San Bernardino Associated Governments

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•San Bernardino County Transportation Commission •San Bernardino County Transportation Authority
•San Bernardino County Congestion Management Agency •Service Authority for Freeway Emergencies

Support Material Agenda Item No. 15

Board of Directors Meeting

November 2, 2016

10:15 a.m.

Location:
SANBAG
First Floor Lobby
1170 W. 3rd Street, San Bernardino, California 92410

Consent Calendar

Transportation Programming and Fund Administration

15. Morongo Basin Transit Authority – Short Range Transit Plan

That the Board, acting in its capacity as the San Bernardino County Transportation Commission:

A. Receive and approve the Morongo Basin Transit Authority (MBTA) Short Range Transit Plan.

B. Allocate $25,985 in State Transit Assistance Funds - Population Share to MBTA in Fiscal Year 2016/2017 for a new total allocation of $293,619.

Attached is the full Morongo Basin Transit Authoirty Focused Short Range Transit Plan.

Morongo Basin Transit Authority

Focused Short Range Transit Plan

Final Report

August 2016

mobility PLANNERS
AMMA TRANSIT PLANNING
TRANSIT marketing LLC
RONNY KRAFT CONSULTING

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Summary Report

Introduction

This is the Summary Report for the Morongo Basin Transit Authority (MBTA) Focused Short Range Transit Plan (SRTP). The Summary Report provides the key findings and recommendations for each area of focus in the Short Range Transit Plan process. The Focused SRTP is a blueprint for transit development in the Morongo Basin over the next five years. The first section below provides a summary of key recommended actions by plan year over the next five years. This is a summary of key recommendations provided in sections 2 through 8. One of the focus areas was to look at the impacts of the July 1, 2014 fare increase and the second section provides an evaluation of the fare increase. It is followed by section 3 which reviews key performance trends over the past four years. Sections 4 through 6 review the focus areas of the Focused SRTP that will improve mobility services for residents and visitors to the Morongo Basin: Joshua Tree Transit Service, scheduling and reliability improvements for Route 1, and lifeline services to areas of the Morongo Basin that are not well served by traditional transit. Section 7 provides a straight-forward performance monitoring program with a simple set of goals and performance standards. The final section is perhaps the most important as it provide a blueprint for financial integrity of MBTA operations and capital improvements over the next five years.

The Summary Report is therefore presented in the following order:

1. Recommended Actions by Plan Year
2. Fare Analysis
3. Key Performance Trends
4. Joshua Tree National Park Transit Service
5. Route 1 Recommendations
6. Lifeline Analysis and Recommendations
7. Goals and Performance Standards
8. Five-Year Financial Plan

Details are provided in four Appendices that are referenced throughout this Summary Report.

1. Recommended Actions by Plan Year

This section provides an overview of recommended actions of the Focused Short Range Transit Plan. This section is not meant to be an exhaustive list of every action, but provides a guide to the most important actions recommended in the Short Range Transit Plan. For each plan year, the actions are divided into the following sections:

- Management Actions
- Operational Actions
- Marketing Actions
- Capital Procurement Actions

Not every action category is included in every plan year because in some years there are, in particular, no marketing actions recommended. Readers will find the justification and rationale for these recommendations in the remaining sections of this Summary Report. Further detail is included in the Appendices.

FY 2016/17

Management Actions

- Adopt the Focused Short Range Transit Plan.
- Approve the Cooperative Agreement between Joshua Tree National Park (JTNP) and MBTA for transit service.
- Adopt Memorandum of Understanding on policies and procedures between JTNP and MBTA for JTNP transit service commencing November 4, 2016.
- Adopt three semester pilot program with Copper Mountain College to offer free fares and expand service options (further described in Operational Actions) in order to boost MBTA ridership and increase enrollment at Copper Mountain College.
- Initiate discussion for agreement for funding Reach-Out Morongo Basin to provide transit service to Pioneer Town and the Johnson Valley two days a week, starting July 1, 2017.
- Apply for FY 2017/18 FTA 5310 grant to provide TREP volunteer driver reimbursement program services by MBTA.

Operational Actions

- Develop final new schedule for JTNP transit service. Work with JTNP to finalize stop locations.
- Initiate JTNP Transit Service on November 4, 2016.
- Implement updated Route 1 schedule with an added timepoint at Walmart. Make timepoint adjustments, and improve Route 1 schedule/class coordination with Copper Mountain College.

- Initiate a third round trip on Saturdays and Sundays between Twentynine Palms Transit Center and Palms Springs on Route 15 when the JTNP Transit pilot program is operating (weekends only) between November 4, 2016 and February 26, 2017.
- Initiate a fourth round trip on Monday to Fridays on Route 12 when the JTNP Transit Service operates daily in March and April 2017.
- Implement Copper Mountain College Free Fare Pilot Program in Spring Semester 2017.
- Initiate subscription Ready-Ride services to Joshua Tree and Landers for classes ending at 5:50 pm and 8:50 pm from Copper Mountain Community College in Spring Semester 2017.

Marketing Actions

- Retain a marketing and design professional to coordinate production of branding and promotional materials for launch of Joshua Tree National Park transit service.
- Refine branding scheme developed by Otis College of Art and Design, and develop branding applications for vehicles, signage, promotional materials and online presence.
- Develop content and artwork for printed materials for distribution within Joshua Tree National Park and gateway partners.
- Develop MBTA website page with JTNP transit information and provide link to Joshua Tree National Park sites.
- Incorporate service improvements to Routes 1, 12, and 15 in updated route and schedule guide.
- Distribute printed materials to marketing partners in Morongo Basin.
- Install bus wraps with bus branding on four buses.
- Install bus stop signage and information panels.
- VIP Preview Tour.
- Initiate Social Media announcements of JTNP transit service.

Capital Procurement Actions

- Order and replace four FY 2010 Goshen buses. Consider procurement of low floor buses based on cost and capacity considerations.
- Order and replace one FY 2007 El Dorado XHF bus. Consider procurement of low floor bus based on cost and capacity considerations.
- Purchase and install bus stop signs and information panels for Joshua Tree National Park transit service.
- Purchase AVL/GPS system to monitor schedule adherence and bus tracking on Route 1.

FY 2017/18

Management Actions

- Evaluate Joshua Tree National Park Transit service and Copper Mountain College transit enhancement campaign for effectiveness. Make recommendations for improvements for Fall 2017.
- Determine if TREP volunteer mileage reimbursement program will be administered in-house or through third-party vendor.

Operational Actions

- Initiate service to Pioneer Town and Johnson Valley two days a week, operated by Reach-Out Morongo Basin.
- Update schedule for Joshua Tree National Park transit service based on first year results.
- Extend Joshua Tree National Park Transit service from the 2016/17 season end date of April 30 to May 31st on Fridays, Saturdays and Sundays.

Marketing Actions

- Update printed materials and website information for Joshua Tree National Park service. Distribute updated material in advance of November 2017 launch of second year.
- Launch targeted marketing campaign for Copper Mountain College students for free fare program, subscription bus evening service to Joshua Tree and Landers, and checkpoint demand response service on last runs eastbound and westbound on Route 1.

Capital Procurement Actions

- Replace six Class C cutaway buses for use in the Ready-Ride service.
- Purchase of shop equipment upgrades.

FY 2018/19

Management Actions

- Evaluate the JTNP Transit service in collaboration with Joshua Tree National Park management to determine if the partnership should continue in FY 2019/20 and beyond, and if so, what the JTNP contribution would be for FY 2019/20.
- If the JTNP service will continue as permanent service, determine the type of bus that should be ordered and determine the capital funding source to apply for.
- Evaluate the Copper Mountain College ridership and enrollment statistics with the administration of Copper Mountain College. Determine if the fare should be reinstated at $0.25 or $0.50 depending on the actual experience of the free fare program. Determine whether or not the subscription bus service to Joshua Tree and Landers should be continued.

Operational Actions

- Expand Joshua Tree service season from October 1st to May 31st, dependent on the outcome of service the first two years.

Capital Procurement Actions

- Order five new buses for the JTNP service for delivery in FY 2019/20.
- If the AVL/GPS proves to have utilitarian value on Route 1, purchase a system for the rest of the fleet. Consider making the real time information available on a transit app, the MBTA website, at both transit centers.
- Bus stop shelter and pad upgrades.

FY 2019/20

Capital Procurement Actions

- Place new buses with branding into JTNP service.
- Replace FY 2011 Goshen. Consider low floor bus.

2. Fare Analysis

The fare analysis was conducted to compare the ridership and fare revenue one full year before and one full year after the July 1, 2014 fare increase. The fare analysis is intended to provide insight into the impacts on ridership of the fare increase. Details on the fare analysis are included in Appendix A.

The fare increase was a result of the 2012 Comprehensive Operational Analysis conducted by Moore & Associates in April 2012, and adjusted based on a June 2013 "MBTA Fare Analysis of the 2012 Fare Recommendations of MBTA's Comprehensive Operational Analysis," conducted by AMMA Transit Planning and Mobility Planners LLC. The final fare increase was based on a public hearing before the MBTA Board.

Exhibit 1 shows the fare increase implemented on July 1, 2014. During the June 2013 fare analysis, the following objectives were established in concert with MBTA management:

1. Equitable distribution of fare increases, within fare categories and across groups.
2. A fare structure that enables MBTA to secure its required fare box recovery ratio and appropriately prices both cash and pass fares to secure needed fare revenue.
3. Moving towards a fare structure that provides discounts to more committed, frequent riders.
4. Ensuring ease of understanding of fares by riders, as well as ease of use by drivers and reporting by MBTA administrative staff.
5. Establishing farebox recovery ratio trigger levels as a basis for instituting fare changes.

The key findings from the Focused SRTP analysis were:

- Overall, MBTA fare revenues increased from $358,445 in FY 2013/14 to $427,885 in FY 2014/15 in response to the fare increase, a 19.4% increase. The fare increase achieved the overall fare revenue goals.

- Operating costs also increased substantially between FY 2013/14 and FY 2014/15, increasing from $2,249,874 to $2,583,579 in FY 2014/15, a 14.8% increase. An important context for the fare analysis is that operating cost increases offset most of the benefits of the fare revenue increase.

- The bottom line is that while the fare increase resulted in an average fare per passenger[1] increase from $0.98 in FY 2013/14 to $1.33 in FY 2014/15, a 36.1% increase, the farebox recovery ratio increased from 15.9% in FY 2013/14 to 16.6% in FY 2014/15, only a 4% increase. Based on data from the first three quarters of FY 2015/16, the projected farebox recovery ratio will be 15.9% in FY 2015/16, the same farebox recovery ratio as before the July 1, 2014 fare increase.

- Ridership decreased from 366,700 in FY 2013/14 to 321,789 in FY 2014/15, a 12.3% decline. As will be discussed in more detail in the next section on overall performance trends, the fare increase is only one of several factors that have led to a decline in ridership and a flat farebox recovery ratio.

The fare increase did achieve the five objectives described above. Overall, with the implementation of the Joshua Tree National Park transit service, it is projected that there will not be a need for an additional fare increase during the five-year planning horizon.

[1] The average fare per passenger is calculated by the total fare revenue divided by total passengers.

Exhibit 1 Fare Increase July 1, 2014

MBTA Fare Structure		**FY 2013-2014**		**FY 2014-2015**	
CASH FARES		**Old Fares**		**New Fares**	
Intercity Highway Route (Route 1, 1X)		***One-Way***		***One-Way***	
Adults/ Students		$2.00		$2.50	
Seniors/ Disabled		$1.00		$1.25	
Neighborhood Shuttles (Routes 3A, 3B, 7A, 7B and 21)					
Adults/ Students		$1.00		$1.25	
Seniors/ Disabled		$0.75		$1.00	
	additional cost for route deviation				
Route 12	***Locations***	***One-Way***	***Round-Trip***	***One-Way***	***Round-Trip***
Adults/ Students	29 Palms	$10.00	$15.00	$10.00	$15.00
	Joshua Tree & Yucca V	$7.00	$11.00	$7.00	$11.00
	Morongo Valley	$5.00	$9.00	$5.00	$9.00
Seniors/Disabled	All Locations	$4.50	$9.00	$4.50	$9.00
Route 15	***Locations***				
Adults/ Students	29 Palms	$20.00	$25.00	$20.00	$25.00
	Joshua Tree & Yucca V	$17.00	$21.00	$17.00	$21.00
	Morongo Valley	$15.00	$19.00	$15.00	$19.00
Seniors/Disabled	All Locations	$14.50	$19.00	$14.50	$19.00
PASS FARES					
Day Pass (Rts. 1, 1X, 3, 7, 21)					
Adults		$3.00		$3.75	
Student/ Senior/ Disabled		N/A		$3.00	
31 Day Go Pass					
Adults		$30.00		$40.00	
Student/ Senior/ Disabled		$20.00		$25.00	
7 Day Pass (Rt. 12 Only)					
Adults		$35.00		$35.00	
Copper Mountain Community College		$0.25	plus $20K	$0.50	plus $20K
Ready Ride					
Adults/ Students		$4.00		$5.00	
Seniors/ Disabled		$1.50		$2.00	
Senior/Disabled 10 Punch Pass		$10.00		$12.50	
Senior/Disabled 20 Punch Pass		$20.00		$25.00	

3. Key Performance Trends

This is a high level summary of the overall performance trends for MBTA over the past three full fiscal years and through three quarters of FY 2015/16. Exhibit 2 shows the base statistics and key performance indicators. Potential factors that contributed to these trends are discussed below.

Exhibit 2 Systemwide Performance Trends

Systemwide					
	FY 2012/13	FY 2013/14	FY 2014/15	2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	380,748	366,700	321,589	317,074	-16.7%
Service Hours	33,189	33,343	32,813	33,168	-0.1%
Service Miles	666,663	684,367	650,067	653,359	-2.0%
Fare Revenue	383,200	358,446	427,885	425,003	10.9%
Operating Costs	2,329,687	2,249,874	2,583,579	2,667,547	14.5%
Performance					
Passengers/Hour	11.5	11.0	9.8	9.6	-16.7%
Passenger/Mile	0.57	0.54	0.49	0.49	-15.0%
Average Fare	$1.01	$0.98	$1.33	$1.34	33.2%
Farebox Recovery	16.4%	15.9%	16.6%	15.9%	-3.1%
Cost/Hour	$70.19	$67.48	$78.74	$80.43	14.6%
Cost/Trip	$6.12	$6.14	$8.03	$8.41	37.5%
Subsidy/Trip	$5.11	$5.16	$6.70	$7.07	38.3%

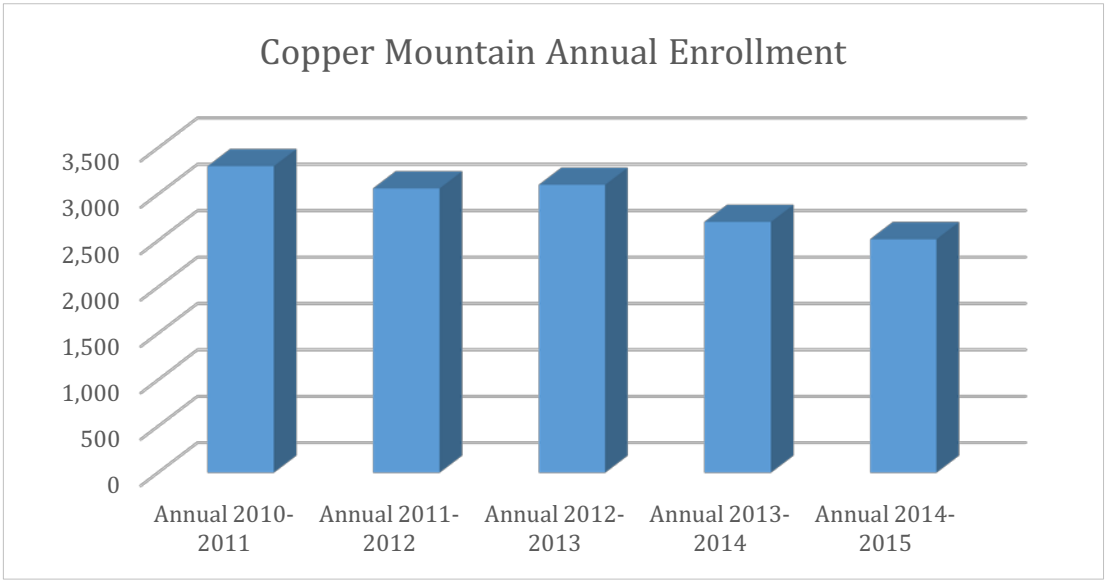
* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three.

In terms of the supply of public transportation service, MBTA has not made any significant route or schedule changes over the past four years, and therefore the number of vehicle service hours has remained flat at approximately 33,000 vehicle service hours.

As discussed above, there has been a decline in ridership of approximately 16.7% since FY 2012/13. This is higher than the expected ridership decline of 6.5% based on the fare increase alone. Looking at the details of the ridership composition in combination with the fare increase, there are likely several other factors that contributed to the drop in ridership.

1. There was a significant drop in Copper Mountain College ridership from 58,965 in FY 2013/14 to 40,472 in FY 2014/15, the first full year after the fare increase. Factors that likely contributed to this ridership decline include:
   - The Copper Mountain College Foundation contributes $20,000 to MBTA to lower the fares of its low income students. The increase in fares from $0.25 to $0.50 likely had a more pronounced impact on Copper Mountain ridership than expected. In FY 2014/15, 73% of all Copper Mountain College students were eligible for a Board of Governor fee waiver, based on their income.
   - Decreased enrollment in annual Copper Mountain College from 3,304 in 2010/11 to 2,516 in FY 2014/15.

Exhibit 3 Copper Mountain College Enrollment Trends



- An improved economy and low gas prices typically enable more community college students to own automobiles and drive to school, and despite a very low income population, the low gas prices likely enabled more students to drive to and from school.
- The Route 1 schedule make evening transit trips very inconvenient for students to get home. For students taking 3:00 to 5:50 pm classes, buses do not arrive in both the Eastbound and Westbound direction until 7:10 pm, which requires a wait of one hour 20 minutes. Students taking a 6:00 to 8:50 pm class must wait until 9:40 pm for the buses to arrive. Such inconvenient service diminishes ridership.

2. A drop in the Twentynine Palms Marine Corps Base population with more restrictive leave policies likely contributed to overall ridership decline. While the exact historical figures on actual Service Member deployments are not known, the evidence is pretty clear from the performance of the routes that serve the Marine Corp Base:
   - Route 15 ridership that is designed specifically for Marine Corp Base passengers from Friday to Sunday has dropped from 3,705 in FY 2012/13 to 2,147 in FY 2015/16, a drop of 42.1%. This compares to the systemwide drop of 16%.
   - Route 3A ridership from Twentynine Palms on an hourly basis on weekdays dropped from 43,403 in FY 2012/13 to a projected 33,595, a 22% decline in ridership.
3. Schedule adherence issues after the installation of the Walmart stop have decreased the reliability of Route 1. In a special data collection effort to determine the facts on schedule adherence issues on Route 1, it was found that that the actual time between Yucca Valley T.C. to Park Blvd. was an average of 18 minutes compared to the 12 minutes that is scheduled. The maximum delay was 21 minutes. However, this

resulted in many Eastbound stops being an average of :08 to :11 minutes late. Overall, chronically unreliable and late service will erode transit ridership, and this was likely a contributing factor to the overall decline in ridership. Alternatives and recommendations to address this issues are included in Section 4 on Route 1. The good news is that adjustments to scheduled timepoints can fix most of the schedule adherence problems.

4. In quantitative terms, we don't know what impacts low gas prices have had on MBTA ridership. However, a reasonable hypothesis is that lower gas prices and an improved economy have enabled at least some former very low income MTBA riders to gain employment and afford to utilize a car for their commute and daily errands. The fare analysis points to the fact that it is very likely that fewer riders are making trips on MBTA services.
5. Nationwide, according to American Public Transit Association statistics, there has been a steady decline in bus ridership. Nationally, bus ridership was 1.35 billion for the 4th quarter of 2013 and has steadily declined to 1.28 billion in the 4th quarter of 2015. The recent drop in bus ridership by MBTA is following a national trend in declining bus ridership.

With a steady supply of vehicle service hours being provided, the decline in ridership has resulted in a corresponding decline in service productivity as measured by passengers per vehicle service hour and passengers per vehicle service mile. The average number of passengers boarding a bus in one hour of service has declined from 11.5 passengers per hour to an expected 9.7 passengers per vehicle service hour in FY 2015/16, a 15% decline in productivity.

Operating costs have been rising at a faster rate than the Consumer Price Index. In the last three full fiscal years, when audited numbers are available, operating costs increased from $2.33 to $2.58 million between FY 2012/13 and FY 2013/14, a 10.8% increase. Based on first three quarters of FY 2015/16, costs are expected to increase another 3.7%, or a total of 14.5% since FY 2012/13. During this same period, the consumer price index for the Los Angeles-Riverside-San Bernardino area increased at 5.0%, almost one-third of the MBTA cost increase.

The increased costs with a stable supply of transit service has resulted in an increase in the cost per vehicle service hour from $70.19 In FY 2012/13 to $81.91 projected for FY 2015/16, a 16.7% increase.

The subsidy per passenger trip takes into account that there has been both a ridership decline and substantial cost increase for service delivery, meaning that the passenger subsidy required per trip has increased from $5.11 in FY 2012/13 to $7.07 per passenger trip, a 38% increase.

There are a number of insights of past performance as one looks forward to the next five years. There is a definitive need to increase ridership and control operating costs to the degree possible. There is also a need to boost the farebox recovery ratio, without having to raise fares over the

next five years. The partnership with the National Park Service, the City of Twentynine Palms, and SANBAG to implement the Joshua Tree National Park transit service as presented in the next section provides the opportunity for very positive systemwide performance over the next five years, assuming that JTNP Transit Service has a successful pilot program and continues to operate over the five-year planning horizon.

4. Joshua Tree National Park Transit Service

The purpose of the Business Plan is to present transit service alternatives and costs for the proposed Joshua Tree National Park (JTNP) transit service operated by MBTA. MBTA retained Mobility Planners LLC to prepare the Business Plan. This is a summary of the key findings and recommendations of the Business Plan. The complete Final Business Plan that was approved by the MBTA Board on April 28, 2016 is included as Appendix C.

The Business Plan is based on three meetings and site visits with MBTA management, JTNP management, City of Twentynine Palms management, and San Bernardino Associated Governments (SANBAG) staff. One site visit included a bus tour of the potential routes and stops in November 2015 with management staff of both the National Park service and MBTA onboard. Potential revenue sources were reviewed and discussed with MBTA and SANBAG staff in March 2016.

Overview of Recommended First Year Transit Service

In a meeting on February 11, 2016, there was consensus among the Joshua Tree National Park Service Superintendent and staff, MBTA General Manager, City of Twentynine Palms City Manager, and SANBAG staff to start the pilot transit program. These parameters were approved for implementation by the MBTA Board on April 28, 2016:

Start Date: November 4, 2016

End Date: April 30, 2017

Two Gateway Transit Routes and Frequency: Service to and from the Joshua Tree and Twentynine Palms gateway communities into Joshua Tree National Park every two hours. Exhibit 4 shows the recommended route from both gateways.

Circulator Transit Service among JTNP Key Attractions: Service every thirty minutes among Jumbo Rocks, Ryan Mtn. Trailhead, Hidden Valley (2 stops) and Barker Dam. Exhibit 4 shows the circulator route within JTNP.

Interpretive Services: While details are still to be worked out, a NPS ranger or docent would provide interpretive services onboard the circulator route.

Days of Service: In November, December (2016), January and February (2017), the service would operate on Friday to Sunday, national holidays, and every day between Christmas

and New Years. In March and April 2017, the peak visitation months, the service would operate seven days a week.

Hours of operation:

- Standard time: First bus departs the gateway communities into JTNP at 8:00 am and last bus leaves JTNP at approximately 4 pm, arriving to the gateway communities at approximately 5 pm.
- Daylight savings time: First bus departs the gateway communities into JTNP at 8:00 am and last bus leaves JTNP at approximately 7:30 pm, arriving to the gateway communities at approximately 8:30 pm.

