide accurate information					
I am satisfied with how frequently buses operate					
Buses should operate earlier in the morning					
Buses should operate later in the evening - weekdays					
Buses should run later in the evening - weekends					
The loop routes and Transit Center transfer points make my trip longer than it needs to be					
I would like a mobile app that provided real-time bus arrival information					
The bus system is fine as is. Don't change anything.					

12. How do you typically locate information about MBTA transit services? (Please check all that apply)

- ☐1 Transit Customer Service
 ☐2 Website
 ☐3 Facebook
 ☐4 Riders Guide
 ☐5 From the driver
 ☐6 At the bus stop
 ☐7 Other (specify) _____

13. Which of the following income categories best matches your annual household income?

- ☐1 Under \$20,000
 ☐2 \$21-\$34,000
 ☐3 \$35-\$50,000
 ☐4 over \$50,000
 ☐5 Prefer not to answer

14. Which of the following age categories matches your age?

- ☐1 Under 18
 ☐2 19-35
 ☐3 36-59
 ☐4 60 or over
 ☐5 Prefer not to answer

15. Which best describes your current employment status?

- ☐1 Employed full-time – *outside of home*
☐2 Employed part-time – *outside of home*
☐3 Employed full or part-time – *home-based business*
☐4 Homemaker
 ☐5 Retired
 ☐6 Student
 ☐7 Military
 ☐7 Not currently employed
 ☐8 Prefer not to answer

16. Do you currently have a valid driver's license?

- ☐1 Yes
 ☐2 No
 ☐3 Prefer not to answer

17. Is there anything else you would like us to know about MBTA transit bus service?

THANK YOU FOR YOUR TIME!
Please return this completed form to your bus driver or surveyor today.



MBTA Transit Survey

We Need Your Input!

Please return your completed survey by **March 15, 2019**

Enter for Your Chance to Win a Valuable Gift Certificate

The Morongo Basin Transit Authority (MBTA) is conducting a *Short-Range Transit Plan* to define the future of transit in our community. This survey is one way for residents who may or may not use the bus to provide input about the system. We want to know your thoughts on current transit services and areas for improvement that may be important to you and our community.

What you have to say is important in helping to make improvements and plan for the future. Thank you for your participation.

PLEASE TELL US ABOUT YOUR USE OF TRANSIT AND YOUR TRAVEL PATTERNS.

1. What is the Zip Code of your residence?

2. What type of transportation do you or other members of your household use in a typical week and for what purpose? Please check all that apply.

	Work	Social / Recreational	Shopping	Doctor / Medical	School/ Education	Other
a. Personal vehicle (as <i>Driver or Passenger</i>)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. MBTA transit bus service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. MBTA Ready Ride Service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. MBTA service to/from Palm Springs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Road Runner Shuttle bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Regular Taxi or Ride Share Service (i.e. Uber, Lyft, etc.)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Bicycle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Walk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Other (specify) _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. a) If you now use MBTA bus service or have used it in the past but no longer do so, we want to know what you think of the transit service: (If you have never used MBTA transit bus service, please go to Question 4).

	Almost always	Often	Unsure	Not very often	Almost never
a. Service is convenient and easy to use	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. The travel times are reasonable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. I feel safe on the transit service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Transit information is readily available	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Transit arrives on schedule (is punctual)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Transit fares are reasonable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Transfers are convenient	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Overall, I am satisfied with the transit service	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3.b) How do you typically locate information about MBTA transit services?

- ☐ Transit Customer Service
 ☐ Website
 ☐ Facebook
 ☐ Riders Guide
 ☐ From the driver
☐ At the bus stop
 ☐ Other (specify) _____



4. If you do NOT use MBTA transit service, why not? (Please check all that apply)

- | | | |
|---|--|--|
| <input type="checkbox"/> Infrequent service | <input type="checkbox"/> I don't know what bus to take | <input type="checkbox"/> I would not feel safe and secure on public transit or waiting for transit |
| <input type="checkbox"/> It doesn't go close enough to where I travel to and from | <input type="checkbox"/> Bus routes aren't direct enough | <input type="checkbox"/> Other (please state) _____ |
| <input type="checkbox"/> It is too expensive | <input type="checkbox"/> Transit doesn't operate the hours of the day or the days of week that I would want to travel. Specify _____ | <input type="checkbox"/> I would not take transit under any circumstances |
| <input type="checkbox"/> It takes too long to travel by bus | | |
| <input type="checkbox"/> Buses are too crowded | | |

5. The types of MBTA transit service improvements that I would like to see: (Please check all that apply)

- | | |
|---|--|
| <input type="checkbox"/> Better information on how to use transit | <input type="checkbox"/> More shelters or benches at bus stops |
| <input type="checkbox"/> Extended weekend service | <input type="checkbox"/> Fewer transfers required |
| <input type="checkbox"/> Later week night service | <input type="checkbox"/> A mobile phone app for real-time information |
| <input type="checkbox"/> Earlier weekday morning service | <input type="checkbox"/> There was WIFI/wireless Internet access on the bus |
| <input type="checkbox"/> On-demand ride hailing service (concept of subsidized, shared-ride sedan or van service requested through a Smart phone or tablet app) | <input type="checkbox"/> Improved bus service to - specify location(s) _____ |
| <input type="checkbox"/> More bus stops | <input type="checkbox"/> Other (please state) _____ |
| <input type="checkbox"/> More frequent bus service | |

6. Please indicate how likely it is that you would use MBTA transit if the improvements you noted in Question 5 above were available.