Marketing Plan

The Marketing Plan in has three key objectives:

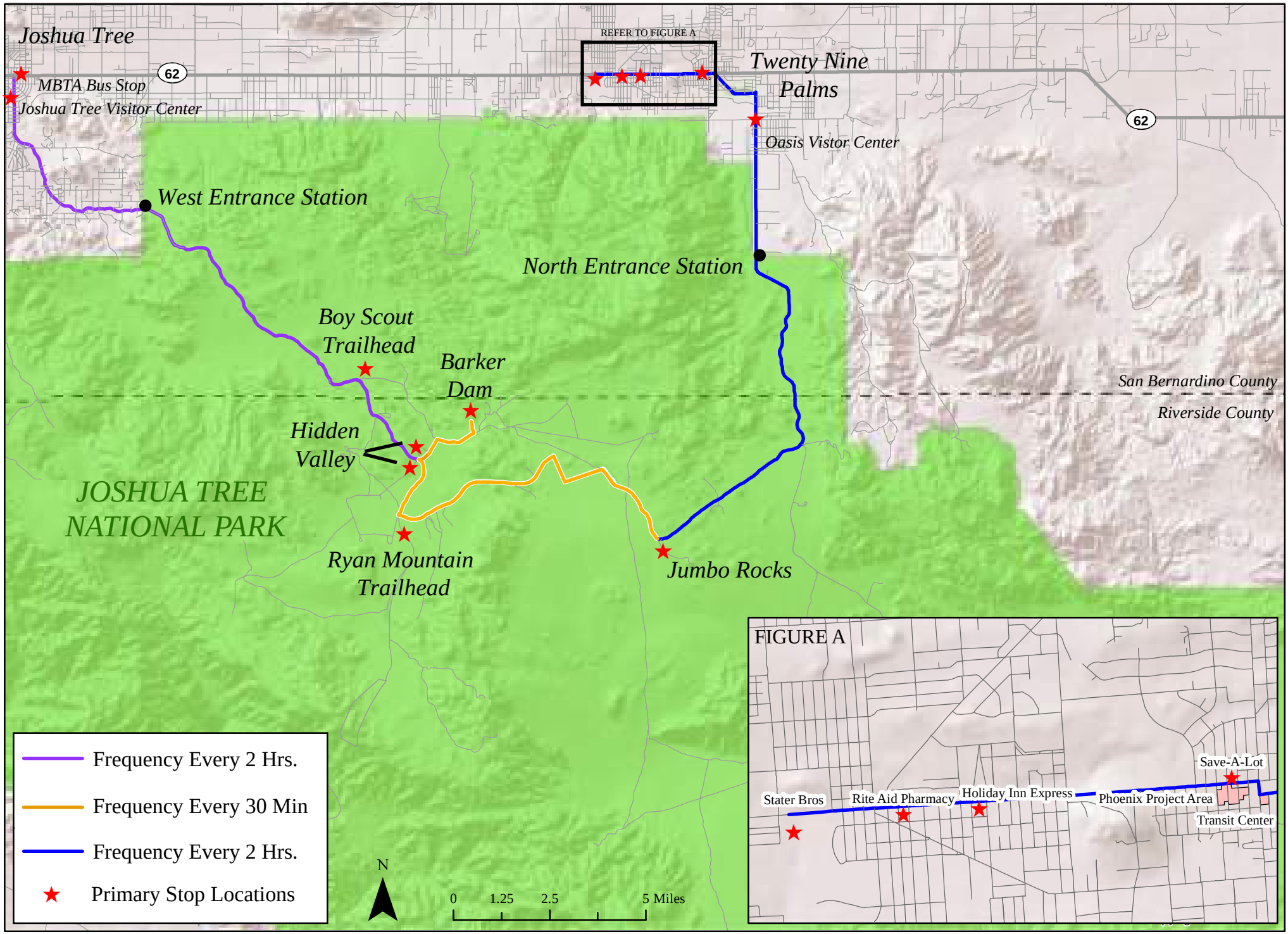
- Create awareness of the new service among people researching and planning visits to JTNP, people who arrive at the park in vehicles or otherwise, and local residents who might consider visiting the park.
- Educate potential visitors how the transit service works and the benefits it offers through user-friendly information tools online, in print and at bus stops.
- Encourage utilization of the new service by positioning it as a way to ease and enhance the experience of visiting Joshua Tree National Park.

The most important marketing strategies are:

- **Branding** is marketing at its most basic. It is how we identify a service and everything associated with it using a name, logo, and packaging. The objective of branding is to create a unified image in the mind of the potential customer and to create immediate recognition of all facets of the service. JTNP staff engaged the Otis College of Art and Design to conduct a student workshop to work on the branding, name and logo that may be utilized on the buses, bus stop signs and promotional materials.

Exhibit 4

Two Gateway Alternative



The class met in Joshua Tree the week of March 21 to 25 for the workshop and a final proposal was presented on April 11, 2016. The recommended branding will be refined by a marketing professional and utilized in a bus wrap on the buses, on the bus stop signs, on a project web site and in promotional materials.

- **Online Information:** Most travelers planning a trip research their travel options online. Having JTNP transit information readily available and apparent as potential visitors are making their travel plans will be key to building awareness and usage.

- **Printed Information:** It will be equally important to have user-friendly printed information that can be given to visitors once they arrive in the Morongo Basin. The JTNP transit guide should be attractive, clearly branded and include the following elements:
    - Easy to read map clearly showing stop locations, destinations, and parking along routes.
    - Hours and frequency for the internal shuttle; detailed schedule for gateway routes.
    - Fare information, if appropriate.
    - If rangers are onboard the internal shuttles to provide interpretive services, this would be another important message and added value service.
    - Information about taking bikes and other equipment on the JTNP transit service.

- **Bus Stop Sign and Information Panel**: The most immediate place potential riders will look for information is at the bus stop. Signage at pick up locations within the gateway communities and within the park has the potential to build visibility, clearly communicate where riders can catch the JTNP transit bus, and provide route and schedule information at the point where riders need it most. The sample at the right combines a basic bus stop sign (for visibility) with a changeable information panel which provides detailed route and schedule information for the specific stop.

- **Promotional/PR Activities:** To engage local stakeholders and create early PR coverage for the new service, MBTA and NPS may wish to jointly host a VIP Preview Event during the week before the launch of the JTNP transit service. Social Media – Facebook and other platforms – offers a host of opportunities to communicate directly with current and

potential park visitors. Local marketing efforts can encourage residents of the Morongo Basin to use the transit service to visit JTNP. This would include 1) working with local newspaper or radio stations to develop feature stories about the new JTNP transit service; and 2) targeted outreach to Copper Mountain College and Twentynine Palms Marine Corp base via bulletin board posters, news releases in in-house publications, and social media links.

Significantly more detail on target markets, marketing strategies and marketing implementation milestones are included in the Business Plan in Appendix C.

Costs and Revenues

The first year pilot transit service operating cost is approximately $275,000 to operate the bus service between November 4, 2016 and April 30, 2017. Additionally, $70,000 in marketing and communications efforts to promote the service is being budgeted for a total operating cost of $345,000. The capital costs for the first season include the wrapping of four existing MBTA transit buses, bus stop signs, and information panels for a total capital cost of $43,500.

The large majority of the operating revenue, $200,000, would be from the National Park Service, leaving $75,000 in needed local contributions. It is recommended that San Bernardino County and the City of Twentynine Palms each provide 50%, or $37,500 each, in Local Transportation Funds (LTF). It is also recommended that MBTA apply for Low Carbon Transit Operations Program (LCTOP) funds from SANBAG, which if approved, may substitute for some or all of the LTF funding during the pilot year for the 2016/17 season. State Transit Assistance (STA) would fund the marketing, branding, bus stop signs and information panels.

If the pilot transit service is successful, the transit service could potentially expand. The most likely and potentially affordable scenario is the slow growth scenario that expands the period of service from October 1 to May 31. The recommended financial plan would increase operating costs, including marketing communications, from $345,000 for the 2016/17 season to $443,283 for the 2020/21 season.

Assuming a very successful pilot program, the JTNP operating revenues contributions could increase from $200,000 to $300,000 over a five-year period. The LTF funding required from San Bernardino County and the City of Twentynine Palms would each increase from $37,500 to $51,500 over a five-year period.

If the pilot program is successful over two years, five new dedicated buses would be ordered the third year and put into service in FY 2019/20. Trolley buses at $214,000 in 2016 dollars are a placeholder figure at total cost of $1.14 million in 2019/20. The actual type of bus will be determined based on the branding process as well as the first year of actual operating experience.

The funding for the buses has not been determined. The following is a brief summary of possible capital revenue sources for the buses:

Federal Lands Transportation Program (FLTP): The FLTP funds projects that improve access within the Federal estate (national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on transportation facilities in the national Federal Lands transportation inventory and owned and maintained by the Federal government.

Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program): A relatively new formula program that provides funding for capital projects to replace, rehabilitate, and purchase buses and bus-related equipment, and to construct bus-related facilities.

State Transit Assistance (STA): Since STA can be utilized for both operating and capital expenses, in the short-term, STA funding is recommended to fund the bus branding and the signage information panels. If MBTA is successful in applying for FTA 5339 funding, STA funding could be utilized for the 20% local match.

Low Carbon Transit Operations Program (LCTOP): It is not known how much LCTOP money will be available in future years. While $1.14 million for the buses is likely not going to be available for MBTA, LCTOP could potentially fund the matching portion of the capital costs if other capital funding sources do not work out.

5. Route 1 Analysis and Recommendations

The evaluation of Route 1 was a focus of the Short Range Transit Plan. Schedule adherence and ridership levels on Route 1 were both a concern. Route 1 ridership represents 46% of all MBTA ridership. Good performance on Route 1 is critical to the overall performance of MBTA services.

Existing Service

Route 1 provides service approximately every hour in each direction on weekdays from 6:00 am to 10 pm. The first run of each weekday and the three runs after 6:00 pm in each direction serve the Yucca Valley Park & Ride and the Twentynine Palms Marine Base. On weekdays from 7:00 am to 6:00 pm the buses run a shorter core route between the Twentynine Palms T.C. and the Yucca Valley T.C.[2] Route 1 provides eight runs in each direction on Saturdays and two in each direction on Sundays; however, this analysis is focused on weekday performance only. All 30 weekday runs are completed by four shifts of bus operators – two in the morning and two in the evening traveling in opposite directions. Route 1X operates limited service on Sundays.

[2] Throughout this section the Route 1 core route is the route segment between Yucca Valley T.C. and Twentynine Palms T.C.

Existing Performance

Exhibit 5 below shows Route 1 performance from Monday to Saturday. Route 1 is a very productive route with 15.9 passengers per hour in FY 2014/15 from Monday to Saturday with 5.7 passengers per hour on the the very limited Sunday schedule. The farebox recovery ratio of Monday to Saturday service was 19.9% in FY 2013/14, and for FY 2014/15 it was 21.2%. For Sunday service, the farebox recovery ratio was 10.9% in FY 2013/14, and for FY 2014/15 it was 11.8%.

Overall ridership on Route 1 declined by 14.2% between FY 2012/13 and the first three quarters of FY 2015/16 from 173,372 to an estimated 148,814 in FY 2015/16. For the complete year of FY2014/15, the farebox recovery ratio was 21.2% on Route 1. The projection for FY 2015/16 is that the farebox recovery ratio will remain the same at 21.2% in FY 2016/17. With 46% of the total MBTA ridership, the excellent farebox recovery on Route 1 is a significant factor in the overall performance of all MBTA services.

Even though the full cash fare on Route 1 increased from $2.00 to $2.50 for adults, the average paid to board the bus was $0.78 before the fare increase, and increased to $1.06 in FY 2014/15, the first full year after the fare increase. The reason that the average fare is so much lower than the full cash fare is because the large majority riders on Route 1 predominantly utilize a day pass, a monthly pass or are Copper Mountain College students who pay $0.50.

Exhibit 5 Route 1 Performance

Route 1					
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	173,372	165,794	148,153	148,814	-14.2%
Service Hours	11,189	9,384	9,339	9,263	-17.2%
Service Miles	231,835	235,755	205,889	231,133	-0.3%
Fare Revenue	$143,913	$128,736	$157,284	$161,458	12.2%
Operating Costs	$755,051	$646,617	$742,894	$761,334	0.8%
Performance					
Passengers/Hour	15.5	17.7	15.9	16.1	3.7%
Passenger/Mile	0.75	0.70	0.72	0.64	-13.9%
Average Fare	$0.83	$0.78	$1.06	$1.08	30.7%
Farebox Recovery	19.1%	19.9%	21.2%	21.2%	11.3%
Cost/Hour	$67.48	$68.91	$79.55	$82.19	21.8%
Cost/Trip	$4.36	$3.90	$5.01	$5.12	17.5%
Subsidy/Trip	$3.53	$3.12	$3.95	$4.03	14.4%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

What stands out in performance indicators is that while the average fare increased by 30.7%, the cost per vehicle service hour also increased by 21.8% over the past four fiscal years. This is consistent with the bottom line assessment earlier that increases in operating costs offset the benefits of increased fare revenues. While the subsidy per trip is $4.03, this is still an exemplary figure for a rural transit system when compared with peer transit agencies.

Route 1 Schedule and Boarding Evaluation and Key Findings

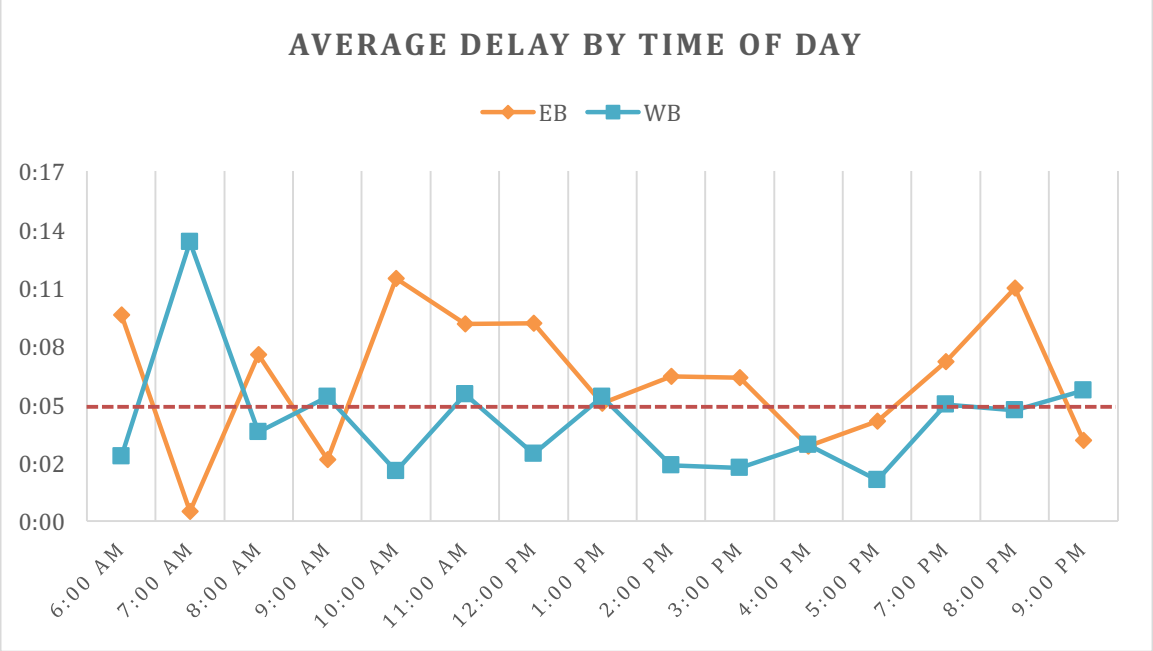
A ridecheck was conducted on five weekdays from Thursday, October 1st to Wednesday, October 7th, 2015. The purpose of the ridecheck was to analyze factors that influence three performance measures for Route 1:

- On-time performance
- Boardings and alightings by stop
- Passenger load

Ridecheck workers shadowed vehicle operators to ensure that the most possible runs were recorded. At each stop ridecheck workers recorded the number of passengers that got on and off the bus. In the event that a delay of more than two minutes occurred, ridecheck workers were asked to record the length of delay in minutes and note the reason(s) for the delay.

A bus is defined as on-time if it is no more than five minutes late or more than one minute early to a stop. Exhibit 6 shows the on-time performance for 11 timepoints in each direction by the time of day. The on-time performance threshold is shown as a dashed red line. Buses traveling in the westbound direction were generally on-time or only slightly above the threshold between 8:00 am and 7:00 pm. On-time performance for buses traveling in the eastbound direction varied, with the greatest delays between 10 am and noon.

Exhibit 6 Route 1 Average Delay by Time of Day



The following key findings are based on examining the ridecheck data for individual runs and days. In addition, input was received from Copper Mountain College on how well the existing Route 1 schedule meets the needs of Copper Mountain College.

Overall, there is sufficient running time in both directions on the core route between Yucca Valley T.C. and Twentynine Palms T.C. The scheduled running time is 50 minutes and total actual average running time was 49 minutes during the five day ridecheck. This means when buses have normal operations with a normal volume of bicycle and wheelchair boardings, Route 1 buses are able to arrive and depart on-time, with on-time being defined as within five minutes of the scheduled time.

While the running time is sufficient, there is an overall need to make adjustments to the timepoints to enable passengers to have better reliability between the schedule and actual arrival of buses at different timepoints. The relevant scheduling issues and potential alternatives for addressing the issue are discussed in each key finding below.

In the Eastbound direction, Route 1 buses are chronically late between Park Blvd. and Twentynine Palms T.C., and at all stops in the evening to the Marine Base. All timepoints between Park Blvd. and Twentynine Palms T.C. and then from the T.C. to the Marine Base are more than an average of 5 minutes late. The following key findings explain the primary reasons for the lack of on-time performance in the Eastbound direction:

- **Buses travelling in the eastbound direction need more time to travel between the Yucca Valley T.C. and the Park Blvd stops.** Buses generally leave eastbound from the Yucca

Valley T.C. on time, but then become delayed early on between the Yucca Valley T.C. and the Park Blvd stops. The scheduled interval for this stretch is 12 minutes for the core runs, but the actual time it takes is about 18 minutes, with a typical range of 17 to 20 minutes.

- **Additional time is needed between the Twentynine Palms Staters Bros. and the Twentynine Palms T.C. stops on the first eastbound run of the day.** Lack of scheduled time for this interval causes the run to end up 21 minutes behind schedule, on average. This delay then causes the second run of the day in the westbound direction to run an average of 13 minutes behind schedule.

Buses traveling in the westbound direction are generally on-time. The two exceptions are discussed in the key findings below:

- **The two AM post-lunch runs are consistently delayed due to late starts.** Two consecutive runs traveling westbound stop at the Park Blvd. stop to allow a relief driver to take over while the regular driver has a lunch break. The first of these runs generally arrives about eight minutes late to Park Blvd. and the other generally arrives about four minutes late. After lunch, at the Park Blvd. stop, the regular driver trades back with the relief driver and assumes the run in the eastbound direction. Every one of these runs left Park Blvd. late, ranging from 7 to 24 minutes delayed, causing each of them to run behind schedule by an average of about 10 minutes.

- **Additional time is needed between the Copper Mountain College and Hi-Desert Hospital stops and between the Hi-Desert Hospital and Park Boulevard stops in the westbound direction.** Lack of time scheduled between the Copper Mountain College and the Park Blvd. stops in the westbound direction causes the route to be consistently delayed by the time it leaves the Park Blvd. stops. Overall on-time performance could be improved by adjusting the scheduled timepoint by a couple of minutes.

The Route 1 schedule is not coordinated with class times for students ending class at 5:50 pm and 8:50 pm. One of the current rationales for extending the hours of Route 1 to 10 pm is to be able to serve the evening class needs of Copper Mountain College students. The ridecheck data on boardings by stop found that Copper Mountain College generates very little evening ridership. In a meeting with Copper Mountain College representatives, it was revealed that there is very poor coordination on when students get out of class and when the MBTA departs the community college. There are two key class ending times: 5:50 pm and 8:50 pm. There are numerous classes from 3:00 pm to 5:50 pm. The Route 1 bus Westbound does not arrive to Copper Mountain College until 7:14 pm and the Eastbound arrives at 7:10 pm. A second primary block of classes is from 6:00 pm to 8:50 pm and Route 1 buses do not get to Copper Mountain College in both directions until 9:40 pm. For both of these classes, students are required to wait one hour or more to catch the Route 1 bus. Because other routes are not operating after 6 pm, many students are not able to get home unless they live right along Route 1.

Route 1 Recommendations

Based on the above findings, there are five primary recommendations for Route 1 over the next five years:

1. Rewrite the schedules to provide more realistic time intervals between stops, adding a new timepoint at Walmart.
2. Implement a package of recommendations to significantly increase Copper Mountain College ridership while helping the College to boost enrollment.
3. Consider low floor buses when Route 1 bus procurements are made to make it easier for seniors and disabled individuals to get on and off the bus, which also results in significantly time spent at the bus stop in boarding passengers.
4. Procure Automatic Vehicle Locator technology to both track schedule adherence and enable passengers to utilize their phones to know when the bus will actually arrive at their bus stop.
5. Add additional runs to the Sunday service.

Each of these recommendations are summarized below, with additional details and analysis provided in Appendix B.

1. **Rewrite the schedule for Route 1, adjusting the timepoints, add a Walmart timepoint, and make evening service to Copper Mountain College more convenient. The proposed schedule is presented in Exhibit 8 on the next page**. The following is a guide to the key changes:

   Add a timepoint at Walmart. When the Walmart Superstore opened, stop improvements were made at the Highway 62 side of Walmart, but Walmart was not added as a timepoint. As shown in Exhibit 7, Walmart has the second most passenger activity for all stops on Route 1 with 151 boardings and alightings. All other stops are scheduled timepoints.

Exhibit 7 MBTA Top Passenger Activity Locations

	ONS	OFFS	TOTAL
Copper Mountain College	88	79	**168**
Hwy 62 @ Avalon (Walmart Center)	73	78	**151**
Hwy 62 @ Park Blvd	83	52	**135**
Twentynine Palms T.C.	73	60	**133**
Yucca Valley T.C.	51	60	**111**
Encelia Dr. @ Hwy 62 (Stater Bros)	40	51	**91**

The current timepoints are at the Yucca Valley Transit Center and Park Blvd. MBTA collected data on the needed schedule intervals, and this has been incorporated into the schedule.

Time intervals on Route 1 have been adjusted to match actual running conditions so that the buses will arrive to the schedule timepoint within 5 minutes of published schedule. The first runs in the morning between Yucca Valley Transit Center and Himalaya Plaza are eliminated because they are not well utilized and cause significant schedule adherence problems.

The recommended changes to the schedule on Route 1 are shown in Exhibit 8.

2. **Implement a package of recommendations to significantly increase Copper Mountain College ridership while helping the College to boost enrollment.** The following is the recommended package of recommendations with goal of substantially boosting Copper Mountain College ridership while at the same removing transportation cost and access as barrier to attendance at Copper Mountain College.

   Exhibit 8 adjusts the last three runs of the Route 1 schedule in both directions to better serve evening class departures on Route 1. This should help to encourage ridership and more students to realistically take night classes with transportation home. Westbound runs would would leave the College shortly after class lets out at 6:10 pm and 9:20 pm. Eastbound runs would leave at 6:20 pm and 9:10 pm. One evening westbound run starts at the Commissary, but no boardings were recorded at that stop during the ridecheck period. This run was deleted in order to better serve the College.

   For a year trial period, provide free fares for Copper Mountain College students in the Spring 2017 and Fall 2017 time period with a valid ID. Currently, students need to pay $0.50 to board the bus because the Copper Mountain College Foundation provides a $20,000 to offset the normal fares. In many college fee programs, fares are free to the students, but the contributions are larger. The interim Vice President for Academic and Student Affairs says that faculty and administrators are routinely asked for quarters to pay the bus fare. Taking away transportation cost barrier will enable MTBA to determine how this affects ridership, while enabling Copper Mountain College to remove a potential barrier to enrollment.

Exhibit 8

RECOMMENDED SCHEDULE - Route 1 Weekday

WESTBOUND	Comm-issary	6th & Bourke	Himalaya Plaza	29 Palms Transit Ctr	29 Palms Staters	Indian Cove	Copper Mtn College	Hi-Desert Hosp.	Park Blvd	Walmart Center	Yucca Valley T.C.	Park & Ride	
Shift AM - A		6:00 AM	6:06 AM	6:14 AM	6:19 AM	6:24 AM	--	6:31 AM	6:38 AM	6:43 AM	6:50 AM		
Shift AM- B				7:00 AM	7:08 AM	7:13 AM	7:19 AM	7:25 AM	7:31 AM	7:35 AM	7:50 AM		
Shift PM - A				8:00 AM	8:08 AM	8:13 AM	8:19 AM	8:25 AM	8:31 AM	8:35 AM	8:50 AM		
Shift PM - B				9:00 AM	9:08 AM	9:13 AM	9:19 AM	9:25 AM	9:38 AM	9:42 AM	9:57 AM	lunch	
				10:00 AM	10:08 AM	10:13 AM	10:19 AM	10:25 AM	10:38 AM	10:42 AM	10:57 AM	lunch	
				11:00 AM	11:08 AM	11:13 AM	11:19 AM	11:25 AM	11:31 AM	11:35 AM	11:50 AM		
				12:00 PM	12:08 PM	12:13 PM	12:19 PM	12:25 PM	12:31 PM	12:35 PM	12:50 PM		
				1:00 PM	1:08 PM	1:13 PM	1:19 PM	1:25 PM	1:31 PM	1:35 PM	1:50 PM		
				2:00 PM	2:08 PM	2:13 PM	2:19 PM	2:25 PM	2:31 PM	2:35 PM	2:50 PM		
				3:00 PM	3:08 PM	3:13 PM	3:19 PM	3:25 PM	3:31 PM	3:35 PM	3:50 PM		
				4:00 PM	4:08 PM	4:13 PM	4:19 PM	4:25 PM	4:31 PM	4:35 PM	4:50 PM		
				5:00 PM	5:08 PM	5:13 PM	5:19 PM	5:25 PM	5:31 PM	5:35 PM	5:50 PM		
leaves earlier				5:51 PM	5:59 PM	6:04 PM	6:10 PM	6:16 PM	6:22 PM	6:26 PM	6:41 PM	6:50 PM	break start
break end	deleted stop	7:26 PM	7:30 PM	7:40 PM	7:45 PM	7:50 PM	7:55 PM	8:04 PM	8:11 PM	8:16 PM	8:25 PM	8:34 PM	
		8:51 PM	8:55 PM	9:05 PM	9:10 PM	9:15 PM	9:20 PM	9:29 PM	9:36 PM	9:41 PM	9:50 PM	9:59 PM	

EASTBOUND	Park & Ride	Yucca Valley T.C.	Walmart Center	Park Blvd	Hi-Desert Hosp.	Copper Mtn College	Indian Cove	29 Palms Staters	29 Palms Transit Ctr	Himalaya Plaza	Comm-issary	6th & Bourke
	6:00 AM	6:10 AM	6:18 AM	6:23 AM	6:27 AM	--	6:36 AM	6:40 AM	6:50 AM			
		7:00 AM	7:09 AM	7:15 AM	7:19 AM	7:29 AM	7:33 AM	7:38 AM	7:50 AM			
		8:00 AM	8:09 AM	8:15 AM	8:19 AM	8:29 AM	8:33 AM	8:38 AM	8:50 AM			
		9:00 AM	9:09 AM	9:15 AM	9:19 AM	9:29 AM	9:33 AM	9:38 AM	9:50 AM			
	lunch	10:00 AM	10:09 AM	10:22 AM	10:26 AM	10:36 AM	10:40 AM	10:45 AM	10:57 AM			
	lunch	11:00 AM	11:09 AM	11:22 AM	11:26 AM	11:36 AM	11:40 AM	11:45 AM	11:57 AM			
		12:00 PM	12:09 PM	12:15 PM	12:19 PM	12:29 PM	12:33 PM	12:38 PM	12:50 PM			
		1:00 PM	1:09 PM	1:15 PM	1:19 PM	1:29 PM	1:33 PM	1:38 PM	1:50 PM			
		2:00 PM	2:09 PM	2:15 PM	2:19 PM	2:29 PM	2:33 PM	2:38 PM	2:50 PM			
		3:00 PM	3:09 PM	3:15 PM	3:19 PM	3:29 PM	3:33 PM	3:38 PM	3:50 PM			
		4:00 PM	4:09 PM	4:15 PM	4:19 PM	4:29 PM	4:33 PM	4:38 PM	4:50 PM			
		5:00 PM	5:09 PM	5:15 PM	5:19 PM	5:29 PM	5:33 PM	5:38 PM	5:50 PM			
leaves earlier		5:51 PM	6:00 PM	6:06 PM	6:10 PM	6:20 PM	6:24 PM	6:29 PM	6:41 PM	break start		
break end	7:30 PM	7:40 PM	7:49 PM	7:55 PM	7:58 PM	8:05 PM	8:12 PM	8:18 PM	8:25 PM	8:32 PM	8:39 PM	8:44 PM
	8:35 PM	8:45 PM	8:54 PM	9:00 PM	9:03 PM	9:10 PM	9:17 PM	9:23 PM	9:30 PM	9:37 PM	9:44 PM	9:49 PM

Add a subscription bus service at 6:00 pm and 9:00 pm that would serve Joshua Tree and Landers communities on demand responsive basis two or three days a week. A minimum of 15 students would need to sign up for subscription bus service and commit to riding the bus at least 75% of the time from College to home before the service is operated in that semester on that evening. Copper Mountain College administrators have agreed in principle for taking responsibility for the subscription service enrollment. The actual drop-off locations would be determined on a demand response basis, similar to Ready Ride. Evening service to the Landers areas was an identified need by College administrators. By making this a subscription service, it is likely that the buses would have 7-12 passengers on board the bus on any given evening. The service would be operated in the Spring and Fall 2017 semesters on a pilot basis. After the completion of the Fall 2017 semester, it would be determined by MBTA and Copper Mountain College if subscription service is continued. Assuming operating the service 108 days when Copper Mountain College is in session, the annual cost for such a subscription service would be approximately $35,000 for the pilot year.