Based on the improvements noted in Q.5- above	Would Certainly Use	Would Likely Use	Might Use	Not Very Likely Use	Would Never Use	Would Not Make a Difference
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

IN THIS SECTION PLEASE TELL US ABOUT YOU AND YOUR HOUSEHOLD [OPTIONAL]

7.a) How many people live in your household? _____ **7. b) How many cars or SUVs? _____**

8. Which of the following categories best matches your annual household income?

- ☐ Under \$20,000 ☐ \$21-\$34,000 ☐ \$35-\$50,000 ☐ over \$50,000 ☐ Prefer not to answer

9. Which of the following age categories matches your age?

- ☐ Under 18 ☐ 19-35 ☐ 36-59 ☐ 60 or over ☐ Prefer not to answer

COMMENTS:

OPTIONAL

Enter for Your Chance to Win a Valuable Gift Certificate from Local Shops & Restaurants

Name: _____

Email: _____

Phone: _____

Appendix B:

Cost Allocation Study - Report

July 17, 2019

To: Mark Goodale
Cheri Holsclaw

From: Derek Wong, AICP, Michael Baker International
Rick Williams, AICP, Michael Baker International

CC: Steve Wilks, IBI Group

RE: MBTA Cost Allocation Study

A Change Order Request was made to the MBTA Short Range Transit Plan to conduct a Cost Allocation Study that critically evaluates MBTA's existing methods of cost and revenue allocation; develop alternatives which produce equitable cost and revenue sharing; and find methods that result in equitable distribution without imposing excessive administrative burdens on MBTA staff.

The following parameters are used for the proposed allocation strategies:

1. Based on service mode performed
2. Reflect actual service units delivered
3. Be verifiable
4. Be simple and understandable by participating jurisdictions
5. Incorporate targeted subsidies, as appropriate (if applicable)
6. Be equitable

This paper reviews the current cost allocation method employed by MBTA, suggests proposed alternative cost and revenue allocation methods, evaluates these proposed methods including data needs and strengths and weaknesses, and recommends a preferred allocation method following the above parameters.

Observations of Current MBTA Cost Allocation

MBTA's current cost and revenue model was reviewed to determine the underlying allocation assumptions and methods. The cost model portion allocates operating cost responsibility to each jurisdiction using a combined revenue hour and population basis. Local route revenue hours are

assigned to a jurisdiction based upon where the route operates.¹ Revenue hours for regional and commuter services that cross jurisdictional boundaries (Routes 1, 12, and 15) are allocated based on the population of each jurisdiction, which serves as a proxy for revenue hours by jurisdiction. Population is a more readily available factor; however, the proportion of population by jurisdiction might not be reflective of the proportion of revenue hours by jurisdiction. Revenue hours, or other transit service factor, by jurisdiction should be estimated to determine whether using population is a good proxy to distribute regional service levels, and ultimately cost distribution.

The revenue model portion uses a multilevel allocation method in which non-local revenues are subtracted from total budgeted operating costs to arrive at a net subsidy amount to be paid by local transportation funds (LTF) of the local jurisdictions. The net subsidy is then allocated based upon each jurisdiction's revenue hour proportion determined from the cost model.

An issue of this method is that by deducting non-local revenues in aggregate from total operating cost as a first step, it inherently assumes that each jurisdiction receives the same allocated share of non-local revenues. For example, FTA 5311 revenue is deducted off the top; however, the revenues hours (cost) are assigned based on level of service and population by jurisdiction as described above. By taking the federal revenue off the top without using an allocation basis that closely mirrors the cost basis, the revenue benefit received by jurisdiction might not be equitable relative to costs.

Alternative Allocation Methods

As a means to compare against the current allocation method, alternatives are developed from both cost and revenue allocation perspectives. Three cost allocation alternatives are derived, and three revenue allocation alternatives are produced. The alternatives offer various means of assigning cost and revenue to the jurisdictions under different allocation bases and assumptions.

The following table provides brief descriptions of each alternative in terms of allocation variables, as compared to the current method, and strengths and weaknesses of each.

¹ Joshua Tree National Park Roadrunner service did not receive park funding for a third year; therefore, the service revenue and costs are not included in the analysis for the FY 2019-20 budget.

Table 1
Allocation Method Assessment

Cost Allocation

	Primary Allocation	Secondary Allocation (Regional Services)	Tertiary Allocation	Strength	Weakness
Existing MBTA Cost Allocation Method	Scheduled Revenue Hours	Population	n/a	Easy to obtain actual population data; easy to obtain actual revenue hour data for local and demand response revenue hours by jurisdiction; percentage of revenue hours by jurisdiction provides a good estimation of cost share.	Population data does not precisely correlate to transit use by jurisdiction; regional service cost allocation is highly dependent on population; current model does not differentiate between varying cost per revenue hour for each transit program (regional, local, and demand response cost per hour).
Cost Allocation Alternatives					
Cost Alt #1	Scheduled Revenue Hours	Population	Cost/Rev Hour by Route or Program	Easy to obtain actual population data; easy to obtain actual revenue hour data for local and demand response revenue hours by jurisdiction; percentage of revenue hours by jurisdiction provides a good estimation of cost share; cost per hour by route data available in TransTrack provides more precision in determining jurisdiction cost share.	Population data does not precisely correlate to transit use by jurisdiction; regional service cost allocation is highly dependent on population; TransTrack data must be accurate and reflect all operating costs and corresponding service data.

Cost Alt #2	Actual or Scheduled Revenue Hours	Actual or Scheduled Revenue Hours	n/a	Accurate means using service delivery data to allocate cost by jurisdiction; easily understood allocation measure; information can be derived from bus schedules	Difficulty in obtaining data for the cost allocation; requires more sophisticated data collection system for regional service than current model; limited TransTrack data, which does not allocate regional service revenue hours by jurisdiction.
Cost Alt #3	Actual or Scheduled Revenue Miles	Actual or Scheduled Revenue Miles	n/a	Accurate means using service delivery data to allocate cost by jurisdiction; easily understood allocation measure; information can be derived from bus schedules.	Difficulty in obtaining data for the cost allocation; requires more sophisticated data collection system for regional service than current model; limited TransTrack data, which does not allocate regional revenue miles by jurisdiction.

Revenue Allocation

	Primary Allocation (Non-Local Revenues)	Secondary Allocation (Local Transportation Funds)	Tertiary Allocation	Strength	Weakness
Existing MBTA Revenue Allocation Method	Sum of revenues deducted from total operating expenses.	Scheduled Revenue hours from cost allocation plan by jurisdiction.	Portions of non-local revenue (e.g., Measure I) are assigned to particular jurisdictions to reduce LTF transit fund gap.	Relatively easy to administer; non-local revenues benefit all jurisdictions by decreasing local subsidy; MBTA ability to maneuver revenues as needed to fill funding gaps.	Aggregate deduction of non-local revenues are akin to “taking off the top” without consideration of proportional benefit; MBTA ability to maneuver funds could be subjective; no allocation by jurisdictions using source formulas or by service level.