The last evening bus in both directions on Route 1 serves fixed route stops, but other routes are not operating. For CMC students living in Yucca Valley and Twentynine Palms, there is no transportation available to get home. It is recommended that the bus complete their runs, and provide service on demand to drop passengers off at designated bus stops for Routes 3A, 3B, 7A and 7B. This demand response service on a Route 1 vehicle would only be available on the last run of the evening only to the communities of Yucca Valley and Twentynine Palms.

Consider Low Floor buses when replacing vehicles utilized on Route 1. In the ridecheck, the average wheelchair dwell time was approximately 5 minutes with a range of 5-7 minutes. The rationale for a low floor bus is to have wheelchair boardings on a ramp, reducing overall passenger delay. With a significant number of wheelchair boardings, a discussion of deployment of low floor buses should be undertaken. The primary trade-off of low floor buses is that the seating capacity is typically about 7-9 seated passengers less (however, more research is required). The seated capacity of the El Dorado XHF buses is 27 and many of equivalent low floor buses have seated capacity in the range of 18-23 passengers, depending on the size and configuration of the bus. The data from the ridecheck analysis shows that westbound Route 1 exceeds the passenger load of 23 passengers for five hours at least once during the westbound runs, and pretty much on every run if the seating capacity was limited to 18 passengers.

Since the useful life of the El Dorado XHF buses does not end until 2021, beyond the last year of the current five-year planning horizon, there is sufficient time to make a decision if a low floor bus should be procured when the XHF buses need to be replaced.

However, the 550 Goshen buses will need to be replaced in 2017 or 2018, and there should be at least some discussion of whether remaining with standard floor buses is the best option. The 550 Goshens are excellent for seating capacity with 30 passengers, but have a very time consuming rear lift that contributes to schedule adherence issues. Low floor buses should be considered when the 550 Goshens are replaced. Key considerations will be cost and vehicle capacity.

3. **Invest in a pilot AVL system to enable regular management and monitoring of schedule adherence on Route 1.** The ridecheck was conducted over a five-day period and required surveyors on-board the bus to record schedule adherence problems. There is a need to invest in AVL equipment to regularly monitor schedule adherence. Charts similar to what are included in this working paper could be produced on a regular basis to monitor changes made to the timepoints and ongoing schedule adherence. The P.O. for the manual ridecheck and analysis costs $14,259. For four buses, installation of an AVL system would cost $3,860 for the first year, including set-up, installation of "GPS Trackers," and arrival/prediction software through the vendor Swyftly. Ongoing costs would be $1,680 per month. There are future options for expanding the management package to include real time information to the passenger, and this can be discussed further if there is interest over the five-year time of the Focused SRTP. In the short-term, it is highly recommend that MBTA invest in a low cost AVL system, and the very low cost option presented above is recommended.

4. **Expand Sunday service to regular hourly service from 9 am to 5 pm.** This is recommended to be implemented in two phases. The first phase would be to double the runs from two to four runs in each direction. The additional cost for the first phase implementation in FY 2017/18 would be approximately $25,000 in 2016 dollars. If the service is able to average 7 or more passengers per hour for a full year, this would trigger expansion of service in a second phase to 12 hours per day from 7 am to 7 pm with one bus. The additional cost would be approximately $50,000 in 2016 dollars.

6. Lifeline Analysis and Recommendations

This section examines needs and opportunities for transportation services to and from the outlying areas of the Morongo Basin where residents are living at distances from the Highway 62 corridor, between Morongo Valley and Twentynine Palms, where the bulk of MBTA services are provided. This section provides a brief overview of existing lifeline services, key findings and recommendations for continuing to provide additional lifeline services. A much more detailed analysis is provided in Appendix D.

The San Bernardino Associated Governments (SANBAG) is required by the *Transportation Development Act* (TDA) 99401.5 (b) to "identify the transit needs of the jurisdiction which have been considered as part of the planning process." As part of this process, SANBAG annually conducts unmet transit needs public hearings in those areas of the county where the Local Transportation Fund (LTF) allocation is still split between maintenance of streets and roads and the operation of transit services. In the Morongo Basin at SANBAG's annual public hearings there has been regular testimony about unmet transit needs in various areas of the Morongo Basin.

This Focused Short Range Transit Plan includes a specific element to study service alternatives specifically for those areas of the Morongo Basin where traditional public transit may not be feasible. Potential "lifeline services", those providing some minimal level of mobility to local residents, are considered in this section which documents what services currently exist and considers further responses which may be feasible over the next five years. Lifeline service goals to be adopted by the MBTA Board of Directors are considered here, in relation to both the needs and potential responses to these.

MBTA's Foundation of Lifeline Services

Through previous planning efforts and the unmet needs process, MBTA has been a leader among the rural California transit system in providing an array of lifeline services to remote areas that normally would not have any public mobility service.

Among its service mix, MBTA has several routes which don't meet the state-mandated 10% minimum farebox recovery requirement, but which the agency continues to support and on which it provides service. These are made possible by more productive services. Ready Ride routes below the minimum 10% farebox recovery requirement are all to or from outlying areas and include:

- Route 30/31-Yucca Valley Ready Ride (2 buses daily)
- Route 34 Lear (twice weekly, Mondays & Thursdays)
- Route 34 Wonder Valley (twice weekly, Tuesdays and Fridays; also first Wednesday of the month)
- Route 36 Morongo Valley (twice weekly, Mondays & Thursdays)
- Route 50 Joshua Tree Ready Ride (daily)

In particular, Ready Ride Routes 34 and 36 are examples of existing Dial-a-Ride lifeline service that MBTA is already operating outside its fixed route service boundary. The recent implementation of

Sunday service on Route 1 is another example of providing lifeline service within the fixed route service boundary.

An important tool for addressing unmet transit needs, and quite unique among public transit agencies, is MBTA's Transportation Assistance Grant (TAG) program. In September 2011 the MBTA General Manager, with support of the agency's Board of Directors, initiated the MBTA Transportation Assistance Grant (TAG) and commenced an annual call for projects. The program is funded by fees from agencies procuring vehicles through the MBTA vehicle purchasing contracts. Its purposes are stated in the MBTA grant application as:

> "To support eligible transportation assistance projects within the Morongo Basin subarea of San Bernardino County" … for projects that "assist in meeting unmet transportation needs, accessing, promoting or augmenting MBTA services."

Entities eligible to apply are local government agencies and non-profits with 501(c)3 IRS status. In the past four cycles, the MBTA organization has annually distributed $40,000 to $60,000 per cycle to applicant transportation programs. Ten organizations have been supported to date, including:

- Reach Out Morongo Basin
- San Bernardino County, Dept. of Aging and Adult Services
- San Bernardino County Public Defenders office
- Morongo Basin Adult Literacy program
- Morongo Basin Haven
- High Desert Medical Center Foundation
- 29 Palms Historical Society
- Pacific Clinics
- Copper Mountain College

Grants of varying amounts have been provided for projects submitted by these agencies and organizations. Awards have ranged from a planning grant, to vehicle purchases, to support for daily vehicle operations and for the purchase of MBTA passes for distribution to agencies' consumers. Applicant agencies included two community-based transportation providers further discussed in this section, Reach-Out 29 and the Hi-Desert Medical Center Transportation.

The TAG program is a very significant annual contribution made by MBTA to improve mobility choices of residents of the region. The FY 2016/17 MBTA budget earmarks $40,000 for the TAG

program. This mobility management function extends what is possible with MBTA's traditional fixed-route transportation services. The program is possible because of MBTA's vehicle procurement program, and the level of funding available to it will depend upon the volume and experience of the procurement program. As such, it is a voluntary program that the MBTA organization has chosen to sponsor. The program has both strengthened the network of mobility choices beyond that which MBTA can provide with regular fixed route and Ready Ride service. Overall, the TAG program has increased the number and quality of trips provided to area residents.

In addition to MBTA fixed route and Ready Ride services, there are three organizations that currently provide lifeline mobility services to their clients. These include:

- Reach-Out Morongo
- Hi-Desert Medical Center
- Transportation Reimbursement Escort Program (TREP)

Reach-Out Morongo is a community-based voluntary organization, a non-profit that has been providing a range of services throughout the basin for several decades, including transportation. Its transportation program consists of three vehicles operated with a mix of paid and volunteer drivers. It provided an estimated 1,600 to 1,800 trips a year during the 2014/2015 fiscal year.

The Hi-Desert Memorial Health Care District (HDMHCD) transportation program has been funded by Section 5310 and contributions from the Health Care District, a public joint powers entity in place to assure that quality health care is available to the residents of the Morongo Basin. Patients are transported to HDMHCD destinations of which there are quite a number throughout the Basin. These destinations are defined as those at which the HDMHCD organization directly provide medical services or to which they make patient referrals. Trip origins or destinations are only within the Basin; at this time HDMHCD does not transport riders beyond the Morongo Basin.

Opportunities and Recommendations for Additional Lifeline Services

The following is a brief summary of the alternatives and recommendations for lifeline services.

1. **Provide Direct Service to Pioneer Town and Johnson Valley.** There is no regular transit service to Pioneer Town and Valley, similar to existing service to Lear, Wonder Valley, and Morongo Valley. Demand responsive service to Pioneer Town and Johnson Valley is recommended at a minimum of two days a week. There are essentially two options for serving Pioneer Town and Johnson Valley. The first option would be directly operated MBTA service. The second option is to partner with Reach-Out Morongo Basin.

   The first option would be to operate service on Ready Ride Route 36 two days per week to Pioneer Town and Johnson Valley. Route 36 provides service to Morongo Valley in the

mornings on Mondays and Thursday. Approximately 550 annual vehicle service hours are provided two days a week at an average cost of $88.35 per hour. In this alternative, Route 36 would be provided on Tuesday and Friday mornings, similar to service from the Morongo Valley. Due to the trip lengths, eight vehicle service hours per day for two days a weked would be required or 832 additional annual vehicle service hours. Given the very low population density of the Pioneer Town and Johnson Valley, productivity would be expected to be lower than the 1.8 passengers per vehicle service hour provided by Ready Ride Route 36. This would increase the cost per passenger, which is expected to be almost $50 per trip in FY 2015/16. The farebox recovery ratio is just 2.8%. The cost of the first option of directly provided MBTA service would be approximately $74,000.

The second alternative is to partner with Reach-Out Morongo Basin for a contract of $40,000 annually. At a slightly inflated rate of $35 per vehicle service hour, Reach Out Morongo Basin would be able to hire a driver and provide 832 vehicle service hours. This alternative would provide more service at 54% of the cost and is the recommended alternative.

It is recommended that MBTA include a line item in its FY 2017/18 budget for a contract with Reach-Out Morongo Basin to provide demand response service to Pioneer Town and the Johnson Valley two days a week. This would enable Reach-Out Morongo Basin to hire a driver and dispatcher to provide increased lifeline service levels.

If proven successful in this pilot partnership for service delivery by Reach-Out Morongo Basin, it may be feasible to consider additional contracts for lifeline service in the Morongo Basin.

2. MBTA should apply for FTA 5310 funding to provide TREP services in the Morongo Basin.

The TREP program is a very important lifeline transportation program in the Morongo Basin. With VTrans consolidated into Omnitrans, it is important that MBTA retain direct local control over the program. It is recommended that MBTA apply for a FTA 5310 grant application to provide funding for a MBTA sponsored TREP program in the Morongo Basin.

There are third party programs such as Assisted Rides that MBTA could outsource to for back office fulfillment of mileage reimbursement. An example of the capabilities of a third party vendor are at: http://assistedrides.com.

3. Adopt a formal MBTA objective for mobility management

In the absence of a Consolidated Transportation Service Agency (CTSA) for the Morongo Basin, the MBTA organization is already playing a significant role in addressing mobility need of residents of outlying areas. These are mobility management functions in at least three key areas:

1. Providing operating and capital funding through the TAG program.
2. Providing support services through secure parking for agency vehicles.
3. Convening coordination meetings to explore the continuing next-steps of coordinated transportation.

Formalizing this role in terms of a stated Board policy is appropriate at this juncture, including allowing the agency to pursue special funding given formal policy direction. This could be formally done by adopting one or more specific objectives for the adopted MBTA Goals. As part of the 2012 Comprehensive Operations Analysis, the stated goals of MBTA included the following:

"Goal IV; Provide transit service that is accessible to all persons while maintaining system productivity."

The two current objectives for this goal are:

- "Handicap Accessibility"
- "Bicycle Accessibility"

It is recommended to expand this goal to a general mobility management goal:

"Develop and fund public/private partnerships that cost-effectively expand mobility options to individuals living in Morongo Basin areas that cannot generate minimum productivity and farebox revenue standards with traditional fixed route or demand response services. (mobility management goal)."

In Section 7, specific performance standards are proposed for all goals including this new goal.

7. Goals and Performance Standards

This section provides goals and performance standards for MBTA. It 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 and performance standards is to enable MBTA management and the Board to determine progress in achieving the overall mission of MBTA.

A Performance Measurement System was recommended in both the 2007 and 2012 Comprehensive Operations Analysis for MBTA. According to MBTA management, the Performance Measure System that included a complex array of goals, objectives, and performance standards has not been utilized by MBTA as performance monitoring tool. The recommendations below are meant to prove a simple set of goals and performance standards that will enable performance monitoring on a regular basis, at least on an annual basis.

Recommended Mission Statement

A series of recommendations are provided below that will hopefully provide a utilitarian set of goals and performance standards for regular use by MBTA management. To provide a basis for the goals and objectives, it is important to formally adopt a mission statement for MBTA. The following is the recommended mission statement:

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

Recommended Goals

1. Provide an effective level of service in response to demonstrated community transit market needs (service effectiveness goal).
2. Provide public transportation services that are financially sustainable within existing local, state, and federal funding programs in a cost-efficient manner (service efficiency goal).
3. Ensure that all transit programs can be provided at high quality of service (service quality goal).
4. Provide safe and convenient transportation services to the residents of the Morongo Basin for employment, education, and social service by the most cost-effective mobility mode (safe and accessible goal).
5. Develop and fund public/private partnerships that cost-effectively expand mobility options to individuals living in Morongo Basin areas that cannot generate minimum productivity and farebox revenue standards with traditional fixed route or demand response services (mobility management goal).

Recommended Performance Monitoring Framework

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 are seen as not important to track on a regular basis by MBTA management and reviewed by the MBTA Board. Several required performance measures are recommended to be reported every three years to meet regulatory requirements, but are not included in the set of recommended core performance measures.

   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)

Optional and Recommended:

- Subsidy per passenger
- Annual ridership

2. **Establish a minimum and target performance standard**. The past two Comprehensive Operations Analyses recommended a single performance standard for each of the performance measures. It is recommended that the adopted 2016 Focused SRTP include a minimum performance standard and a 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**. The 2012 Analysis recommended different performance measures for systemwide, fixed-route and Ready Ride. It is recommended that performance be tracked by Highway Route, Palm Springs Intercity, Neighborhood Shuttles, Joshua Tree National Park Transit, 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 focused Short Range Transit Plan. These pilot programs include the Joshua Tree National Park Transit service as well as the Copper Mountain College free fare, evening service to Joshua Tree and Landers, and the checkpoint service for the last runs on Route 1.

Recommend Goals and Relevant Performance Standards

Goal #1: Provide an effective level of service in response to demonstrated community transit market needs (service effectiveness goal).

Performance Standard #1: Passengers per vehicle service hour by service type.

Recommendation: The recommended performance standards by type of service is provided in Exhibit 9. It includes the recommended minimum and target standard by service type. It is not known what type of passenger response the Joshua Tree National Park service will have. The systemwide and JTNP standard should be adjusted after the first full year of service is implemented.

Recent Performance: Exhibit 9 includes the recent performance of each service type. Overall, productivity has declined over the past three years. With the implementation of the service plan recommendations, this trend of declining productivity is expected to reverse and the target of 13 passengers per hour achievable within a five-year time frame.

Exhibit 9 Passengers Per Vehicle Service Performance Standards

	Recommended Standard		**Historical Productivity Performance**		
	Minimum	Target	FY 2013/14	FY 2014/15	2015/16
Passengers Per Vehicle Service Hour			Actual	Actual	Projected
Systemwide (Excluding JTNP Service)	9.0	13.0	11.0	9.8	9.6
Highway Route 1	16.0	19.0	17.7	15.9	16.1
Neighborhood Shuttle (3A, 3B, 7A, 7B, 21)	11.0	15.0	14.1	12.5	12.3
Palm Springs Intercity Routes (12/15)			4.3	3.1	3.5
Joshua Tree National Park Service*	10.0	20.0	Not applicable, starts Nov. 4, 2016		
Ready Ride	2.5	3.5	3.3	3.0	2.8
* Ridership patterns on the JTNP transit service are not known and will need to be adjusted					

Performance Standard #2: Ridership, number of passengers who annually board the bus.

Recommendation: Minimum standard for ridership is 300,000 annual riders. The desired target standard is to exceed 500,000 annual passengers over the next five years.

Status: In FY 2014/15, the actual annual ridership fell to 321,589 and in FY 2015/16 ridership is projected to decrease slightly to 317,000. The planned JTNP Transit Service should significantly bolster ridership.

Goal #2: Provide public transportation services that are financially sustainable within existing local, state, and federal funding programs in a cost-efficient manner (service efficiency goal).

Performance Standard #3: Operating cost per vehicle service hour.

Recommendation: Minimum standard of $95 per vehicle service hour systemwide and a target standard of $80 per vehicle service hour. Index performance standards for inflation in future years.

Status: $78.74 per vehicle service hour in FY 2014/15 and is projected to increase to $80.43 in FY 2015/16.

Comments: There are several factors that will increase the cost per vehicle service hour higher than inflation over the next several years. The additional supply of JTNP service could have a counterbalancing affect.

Performance Standard #4: Subsidy per passenger.

Recommendation: Minimum $8.00 subsidy per passenger in FY 15/16 dollars systemwide and target of $6.00 subsidy per passenger. Adjust performance standard for inflation.

Status: $6.70 subsidy per passenger trip in FY 2014/15 and expected to increase to $7.07 in FY 2015/16.

Comments: With the implementation of the Joshua Tree National Park transit service, the subsidy per passenger trip is expected to decline to $6.45 in FY 2017/18.

Performance Standard# 5: Farebox recovery ratio.

Recommendation: Minimum standard of 10% (TDA requirement) and target standard of 20% if the JTNP service continues and 17% without the JTNP service. A farebox recovery ratio below 15% for two consecutive years should trigger the evaluation of a fare increase.

Status: The farebox recovery ratio was *16.6% in FY 2014/15 and is expected to decline to 15.9% in FY 2015/16.*

Comments: The $200,000 contribution in FY 2016/17 by the National Park Service will count toward local contributions, an allowable farebox revenue source under Transportation Development Act regulations. It is also recommended that MBTA offer a three semester trial of free fares for Copper Mountain Community College. This will have a counterbalancing effect on the farebox recovery ratio. The farebox recovery ratio is expected to exceed 20% by FY 2018/19, assuming the JTNP Transit service is continued and is successful. Overall, continuing the JTNP transit service should eliminate the need for a fare increase for at least the 5-year planning horizon of the Short Range Transit Plan.

Goal 3: Ensure that all transit programs can be provided at high quality of service (service quality goal).

Performance Standard #6: On-time performance.

Recommendation: For fixed routes that do not have route deviations, no early departures and 90% of all runs are on-time, defined as one minute early to five minutes late. Target standard is 95% of all runs on time.

For flex-routes, the minimum standard should be no early departures with 80% of all runs on-time, defined as one minute early to ten minutes late. The target standard is 85% of all runs on-time.

Status: There is no systemwide data on schedule adherence. In the ridecheck for Route 1, it was found that in the Eastbound direction between Park Blvd. and Twentynine Palms, the bus was on average more than five minutes late to all timepoints. This can be corrected by adding a timepoint at Walmart and adjusting the intervals between timepoints to more accurately reflect running time.

Comment: In the next section, Financial Plan, there is a recommendation to procure an Automatic Vehicle Locator (AVL) system to track actual on-time performance in several phases, providing regular data on on-time performance. Reliability is a key attribute to retaining ridership.

Goal 4: Provide safe and convenient transportation services to the residents and visitors of the Morongo Basin.

Performance Standard #7: Span of service.

Recommendation for Neighborhood Shuttles

- Minimum standard is service from 7:00 am to 6:00 pm.
- Target standard is from 6:00 am to 7:00 pm.

Status of Neighborhood Shuttles: Routes 3A, 3B, 7A, and 7B operate between 7:00 am and 5:50 pm, which effectively meets the minimum standard.

Recommendation for Highway Route (Route 1)

- Minimum standard is 7:00 am to last runs from Copper College at 9 pm.
- Target standard is 6:00 am to 10:00 pm.

Status of Highway Route: Route 1 operates from 6:00 am to 10:05 pm, effectively meeting the target standard.

Recommendation for Intercity Routes to Palm Springs

- Minimum standard is three round trips Monday to Friday.
- Target Standard is four round trips daily when Joshua Tree National Park transit service is in operation.

Status of Intercity Service to Palm Springs: Monday to Thursdays there are three round trips daily, on Fridays there are four trips daily, and on Saturdays and Sundays there are two round trips.

Performance Standard #8: Miles between preventable accidents.

Recommendation: On a systemwide basis, the minimum standard should be 100,000 miles between preventable accidents with the target stand of 250,000 miles between preventable accidents.

Goal 5: Develop and fund public/private partnerships that cost-effectively expand mobility options to individuals living in Morongo Basin areas that cannot generate minimum productivity and farebox revenue standards with traditional fixed route or demand response services (mobility management goal).

By their very nature, lifeline services to areas that cannot meet minimum productivity and farebox revenue standards generally cannot meet "reasonable to meet" criteria established by SANBAG and which are reviewed annually. Implementation of these services is at the discretion of the MBTA Board and are not required. The lifeline services are often provided on demand, such as the TREP services. To be cost-effective, however, these services should be provided in a manner that is more cost effective than the average of Ready Ride Services on a per passenger basis. In FY 2015/16, the Ready Ride average cost per passenger trip was $29.82.

Performance Standard #9: Cost per passenger trip.

Recommendation: The recommended standard for lifeline or mobility management trips is that the minimum standard for cost per passenger trip should no more than 10% above the cost per passenger trip of the average Ready Ride trip, adjusted for inflation. The target standard is 20% below the average cost per passenger of Ready Ride trip, adjusted for inflation.

8. Financial Plan

The financial plan incorporates the findings and recommendations into a five-year operating and capital financial plan. There are five primary elements to the financial plan:

- Operating Costs
- Operating Revenues
- Capital Costs

- Capital Revenues
- Overall Projected Performance

Operating Costs

Exhibit 10 on the next page provides a summary of the operating costs over the next five years. The FY 2016/17 operating costs, for the most part, reflects the budgeted costs that was presented to the MBTA Board. A few adjustments, however, have been made:

- Additional costs for providing of Copper Mountain College evening subscription service to Joshua Tree and Landers in the evening hours when Route 21 is not operating.
- Additional costs for the extension of Route 1 on a checkpoint Dial-A-Ride serving existing stops on MBTA routes 3A, 3B, 7A, and 7B on demand from Copper Mountain College to Twentynine Palms and Yucca Valley, after the last run in direction is completed with its fixed route service. This will enable Copper Mountain College students to get home after the last night class ends at 8:50 pm.