	Primary Allocation (Non- Local Revenues)	Secondary Allocation (Local Transportation Funds)	Tertiary Allocation	Strength	Weakness
Revenue Allocation Alternatives					
Rev Alt #1*	Allocate by separate formula for each revenue source.*	Revenue hours or revenue miles from cost allocation plan by jurisdiction.	n/a	Very specific allocation for each revenue; objective means of allocation for each revenue; larger revenue sources are linked to service provision by jurisdiction; ties closer to original source formulas.	Difficulty in obtaining data for the revenue allocation; no leeway for MBTA discretion to shift revenue among jurisdictions; overall model process more complex.
Rev Alt #2	Allocate by revenue hours by jurisdiction.	Revenue hours or revenue miles from cost allocation plan by jurisdiction.	n/a	Uniform application of allocation criteria; incorporates service data; data available for local routes from TransTrack.	Some difficulty in obtaining data for regional routes by jurisdiction; regional data by jurisdiction not available in TransTrack; no leeway for MBTA discretion to shift revenue among jurisdictions.
Rev Alt #3	Allocate by revenue miles by jurisdiction.	Revenue hours or revenue miles from cost allocation plan by jurisdiction.	n/a	Uniform application of allocation criteria; incorporates service data; data available for local routes from TransTrack.	Some difficulty in obtaining data for regional routes by jurisdiction; regional data by jurisdiction not available in TransTrack; no leeway for MBTA discretion to shift revenue among jurisdictions.

* Allocation by source:					
Non-Local Operating Revenues	Allocation				
Fares	% of Revenue Hours by Jurisdiction				
LCTOP CMC Subsidy	% Population				

FTA Section 5311	% of jurisdiction service land area, and population				
Measure I	% of Measure I Local Pass-Through by jurisdiction for Morongo Basin Sub-Area				
AB 2766	% Population				
Other	% Population				

Comparison of Data Outputs

The results of implementing each allocation method, with comparisons to the current method, are provided in the following table. Budgeted MBTA data for FY 2019-2020 were used for the existing model. Data for cost alternative #1 are from TransTrack including cost per hour by mode (commuter, local bus, demand response). Data for revenue hours by jurisdiction, specifically for the regional routes, is provided by MBTA for cost alternative #2 and revenue alternative #2. Revenue miles by jurisdiction including for regional routes are produced by IBI Group and used for cost alternative #3 and revenue alternative #3. For each cost alternative, including the existing MBTA model, the results by jurisdiction are shown by percentage of operating cost, revenue hours, or revenue miles. Non-local revenue alternatives are similarly shown by jurisdiction by percentage of non-local funding formulas, revenue hours, or revenue miles.

Table 2
Allocation Method Results

Cost Allocation

Existing MBTA Cost Allocation		Twentynine	Yucca		
		<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Budgeted Revenue Hours		12,311	13,380	11,219	36,909
Percentage Rev. Hours		33.4%	36.2%	30.4%	100.0%

Cost Allocation Alternative #1		Twentynine	Yucca		
		<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Cost/Rev. Hour Basis (TransTrack FY2018)		\$938,371	\$1,033,961	\$867,457	\$2,839,790
Percentage Operating Cost		33.0%	36.4%	30.5%	100.0%

Cost Allocation Alternative #2*		Twentynine	Yucca		
		<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Revenue Hours (MBTA data)		9,456	11,686	9,289	30,431
Percentage Rev. Hours		31.1%	38.4%	30.5%	100.00%

Cost Allocation Alternative #3**		Twentynine	Yucca		
		<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Revenue Miles (IBI data)		247,901	219,652	207,539	675,093
Percentage Rev. Miles		36.7%	32.5%	30.7%	100.0%

*Revenue hours by jurisdiction for regional service is determined by MBTA based on aligning bus timetables with jurisdiction boundaries. Revenue hours within Marine Corps Air Ground Combat Center are included in City of Twentynine Palms.

** Revenue miles by jurisdiction for regional service was determined by IBI Group. Revenue miles within Marine Corps Air Ground Combat Center are included in City of Twentynine Palms.

Revenue Allocation (Non-Local Revenues)

Existing MBTA Revenue Allocation	
Non-Local Operating Revenues (FY 2019-20)	No Allocation Among Jurisdictions
Passenger Fares	\$ 390,000
LCTOP CMC Subsidy	\$ 47,336
FTA Section 5311	\$ 398,562
Measure I	\$ 103,300
AB 2766	\$ 40,000
Other	\$ 15,041
Total	\$ 994,239

Revenue Alternative #1: Allocate Non-Local Revenue by Separate Formula				
	Twentynine	Yucca		
Non-Local Operating Revenues	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Passenger Fares	31.1%	38.4%	30.5%	100.0%
LCTOP CMC Subsidy	36.2%	28.9%	34.8%	100.0%
FTA Section 5311	20.3%	16.0%	63.7%	100.0%
Measure I	28.4%	47.6%	24.0%	100.0%
AB 2766	36.2%	28.9%	34.8%	100.0%
Other	36.2%	28.9%	34.8%	100.0%
	Twentynine	Yucca		
Revenue	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Passenger Fares	\$121,183	\$149,770	\$119,047	\$390,000
LCTOP CMC Subsidy	\$17,141	\$13,703	\$16,492	\$47,336
FTA Section 5311	\$80,949	\$63,632	\$253,981	\$398,562
Measure I	\$29,358	\$49,171	\$24,771	\$103,300
AB 2766	\$14,485	\$11,579	\$13,936	\$40,000
Other	\$5,447	\$4,354	\$5,241	\$15,041
Total	\$268,562	\$292,209	\$433,468	\$994,239
Percentage	27.0%	29.4%	43.6%	100.0%

Revenue Alternative #2: Allocate by revenue hours by jurisdiction				
Non-Local Operating Revenues	<u>Twentynine</u>	<u>Yucca</u>	<u>County</u>	
	<u>Palms</u>	<u>Valley</u>		
% Allocation	31.1%	38.4%	30.5%	100.0%
Total	\$308,935	\$381,815	\$303,489	\$994,239