The operating costs have a few new features including a few key assumptions:

- Joshua Tree National Park transit service starting in FY 2016/17 with the assumption that the pilot program is successful and service continues through FY 2020/21. The cost of the JTNP transit service in 2016/17 is $275,000. An additional $70,000 is budgeted for JTNP marketing the first year[3] and this declines to about $35,000 the second year and thereafter.
- MBTA applies for a TREP grant from FTA 5310 for a volunteer driver reimbursement program, and is initiated in FY 2017/18. Both administrative and direct subsidy dollars are shown in the budget. TREP administrative costs for MBTA are estimated at $23,000 in FY 2017/18.
- A new formal partnership with Reach-Out Morongo Basin is entered into so that Reach-Out Morongo Basin can provide service to Pioneer Town and the Johnson Valley. $40,000 per year is budgeted for this partnership with costs escalated for inflation.
- The additional Sunday service on the Highway Route is implemented in two phases with the first phase starting in FY 2017/18 and second phase starting in FY 2019/20.
- All costs are inflated at the rate of 4.1% per year.

Overall, operating costs are expected to increase from about $3.3 million in FY 2016/17 to about $3.9 million in FY 2020/21. In particular, due to the implementation of the JTNP service, the most notable increase is the coach operator salaries increase from $691,228 in FY 2016/17 to $863,917 in FY 2020/21.

[3] For TDA Claim purposes, FY 2016/17 marketing costs are included as capital costs in Exhibit 13.

Exhibit 10: Projected Operating Costs: FY 2016/17 to FY 2020/21

	2016/17 Budget Plus	FY 2017/18 Projected	FY 2018.19 Projected	FY 2019/20 Projected	FY 2020/21 Projected
Operating Costs					
Adminstrative Costs					
Management/Office Salaries	$ 228,835	$ 238,217	$ 247,984	$ 258,151	$ 268,736
Benefits and Payroll Taxes	$ 105,770	$ 110,107	$ 114,621	$ 119,320	$ 124,213
Marketing/Promotions	$ 36,049	$ 37,527	$ 39,066	$ 40,667	$ 42,335
JTNP Transit Marketing /Communications		$ 34,339	$ 35,442	$ 36,558	$ 37,690
Printing/Reproduction	$ 32,023	$ 33,336	$ 34,703	$ 36,126	$ 37,607
Utilities	$ 105,619	$ 109,949	$ 114,457	$ 119,150	$ 124,035
Outside Service/Prof. Fees	$ 275,445	$ 213,832	$ 222,599	$ 231,725	$ 241,226
AVL System Operating and Maintenance		$ 10,080	$ 20,765	$ 45,000	$ 47,000
Training	$ 13,173	$ 13,713	$ 14,275	$ 14,861	$ 15,470
Office Supplies/Postage	$ 16,689	$ 17,373	$ 18,086	$ 18,827	$ 19,599
TREP Administration		$ 23,000	$ 23,943	$ 24,925	$ 25,947
Reach Out Morongo Basin Partnership		$ 40,000	$ 41,640	$ 43,347	$ 45,124
Other Administrative Costs	$ 18,395	$ 19,149	$ 19,934	$ 20,752	$ 21,602
Subtotal Administrative Costs	$ 831,998	$ 900,623	$ 947,514	$ 1,009,410	$ 1,050,583
Maintenance Costs					
Lead Technician Salary	$ 60,529	$ 63,011	$ 65,594	$ 68,283	$ 71,083
Mechanic Salaries	$ 46,738	$ 48,654	$ 50,649	$ 52,726	$ 54,887
Maintenance support salaries	$ 51,649	$ 53,767	$ 55,971	$ 58,266	$ 60,655
Benefits and Payroll Taxes	$ 38,721	$ 40,309	$ 41,961	$ 43,682	$ 45,473
Parts/Fluids/Tires/Supplies	$ 241,238	$ 266,972	$ 283,744	$ 298,885	$ 311,139
Outside Services/Repairs	$ 44,704	$ 46,537	$ 48,445	$ 50,431	$ 52,499
CNG Station maintenance	$ 77,794	$ 80,984	$ 84,304	$ 87,760	$ 91,359
Other Maintenace Costs	$ 9,519	$ 9,909	$ 10,316	$ 10,738	$ 11,179
Subtotal Maintenance Costs	$ 570,892	$ 610,142	$ 640,984	$ 670,771	$ 698,273
Operating Costs					
Management/Supv Salaries	$ 111,758	$ 116,340	$ 121,110	$ 126,076	$ 131,245
Dispatch Salaries	$ 139,482	$ 149,324	$ 156,970	$ 164,509	$ 171,254
Coach Operator Salaraies	$ 691,228	$ 748,429	$ 789,781	$ 829,891	$ 863,917
Benefits and Payroll Taxes	$ 334,211	$ 361,313	$ 381,079	$ 400,292	$ 416,704
Workers Compensation	$ 109,001	$ 117,593	$ 123,938	$ 130,123	$ 135,459
Contract with Reach Out Morongo Basin	$ 20,000	$ 41,640	$ 43,347	$ 45,124	$ 46,975
TREP Fulfillment	$ 10,000	$ 14,625	$ 15,225	$ 15,849	$ 16,499
Deferred Compensation Match	$ 25,480	$ 26,525	$ 27,612	$ 28,744	$ 29,923
CNG Fuel	$ 254,124	$ 280,658	$ 299,022	$ 314,995	$ 327,910
Insurance	$ 210,371	$ 226,158	$ 238,478	$ 249,906	$ 260,726
Cell/Telephone/Radio	$ 37,974	$ 39,531	$ 41,152	$ 42,839	$ 44,595
AVL/GPS Operating	$ 10,500	$ 21,600	$ 26,400	$ 27,482	$ 28,609
Other	$ 38,549	$ 40,130	$ 41,775	$ 43,488	$ 45,271
Subtotal Operating Costs	$ 1,952,178	$ 2,032,217	$ 2,115,538	$ 2,202,275	$ 2,292,569
Total Operating Costs	**$ 3,355,068**	**$ 3,542,982**	**$ 3,704,036**	**$ 3,882,456**	**$ 4,041,425**

Operating Revenues

Exhibit 11 on the next page is a summary of operating revenues between FY 2016/17 and FY 2020/21. The operating costs presented above are balanced each year by the projected operating revenues.

The following is a review of each of the major operating revenue sources.

Fare Revenues

The fare revenues were estimated by estimating the productivity by route over a five-year period, and multiplying the estimated productivity by the vehicle service hours for the route to determine the estimated ridership per route. Estimates were made on the average per passenger per route based on both historical averages as well as policy recommendations in the Focused Short Range Transit Plan. The most important policies are:

- A three semester pilot project for free fares for registered Copper Mountain Community College is implemented in the Spring Semester of 2017 and ends after the Spring Semester 2018. The average fare on Route 1 during this period is estimated to drop from $1.08 in FY 2015/16 to $0.65 in FY 2017/18.
- JTNP transit service is free to the passenger, and the $200,000 in JTNP transit contribution is treated as local contribution in lieu of passenger fares.

These policies result in a drop in farebox revenues from an estimated $425,000 in FY 2015/16 to slightly more than $400,000 in FY 2016/17. Farebox revenues are not expected to rise above 2015/16 levels until FY 2018/19 when the Copper Mountain College pilot free fare program is assumed to be discontinued.

Local Transportation Fund (LTF)

LTF funds are derived from ¼ cents of the sales tax. LTF revenues are therefore dependent on the sales tax revenues generated in the San Bernardino County economy.

In the 2016/17, $2,332,549 in LTF funds are utilized to support operating revenues. This is 69.5% of the total operating budget. No LTF funds are budgeted for capital purposes. The figure has been slightly adjusted from the MBTA FY 2016/17 budget in the Short Range Transit Plan to match the estimated operating costs.

Exhibit 11 MBTA Operating Revenues: FY 2016/17 to FY 2020/21

	FY 2016/17 Budget Plus	FY 2017/18 Projected	FY 2018/19 Projected	FY 2019/20 Projected	FY 2020/21 Projected
Fares					
Fixed Route	$373,846	$387,803	$429,200	$434,751	$430,015
Ready Ride	$28,552	$29,131	$30,420	$31,131	$31,698
Subtotal, Fares	$402,398	$416,934	$459,620	$465,882	$461,713
Local and State					
Local Transportation Fund	$2,332,549	$2,328,186	$2,390,575	$2,531,541	$2,690,020
State Transit Assistance		$34,339	$35,442	$36,558	$37,690
Measure I	$128,698	$120,327	$125,204	$130,279	$133,806
Other	$3,152	$3,152	$3,152	$3,152	$3,152
Subtotal, Local and State	$2,464,399	$2,486,005	$2,554,372	$2,701,530	$2,864,668
Federal					
National Park Service	$200,000	$225,000	$275,000	$300,000	$300,000
FTA 5311	$288,271	$415,044	$415,044	$415,044	$415,044
Subtotal, Federal	$488,271	$640,044	$690,044	$715,044	$715,044
Total	**$3,355,068**	**$3,542,982**	**$3,704,036**	**$3,882,456**	**$4,041,425**

Each year, the amount of tax collected in each county is returned by the State Board of Equalization via the respective county's designated Regional Transportation Planning Agency (RTPA). The RTPA administrative responsibilities include the following:

1. Apportionment – The determination of each area's anticipated share of LTF,
2. Allocation – The discretionary action which designates funds for a specific purpose to claimants within the area, and
3. Payment – The distribution of LTF funds as authorized by allocation instructions issued by the RTPA.

SANBAG is the designated RTPA for Bernardino County.

LTF funds used for transit operations are expected to increase from $2.3 to $2.7 million over the five year planning horizon.

State Transit Assistance

The second source of TDA funding is State Transit Assistance (STA) Funds. STA was originally derived from the statewide sales tax on gasoline and diesel fuel. On March 22, 2010, STA funds were restored under a new legislative package known as the "gas tax swap." Designed to be revenue neutral, the tax swap replaces the sales tax on gasoline, and increases the sales tax on diesel fuel to partially supplement STA funds. Now STA funds come solely from the statewide

sales tax on diesel fuel. Therefore, STA revenue to the region depends on diesel fuel prices and diesel consumption.

STA is a formula driven allocation based on *population* and *revenue*. The STA funds are appropriated by the Legislature to the State Controller's Office. The Office then allocates the tax revenue, by formula, to planning agencies. Statute requires 50% of STA funds be allocated according to population and 50% be allocated according to operator revenues from the prior fiscal year.

STA funds can be utilized for either operating and capital purposes. MBTA normally utilizes STA funds for capital purposes only. However, STA funds are being utilized to fund the necessary marketing for the JTNP transit service. From FY 2017/18 to FY 2020/21, STA funds will be utilized for operating purposes to support ongoing marketing and promotion of the JTNP transit service. STA funds are being utilized for start-up JTNP transit service marketing costs of $70,035, but are part of a single STA capital claim to SANBAG.

Measure I

Measure I is the half-cent sales tax collected throughout San Bernardino County for transportation improvements. San Bernardino County voters first approved the measure in November 1989 to ensure that needed transportation projects were implemented countywide through 2010. In 2004, San Bernardino County voters overwhelmingly approved the extension of the Measure I sales tax, with 80.03% voting to extend the measure through 2040.

SANBAG administers Measure I revenue and is responsible for determining which projects receive Measure I funding, and ensuring that transportation projects are implemented. Measure I funds are allocated based on a strategic plan. The Strategic Plan defines the policy framework for delivery of the projects and the Ten-Year Delivery Plan outlines near-term implementation strategy.

The Measure I Expenditure Plan included $20 million in estimated revenue for the Rural Mountain/Desert Senior and Disabled Transit Program. During the development of the Measure I Strategic Plan the Program estimate was revised to $24.4 million in 2008 dollars.

To support Ready Ride services, MBTA has budgeted $128,698, based on estimates provided by SANBAG. For subsequent years, estimates received from SANBAG staff are utilized in five-year financial Plan.

Federal Transit Administration 5311

Section 5311 is a non-urbanized area formula funding program. This federal grant program provides funding for public transit in non-urbanized areas with a population fewer than 50,000 as designated by the Bureau of the Census. FTA apportions funds to states for rural areas and Caltrans administers the funds in California. The operating assistance allows for a maximum of

55.33% federal share. FTA 5311 funds can be utilized for either operating or capital purposes. FTA 5311 funding was reauthorized through Fiscal Year 2020 with the Fixing America's Surface Transportation (FAST) Act.

Allocations to MBTA are estimated by SANBAG staff and these estimates are utilized in the Focused SRTP Financial Plan. In FY 2016/17, it is estimated that FTA 5311 funds will be $288,271, and will increase to $415,044 in FY 2017/18 and will remain the same the rest of the five-year planning horizon.

National Park Service

In the Joshua Tree National Park Transit Service Business Plan, it was determined that for the pilot program season in 2016/17, the financial participation for the National Park Service would be $200,000. JTNP management has indicated that if the pilot project is extremely successful, the financial participation of the National Park Service could increase to $250,000 - $300,000. The financial scenarios assume that the pilot program is successful and the NPS financial contribution would gradually increase to $300,000 over the next five years.

The primary institutional consideration is the Cooperative Agreement between MBTA and Joshua Tree National Park. The Cooperative Agreement is the legal document authorized by Federal Law[4] that enables the Secretary of the Interior to enter into a "cooperative agreement that involves the transfer of Service appropriated funds to a State, local, or tribal government or other public entity, an educational institution, or a private nonprofit organization to carry out public purposes of a Service program is a cooperative agreement entered into under section 6305 of title 31." JTNP and MBTA are in the process of negotiating the final terms of the Cooperative Agreement at this writing.

With the estimated cost of the first year pilot project being approximately $275,000, there is a need for $75,000 in additional subsidies by the partners in the program. The financial plan assumes that LTF funds are utilized for this purpose.

Capital Costs

Capital cost planning was not a focus area of the SRTP process, and information is taken directly from MBTA management estimates regularly submitted to SANBAG and utilized in the Focused Short Range Transit Plan.

Capital Costs include four major categories of expenses:

- Vehicle Procurements
- Equipment and Security
- Passenger Amenities

[4] 54 USC Section 101702 (a)

- Mobility Management

Vehicle Procurements

There are two type of vehicle procurements during the five-year planning horizon of the SRTP: 1) vehicle replacements and 2) expansion buses for the JTNP transit service if the pilot program is successful.

The first category is planned vehicle procurements for replacement vehicles after the vehicles have ended their useful life. Exhibit 12 is a summary of the vehicle replacements over the next five years. There are a total of 11 buses that will need to be replaced over the next five years.

Exhibit 12 Vehicle Replacement Schedule

	Replacement Model	Ambulatory Seating	Wheelchair Station	Fuel Type	Caltrans Vehicle Class	Vehicles Replacing	Delivery Year
Year/Quantity							
2016/17							
One	2007 Transmark	27	2	CNG	Class H	753	2017/18
Four	2010 Goshen	30	2	CNG	Class E	307-310	2017/18
FY 2017/18							
Six	2013 El Dorado	16	2	CNG	Class C	23-28	2018/19
FY 2018/19							
None							
FY 2019/20							
One	2011 Goshen		2	CNG	Class G	311	FY 2020/21
FY 2020/21							
None							

In addition to the replacement buses, there will be a need to purchase buses for the JTNP transit service, assuming the pilot project is successful. The type of bus and seating arrangement will be determined after the pilot program has at least one full year of experience. The financial plan has a placeholder trolley bus for the service, but the decision for the type of bus has not been determined. It is anticipated that five buses will needed to be purchased, but again this will be refined after the first full year operation. If the pilot program is successful, the new buses would be ordered in FY 2018/19 and delivered in FY 2019/20.

During the span of the Short Range Transit Plan, there may also be a need to purchase one or more utility vehicles for maintenance shop or the operations supervisor.

Finally, $25,000 per year is budgeted for engine overhauls that can extend the useful life of buses.

Equipment and Security

Office/Dispatch Equipment

Regular upgrades of furniture, computer equipment, radios and dispatching software are anticipated over the five-year planning horizon. $10,000 per year is included in the capital financial plan.

Maintenance Equipment

Upgrades and replacement of shop equipment is normal capital expense. A placeholder value of $50,000 is included in the capital financial plan.

AVL Equipment

The passenger amenity capital procurement recommendations are intended to provide MBTA with both a management tool and to increase available information to MBTA passengers. There are several vendors who provide such a suite of technology applications that should be fully integrated to both meet MBTA management and passenger information needs.

At the heart of the hardware is automatic vehicle location or AVL for short. AVL systems are widely used in the public transportation industry as a way to track where vehicles are located in their respective service areas. In simple terms, AVL has two major parts: 1) geographic positioning systems (GPS) that track the real-time location of the bus and 2) software that displays the location of the buses on a map. AVL is normally accurate to within 30 feet, which is sufficient for transit purposes. The AVL tool enables a number of features that can be integrated with this base technology.

Schedule Performance Tracking is one of the primary features that will benefit both MBTA management and passengers. At present, there is no way to objectively monitor on an ongoing basis how many buses are on-time, within existing performance standards, or are late causing missed connections. An earlier section set both minimum and target performance standards for schedule adherence. A good schedule performance system will enable MBTA management to compare the timepoint schedule with when the bus actually departs from each timepoint and provide a daily summary of the percent of timepoints that are on time. It will also enable MBTA management to ensure that no buses are leaving early from timepoints. The AVL system provides an accurate means of providing on-time performance from a management perspective. As stated earlier, the April 2014 ridecheck was a small sample of schedule adherence. It is recommended that MBTA implement GPS tracking devices on Route 1 buses as soon as possible to provide accurate schedule adherence data on an ongoing basis. If successful, this can be expanded to other stops.

This will also be important for providing passengers with accessing real time information on the location of their bus. This is discussed later in the passenger information paragraph. All buses should be equipped with mobile data terminals that enable real-time performance checks by the

drivers, but also two-way messaging with dispatchers. This is essential in operations management by the operations and maintenance contractor.

Automatic Passenger Counting is the second important function for AVL systems. This provides an array of data on both boarding and alightings at every MBTA stop in the fixed route system. Laser sensors are typically installed above the doorways and electronically count the number of passengers boarding and alighting the bus automatically. The counts are only automatic when the door is open. Typical systems have 95 percent accuracy, which is acceptable for transit management purposes. It is important that this system be integrated with a MBTA database of stops and schedules so that management can, for example, monitor if boarding and alighting activity is causing schedule adherence problems.

Stop Annunciation Systems provide ADA compliant onboard stop announcements through both a public address system and visually inside the bus on an LED screen. The system announces stops ahead of time and typically includes an automatic text-to-speech feature that eliminates the need for manually recording the information. The stop annunciation system can also be programmed to provide custom announcements at the two primary transfer centers in the MBTA system. MBTA management can also program in public service announcements as desired that could promote, for example, the purchase of monthly passes.

Dispatching Management becomes an important tool for the operations contractor to utilize the information in real time to manage operations. It provides the capability of managing buses that are significantly off schedule as the dispatcher can visually see how buses are arriving and departing from each stop along the route in real time. If roadwork or accidents are delaying departures, texts can be sent to drivers as to how to avoid the delays and fix schedule problems before missed connections are made.

Real-Time Passenger Information is the final integrated application for the AVL system. Simply put, riders want to know where their bus is, and they want to know it as soon as possible. This information can be provided on desktop, laptop and table computers, flip phones, smart phones, and LED displays at key transfer centers and possibly heavily utilized stops. The system requires that each bus stop sign have an identifying number. At the low tech end, the flip phone user can text or call in their bus stop location and find out when the next bus(es) will arrive at their stop. At the high end, a person with a smart phone or tablet can literally see the progress of the bus on their route as it approaches their stop. At the transfer centers, LED displays will show when the next buses will arrive and depart the transfer center in a real-time manner.

The graphic at the right from one of the vendors in the industry provides an excellent summary of how the passenger information system works. As discussed earlier in the Route 1 analysis, a quote has been received from Swiftly, a lower cost vendor that can provide AVL bus tracking and real-time transportation information. The first phase procurement for AVL equipment of $6,000 would be for bus tracking and tracking schedule adherence on Route 1. If the pilot program is successful with Route 1, $85,000 is budgeted for expansion to the whole fleet and the introduction real time transit time information.

Passenger Amenities

Bus Wraps

The JTNP Transit Service business plan included $40,000 in FY 2016/17 for bus wraps with the new logo and branding for the new service. Another $50,000 is included in the Financial Plan, assuming five new buses are purchased in FY 2019/20. The cost is not inflated because bus wraps, when included in a bus procurement, are typically less expensive than when ordering from an independent vendor.

Bus Shelters, Benches and Signage

MBTA in the past has regularly upgraded bus shelters, benches and signage. Identifying stops with needs to upgraded facilities was not a focus of the SRTP planning process. However, placeholder values are included in the Financial Plan as new bus shelter locations will undoubtedly occur over the five-year planning horizon. $140,000 is included over the five-year period.

Bus stop signage for the launch of the JTNP transit service is estimated at $3,500, and upgrades are budgeted at $1,000 annually.

Mobility Management

Mobility Management staffing is treated as a capital expense by FTA 5310 regulations. It is recommended that MBTA apply for a FTA 5310 grant to assume control of the TREP Program. In addition, a FTA 5310 grant could be utilized to fund the contract with Reach-Out Morongo Basin for the service to Pioneer Town and Morongo Basin. These grants are discretionary but we have included the mobility management expenses as operating costs. However, the FTA grant

application is included in the capital revenue which means that the capital revenue will not match the capital costs exactly. If the FTA 5310 grant is successful, the mobility management operating costs can be treated as capital cost in the future.

Summary of Capital Costs

Exhibit 13 is a summary of the capital costs between FY 2016/17 and FY 2020/21. Total capital costs over the five-year period are estimated at $3,962,349. The subtotals for the four main categories are:

- Vehicle Procurements: $3,303,458
- Equipment and Security: $191,000
- Mobility Management: $160,011
- Passenger Amenities: $307,880

Exhibit 13 Capital Costs from FY 2016/17 to FY 2020/21

	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Vehicle Procurements					
Bus Replacements	$1,025,275	$859,175		$158,845	
JTNP Bus Procurements				$1,135,163	
Engine Overhauls	$25,000	$25,000	$25,000	$25,000	$25,000
Equipment and Security					
Office/Dispatch Equipment	$10,000	$10,000	$10,000	$10,000	$10,000
AVL/GPS Equipment	$6,000		$85,000		
Shop Equipment		$25,000		$25,000	
Mobility Management		$37,625	$39,168	$40,773	$42,445
Passenger Amenities					
Bus Shelter Stop Improvements			$70,000		$70,000
JTNP Transit Marketing	$70,035				
Signage and Information Panels	$3,500	$1,000	$1,030	$1,092	$1,223
Bus Wraps	$40,000			$50,000	
Total	**$1,179,810**	**$957,800**	**$230,198**	**$1,445,873**	**$148,668**

Capital Revenues

MBTA has utilized a variety of funding sources in the past. Over the next five years, there are three predominant funding sources that are planned:

- State Transit Assistance (previously described under operating funds)
- Congestion Mitigation Air Quality (CMAQ)
- Proposition 1B: PTMISEA and CalEMA Security

Other potential funding sources that provide discretionary funding include:

- Federal Lands Transportation Program (FLTP)
- Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program)
- Low Carbon Transit Operations Program (LCTOP)

Congestion Mitigation Air Quality

CMAQ funds are available in federal air quality nonattainment areas. The funds are allocated by SANBAG in the San Bernardino region. MBTA utilizes CMAQ funding as available for the purposes of replacing CNG buses. The SRTP Financial Plan includes $855,961 in funding in FY 2016/17 for the purchase of replacement CNG buses.

Proposition 1B PTMISEA

As approved by the voters in the November 2006 general election, Proposition 1B enacts the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006. Statewide, this is a $19.925 billion state general obligation bond that is meant to fund high priority projects. There are 16 different programs under Proposition 1B, and two directly benefit MBTA for transit purposes. In the SRTP Financial Plan, $2,157,771 in PTMISEA funds are being utilized for replacement buses as well as new JTNP transit buses if the pilot program is successful.

Proposition 1B CalEMA Security

The Transit System Safety, Security, and Disaster Response Account of Proposition 1B, commonly referred to CalEMA can be utilized for safety and security projects. $4,888 in the Proposition 1B CalEMA security funds are being utilized in FY 2016/17.

Federal Lands Transportation Program (FLTP):

The FLTP funds projects that improve access within the Federal estate (national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on transportation facilities in the national Federal Lands transportation inventory and owned and maintained by the Federal government.

Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program)

The Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program) is a relatively new formula program that provides funding for capital projects to replace, rehabilitate, and purchase buses and bus-related equipment, and to construct bus-related facilities. This program was established under Moving Ahead for Progress in the 21st Century (MAP-21), replacing the previous Section 5309 discretionary program established under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). It was recently reauthorized in FAST Section 3017.

In order to receive Section 5339 funding, projects must have a significant impact on desirable long-term outcomes for improving and maintaining California's buses and bus facilities so that the

State's public transportation systems are in good physical condition and successfully accomplish their performance objectives. The California State Department of Transportation, Division of Rail and Mass Transportation (DRMT) has been delegated the designated recipient responsibilities by the Governor and is the direct recipient for these funds. DRMT administers these funding components to eligible sub-recipients which include: public agencies and private nonprofit organizations engaged in public transportation. The last Call for Projects was in July 2015, and MBTA could submit an application in a future funding cycle. The federal 5339 share is 80% of the total cost. If this is the direction that MBTA decides to pursue, LCTOP or STA funding could be utilized for local match purposes.