Revenue Alternative #3: Allocate by revenue miles by jurisdiction				
Non-Local Operating Revenues	<u>Twentynine Palms</u>	<u>Yucca Valley</u>	<u>County</u>	
% Allocation	36.7%	32.5%	30.7%	100.0%
Total	\$365,095	\$323,492	\$305,652	\$994,239

Findings of Allocation Methods

The assessment of current and alternative allocation methods provides several insights to the drivers of the costs and revenues. On the cost side, service data such as revenue hours or miles as the primary allocation driver is a good indicator of costs that can be assigned upon the level of service provided within each jurisdiction. The allocation of regional service hours or miles among the jurisdictions is critical as the shifting of operating cost burdens is highly sensitive to the regional service allocation. The existing MBTA allocation uses population to allocate regional revenue hours among jurisdictions. The first cost alternative also assumes population for regional hours distribution, but also uses actual operating cost per hour by route which marginally shifts cost burden away from Twentynine Palms to Yucca Valley and the County. The different cost per hour for each route under cost alternative #1 has little effect on the cost share among the JPA members compared to the existing model.

Cost alternatives #2 and #3 use staff estimates for assignment of hours and miles by jurisdiction for regional services in-lieu of population. The estimates increase and/or decrease the cost burden for each jurisdiction relative to the existing cost allocation.² Allocation methods that use service level data and route cost, and less or no reliance on population, are capable of shifting the proportion of jurisdiction cost burden from those shown in the existing MBTA method.

For revenues, the existing MBTA method assumes the jurisdictions each benefit equally from non-local revenues through direct subtraction from total operating costs, yielding a smaller remaining cost that is then shared among the jurisdictions using their respective LTF apportionments. The non-local revenues are not allocated by jurisdiction based upon service levels prior to deduction from operating costs. Also, the use of specific formulas in alternative #1 guiding the allocation of each non-local revenue has an impact on the share to each jurisdiction. These formulas are derived from the original source of funding and account for jurisdictional characteristics including population, land area, Measure I receipts, and revenue hours.

Net Subsidy Requirements and LTF Contributions

From the revenue alternatives that allocate non-local revenue to each jurisdiction, the LTF contribution to fill the net subsidy also varies by jurisdiction. The following table shows the different LTF obligation by jurisdiction and net remaining LTF or deficit LTF under each non-local revenue scenario, and compared

² TransTrack does not currently allocate revenue hours or revenue miles by jurisdiction; MBTA is determining TransTrack's capabilities to conduct this allocation. Collection and allocation of these indicators by jurisdiction for regional services could be supported through techniques including ride-alongs, bus schedule checks, and technological means (e.g. GPS, AVL).

to the existing method. For illustration, the LTF subsidy contributions are based on using the existing MBTA cost allocation against each revenue alternative. When applying the varying cost alternatives to the varying revenue alternatives, a wider range of LTF contributions occur under each possible pairing.

Table 3
LTF Contribution from Alternatives³

Existing MBTA Revenue Method				
		FY 2019-20 Budget		
Total Operating Expenses		\$ 3,822,581		
Non-Local Operating Revenues				
Subtotal		\$ 890,939		
Net LTF Subsidy Requirement		\$ 2,931,641		
Revenue Distribution	Percent Rev. Hours (MBTA Budget)	Net Subsidy	Operations Measure I	Operations LTF
S.B. County	30.4%	\$ 891,102	\$ 31,703	\$ 859,733
Yucca Valley	36.2%	\$ 1,062,719	\$ 37,809	\$ 1,025,244
Twentynine Palms	33.4%	\$ 977,820	\$ 34,788	\$ 943,365
TOTAL	100%	\$ 2,931,641	\$ 104,300	\$ 2,828,341
	FY 2019-2020 LTF Apportionment	Net LTF After Transit Subsidy		
S.B. County	\$ 1,067,880	\$ 208,147		
Yucca Valley	\$ 898,432	\$ (126,812)		
Twentynine Palms	\$ 1,112,896	\$ 169,531		
Total	\$ 3,079,208	\$ 250,867		

Revenue Alternative #1				
Total Operating Expenses				
\$ 3,822,581				
	Twentynine Palms	Yucca Valley	County	
Percent Revenue Hours (MBTA Budget)	33.4%	36.2%	30.4%	100.0%
Operating Cost Allocation	\$1,274,984	\$1,385,684	\$1,161,913	\$3,822,581
Percent Non-Local Revenue Allocation	27.0%	29.4%	43.6%	100.0%
Non-Local Revenue Allocation	\$268,562	\$292,209	\$433,468	\$994,239
Net LTF Subsidy Requirement	\$1,006,422	\$1,093,475	\$728,444	\$2,828,341
FY 2019-2020 LTF Apportionment	\$ 1,112,896	\$ 898,432	\$ 1,067,880	\$ 3,079,208
Net LTF After Transit Subsidy	\$ 106,474	\$ (195,043)	\$ 339,436	\$ 250,867

³ Each revenue alternative allocates non-local revenue of \$994,239 and is then subtracted from the existing MBTA operating cost by jurisdiction to arrive at a comparative net LTF after transit subsidy.