Low Carbon Transit Operations Program (LCTOP)

The Low Carbon Transit Operations Program (LCTOP) is one of several programs that are part of the Transit, Affordable Housing, and Sustainable Communities Program established by the California Legislature in 2014 by Senate Bill 862. The LCTOP was created to provide operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with a priority on serving disadvantaged communities. Approved projects in LCTOP will support new or expanded bus or rail services, expand intermodal transit facilities, and may include equipment acquisition, fueling, maintenance and other costs to operate those services or facilities, with each project reducing greenhouse gas emissions.

In San Bernardino County, LCTOP funds are allocated to various projects by SANBAG based on a competitive basis. If SANBAG were to approve LCTOP funding for the JTNP transit service, it would decrease the amount of LTF funding required by the City of Twentynine Palms and San Bernardino County for the JTNP transit service. LCTOP funds must be approved by the SANBAG Board. A line item for LCTOP is included in the financial plan for the three scenario; however, since it is not known if the monies will be approved, the monies are not included in the five-year plan budget.

It is not known how much LCTOP money will be available in future years. While $1.14 million for the buses is likely not going to be available for MBTA, LCTOP could potentially fund the matching portion of the capital costs if other capital funding sources do not work out.

Summary of Capital Revenues

Exhibit 14 is a summary of the capital revenues expected to be utilized by MBTA over the next five years.

Exhibit 14 Capital Revenues FY 2016/17 to FY 2020/21

	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Local/State					
State Transit Assistance	$318,961	$61,000	$191,030	$111,392	$106,223
PTMISEA		$859,175		$1,293,708	
Prop 1B CalEMA (Security)	$4,888				
Federal					
CMAQ	$855,961				
FTA 5310 (1)		$37,625	$39,168	$40,773	$42,445
FTA 5339					
Total	**$1,179,810**	**$957,800**	**$230,198**	**$1,445,873**	**$148,668**

(1) In FY 2019/20, includes $158,545 for one replacement bus and $1,135,163 for five JTNP transit buses
(2) For TREP program, guidelines allow for capital expenditures for mobility management funding

Overall Expected Performance

Exhibit 15 is an overall review of expected performance by MBTA over the next five years. The table incorporates all of the service plan, marketing plan, and financial plan considerations in the following performance table. Due to the implementation of the JTNP transit service and the free fare pilot program for Copper Mt. College students, overall productivity is expected to increase from 9.56 passengers per hour to slightly over 12 passengers per hour. The farebox recovery ratio is projected to be 19.8% in FY 2018/19, assuming the JTNP transit service is successful and National Park contributions increase. The subsidy per passenger trip is projected to decline from $7.07 in FY 2015/16 to $6.71 per passenger in FY 2017/18, but gradually increase thereafter.

It is recognized that there is uncertainty in how passengers will respond to both the JTNP transit service and free fare pilot program for Copper Mt. College program. Performance indicators would decline if passengers levels expected in Exhibit 15 are not realized.

Exhibit 15 MBTA Performance Projections: FY 2015/16 to FY 2020/21

	FY 2014/15 Actual	FY 2015/16 Projected	FY 2016/17 Projected	FY 2017/18 Projected	FY 2018/19 Projected	FY 2019/20 Projected	FY 2020/21 Projected
Base Statistics							
Ridership	321,589	317,074	412,293	465,747	451,140	443,918	436,006
Service Hours	32,813	33,168	37,276	38,539	38,987	39,299	39,299
Fare Revenue	$ 427,885	$ 425,003	$ 402,398	$ 416,934	$ 459,620	$ 465,882	$ 461,713
Local Contribution			$ 200,000	$ 225,000	$ 275,000	$ 300,000	$ 300,000
Operating Costs	$ 2,583,579	$ 2,667,547	$ 3,355,068	$ 3,542,982	$ 3,704,036	$ 3,882,456	$ 4,041,425
Performance							
Passengers/Hour	9.80	9.56	11.06	12.09	11.57	11.30	11.09
Average Fare	$ 1.33	$ 1.34	$ 0.98	$ 0.90	$ 1.02	$ 1.05	$ 1.06
Farebox Recovery	16.6%	15.9%	18.0%	18.1%	19.8%	19.7%	18.8%
Cost/Hour	$ 78.74	$ 80.43	$ 90.01	$ 91.93	$ 95.01	$ 98.79	$ 102.84
Cost/Trip	$ 8.03	$ 8.41	$ 8.14	$ 7.61	$ 8.21	$ 8.75	$ 9.27
Subsidy/Trip	$ 6.70	$ 7.07	$ 7.16	$ 6.71	$ 7.19	$ 7.70	$ 8.21

(1) Fare revenue plus local contribution for JTNP Transit service divided by operating costs

Appendix A: Fare Analysis

Purpose

This fare analysis is being conducted to compare the ridership and fare revenue one full year before and one full year after the July 1, 2014 fare increase. The fare analysis is intended to provide insight to the impacts on ridership.

The July 1, 2014 fare increase came at a time of declining gasoline prices. The review of the fare increase is also meant to take into account the effects of lower gas prices and other factors that would have an impact on the MBTA overall ridership. Other factors leading to the decline in overall MBTA ridership (other than the fare increase) are discussed in significant detail in Appendix B.

Background

The fare increase was a result of the 2012 Comprehensive Operational Analysis conducted by Moore & Associates in April 2012, and adjusted based on a June 2013 "MBTA Fare Analysis of the 2012 Fare Recommendations of MBTA's Comprehensive Operational Analysis," conducted by AMMA Transit Planning and Mobility Planners LLC. The final fare increase was based on a public hearing before the MBTA Board.

The fare increase is shown in Exhibit A-1 on the next page. The following are the primary changes in the fares:

- The intercity cash fares for Route 1 increased from $2.00 to $2.50 for adults, with the senior/disabled fare increasing from $1.00 to $1.25.
- The neighborhood shuttle cash fares for adults increased from $1.00 to $1.25, and from $0.75 to $1.00 for seniors/disabled.
- The day pass for unlimited rides in a single day increased from $3.00 to $3.75 for adults. A new day pass for students, seniors and disabled was introduced at $3.00.
- The 31-day Go Pass increased from $30 to $40 for adults and increased from $20 to $25 for students, seniors and disabled individuals.
- The Copper Mountain Community College student cash fare increased from $0.25 to $0.50, with the Community College contribution of $20,000 per year remaining the same to offset the fare differential.
- The Ready-Ride fares for seniors and disabled increased from $1.50 to $2.00, while the cash fare for the general public adult increased from $4.00 to $5.00.
- The Ready -10 and 20 ride Punch Pass increased from $10 and $20 to $12.50 and $25.00, respectively.

Exhibit A-1 Fare Increase July 1, 2014

MBTA Fare Structure		**FY 2013-2014**		**FY 2014-2015**	
CASH FARES		**Old Fares**		**New Fares**	
Intercity Highway Route (Route 1, 1X)		***One-Way***		***One-Way***	
Adults/ Students		$2.00		$2.50	
Seniors/ Disabled		$1.00		$1.25	
Neighborhood Shuttles (Routes 3A, 3B, 7A, 7B and 21)					
Adults/ Students		$1.00		$1.25	
Seniors/ Disabled		$0.75		$1.00	
	additional cost for route deviation				
Route 12	***Locations***	***One-Way***	***Round-Trip***	***One-Way***	***Round-Trip***
Adults/ Students	29 Palms	$10.00	$15.00	$10.00	$15.00
	Joshua Tree & Yucca V	$7.00	$11.00	$7.00	$11.00
	Morongo Valley	$5.00	$9.00	$5.00	$9.00
Seniors/Disabled	All Locations	$4.50	$9.00	$4.50	$9.00
Route 15	***Locations***				
Adults/ Students	29 Palms	$20.00	$25.00	$20.00	$25.00
	Joshua Tree & Yucca V	$17.00	$21.00	$17.00	$21.00
	Morongo Valley	$15.00	$19.00	$15.00	$19.00
Seniors/Disabled	All Locations	$14.50	$19.00	$14.50	$19.00
PASS FARES					
Day Pass (Rts. 1, 1X, 3, 7, 21)					
Adults		$3.00		$3.75	
Student/ Senior/ Disabled		N/A		$3.00	
31 Day Go Pass					
Adults		$30.00		$40.00	
Student/ Senior/ Disabled		$20.00		$25.00	
7 Day Pass (Rt. 12 Only)					
Adults		$35.00		$35.00	
Copper Mountain Community College		$0.25	plus $20K	$0.50	plus $20K
Ready Ride					
Adults/ Students		$4.00		$5.00	
Seniors/ Disabled		$1.50		$2.00	
Senior/Disabled 10 Punch Pass		$10.00		$12.50	
Senior/Disabled 20 Punch Pass		$20.00		$25.00	

Fare Increase Objectives

During the June 2013 fare analysis, the following fare increase objectives were established in concert with MBTA management:

1. A fare structure that enables MBTA to secure its required fare box recovery ratio and appropriately prices both cash and pass fares to secure needed fare revenue.
2. Equitable distribution of fare increases, within fare categories and across groups.
3. Moving towards a fare structure that provides discounts to more committed, frequent riders.
4. Ensuring ease of understanding of fares by riders, as well as ease of use by drivers and reporting by MBTA administrative staff.
5. Establishing farebox recovery ratio trigger levels as a basis for instituting fare changes.

At the time the 2012 Comprehensive Operations Analysis was conducted, the overall system farebox recovery ratio (in FY 2011/12) was 18.27%. In FY 2012/13, the farebox recovery ratio dropped to 16.4%. It was recommended that dropping below 18% should be the basis for Phase I fare increases that were implemented on July 1, 2014. It was further recommended that a drop below 15% should trigger consideration of the Phase II fare increases. The following section provides a review of the recent systemwide fare and ridership trends that provide the necessary context to the fare analysis.

Recent Performance Trends

One of the primary rationales for increasing fares was to increase the average fare and to keep the farebox recovery ratio above 15%. Exhibit A-2 shows the recent trends, based on the final audits for the past three fiscal years.

Overall, MBTA fare revenues increased from $358,445 in FY 2013/14 to $427,885 in FY 2014/15 in response to the fare increase of 19.4%. However, operating costs also increased substantially between FY 2013/14 and FY 2014/15, increasing from $2,249,874 to $2,583,579 in FY 2014/15, a 14.8% increase. An important context for the fare analysis is that operating cost increases offset most of the benefits of the fare revenue increase. Operating cost trends over the next five years will be evaluated in the financial plan of the focused Short Range Transit Plan.

The bottom line is that while these changes resulted in average fare increase from $0.98 in FY 2013/14 to $1.33 in FY 2014/15 (a 36.1% increase), the farebox recovery ratio only increased from 15.9% in FY 2013/14 to 16.6% in FY 2014/15 – only a 4% increase in the farebox recovery ratio. Based on data from the first three quarters of FY 2015/16, the projected farebox recovery ratio will be 15.9% in FY 2015/16, the same farebox recovery ratio before the July 1, 2014 fare increase.

Ridership decreased from 366,700 in FY 2013/14 to 321,789 in FY 2014/15, a 12.3% decline. A breakdown of the ridership and fare revenue impacts of the fare increase is addressed in the next section.

Exhibit A-2 Systemwide Average Fare and Farebox Recovery FY 2012/13 to FY 2014/15

Systemwide					
	FY 2012/13	FY 2013/14	FY 2014/15	2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	380,748	366,700	321,589	317,074	-16.7%
Service Hours	33,189	33,343	32,813	33,168	-0.1%
Service Miles	666,663	684,367	650,067	653,359	-2.0%
Fare Revenue	383,200	358,446	427,885	425,003	10.9%
Operating Costs	2,329,687	2,249,874	2,583,579	2,667,547	14.5%
Performance					
Passengers/Hour	11.5	11.0	9.8	9.6	-16.7%
Passenger/Mile	0.57	0.54	0.49	0.49	-15.0%
Average Fare	$1.01	$0.98	$1.33	$1.34	33.2%
Farebox Recovery	16.4%	15.9%	16.6%	15.9%	-3.1%
Cost/Hour	$70.19	$67.48	$78.74	$80.43	14.6%
Cost/Trip	$6.12	$6.14	$8.03	$8.41	37.5%
Subsidy/Trip	$5.11	$5.16	$6.70	$7.07	38.3%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Fixed Route Fare Revenue and Ridership Impacts by Fare Category

Exhibit A-3 provides a summary of the impact of the fare increase by fare category. The table is broken down by two main categories: Fixed Route Cash Fares and Fixed Route Pass Fares. Ready-Ride fares and analysis are provided in a separate section.

Fixed Route Cash Fares: Highway and Neighborhood Shuttle Routes

Cash fares are passenger fares that pay for one-way trips on the Highway Route (Routes 1 and 1X) and Neighborhood Shuttle Routes (Routes 3A, 3B, 7A, 7B, and 21). They also include cash fares for either one-way or round-trip services on Routes 12 and 15.

The adult ridership utilizing the cash fare on the Highway Route declined from 10,089 in FY 2013/14 to 9,061 in FY 2014/15, a decline of about 10%. For seniors and disabled, the cash fare for the Highway Route increased from $1.00 to $1.25. This resulted in a 21% decline in ridership from 6,788 in FY 2013/14 to 5,374 in FY 2014/15, a doubling of the ridership decline of the adult cash fare.

There is a very strong incentive for passengers on the Highway Route to purchase a Day Pass that enables unlimited travel on the date of issue. The one-way adult cash fare on the Highway Route 1 is $2.50 while the Day Pass is just $3.75. Therefore, person taking a single round trip on the Highway Route saves $1.25 by purchasing a Day Pass. If the person is utilizing multiple routes, including Neighborhood Routes and the Highway Route for round-trip travel, they save even more.

Exhibit A-3 Ready Ride Fares: FY 2013-14 to FY 2014-15

MBTA Fare Structure		FY 2013-2014				FY 2014-2015				Percent Change from FY 13-14 to FY 14-15		
FIXED ROUTE CASH FARES		Old Fares		Ridership	Average Fare	New Fares		Ridership	Average Fare	Fare Differential	Ridership Change	Average Fare Change
Intercity Highway Route (Route 1, 1X)		*One-Way*				*One-Way*						
Adults/ Students		$2.00		**10,089**	$2.00	$2.50		**9,061**	$2.50	25%	-10%	25%
Seniors/ Disabled		$1.00		**6,788**	$1.00	$1.25		**5,374**	$1.25	25%	-21%	25%
Neighborhood Shuttles (Routes 3A, 3B, 7A, 7B and 21)												
Adults/ Students		$1.00		**31,299**	$1.00	$1.25		**22,852**	$1.25	25%	-27%	25%
Seniors/ Disabled		$0.75		**8,434**	$0.75	$1.00		**11,404**	$1.00	33%	35%	33%
	additional cost for route deviation											
Route 12	***Locations***	***One-Way***	***Round-Trip***			***One-Way***	***Round-Trip***					
Adults/ Students	29 Palms	$10.00	$15.00	**170**	$8.91	$10.00	$15.00	**174**	$8.79	0%	2%	-1%
	Joshua Tree & Yucca V	$7.00	$11.00	**1,843**	$6.29	$7.00	$11.00	**1,680**	$6.30	0%	-9%	0%
	Morongo Valley	$5.00	$9.00	**312**	$4.91	$5.00	$9.00	**210**	$4.86	0%	-33%	-1%
Adult	All Locations	$2.50		**425**	$2.50	$2.50		**202**	$2.50			
Seniors/Disabled	All Locations	$4.50	$9.00	**1,031**	$4.50	$4.50	$9.00	**1,368**	$3.76	0%	33%	-16%
Subtotal				**3,781**				**3,634**				
Route 15	***Locations***											
Adults/ Students	29 Palms	$20.00	$25.00	**2,165**	$13.46	$20.00	$25.00	**2,116**	$13.17	0%	-2%	-2%
	Joshua Tree & Yucca V	$17.00	$21.00	**129**	$14.48	$17.00	$21.00	**140**	$12.96	0%	9%	-11%
	Morongo Valley	$15.00	$19.00	**14**	$15.00	$15.00	$19.00	**15**	$12.07	0%	7%	-20%
Adult	All Locations	$2.50		**161**	$2.50			**48**	$2.50			
Seniors/Disabled	All Locations	$14.50	$19.00	**62**	$12.40	$14.50	$19.00	**116**	$6.72	0%	87%	-46%
Subtotal				**2,531**				**2,435**				
Total Cash Fares				**62,922**				**54,760**			-13%	
FIXED ROUTE PASS FARES												
Day Pass (Rts. 1, 1X, 3, 7, 21)												
Adults		$3.00		**72,675**	$1.40	$3.75		**67,201**	$1.30	25%	-8%	-7%
Student/ Senior/ Disabled		N/A				$3.00		Included Above				
31 Day Go Pass												
Adults		$30.00		**74,757**	$1.00	$40.00		**73,247**	$1.26	33%	-2%	27%
Student/ Senior/ Disabled		$20.00		**43,374**	$0.79	$25.00		**41,317**	$0.87	25%	-5%	10%
7 Day Pass (Rt. 12 Only)												
Adults		$35.00		**1,463**	$4.39	$35.00		**638**	$4.61	0%	-56%	5%
Copper Mountain Community College		$0.25	plus $20K	**58,965**	$1.02	$0.50	plus $20K	**40,742**	$1.26	100%	-31%	23%
	Total Fixed Route Paid			**383,390**		Total Fixed Route Paid		**338,734**			-12%	
	Companions/free & Special			**41,059**		Companions/free & Special		**38,334**				

This is the reason that day pass riders on the Highway Route were 72,675 in FY 2013/14 and just 10,089 for cash fares. The average fares for the day pass was $1.40 in FY 2013/14, meaning that the average rider utilized the day pass an average of 2.15 trips per day. When the one-way fare on the Highway Route was increased from $2.00 to $2.50 and the day pass increased from $3.00 to $3.75, the day pass ridership on the Highway Route declined by 8% but the average number of trips taken with the day pass increased to almost 2.9 trips per day, resulting in a decline in average fare for the day pass from $1.40 in FY 2013/14 to just $1.30 in FY 2014/15. Unfortunately, when adding the new Day Pass for $3.00 for students/seniors and disabled, ridership for the new day pass was lumped into the Day Pass and not segregated as a separate Day Pass ridership category. This may help to explain the increase both in the number of trips for day passes and the decline in the average fare from $1.40 to $1.30. It is highly recommended that MBTA establish a separate ridership category for the $3.00 student/senior/disabled day pass in order to track ridership correctly. This will also enable a more definitive analysis on the impact of the fare increase.

Cash ridership on the neighborhood routes 3A, 3B, 7A, 7B, and 21 declined significantly more than the cash ridership on the Highway Route for adults, but had the opposite impact on the senior/disabled fare category. For the adult ridership category, fare on the neighborhood shuttle increased from $1.00 to $1.25, and ridership declined by 27%. On the other hand, senior/disabled fares increased from $0.75 to $1.00, and ridership increased by 35% from 8,434 to 11,404. The incentive for senior and disabled individuals to utilize a day pass instead of a cash fare is not as strong as the full adult fare. The day pass for seniors/disabled is $3.00, which requires three one-way trips to break even on the day pass. The day pass was also new and likely not a familiar option for senior and disabled passengers making four or more one-way trips a day on MBTA.

Cash Fares on Routes 12 and 15

Route 12 and 15 did not have a fare change. However, the overall ridership for both Routes 12 and 15 show a steep overall decline. Since FY 2012/13, ridership has dropped from 8,146 to 5,055 in FY 2014/15, a 38% decline without a fare increase. Due to the ridership decline, fare revenues also declined substantially by 25% over the past three full fiscal years.

With one-way fares ranging from $4.50 to $10.00 for a one-way trip, and from $9.00 to $15.00 for a round-trip depending on the distance travelled, the average fare paid increased from $4.64 in FY 2012/13 to $5.60 in FY 2014/15, a 20.8% increase. There are three possible explanations for this. The first is that individuals who purchased a 7-day pass for $35.00 did not take as many one-way trips during the 7-day time period of purchase. The data from TransTrack of ridership by fare category shown in Exhibit A-3 shows that Route 12 ridership on the 7-day pass declined significantly from 1,463 in FY 2013/14 to just 638 annual trips in FY 2014/15. The second possible explanation is that the average trip was longer. The data by fare category for FY 2013/14 and FY 2014/15 does not indicate a shift towards longer trips. Finally, if the purchase of one-way or round-trips by seniors/disabled declined proportionally compared to total ridership, it would explain an increase in the average fare. However, senior/disabled ridership held steady at 1,031 in FY 2013/14 and was 1,058 in FY 2014/15. Overall, the ridership data by fare category is not conclusive on why the average increased so substantially when the fare price remained constant.

Route 12 did not have a fare increase, but both ridership and the farebox recovery declined substantially. This suggests that there are other factors that could influence the decline in overall ridership, independent of the fare increase. These factors are discussed later in this chapter.

The Route 15 TransTrack data on ridership and fare revenue is contradictory for unknown reasons. According to TransTrack, ridership declined by 42% between FY 2012/13 and FY 2015/16 as shown in Exhibit A-4. With no fare increase, you normally would expect total fare revenue to also decline substantially, with the average being relatively constant. Instead, the Route 15 fare revenue decreased by just 12% since FY 2012/13, but the average fare increased by 52% from $6.32 to $9.58. This has resulted in a 9.7% decrease in the farebox recovery, but Route 15 is still almost 30%. This would also suggest that Route 15 trips being made are longer trips than in previous fiscal years.

Exhibit A-4, Route 15 Performance FY 2012/13 to FY 2015/16

Route 15

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	3,705	3,735	2,574	2,147	-42.1%
Service Hours	816	777	701	669	-17.9%
Service Miles	25,573	25,207	23,866	21,949	-14.2%
Fare Revenue	$23,422	$26,585	$25,711	$20,567	-12.2%
Operating Costs	$71,457	$65,659	$69,556	$69,524	-2.7%
Performance					
Passengers/Hour	4.5	4.8	3.7	3.2	-29.4%
Passenger/Mile	0.14	0.15	0.11	0.10	-32.5%
Average Fare	$6.32	$7.12	$9.99	$9.58	51.6%
Farebox Recovery	32.8%	40.5%	37.0%	29.6%	-9.7%
Cost/Hour	$87.60	$84.46	$99.21	$103.87	18.6%
Cost/Trip	$19.29	$17.58	$27.02	$32.39	67.9%
Subsidy/Trip	$12.96	$10.46	$17.03	$22.81	75.9%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Exhibit A-3 shown earlier provides the breakdown of ridership by fare category. The data shows the great majority of ridership is from the Twentynine Palms, but the average fare from Twentynine Palms was $13.21 in FY 2013/14 and $13.00 in FY 2014/15. The data actually shows a slight decline in overall ridership. Overall, the data from Exhibits A-3 and A-4 are contradictory in showing a fairly stable ridership in Exhibit A-3 and pronounced decline in Exhibit A-4. The increase in average fare shown in Exhibit A-4 is not supported from the data in Exhibit A-3.

Pass Fares: Day Pass

The day pass changes for the Highway Route 1 are discussed above. As noted previously, the student/senior/disabled numbers are included in the adult category. For the neighborhood routes,

29,238 of the day pass activity out of the FY 2014/15 total of 67,201, or 43%, is utilized on the neighborhood routes. It is not known how many of the day pass users are utilizing both the neighborhood routes and Highway route to complete their one-way trip. Since the day pass is now $3.75 compared to $3.00 in FY 2013/14 and the neighborhood route one-way fare is now $1.25 compared to $1.00 in FY 2013/14, it would take 3 one-way trips on the neighborhood routes to break even on a day pass. Consultant observations on-board the buses and at transfer locations indicate that a substantial number of neighborhood route trips also include Highway Route 1 as part of their origin to destination trip.

Overall, the day pass is an extremely important fare medium for MBTA. In FY 2014/15, ridership with the day pass was 66,496. All cash fares combined for the Route 1 and the Neighborhood routes were 48,691. According to TransTrack statistics, the average fare for the Day Pass was $1.31 in FY 2014/15, down from $1.43 in in FY 2013/14. This means that passengers on MBTA have shifted from cash fares to the day pass to make the travel on MBTA more affordable.

Despite this increased incentive, the total number of day pass users declined from 71,074 in FY 2013/14 to 66,496. In FY 2014/15. Coupled with the cash fare statistics, the data points to a general hypothesis that there is a declining number of individuals who are using MBTA as a transit option. The statistics on the 31-day Go Pass would also appear to substantiate this finding.

Pass Fares 31-Day Go Pass

The costs of the 31-day Go Pass for adults increased from $30.00 to $40.00. For Students/Senior/ Disabled individuals, the 31-Day Go Pass increased from $20 to $25. For both fare categories, utilization of the Go Pass had only a slight decline of 2% for the Adult Go Pass and 5% for the Student/Senior/ Disabled Fare Category.

Because the average fare for adults utilizing the Go Pass increased by 26% from $1.00 to $1.26 between FY 2013/14 and 2014/15, it would be a reasonable hypothesis that about the same number of individuals are utilizing the Go Pass for the same number of trips each month.

Overall, in increasing the cash fares and introducing the new Day Pass for seniors and disabled, it is expected that there would be a shift in ridership to increased utilization of the Day Pass and the 31-day Go Pass. While there was likely some shift because cash ridership, Day Pass, and the 31-Day Go Pass all experienced ridership declines, the data suggests that fewer individuals are utilizing MBTA services after the fare increase. This is even more pronounced for Copper Mountain Community College ridership.

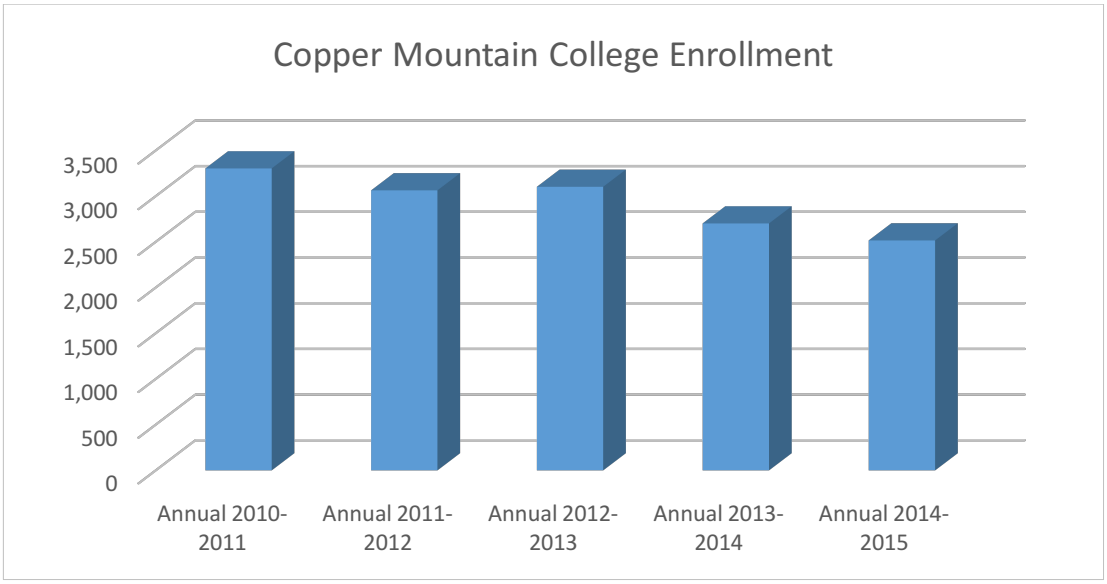
Copper Mountain Community College

Copper Mountain Community College students are currently charged $0.50 if they show a student ID. This was increased from $0.25 in FY 2013/14. Copper Mountain Community College contributes $20,000 to offset the difference between the regular fares.

Of all the fare categories, Copper Mountain College ridership has declined substantially from 50,679 in FY 2013/14 to 32,898 in FY 2014/15, a 31% decline. This is a very significant ridership decline in both absolute and percentage terms. In the 2012 SRTP survey of passengers, Copper Mountain College was among the top five origins and destinations.

Data provided by Copper Mountain College for the Fall and Spring Semesters shows a steady decline in enrollment from 3,304 in FY 2010/11 to 2,516 in FY 2014/15, as shown in Exhibit A-5 below. However, enrollment in FY 2013/14 for day students was only 400 more than the enrollment of day students in 2014/15 when the out of pocket costs increased from $0.25 to $0.50.

Exhibit A-5 Copper Mountain College Enrollment



For full-time students taking 12 or more units, the enrollment declined from 1,681 students in FY 2010/11 to 1,378 in FY 2014/15. There was only a slight decline in full-time students between 2013/14 and 2014/15.

The overall conclusion is that declining enrollment was likely a factor in overall Copper Mountain College ridership, but other factors that cannot be quantified or verified were likely more influential. These factors include:

- An improved economy means that more students likely owned automobiles.
- Gas prices have sustained low prices for a period of time, meaning that driving to Copper Mountain College is more prevalent.
- The Route 1 schedule is not coordinated with class times for students ending class at 5:50 pm and 8:50 pm. One of the primary rationales for extending the hours of Route 1 to 10 pm is to be able to serve the evening class needs of Copper Mountain College students. The ridecheck data on boardings by stop found that Copper Mountain College generates very little evening ridership. In a meeting with Copper Mountain College representatives, it was revealed that there is very poor coordination on when students get out of class and when the MBTA departs the community college. There are two key class ending times: 5:50 pm and 8:50 pm. There are numerous classes from 3:00 pm to 5:50 pm. The Route 1 bus Westbound does not arrive to

Copper Mountain College until 7:14 pm and the Eastbound arrives at 7:10 pm. A second primary block of classes is from 6:00 pm to 8:50 pm and Route 1 buses do not go to Copper Mountain College in both directions until 9:40 pm. For both of these class blocks, students are required to wait one hour or more to catch the Route 1 bus. Because other routes are not operating after 6 pm, many students are not able to get home unless they live right along Route 1.

- The increase in fares from $0.25 to $0.50 likely had a more pronounced impact on Copper Mountain ridership than expected. In FY 2014/15, 73% of all Copper Mt. College students were eligible for a Board of Governor Fee waiver, based on their income.

Ready-Ride

Cash Fares

The Ready-Ride fares for seniors and disabled increased from $1.50 to $2.00, a 33% fare increase. As Exhibit A-6 indicates, despite the fare increase annual ridership increased for cash fares from 2,065 in FY 2013/14 to 2,227 in FY 2014/15.

For adults and students, the Ready-Ride ridership numbers are very small. In FY 2013/14, the adult/student ridership was just 506 with a fare of $4.00 for a one-way trip. In FY 2014/15, with an increase to $5.00 for a one-way trip, ridership for this fare category dropped to 266, a drop of 47%.

The average cost per passenger of providing the Ready-Rides service is projected to be $29.82 per passenger in FY 2015/16, compared to $6.94 per passenger trip for fixed route transit. The reason that the fares for Ready-Ride service for adults and students is so high is to encourage fixed route usage whenever possible. The fare policy appears to have achieved its intended objective.

Punch Pass Tickets

Normally, with a fare increase, it would encourage more individuals on a demand response to purchase and utilize additional punch pass tickets. MBTA sells both a discounted 10-ride and 20-ride punch pass. In FY 2013/14, a 10-ride punch pass sold for $10.00 and a 20-ride punch pass sold for $20.00. The fare equivalent for punch pass was $1.00 compared to the cash fare of $1.50, a 50% savings. The punch pass represented 76% of Ready Ride ridership.

In FY 2014/15, the punch pass price increased to $12.50 for a 10-ride punch pass and $25.00 for a 20-ride pass. At a per punch cost of $1.25, this represents a discount of $0.75 per punch utilized, a 37.5% discount compared to the $2.00 senior and disabled fare. Utilization of the punch pass declined for both the 10- and 20-ride punch passes, from a combined total of 18,604 in FY 2013/14 to 16,393 in FY 2014/15, a 11.9% decline.

It is not known why Ready-Ride ridership increased for cash fares, while the more affordable punch pass tickets declined by almost 12%. It is recommended that the next SRTP process include a market research component that would include both a focus group and survey of Ready-Ride passengers similar

to the market research conducted in the 2012 SRTP. It may be that the out of pocket costs for the 10-ride and 20-ride punch pass are too high for a senior or disabled individual on a fixed income. This could only be confirmed with more direct input from Ready-Ride passengers.

Exhibit A-6 Ready Ride Fares: FY 2013-14 to FY 2014-15

MBTA Fare Structure	FY 2013-2014		FY 2014-2015		Percent Change from FY 13-14 to FY 14-15	
FIXED ROUTE CASH FARES	Old Fares	Ridership	New Fares	Ridership	Fare Differential	Ridership Change
READY RIDE						
Adults/ Students	$4.00	**506**	$5.00	**266**	25%	-47%
Seniors/ Disabled	$1.50	**2,065**	$2.00	**2,227**	33%	8%
Senior/Disabled 10 Punch Pass	$10.00	**11,704**	$12.50	**10,503**	25%	-10%
Senior/Disabled 20 Punch Pass	$20.00	**6,900**	$25.00	**5,890**	25%	
	Total paid	**21,175**	Total paid	**18,886**		-11%

Appendix B: Service Analysis, Performance and Recommendations

Introduction and Methodology

This appendix addresses the evaluation, service alternatives and recommendation for service improvements for the Focused Short Range Transit Plan (Focused SRTP):

- Service Analysis in Phase I
- Service Alternatives in Phase II
- Action Plan Recommendation in Phase III of the Focused Short Range Transit Plan

The key findings and recommendations have been incorporated into the Summary Report.

Overall, MBTA management believes the existing service plan is sufficient to meet the reasonable needs of the service area over the next five years. In the scope of work for the Focused SRTP, MBTA desired an evaluation of minor changes to the existing route structure and schedules and an evaluation of whether or not requests for geographic or temporal service extensions can be accommodated within available resources while still meeting the overall goals and performance standards of MBTA. Appendix A on the fare analysis provided some context to this appendix, as the July 1, 2014 fare increase has had some impact on the overall systemwide performance and on individual routes.

In the service evaluation for the Focused Short Range Transit Plan (Focused SRTP), the consulting team rode all existing MBTA fixed routes, except for Routes 12 and 15, and observed operations. In riding the buses and talking to passengers, it was noted that Route 1 had substantial schedule adherence issues on the day of the kick-off meeting visit in August 2015. This was admittedly a one-day snapshot but was discussed at both the kickoff meeting and in subsequent conversations with MBTA management. A scope of work and budget was added to the Focused SRTP work effort to collect passenger boarding and alighting data by stop and schedule adherence data over a five-day period in order to better define the issues associated with Route 1. The data collection is typically called a ridecheck and is so referenced in this Appendix.

Based on the drop in overall ridership between FY 2013/14 and FY 2014/15 for Copper Mountain College, an executive meeting with Copper Mountain College administrators was also convened on April 28, 2016 to explore alternatives for attracting more students.

Appendix D discusses the lifeline analysis to outlying areas of the Morongo Basis. These service alternatives could have an impact on Ready-Ride services, but are not discussed here.

Probably the biggest service change to the Morongo Basin Transit Authority will be the pilot service for the Joshua Tree National Park transit service. The service and temporal alternatives and recommendations are presented in Appendix C.

Finally, the performance of Routes 12 and 15 have declined significantly. Informal discussions have been held with Twentynine Palms Marine Base that provide insights in the correlation of the number of service members stationed at Twentynine Palms Marine Base, leave policies, and MBTA ridership. The alternatives for considering Routes 12 and 15 in conjunction with both the Marine Base and the Joshua Tree National Park transit service are discussed further below.

Other than these exceptions described above, the analysis below has relied on observations from riding the buses, the review of performance over the past three years, and projections for FY 2015/16. The rest of this chapter is broken up into the following sections:

- Systemwide performance and key trends
- Highway Route 1
- Route 1X: Sunday service
- Neighborhood Shuttles
- Commuter Routes
- Ready-Ride

Systemwide Performance and Trends

Exhibit B-1 shows the systemwide performance trends for the Morongo Basin Transit Authority. Overall ridership has declined by 16.7% from 380,748 in FY 2012/13 to a projected 317,000 in 2015/16, based on first three quarters of this fiscal year. The ridership decline is likely due to a combination of factors. As reviewed in more detail in Appendix A, the fare increase is likely a contributor, but does not explain the complete drop in ridership. For the transit dependent population that MBTA serves, a 25% fare increase would normally result in 6.25% drop in ridership, based on industry fare elasticity standards. There has been a steady decline in MBTA ridership since FY 2012/13, and this is more likely explained by a combination of the fare increase, lower gas prices, an improvement in the economy, a drop in enrollment at Copper Mountain College, and a decline in Service Member deployments and more restrictive off-base leave policies at the Twentynine Palms Marine Base.

Despite the fare increase, which provided a significant bump in the average fare paid per boarding from $0.98 to $1.32, since FY 2012/13 overall fare revenues increased by 10.9% though FY 2015/16, while overall operating costs increased at a higher rate 14.5%. While one of the goals of the fare increase was to increase the farebox recovery ratio, the net effect of the fare increase was to hold the farebox recovery ratio relatively flat, slightly declining from 16.4% in FY 2012/13 to a projected 15.9% in FY 2015/16.

Exhibit B-1 Systemwide Performance Trends

Systemwide					
	FY 2012/13	FY 2013/14	FY 2014/15	2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	380,748	366,700	321,589	317,074	-16.7%
Service Hours	33,189	33,343	32,813	33,168	-0.1%
Service Miles	666,663	684,367	650,067	653,359	-2.0%
Fare Revenue	383,200	358,446	427,885	425,003	10.9%
Operating Costs	2,329,687	2,249,874	2,583,579	2,667,547	14.5%
Performance					
Passengers/Hour	11.5	11.0	9.8	9.6	-16.7%
Passenger/Mile	0.57	0.54	0.49	0.49	-15.0%
Average Fare	$1.01	$0.98	$1.33	$1.34	33.2%
Farebox Recovery	16.4%	15.9%	16.6%	15.9%	-3.1%
Cost/Hour	$70.19	$67.48	$78.74	$80.43	14.6%
Cost/Trip	$6.12	$6.14	$8.03	$8.41	37.5%
Subsidy/Trip	$5.11	$5.16	$6.70	$7.07	38.3%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

The following is a review of existing routes and existing performance, and where applicable, recommendations for improvements are made. Route 1 was a focus of the SRTP evaluation and it received significantly more attention than other routes.

Highway Route: Route 1

This section starts with an overview of overall performance trends on Route 1 over the past three fiscal years. Route 1 is then evaluated based on the ridecheck data for on-time performance, boarding and alighting patterns, and the passenger loads by run. Key findings for each section of the analysis are presented. The final section discusses short-term and long-term alternatives that address the findings of the analysis. Several of the longer term alternatives need further discussion before a recommendation can be made, and those discussion questions are articulated with the discussion of alternatives.

Existing Service

Route 1 provides service approximately every hour in each direction on weekdays from 6:00 am to 10:00 pm. The first run of each weekday and the three runs after 6:00 pm in each direction serve the Yucca Valley Park & Ride and the Twentynine Palms Marine Base. On weekdays from 7:00 am to 6:00 pm the buses run a shorter core route between the Twentynine Palms Transit Center (T.C.) and the Yucca Valley T.C.[1] Route 1 provides eight runs in each direction on Saturdays and two in each direction on Sundays,

[1] Throughout this appendix the core route is the route segment between Yucca Valley T.C. and Twentynine Palms T.C.

however, this analysis is focused on weekday performance only. All 30 weekday runs are completed by four shifts of bus operators – two in the morning and two in the evening traveling in opposite directions. Route 1X operates limited service on Sundays and is treated below in a separate section.

Existing Performance

Route 1 ridership represents 46% of all MBTA ridership. Good performance on Route 1 is critical to the overall performance of MBTA services.

Exhibit B-2 below shows Route 1 performance from Monday to Saturday. Route 1 is a very productive route with 15.9 passengers per hour in FY 2014/15 from Monday to Saturday, with 5.7 passengers per hour on the very limited Sunday schedule. The farebox recovery ratio of Monday to Saturday service was 19.9% in FY 2013/14, and the preliminary farebox recovery figure with unaudited figures for 2013/14 was 21.2%. For Sunday service, the farebox recovery ratio was 10.9% in FY 2013/14, and the preliminary figure with unaudited financial figures for FY 2014/15 was 11.8%.

Overall ridership on Route 1 declined by 14.2% between FY 2012/13 and the first three quarters of FY 2015/16, from 173,372 to an estimated 148,814 in FY 2015/16. For the complete year of FY2014/15, the farebox recovery ratio was 21.2% on Route 1. The projection for FY 2015/16 is that the farebox recovery ratio will remain the same at 21.2% in FY 2016/17. With 46% of the total MBTA ridership, the excellent farebox recovery on Route 1 is a significant factor in the overall performance of all MBTA services.

Even though the cash fare on Route 1 is $2.50 for adults, the average paid to board the bus was $0.78 before the fare increase, and increased to $1.06 in FY 2015/14, the first full year after the fare increase. This is because riders on Route 1 predominantly utilize a day pass, a monthly pass or are Copper Mountain College students who pay $0.50.

Exhibit B-2 Route 1 Performance

Route 1					
	FY 2012/13	**FY 2013/14**	**FY 2014/15**	**FY 2015/16**	**% Change**
Base Statistics	**Actual**	**Actual**	**Actual**	**Projected***	**12/13-15/16**
Ridership	173,372	165,794	148,153	148,814	-14.2%
Service Hours	11,189	9,384	9,339	9,263	-17.2%
Service Miles	231,835	235,755	205,889	231,133	-0.3%
Fare Revenue	$143,913	$128,736	$157,284	$161,458	12.2%
Operating Costs	$755,051	$646,617	$742,894	$761,334	0.8%
Performance					
Passengers/Hour	15.5	17.7	15.9	16.1	3.7%
Passenger/Mile	0.75	0.70	0.72	0.64	-13.9%
Average Fare	$0.83	$0.78	$1.06	$1.08	30.7%
Farebox Recovery	19.1%	19.9%	21.2%	21.2%	11.3%
Cost/Hour	$67.48	$68.91	$79.55	$82.19	21.8%
Cost/Trip	$4.36	$3.90	$5.01	$5.12	17.5%
Subsidy/Trip	$3.53	$3.12	$3.95	$4.03	14.4%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 1 Evaluation

Route 1 was a focus of evaluation for the Short Range Transit Plan. A contract amendment enabled significant data collection to inform the recommendations at the end of this section.

A ridecheck was conducted on five weekdays from Thursday, October 1st to Wednesday, October 7th. The purpose of the ridecheck was to analyze factors that influence three performance measures for Route 1:

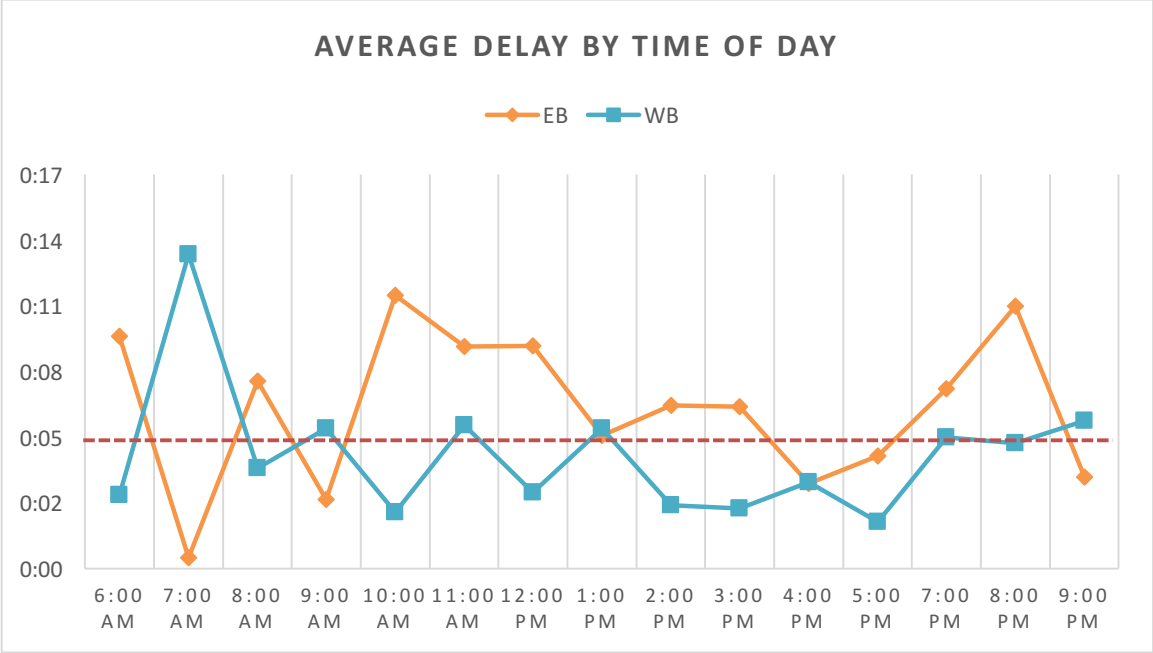
- On-time performance
- Boardings and alightings by stop
- Passenger load

Weekdays at the beginning of the month were selected in consultation with MBTA staff to better understand the potential effects of beginning of the month errands on ridership and performance. Ridecheck workers shadowed vehicle operators to ensure that as many runs as possible were recorded. At each stop ridecheck workers recorded the number of passengers that got on and off the bus. In the event that a delay of more than two minutes occurred, ridecheck workers were asked to record the length of the delay in minutes and note the reason(s) for the delay. At timepoints, ridecheck workers recorded the time that the bus departed the stop, with the exception of the final stop for each run, where they were directed to record the time that the bus arrived.

On-time Performance[2]

A bus is defined as on-time if it is no more than five minutes late or two minutes early to a stop. Exhibit B-3 below shows the on-time performance for 11 timepoints in each direction by the time of day. The on-time performance threshold is shown as a dashed red line. Buses traveling in the westbound direction were generally on-time or only slightly above the threshold between 8:00 am and 7:00 pm. On-time performance for buses traveling in the eastbound direction varied, with the greatest delays between 10 am and noon.

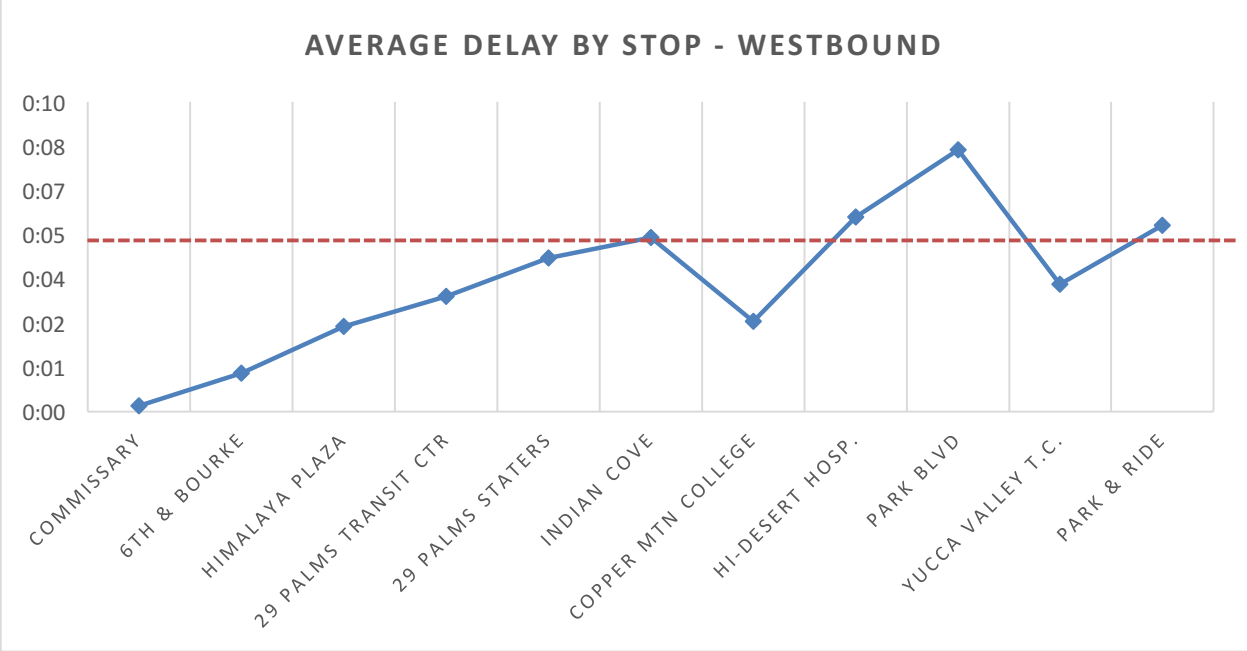
Exhibit B-3 Average Delay by Time of Day



The average delays by stop in the eastbound and westbound directions are shown in Exhibits B-4 and B-5 below. The on-time performance threshold is shown as the dashed red line. In the westbound direction, the greatest delays occurred between the Copper Mountain Community College and Park Boulevard stops. Two of the last four westbound runs of the day experience delays between the Yucca Valley T.C. and the Yucca Valley Park & Ride.

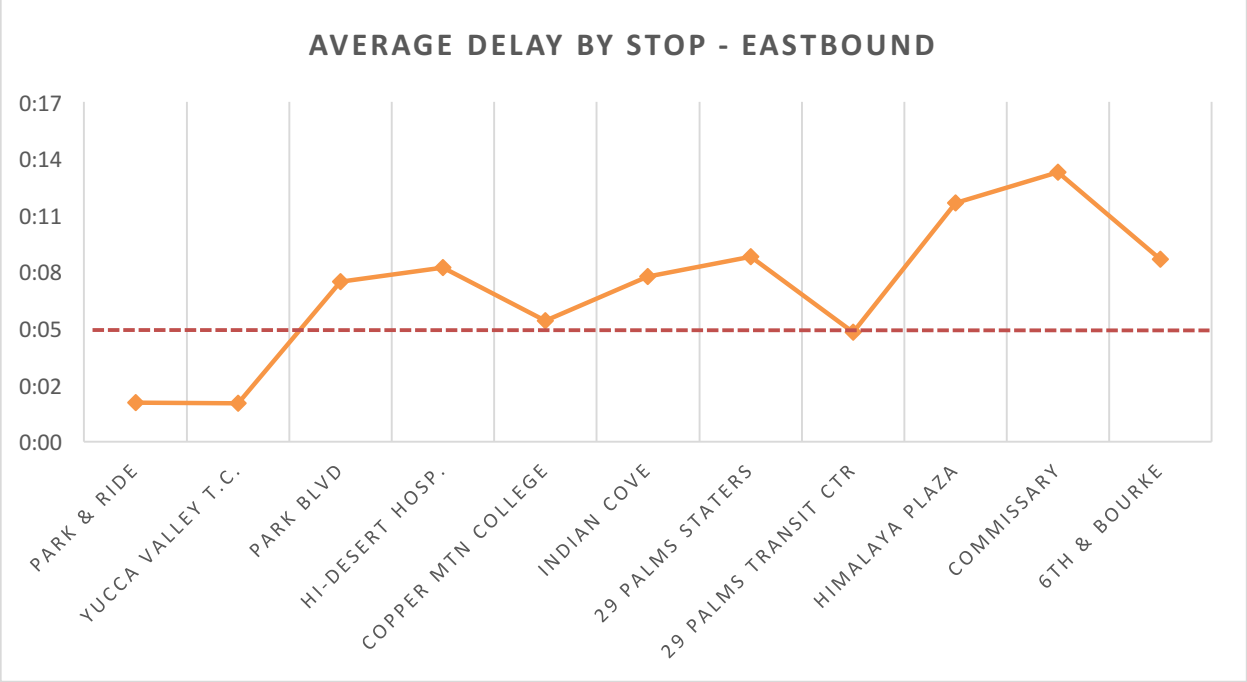
[2] On Tuesday, October 6th at approximately 8 pm a vehicle breakdown occurred, which caused significant delays for buses traveling in both directions. Outlier data for the three evening runs that were affected by the breakdown were omitted from this analysis.