Revenue Alternative #2				
Total Operating Expenses				
\$ 3,822,581				
	Twentynine	Yucca		
	Palms	Valley	County	
Percent Revenue Hours (MBTA Budget)	33.4%	36.2%	30.4%	100.0%
Operating Cost Allocation	\$1,274,984	\$1,385,684	\$1,161,913	\$3,822,581
Percent Non-Local Revenue Allocation	31.1%	38.4%	30.5%	100.0%
Non-Local Revenue Allocation	\$308,935	\$381,815	\$303,489	\$994,239
Net LTF Transit Subsidy Requirement	\$966,049	\$1,003,869	\$858,423	\$2,828,341
FY 2019-2020 LTF Apportionment	\$ 1,112,896	\$ 898,432	\$ 1,067,880	\$ 3,079,208
Net LTF After Transit Subsidy	\$ 146,847	\$ (105,437)	\$ 209,457	\$ 250,867

Revenue Alternative #3				
Total Operating Expenses				
\$ 3,822,581				
	Twentynine	Yucca		
	Palms	Valley	County	
Percent Revenue Hours (MBTA Budget)	33.4%	36.2%	30.4%	100.0%
Operating Cost Allocation	\$1,274,984	\$1,385,684	\$1,161,913	\$3,822,581
Percent Non-Local Revenue Allocation	36.7%	32.5%	30.7%	100.0%
Non-Local Revenue Allocation	\$365,095	\$323,492	\$305,652	\$994,239
Net LTF Transit Subsidy Requirement	\$909,889	\$1,062,192	\$856,260	\$2,828,341
FY 2019-2020 LTF Apportionment	\$1,112,896	\$898,432	\$1,067,880	\$3,079,208
Net LTF After Transit Subsidy	\$ 203,007	\$ (163,760)	\$211,620	\$250,867

The above tables show that in applying each revenue alternative to the existing MBTA cost allocation, and net LTF deficit results for Yucca Valley. This is also the case for the existing MBTA budgeting method. The relatively higher level of revenue hours driving the cost for Yucca Valley is not offset by the combination of non-local revenues plus LTF allocated for the Town. Twentynine Palms and the County, on the other hand, have a positive net LTF after transit subsidy for each scenario as their respective non-local revenue and LTF allocations are sufficient to support their allocated costs under the existing MBTA cost method.

Recommended Allocation Alternatives

Each alternative allocation methodology has strengths and weaknesses in determining the distribution of cost and revenues. For cost, the more actual service data that is used in the allocation, the more defensible and equitable the allocation by jurisdiction. Service data such as revenue hours and revenue miles are good indicators of where transit operational investments are generally made. To avoid a

negative net LTF after transit subsidy for any jurisdiction, cost allocation alternative #3, which uses only revenue service data (revenue miles) in the allocation by jurisdiction, is recommended. Collection of this data by jurisdiction for regional service routes could pose some challenges as TransTrack does not currently provide this regional information; however, MBTA staff and its transit plan consultant have prepared this data for revenue miles which is used in this report. Enhancements to the TransTrack data system may enable auto-allocation of revenue miles by jurisdiction.

For revenues, revenue allocation alternative #2 is recommended which uses only revenue service data (revenue hours) in the allocation by jurisdiction. This alternative further makes each jurisdiction whole without incurring a negative net LTF after transit subsidy. MBTA transit service data is used to allocate both revenues and costs which meet several of the report objectives including achieving equity through use of service information as the basis for allocation.

To illustrate the jurisdiction allocation using the recommended cost and revenue method, the following table shows the results.

Table 4
Recommended Cost and Revenue Allocation Methods
(Cost Alternative #3, Revenue Alternative #2)

Recommended Cost and Revenue Allocation				
Total Operating Expenses				
\$ 3,822,581				
	Twentynine	Yucca		
	Palms	Valley	County	
Percent Revenue Miles	36.7%	32.5%	30.7%	100.0%
Operating Cost Allocation	\$1,403,692	\$1,243,738	\$1,175,150	\$3,822,581
Percentage Non-Local Revenue Allocation (Revenue Hours)	31.1%	38.4%	30.5%	100.0%
Non-Local Revenue Allocation	\$308,935	\$381,815	\$303,489	\$994,239
Net LTF Transit Subsidy Requirement	\$1,094,757	\$861,923	\$871,661	\$2,828,341
FY 2019-2020 LTF Apportionment	\$1,112,896	\$898,432	\$1,067,880	\$3,079,208
Net LTF After Transit Subsidy	\$18,139	\$36,509	\$196,219	\$250,867

Follow Up Considerations

While a recommended allocation formula using transit performance data for costs and revenues is made to avoid a net LTF deficit for any of the jurisdictions, there are underlying factors that continue to challenge MBTA and its member jurisdictions which can adversely impact the allocation process in the future. One of these factors is a relative lack of funding flexibility for MBTA, as decreasing non-local revenue increases pressure on the use of LTF as a transit subsidy for operations. Though LTF is a “transit first” revenue, it is also used for non-transit (i.e. streets and roads) by the member jurisdictions, leaving less flexibility in how much LTF can be used to meet overall transit needs across the Morongo Basin. This is captured in the example of Yucca Valley having a significant proportion of transit service within its

boundaries, yet is allocated the least amount of LTF of the three members based on TDA formulas (population). This imbalance between where service needs are met and available funding by jurisdiction is caused in part because under current practice, LTF allocated to a jurisdiction is only expended for transit service in that jurisdiction, rather than expended from a broader systemwide perspective. As the jurisdictions use remaining LTF for non-transit, there is less flexibility to meet transit needs regardless of where the need is identified and to which jurisdiction the revenue is allocated.

Several possible strategies are described in the following that seek to address the current imbalance between transit service levels and LTF allocation in the Morongo Basin:

1. Consider all transit revenue as one regional pot for MBTA to deliver transit, including all LTF coming into Morongo Basin. This provides the most funding flexibility enabling MBTA to provide service under a systemwide umbrella without a need to calculate a net LTF amount for the jurisdictions to apply for non-transit uses. LTF could be used for transit operations, capital, reserve, or other transit project to improve productivity and coverage.
2. Should there be a net LTF deficit for a jurisdiction after the transit subsidy, consider an agreement for the other jurisdictions with a positive net LTF to contribute a share of their remaining LTF to that jurisdiction with the deficit to fill the funding gap. This takes the shape similar to the above suggestion to use LTF to fill transit needs throughout the Morongo Basin service area, but also allows the jurisdictions the possibility to retain some portions of remaining LTF for non-transit uses.
3. Should there be a net LTF deficit for a jurisdiction after the transit subsidy, consider use of other existing transit funds to fill the gap including funds historically designated by MBTA for capital expenses. This would include State Transit Assistance Funds in which recent State SB1 increased the amount available for transit operators. STA is another flexible source for either operations or capital, subject to eligibility criteria, and this flexible source could enable MBTA to meet operations shortfalls with additional funding. The opportunity cost of using STA for operations is the equivalent reduction in transit capital funding. Also, this strategy could be employed despite LTF still being available for operations through the positive net LTF held by the other jurisdictions after transit subsidy. From a policy standpoint, this particular situation would not be desirable.
4. Continue exploration of ways to increase non-local revenue which benefit the jurisdictions. When non-local revenues increase, there could be a smaller subsidy to be filled with LTF contributions pending changes in operating costs. The funding environment for transit remains challenging and incremental increases in transit revenue for operations provide additional support beyond reliance on LTF allocations.

MBTA Board Action

At a special meeting of the Board of Directors on May 9th, MBTA staff presented three cost and revenue allocation options and a five year forecast of each option. The options were reviewed at a prior MBTA Technical Advisory Committee meeting on April 30th. The options are derived from the methods proposed in this memo and depict ranges of different allocation percentages among the local jurisdictions. The Board took action to pass by roll call vote the allocation option where MBTA's capital

reserves would backfill the revenue shortfall for Yucca Valley in the coming year, and then move to the option where all LTF apportioned to the local jurisdictions will be used by MBTA for transit.

Appendix A

Detailed Cost Allocation

	Existing MBTA Cost Allocation						
	FY 2019/20 Service Allocation						
		Daily		Total	Allocation:		
Line		Revenue	Annual	Revenue	Twentynine	Yucca	
	Regional Service*	Hours	Days	Hours	Palms	Valley	County
1	1A	16.25	261	4241.25	1532.9	1237.5	1470.9
2	1B	16.25	261	4241.25	1532.9	1237.5	1470.9
3	1 (Saturday)	23.50	52	1222	441.7	356.5	423.8
4	1 (Sunday)	8.25	52	429	155.1	125.2	148.8
5	12 (Palm Springs)	6.85	261	1787.85	646.2	521.6	620.0
6	15 (PS Fri & Sat.)	13.10	52	681.2	246.2	198.8	236.2
7	15 (PS Sun.)	3.00	52	156	56.4	45.5	54.1
	<i>*Regional hours are allocated to each member agency based on population (see population #s below)</i>						
	Local Service**						
8	3A (29)	11.00	261	2871	2871.0		
9	3B (29)	11.00	261	2871	2871.0		
10	7A (YV)	11.00	261	2871		2871.0	
11	7B (YV)	11.00	261	2871		2871.0	
12	21 (Landers)	11.25	261	2936.25			2936.3
13	34 (29)	7.50	261	1957.5	1957.5		
14	50 (JT)	10.00	261	2610			2610.0
15	30 (YV)	10.00	261	2610		2610.0	
16	31 (YV)	5.00	261	1305		1305.0	
17	34 (WV)	8.00	104	832			832.0
18	36 (MV)	4.00	104	416			416.0
	<i>**Cost for local hours are allocated 100% to corresponding member agencies</i>						
	Joshua Tree National Park Roadrunner Service						
19	RoadRunner Service		0	0	0.0		
				Allocation:			
				Twentynine	Yucca		
				Palms	Valley	County	
1	Total Revenue Hours		36909.3	12310.7	13379.6	11219.0	
2	Percentage Rev. Hours			33.4%	36.2%	30.4%	100.00%
3	Population		74,832	27,046	21,834	25,952	
4	Percentage Population			36.1%	29.2%	34.7%	
	<i>* Population figures supplied by SANBAG per DOF as approved by SANBAG Board</i>						

Cost Alternative #1						
Line		Route Cost/Hr	Twentynine Palms	Yucca Valley	County	
	Regional Service					
1	1	\$91.23	\$301,743	\$241,213	\$290,321	
2	1X	\$91.23	\$11,351	\$9,074	\$10,921	
3	12 (Palm Springs)	\$105.97	\$63,754	\$50,965	\$61,340	
4	15	\$118.76	\$30,030	\$24,006	\$28,894	
		Subtotal	\$406,878	\$325,258	\$391,476	
	Local Service					
5	3A (29)	\$82.94	\$226,285	\$0	\$0	
6	3B (29)	\$83.42	\$229,171	\$0	\$0	
7	7A (YV)	\$83.57	\$0	\$231,464	\$0	
8	7B (YV)	\$83.52	\$0	\$229,622	\$0	
9	21 (Landers)	\$92.53	\$0	\$0	\$238,903	
10	34 (29)	\$87.06	\$75,872	\$0	\$0	
11	50 (JT)	\$76.68	\$0	\$0	\$161,557	
12	30 (YV)	\$77.19	\$0	\$155,414	\$0	
13	31 (YV)	\$81.74	\$0	\$92,039	\$0	
14	34 (WV)	\$87.06	\$0	\$0	\$32,248	
15	36 (MV)	\$82.98	\$0	\$0	\$43,108	
		Subtotal	\$531,328	\$708,539	\$475,816	
	Special					
16	Special	\$117.75	\$165	\$165	\$165	
		Subtotal	\$165	\$165	\$165	
			Twentynine Palms	Yucca Valley	County	
			\$938,371	\$1,033,961	\$867,457	\$2,839,790
		% Cost	33.0%	36.4%	30.5%	100.0%

Cost Alternative #2							
					Allocation:		
				Total	Revenue Hours, not Population		
Line				Revenue	Twentynine	Yucca	
	Regional Service*			Hours	Palms	Valley	County
1	1			6,527.6	2,218.5	1,874.0	2,435.1
2	1X			1,396.2	658.8	407.7	329.7
3	12 (Palm Springs)			1,422.5	-	632.9	789.5
4	15			496.1	229.8	111.8	154.4
	<i>*Regional hours are allocated to each member agency based on route schedule allocation by MBTA</i>						
	Local Service**						
5	3A (29)			2,728.3	2,728.3		
6	3B (29)			2,747.2	2,747.2		
7	7A (YV)			2,769.7		2,769.7	
8	7B (YV)			2,749.3		2,749.3	
9	21 (Landers)			2,581.9			2,581.9
10	34 (29)***			871.5	871.5		
11	50 (JT)			2,106.9			2,106.9
12	30 (YV)			2,013.4		2,013.4	
13	31 (YV)			1,126.0		1,126.0	
14	34 (WV)***			370.4			370.4
15	36 (MV)			519.5			519.5
	<i>**Cost for local hours are allocated 100% to corresponding member agencies</i>						
	<i>*** Ready Ride 34 revenue hours in Transtrack are allocated based on service schedule allocation.</i>						
	Special						
20	Special			4.2	1.4	1.4	1.4
				Allocation:			
				Twentynine	Yucca		
				Palms	Valley	County	
23	Total Revenue Hours	30,430.6		9,456	11,686	9,289	30,431
24	Percentage Rev. Hours			31.1%	38.4%	30.5%	100.00%