Exhibit B-4 Average Delay by Stop - Westbound



Buses traveling in the eastbound direction experienced greater delays than westbound runs. On average, buses left the Yucca Valley T.C. on-time and, generally, arrived at the 29 Palms T.C. on-time. Between these start and end stops the average delay fell short of or barely met the on-time performance threshold. It appears that buses were able to lessen delay on the stretches from the Hi-Desert to Copper Mountain Community College and Twentynine Palms Staters to Twentynine Palms T.C. Eastbound runs from the Twentynine Palms T.C. to the 6th & Bourke stop in the Twentynine Palms Marine Base were consistently delayed.

Exhibit B-5 Average Delay by Stop - Eastbound



The tables below show the scheduled and actual intervals between timepoints, as recorded during the ridecheck. The scheduled intervals are shown for the 11 runs in each direction that serve stops between the Yucca Valley T.C. and the Twentynine Palms T.C. The scheduled intervals between timepoints on the early morning and later evening runs often vary from those on the core runs and from each other and, therefore, are not shown.

When looking at Exhibit B-6 below and the original ridecheck data, the following observations are made for runs in the eastbound direction:

- The actual average interval from the Yucca Valley T.C. to the Park Blvd. stop is 18 minutes for the core runs, compared to the 12 minutes that is scheduled. The maximum time it took to travel between these stops was 21 minutes.
- The intervals between the Hi-Desert Hospital and Copper Mountain College, and between the Twentynine Palms Staters Bros. and the Twentynine Palms T.C. are each longer by six minutes than the actual average interval, allowing for the bus to stay on schedule overall. The maximum interval for these two stretches was still less than the scheduled interval.
- The first run of the day in the eastbound direction, a non-core run, has a scheduled interval of three minutes between the Twentynine Palms Staters Bros. and the Twentynine Palms T.C., but the actual average interval was seven minutes. For core runs, this same interval between stops is scheduled for 13 minutes.

Exhibit B-6 Intervals Between Eastbound Stops – Scheduled & Actual

	Park & Ride	Yucca Valley T.C.	Park Blvd	Hi-Desert Hosp.	Copper Mtn College	Indian Cove	29 Palms Staters	29 Palms Transit Ctr	Himalaya Plaza	Commissary	6th & Rourke
Scheduled - Core		START	0:12	0:04	0:12	0:04	0:05	0:13			
Actual Average - Core		START	0:18	0:05	0:08	0:05	0:06	0:07			
Actual Maximum - Core		START	0:21	0:08	0:10	0:11	0:09	0:08			
Actual Average - All	START	0:11	0:16	0:05	0:08	0:05	0:06	0:07	0:07	0:06	0:05
Actual Average - Night	START	0:10	0:13	0:03	0:07	0:06	0:05	0:07	0:06	0:06	0:05

When looking at Exhibit B-7 below and the original ridecheck data, the following observations are made for runs in the westbound direction:

- For the core runs, the actual average intervals are slightly higher than the scheduled interval between the Copper Mountain College and Hi-Desert Hospital stops (4 minutes scheduled interval vs. 7 minutes actual) and between the Hi-Desert Hospital and Park Boulevard stops (5 minutes scheduled vs. 7 actual). The maximum actual interval for these two stretches was nine minutes. This is one of the reasons that the bus is delayed for the majority of runs in the westbound direction when it leaves the Park Blvd. stop.
- There are 19 minutes scheduled between Park Blvd. and Yucca Valley T.C. and the actual running time is 13 minutes, providing sufficient recovery time that allows most runs to generally end on time.

Exhibit B-7 Intervals Between Westbound Stops – Scheduled & Actual

	Commissary	6th & Rourke	Himalaya Plaza	29 Palms Transit Ctr	29 Palms Staters	Indian Cove	Copper Mtn College	Hi-Desert Hosp.	Park Blvd	Yucca Valley T.C.	Park & Ride
Scheduled - Core				START	0:08	0:05	0:09	0:04	0:05	0:19	
Actual Average - Core				START	0:09	0:05	0:06	0:07	0:07	0:13	
Actual Maximum - Core				START	0:10	0:06	0:07	0:09	0:09	0:16	
Actual Average - All	START	0:05	0:05	0:09	0:08	0:05	0:06	0:07	0:06	0:13	0:09
Actual Average - Night	START	0:05	0:04	0:09	0:05	0:04	0:04	0:09	0:06	0:14	0:09

The following key findings are derived from the analysis in the section above and by examining data for individual runs and days.

Overall, there is sufficient running time in both directions on the core route between Yucca Valley T.C. and Twentynine Palms T.C. The scheduled running time is 50 minutes and total actual average running time was 49 minutes during the five day ridecheck. This means when buses have normal operations

with a normal volume of bicycle and wheelchair boarding, Route 1 buses are able to arrive and depart on-time, with on-time being defined as within five minutes of the scheduled time.

While the running time is sufficient, there is an overall need to make adjustments to the timepoints to enable passengers to have better reliability between the schedule and actual arrival of buses at different timepoints. The relevant scheduling issues and potential alternatives for addressing the issue are discussed in each key finding below.

In the Eastbound direction, Route 1 buses are chronically late between Park Blvd. and Twentynine Palms T.C. and at all stops in the evening to the Marine Base. All timepoints between Park Blvd. and Twentynine Palms T.C. and then from the T.C. to the Marine Base are more than an average of 5 minutes late. The following key findings explain the primary reasons for the lack of on-time performance in the Eastbound direction:

- **Buses travelling in the eastbound direction need more time to travel between the Yucca Valley T.C. and the Park Blvd. stops.** Buses generally leave eastbound from the Yucca Valley T.C. on time, then become delayed early on between the Yucca Valley T.C. and the Park Blvd. stops. The scheduled interval for this stretch is 12 minutes for the core runs, but the actual time is about 18 minutes, with a typical range of 17 to 20 minutes. For the non-core runs, the scheduled interval is 10 minutes, but the actual average is 13 minutes. When the new Walmart stop was implemented, there was not a timepoint added and this has contributed to the delay. The bottom line is that buses departing Park Blvd. are late and continue to be late until they arrive at the Twentynine Palms T.C. In the discussion of alternatives below, adding a timepoint at the Walmart stop is an alternative to consider. An alternative for adjusting the overall interval between the Yucca Valley T.C. and the Park Blvd. stop is also considered.

- **Additional time is needed between the Twentynine Palms Staters Bros. and the Twentynine Palms T.C. stops on the first eastbound run of the day.** Lack of scheduled time for this interval causes the run to end 21 minutes behind schedule, on average. This delay then causes the second run of the day in the westbound direction to run an average of 13 minutes behind schedule. The actual interval for this stretch is seven minutes on average. One of the schedule alternatives to be considered later is terminating the run at the Twentynine Palms T.C. and eliminating the route segment to Himalaya Plaza.

Buses traveling in the westbound direction are generally on-time. The two exceptions are discussed in the key findings below:

- **The two AM post-lunch runs are consistently delayed due to late starts.** Two consecutive runs traveling westbound stop at Park Blvd. to allow a relief driver to take over while the regular driver has a lunch break. The first of these runs generally arrives about eight minutes late to Park. Blvd and the other generally arrives about four minutes late. After lunch, at the Park Blvd. stop, the regular driver trades back with the relief driver and assumes the run in the eastbound direction. Every one of these runs left Park Blvd. late, ranging from 7 to 24 minutes delayed,

causing each of them to run behind schedule by an average of about 10 minutes. In the discussion of alternatives later in this working paper, it is suggested to consider steps to streamline the shift change or change the location to the Hi-Desert Hospital.

- **Additional time is needed between the Copper Mountain College and Hi-Desert Hospital stops and between the Hi-Desert Hospital and Park Blvd. stops in the westbound direction.** Lack of time scheduled between the Copper Mountain College and the Park Blvd. stops in the westbound direction causes the route to be consistently delayed by the time it leaves the Park Blvd. stops. In the alternatives discussed below, overall on-time performance could be improved by adjusting the scheduled timepoint by a couple of minutes.

Boardings and Alightings

Ridecheck workers recorded the number of people that boarded and alighted at each stop. The average number of boardings (ons) and alightings (offs) at each stop on the core route in the eastbound direction are shown in Exhibit B-8. The highest boarding location in the eastbound direction is at the first stop, the Yucca Valley T.C., with an average of 51 passengers per day. Other high boarding locations include Highway 62 at Park Blvd. (47), the Walmart Center (43), and Copper Mountain College (30). The location with the highest number of alightings is the last stop, the Twentynine Palms T.C., with an average of 60 passengers per day. Other high alighting locations include Copper Mountain College (50), Stater Brothers (40), and Highway 62 at Park Blvd. (30).

Exhibit B-8

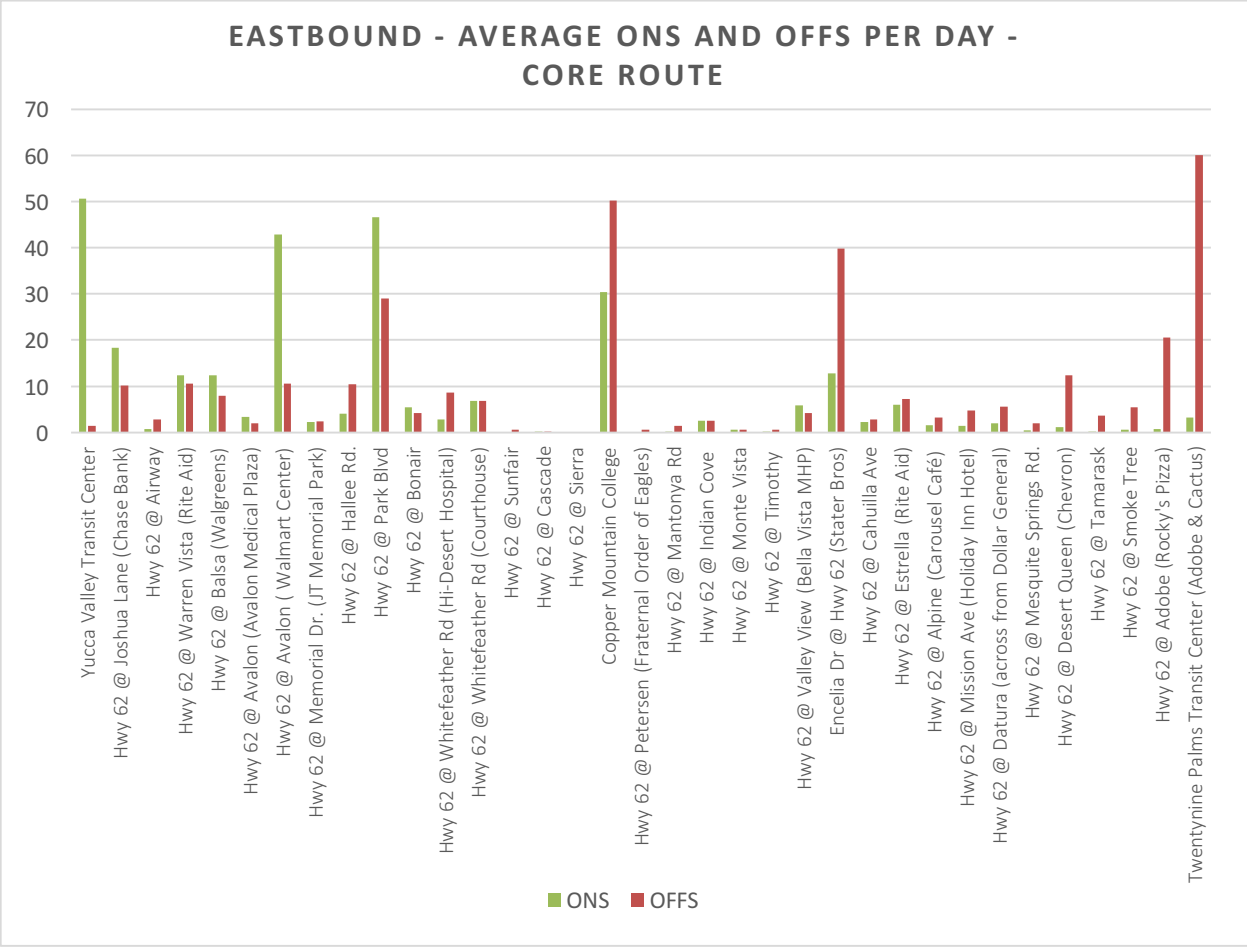
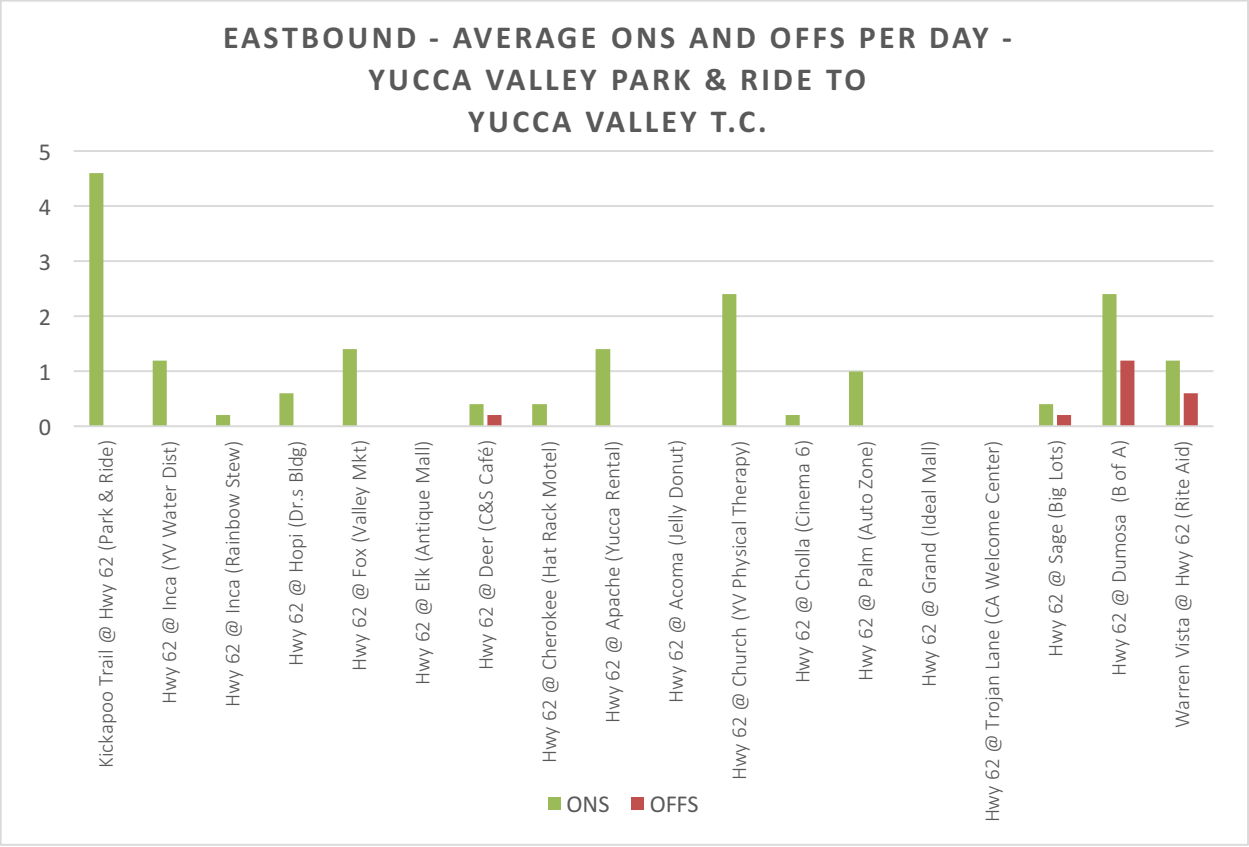

EASTBOUND - AVERAGE ONS AND OFFS PER DAY - CORE ROUTE
70
60
50
40
30
20
10
0
Yucca Valley Transit Center
Hwy 62 @ Joshua Lane (Chase Bank)
Hwy 62 @ Airway
Hwy 62 @ Warren Vista (Rite Aid)
Hwy 62 @ Balsa (Walgreens)
Hwy 62 @ Avalon (Avalon Medical Plaza)
Hwy 62 @ Avalon (Walmart Center)
Hwy 62 @ Memorial Dr. (JT Memorial Park)
Hwy 62 @ Hallee Rd.
Hwy 62 @ Park Blvd
Hwy 62 @ Bonair
Hwy 62 @ Whitefeather Rd (Hi-Desert Hospital)
Hwy 62 @ Whitefeather Rd (Courthouse)
Hwy 62 @ Sunfair
Hwy 62 @ Cascade
Hwy 62 @ Sierra
Copper Mountain College
Hwy 62 @ Petersen (Fraternal Order of Eagles)
Hwy 62 @ Mantonya Rd
Hwy 62 @ Indian Cove
Hwy 62 @ Monte Vista
Hwy 62 @ Timothy
Hwy 62 @ Valley View (Bella Vista MHP)
Encelia Dr @ Hwy 62 (Stater Bros)
Hwy 62 @ Cahuilla Ave
Hwy 62 @ Estrella (Rite Aid)
Hwy 62 @ Alpine (Carousel Café)
Hwy 62 @ Mission Ave (Holiday Inn Hotel)
Hwy 62 @ Datura (across from Dollar General)
Hwy 62 @ Mesquite Springs Rd.
Hwy 62 @ Desert Queen (Chevron)
Hwy 62 @ Tamarask
Hwy 62 @ Smoke Tree
Hwy 62 @ Adobe (Rocky's Pizza)
Twentynine Palms Transit Center (Adobe & Cactus)
ONS
OFFS

Exhibit B-9 below shows the boardings and alightings in the eastbound direction for the two extensions of Route 1. Four runs, the first of the day and the last three of the day, serve stops between the Yucca Valley Park & Ride and the Yucca Valley T.C. in the eastbound direction. This leg mainly had boardings only at the stops since it is at the beginning of the run. The highest boarding location on this stretch is at the Park & Ride with an average of about five boardings per day. Highway 62 at Dumosa and the Rite Aide each had approximately one alighting per day.

Exhibit B-9



The last three runs per day serve stops between the Twentynine Palms T.C. and the Twentynine Palms Marine Base in the eastbound direction. The last run serves the Marine Base by request only. This leg mainly had alightings only at the stops since it is at the end of the run. Overall, as shown in Exhibit 10, there were very few alightings at these stops with most having approximately one per day and no stops with an average of more than two.

Exhibit B-10

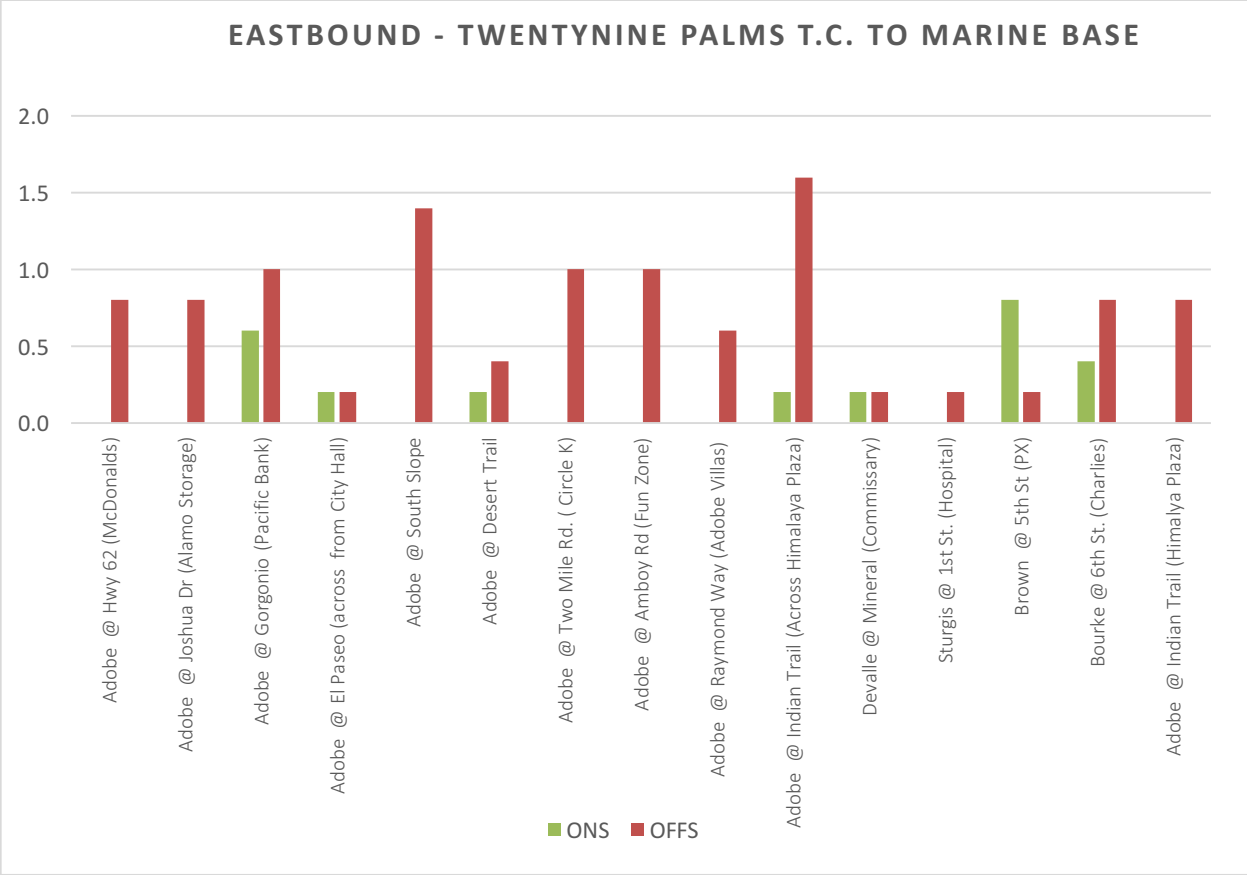


Exhibit B-11 below shows the average boardings and alightings per day at stops on the core route in the westbound direction. The Twentynine Palms T.C. had the highest number of boardings with an average of 70 per day. Other high boarding locations include Copper Mountain College (58), Highway 62 at Park Blvd. (36), and the Walmart Center (30). The stops with the most alightings are nearly the same as the stops with the most boardings and include the Walmart Center (67), the Yucca Valley T.C. (58), Copper Mountain College (30), and Highway 62 at Park Blvd (23).