Cost Alternative #3						
Route / Service Day	Segment Begin (From)	Segment End (To)	Total Annual Revenue Miles	San Bernardino County	Twentynine Palms	Yucca Valley
Local Routes						
1 Wkdy	YVTC	Hwy 62 & Yucca Mesa Road	12,870	0	0	12,870
1 Wkdy	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	44,850	44,850	0	0
1 Wkdy	Hwy 62 & Lee Road	TPTC	31,590	0	31,590	0
1 Wkdy	TPTC	Hwy 62 & Lee Road	32,760	0	32,760	0
1 Wkdy	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	44,460	44,460	0	0
1 Wkdy	Hwy 62 & Yucca Mesa Road	YVTC	12,090	0	0	12,090
1 Wkdy	Yucca Valley Park-Ride	YVTC	3,224	0	0	3,224
1 Wkdy	TPTC	6th & Bourke	7,410	0	7,410	0
1 Wkdy	YVTC	Yucca Valley Park-Ride	3,224	0	0	3,224
1 Wkdy	6th & Bourke	TPTC	7,800	0	7,800	0
1 Sat	Yucca Valley Park-Ride	Hwy 62 & Yucca Mesa Road	2,662	0	0	2,662
1 Sat	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	4,784	4,784	0	0
1 Sat	Hwy 62 & Lee Road	6th & Bourke	7,322	0	7,322	0

Cost Alternative #3						
Route / Service Day	Segment Begin (From)	Segment End (To)	Total Annual Revenue Miles	San Bernardino County	Twentynine Palms	Yucca Valley
1 Sat	6th & Bourke	Hwy 62 & Lee Road	7,654	0	7,654	0
1 Sat	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	4,742	4,742	0	0
1 Sat	Hwy 62 & Yucca Mesa Road	Yucca Valley Park-Ride	2,579	0	0	2,579
1 Sun	Yucca Valley Park-Ride	Hwy 62 & Yucca Mesa Road	666	0	0	666
1 Sun	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	1,092	1,092	0	0
1 Sun	Hwy 62 & Lee Road	6th & Bourke	1,830	0	1,830	0
1 Sun	6th & Bourke	Hwy 62 & Lee Road	1,914	0	1,914	0
1 Sun	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	1,082	1,082	0	0
1 Sun	Hwy 62 & Yucca Mesa Road	Yucca Valley Park-Ride	645	0	0	645
3A Wkdy	TPTC	6th & Bourke	27,170	0	27,170	0
3A Wkdy	6th & Bourke	TPTC	28,600	0	28,600	0
3B Wkdy	TPTC	TPTC	55,484	0	55,484	0
7A Wkdy	TPTC	TPTC	46,046	0	0	46,046
7B Wkdy	TPTC	TPTC	41,756	0	0	41,756

Cost Alternative #3						
Route / Service Day	Segment Begin (From)	Segment End (To)	Total Annual Revenue Miles	San Bernardino County	Twentynine Palms	Yucca Valley
7B School	Black Rock HS, La Contenta MS, Joshua Springs School		2,016	0	0	2,016
21 Wkdy	YVTC	Avalon Ave & Sun Oro Road	9,672	0	0	9,672
21 Wkdy	Avalon Ave & Sun Oro Road	Old Woman Springs & Reche Rd	24,180	24,180	0	0
21 Wkdy	Old Woman Springs & Reche Rd	Yucca Mesa & Buena Vista	18,252	18,252	0	0
21 Wkdy	Yucca Mesa & Buena Vista	YCTC	9,516	0	0	9,516
		Total Local Routes	499,942	143,442	209,534	146,966
		Percent	100.0%	28.7%	41.9%	29.4%
Commuter Routes						
12 Wkdy	Palm Springs Airport	CA 62 & Shafter Ave	22,308	11,154	0	11,154
12 Wkdy	CA 62 & Shafter Ave	YVTC	3,276	0	0	3,276
12 Wkdy	YVTC	CA 62 & Shafter Ave	3,276	0	0	3,276
12 Wkdy	CA 62 & Shafter Ave	Palm Springs Airport	23,478	11,739	0	11,739
15 Fri	Palm Springs Airport	CA 62 & Shafter Ave	1,565	522	522	522
15 Fri	CA 62 & Shafter Ave	Hwy 62 & Yucca Mesa Road	390	0	0	390
15 Fri	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	546	546	0	0
15 Fri	Hwy 62 & Lee Road	6th & Bourke	915	0	915	0
15 Fri	6th & Bourke	Hwy 62 & Lee Road	957	0	957	0
15 Fri	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	541	541	0	0
15 Fri	Hwy 62 & Yucca Mesa Road	CA 62 & Shafter Ave	380	0	0	380
15 Fri	CA 62 & Shafter Ave	Palm Springs Airport	1,565	522	522	522

Cost Alternative #3						
Route / Service Day	Segment Begin (From)	Segment End (To)	Total Annual Revenue Miles	San Bernardino County	Twentynine Palms	Yucca Valley
15 Sat	Palm Springs Airport	CA 62 & Shafter Ave	3,130	1,043	1,043	1,043
15 Sat	CA 62 & Shafter Ave	Hwy 62 & Yucca Mesa Road	780	0	0	780
15 Sat	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	1,092	1,092	0	0
15 Sat	Hwy 62 & Lee Road	6th & Bourke	1,830	0	1,830	0
15 Sat	6th & Bourke	Hwy 62 & Lee Road	1,914	0	1,914	0
15 Sat	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	1,082	1,082	0	0
15 Sat	Hwy 62 & Yucca Mesa Road	CA 62 & Shafter Ave	759	0	0	759
15 Sat	CA 62 & Shafter Ave	Palm Springs Airport	3,130	1,043	1,043	1,043
15 Sun	Palm Springs Airport	CA 62 & Shafter Ave	3,130	1,043	1,043	1,043
15 Sun	CA 62 & Shafter Ave	Hwy 62 & Yucca Mesa Road	780	0	0	780
15 Sun	Hwy 62 & Yucca Mesa Road	Hwy 62 & Lee Road	1,092	1,092	0	0
15 Sun	Hwy 62 & Lee Road	6th & Bourke	1,830	0	1,830	0
15 Sun	6th & Bourke / TPTC	Hwy 62 & Lee Road	1,368	0	1,368	0
15 Sun	Hwy 62 & Lee Road	Hwy 62 & Yucca Mesa Road	1,082	1,082	0	0
15 Sun	Hwy 62 & Yucca Mesa Road	CA 62 & Shafter Ave	759	0	0	759
15 Sun	CA 62 & Shafter Ave	Palm Springs Airport	3,130	1,043	1,043	1,043
Total Commuter Routes			86,086	33,545	14,031	38,510
Total Fixed Route System			586,028	176,987	223,565	185,476
Percentage Allocation by Jurisdiction			100.0%	30.2%	38.1%	31.6%
Ready Ride						
34 (29)			24,336		24,336	
50 (JT)			27,024	27,024		
30 (YV)			25,644			25,644

Cost Alternative #3						
Route / Service Day	Segment Begin (From)	Segment End (To)	Total Annual Revenue Miles	San Bernardino County	Twentynine Palms	Yucca Valley
31 (YV)			8,532			8,532
36 (MV)			3,528	3,528		
Total Ready Ride			<u>89,064</u>	<u>30,552</u>	<u>24,336</u>	<u>34,176</u>
Total MBTA System			675,093	207,539	247,901	219,652
			100.0%	30.7%	36.7%	32.5%

Appendix B

Detailed Revenue Allocation

Existing MBTA Allocation			
Non-Local Revenue			
Line		<u>FY 2019-20 Budget</u>	
	Non-Local Operating Revenues		
	Passenger Fares	\$ 390,000	
	LCTOP CMC Subsidy	\$ 47,336	
	FTA Section 5311	\$ 398,562	
	AB 2766	\$ 40,000	
	Other	\$ 15,041	
	Subtotal	\$ 890,939	
	Measure I	\$ 104,300	Operations
			Measure I
	S.B. County		\$ 31,703
	Yucca Valley		\$ 37,809
	Twentynine Palms		\$ 34,788
	Total Non-Local Revenue	\$994,239	

Revenue Alternative #1					
Non-Local Operating Revenues	Allocation				
Passenger Fares	% of Revenue Hours by Jurisdiction				
LCTOP CMC Subsidy	% Population				
FTA Section 5311	% of jurisdiction service land area, and population				
Measure I	% of Measure I Local Pass-Through by jurisdiction for Morongo Basin Sub-Area				
AB 2766	% Population				
Other	% Population				
	Allocation Percentage				
	Twentynine	Yucca			
Non-Local Operating Revenues	Palms	Valley	County		
Passenger Fares	31.1%	38.4%	30.5%	100.0%	
LCTOP CMC Subsidy	36.2%	28.9%	34.8%	100.0%	
FTA Section 5311*	20.3%	16.0%	63.7%	100.0%	
Measure I**	28.4%	47.6%	24.0%	100.0%	
AB 2766	36.2%	28.9%	34.8%	100.0%	
Other	36.2%	28.9%	34.8%	100.0%	
	Twentynine	Yucca			
Revenue	Palms	Valley	County		
Passenger Fares	\$121,183	\$149,770	\$119,047	\$390,000	
LCTOP CMC Subsidy	\$17,141	\$13,703	\$16,492	\$47,336	
FTA Section 5311	\$80,949	\$63,632	\$253,981	\$398,562	
Measure I	\$29,358	\$49,171	\$24,771	\$103,300	
AB 2766	\$14,485	\$11,579	\$13,936	\$40,000	
Other	\$5,447	\$4,354	\$5,241	\$15,041	
Total	\$268,562	\$292,209	\$433,468	\$994,239	
*Land Area Sq. Miles (1,341.45 Total, used Morongo Unified School District)					
59.14	Twentynine Palms				
40.02	Yucca Valley				
<u>1,242.29</u>	County				
1,341.45	Total				
Population					
26,919	Twentynine Palms				
21,519	Yucca Valley				
<u>25,900</u>	County				
74,338	Total				
** CIP Pass Through FY18/19 est. (SBCTA Measure I 5-Year CIP, 2018-2023)					
\$443,306	Twentynine Palms				
\$742,483	Yucca Valley				
<u>\$374,049</u>	County - Morongo Basin				
\$1,559,838	Total				

Revenue Alternative #2				
Allocation				
100%	Revenue Hours by Jurisdiction (all revenue hours, no population)			
	Allocation Percentage			
	Twentynine	Yucca		
Non-Local Operating Revenues	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
% Allocation	31.1%	38.4%	30.5%	100.0%
	Twentynine	Yucca		
Non-Local Operating Revenues	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Total	\$ 308,935	\$ 381,815	\$ 303,489	\$ 994,239
Revenue Hours by Jurisdiction				
9,456	Twentynine Palms	31.1%		
11,686	Yucca Valley	38.4%		
<u>9,289</u>	County	<u>30.5%</u>		
30,431	Total	100.0%		

Revenue Alternative #3				
Allocation				
100.0%	Revenue Route Miles by Jurisdiction (all revenue miles, no population)			
	Allocation Percentage			
	Twentynine	Yucca		
Non-Local Operating Revenues	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
% Allocation	36.7%	32.5%	30.7%	100.0%
	Twentynine	Yucca		
Non-Local Operating Revenues	<u>Palms</u>	<u>Valley</u>	<u>County</u>	
Total	\$365,095	\$323,492	\$305,652	\$994,239
Revenue Route Miles by Jurisdiction				
247,901	Twentynine Palms	36.7%		
219,652	Yucca Valley	32.5%		
<u>207,539</u>	County	30.7%		
675,093	Total	100%		