Exhibit B-11

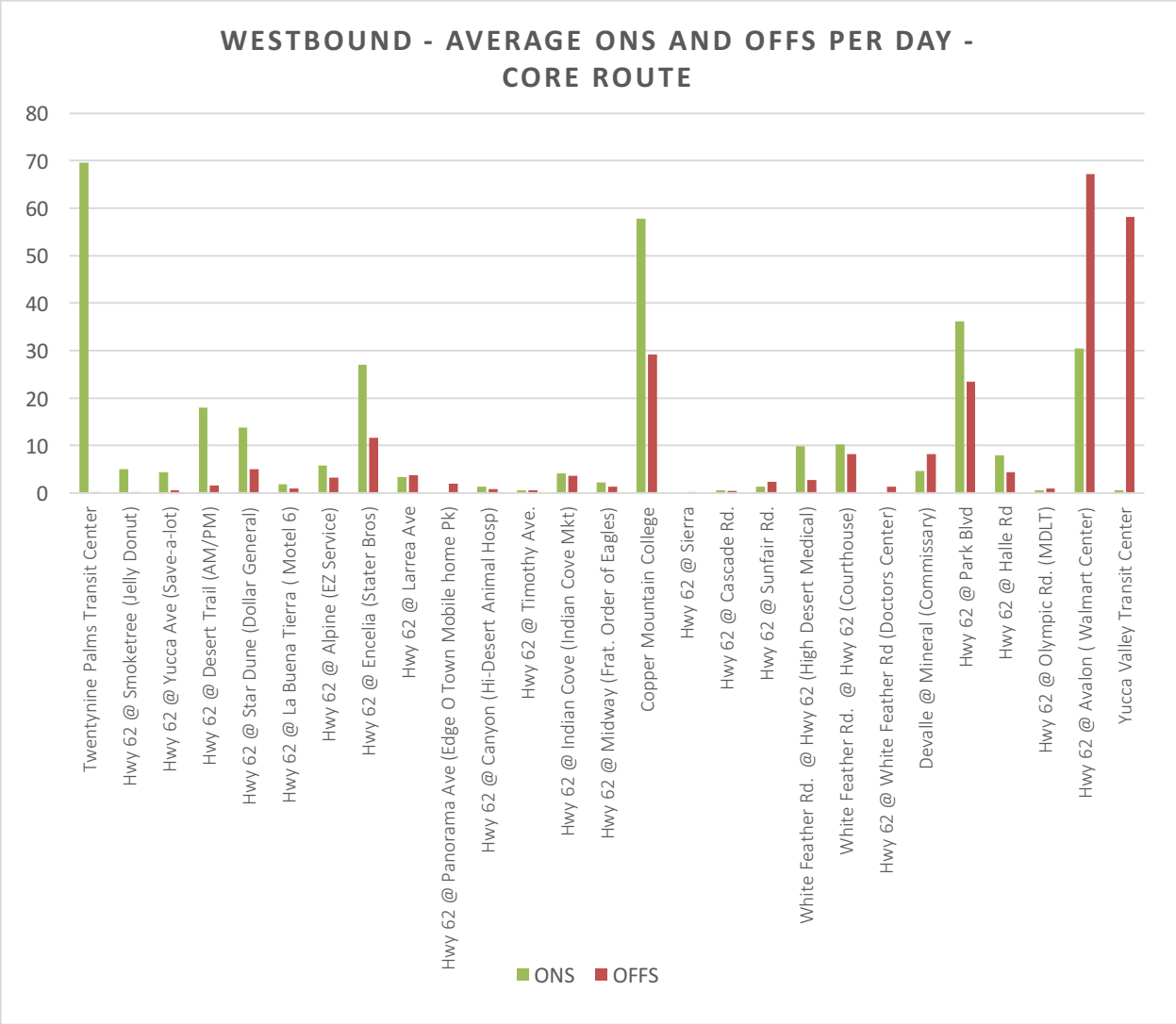
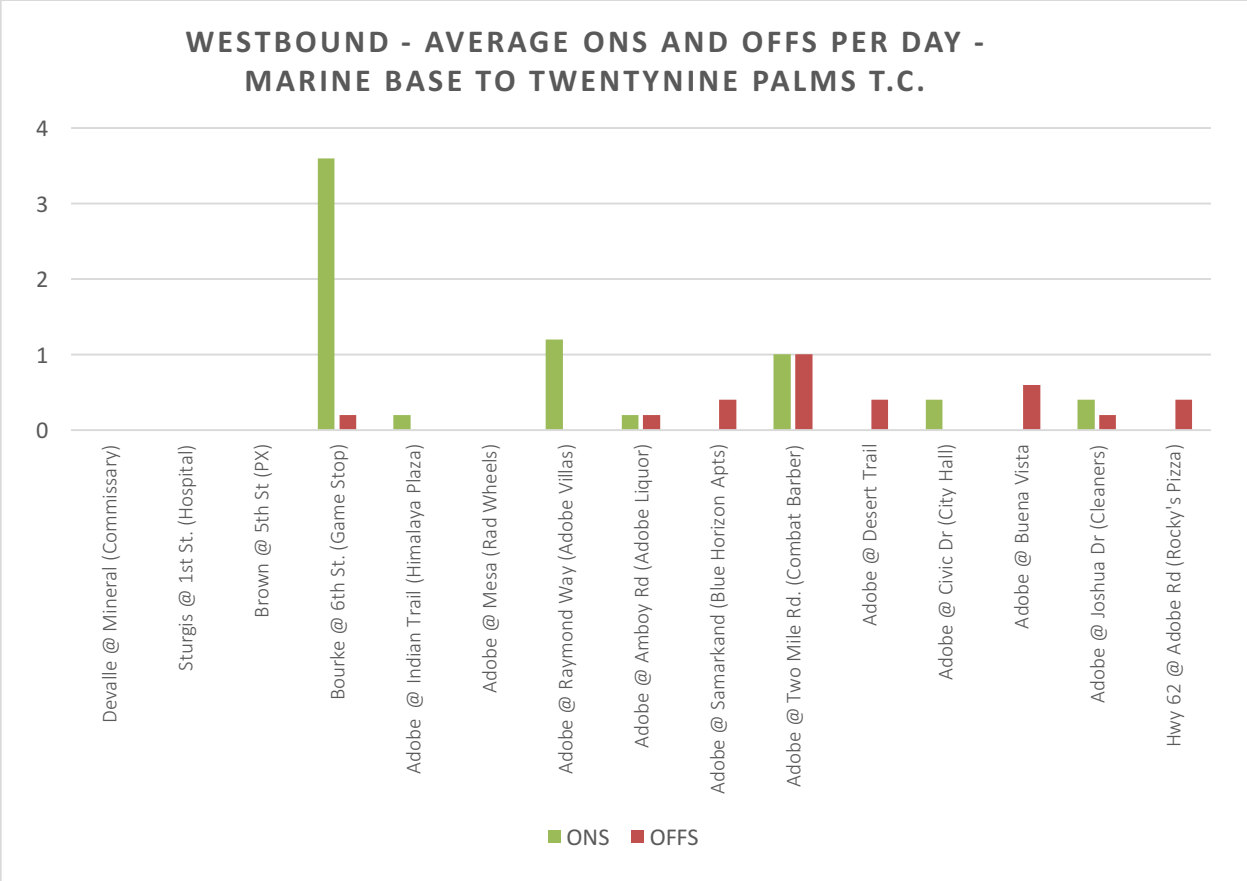


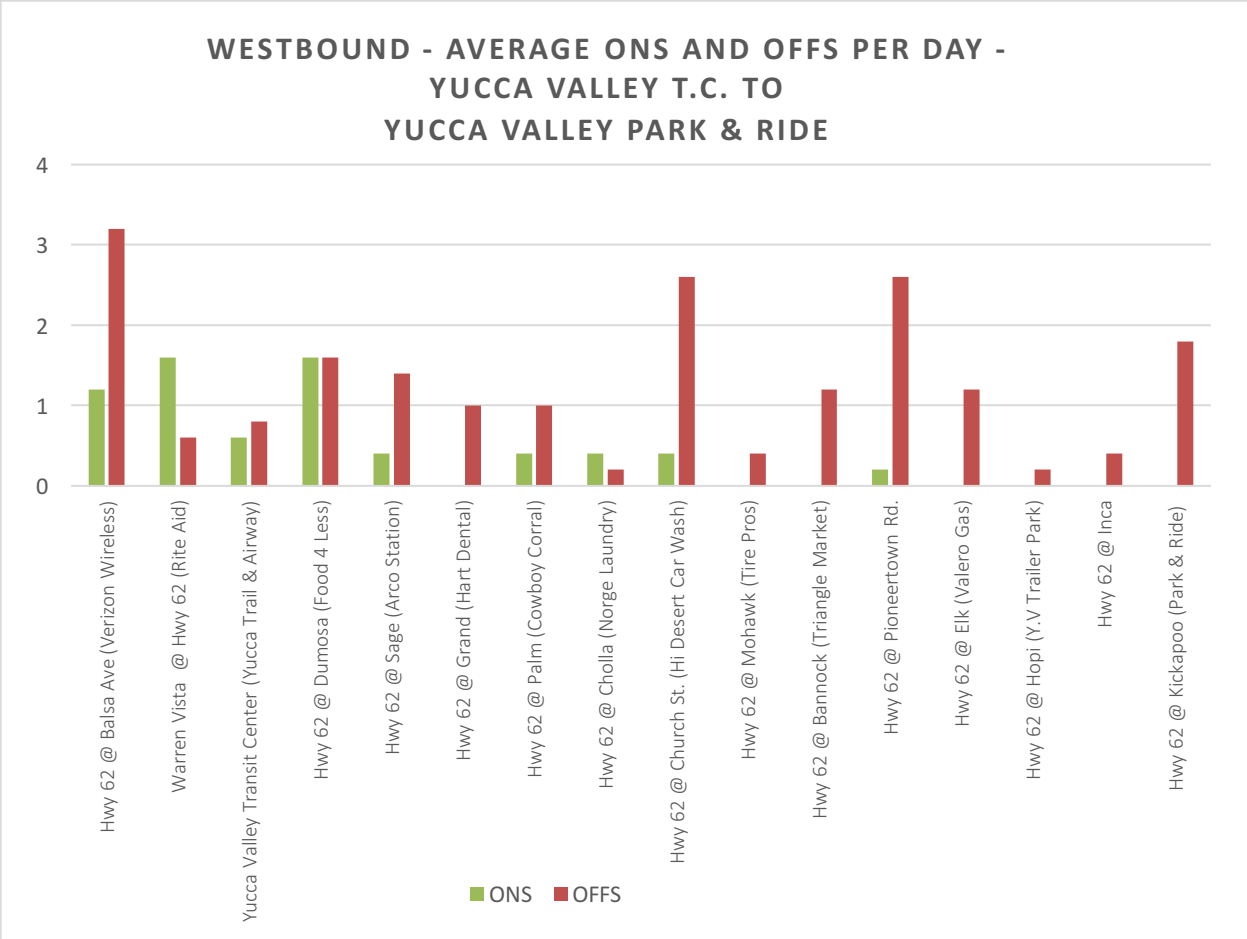
Exhibit B-12 below shows the boardings and alightings in the westbound direction for the two extensions of Route 1. One run per day in the evening extends to the Commissary at the Marine Base. The last two runs extend to the Rourke at 6th stop on the Marine Base, which had an average of 3 to 4 boardings per day. The other stops all had an average of one or less boardings and alightings per day.

Exhibit B-12



The stops toward the beginning of the extension between the Yucca Valley T.C. and the Yucca Valley Park & Ride each had approximately one or less boardings. Three stops had around three alightings, including Highway 62 at Balsa, at Church, and at Bannock. The remaining stops all had an average of one or less alightings per day. Exhibit B-13 below shows boardings and alightings for westbound travel between the Yucca Valley Transit Center and the Yucca Valley Park-and-Ride lot.

Exhibit B-13



Six stops have the highest average number of boardings and alightings per day when eastbound and westbound counts are combined. They are listed in Exhibit B-14 below in order from highest total average combined boardings and alightings per day to the lowest.

Exhibit B-14 Highest Boarding and Alighting Locations with Average Ons and Offs Per Day

	ONS	OFFS	TOTAL
Copper Mountain College	88	79	**168**
Hwy 62 @ Avalon (Walmart Center)	73	78	**151**
Hwy 62 @ Park Blvd	83	52	**135**
Twentynine Palms T.C.	73	60	**133**
Yucca Valley T.C.	51	60	**111**
Encelia Dr @ Hwy 62 (Stater Bros)	40	51	**91**

It should be noted that all of the highest ranked locations for total boardings and alightings are scheduled timepoints, except for the Walmart Center. Adding a timepoint to Walmart is discussed at the end of this section under alternatives to consider.

The following stops on the core route between the Yucca Valley T.C. and Twentynine Palms T.C. had zero boardings and alightings in in the eastbound direction during the five day ridecheck period:

- Hwy 62 @ Sierra

The following stops on the extension between the Yucca Valley Park & Ride and the Yucca Valley T.C. had zero boardings and alightings in in the eastbound direction on Route 1 during the five day ridecheck period:

- Hwy 62 @ Elk (Antique Mall)
- Hwy 62 @ Acoma (Jelly Donut)
- Hwy 62 @ Grand (Ideal Mall)
- Hwy 62 @ Trojan Lane (CA Welcome Center)

The following additional stops had less than two boardings and less than two alightings in the eastbound direction during the five day ridecheck period:

- Hwy 62 @ Inca (Rainbow Stew)
- Hwy 62 @ Deer (C&S Café)
- Hwy 62 @ Cherokee (Hat Rack Motel)
- Hwy 62 @ Cholla (Cinema 6)
- Hwy 62 @ Sage (Big Lots)
- Hwy 62 @ Cascade
- Adobe @ El Paseo (across from City Hall)
- Adobe @ Desert Trail
- Devalle @ Mineral (Commissary)
- Sturgis @ 1st St. (Hospital)
- Brown @ 5th St (PX)

The following stops on the westbound extension from the Marine Base had zero boardings and alightings during the ridecheck period:

- Devalle @ Mineral (Commissary)
- Sturgis @ 1st St. (Hospital)
- Brown @ 5th St (PX)
- Adobe @ Mesa (Rad Wheels)

The following additional stops had less than two boardings and less than two alightings in the westbound direction during the five day ridecheck period:

- Adobe @ Indian Trail (Himalaya Plaza)
- Adobe @ Amboy Rd (Adobe Liquor)
- Adobe @ Samarkand (Blue Horizon Apts)
- Adobe @ Desert Trail
- Adobe @ Civic Dr (City Hall)
- Adobe @ Joshua Dr (Cleaners)
- Hwy 62 @ Adobe Rd (Rocky's Pizza)
- Hwy 62 @ Sierra
- Hwy 62 @ Cholla (Norge Laundry)
- Hwy 62 @ Mohawk (Tire Pros)
- Hwy 62 @ Hopi (Y.V Trailer Park)
- Hwy 62 @ Inca

The following key findings are derived from the analysis in the section above and by examining data for individual stops.

Six key locations see the majority of boardings and alightings. On average, 63% of all boardings and alightings for Route 1 were at these six stops. They include:

- Copper Mountain College
- Hwy 62 at Avalon (Walmart Center)
- Hwy 62 at Park Blvd.
- Twentynine Palms T.C.
- Yucca Valley T.C.
- Encelia Dr at Hwy 62 (Stater Bros)

Five eastbound and four westbound stops saw no boardings or alightings during the five-day ridecheck period. All but one of these stops are in the non-core extension of the Route. Highway 62 at Sierra eastbound was the only stop with no boardings or alightings within the core section of the Route.

Several stops had less than two total boardings or alightings during the five-day ridecheck period. All but two of these stops are located in the non-core extension of the Route. Highway 62 at Sierra was the only westbound stop and Highway 62 at Cascade was the only eastbound stop with less than two boardings or alightings within the core section of the Route.

Passenger Load

The type of bus that normally operates on Route 1 has capacity to seat 27 passengers and 2 wheelchairs. The maximum passenger load is the largest amount of people that were on a given bus during the five-day ridecheck period. Exhibit B-15 below shows the maximum passenger load by time of day for eastbound and westbound runs. The seated capacity is shown as a green dashed line. The maximum

passenger load exceeded the seated capacity in the westbound direction midday between 12 pm and 2 pm. In the eastbound direction, the maximum passenger load slightly exceeded seated capacity during the 8 am run and the 12 pm run.

Exhibit B-15

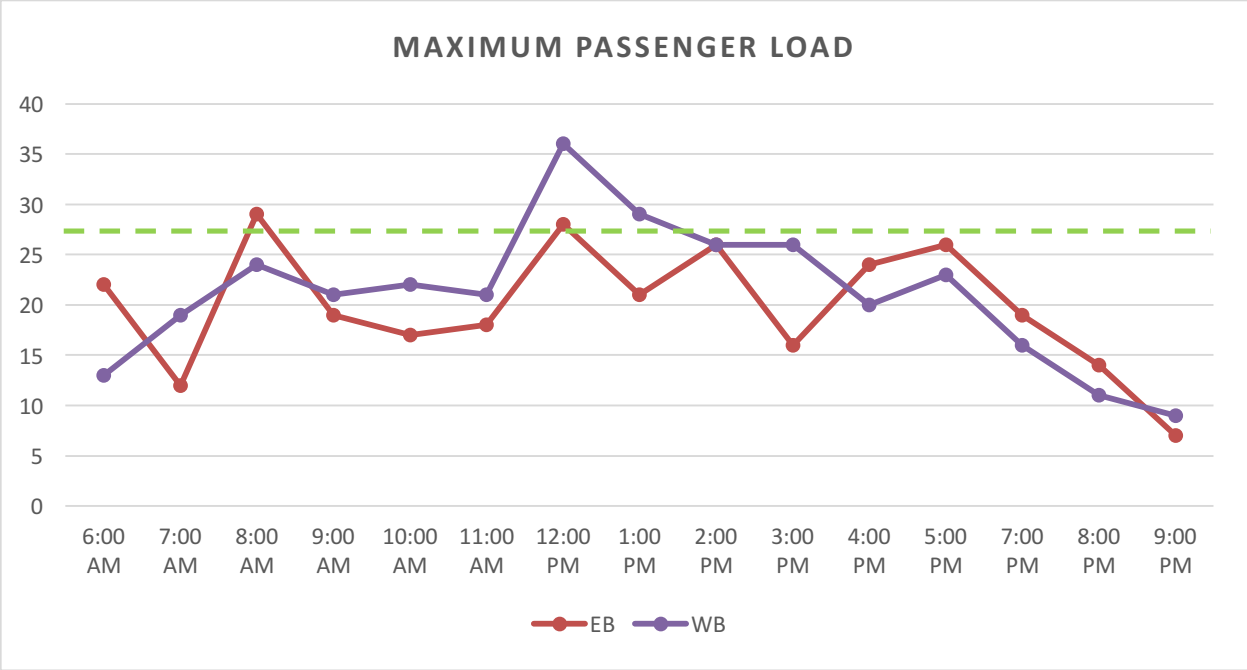


Exhibit B-16 below shows eastbound runs where the maximum passenger load exceeded or came close to the seated capacity for a period of the run. The 8 am run exceeds seated capacity for a short period near the Park Blvd. stop, but is otherwise well below capacity. The 12 pm run exceeds seated capacity for a longer stretch starting at Copper Mountain College and ending at Stater Bros. The 5 pm run shows a similar pattern as the 12 pm run, except that the maximum passenger load falls just below seated capacity. The 2 pm run maximum load nears capacity for much of the first half.

Exhibit B-16

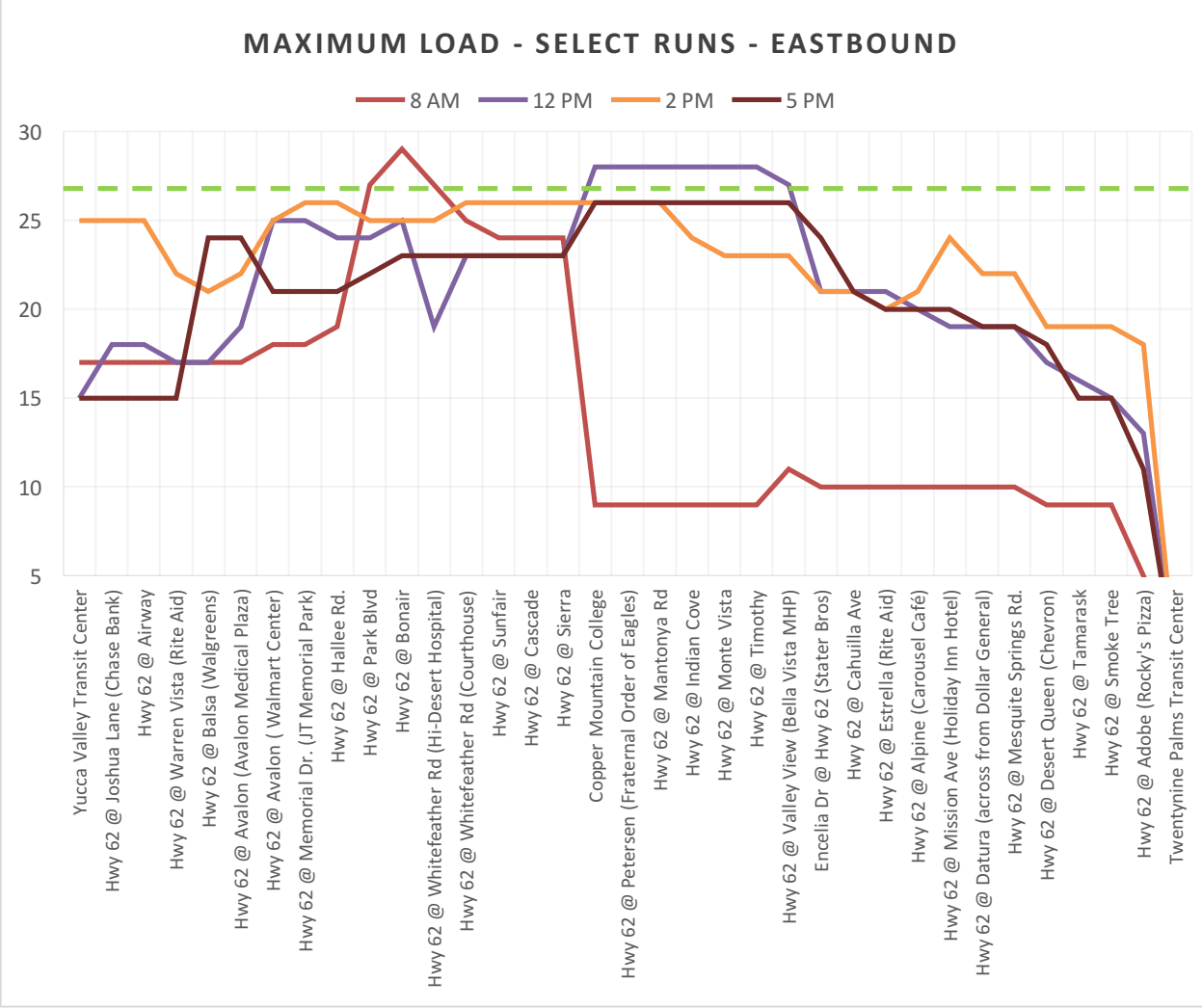
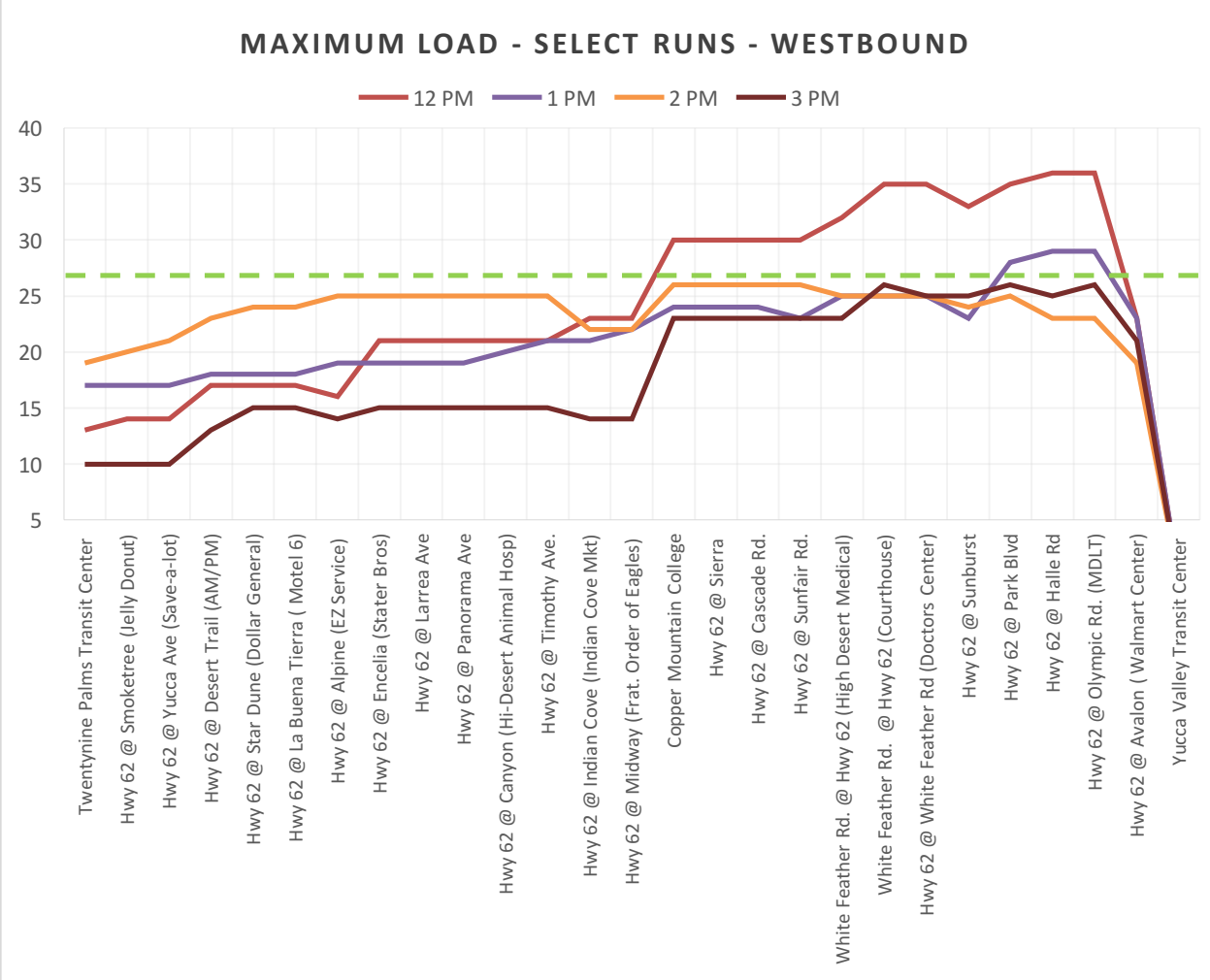


Exhibit B-17 below shows westbound runs where the maximum passenger load exceeded or came close to the seated capacity for a period of the run. Similar to the eastbound run, the 12 pm westbound run shows the longest period where the maximum load exceeds the seated capacity, stretching from the Copper Mountain College to the Walmart Center. The 1 pm run exceeds seated capacity for only a small stretch from Park Blvd. to the Walmart Center. The 2 pm run has a maximum load that is near capacity for almost the whole route. The 3 pm run is near capacity at the end of the route from the Medical Center to Walmart.

Exhibit B-17



The following key findings are derived from the analysis in the section above and by examining data for individual runs:

Few runs have a maximum passenger load that exceeds the seated capacity. Of those, only the eastbound and westbound 12 pm runs exceeded seated capacity for a stretch longer than three stops. Furthermore, the maximum passenger loads reflect only a single day for each run during the five-day ridecheck period. The maximum passenger load for the remaining four days for each run fell below the seated capacity.

Maximum passenger load is consistently highest during the afternoon and early evening. All westbound runs that exceeded or neared capacity occurred between 12 pm and 4 pm. All eastbound runs that had consistently high maximum passenger load were between 12 pm and 6 pm.

Recommended Schedule Adjustments

1. **Add Walmart as a timepoint in both directions.** Walmart has the second most passenger activity, right behind Copper Mountain College. Including Walmart as a timepoint would provide passengers better information on when the bus is supposed to arrive and depart this key destination. In addition to the passenger information benefit, this alternative would add a needed timepoint interval between the Yucca Valley T.C. and Park Blvd. The existing interval is 12 minutes and is chronically late in the eastbound direction. The additional timepoint would provide an important benchmark for keeping Route 1 buses on time. MBTA staff collected data between Park Blvd., Walmart, and the Yucca Valley Transit Center in order to establish the recommended intervals between stops.

2. **Adjust timepoint intervals in the Eastbound direction.**

   The following are suggested adjustments to the existing timepoints in the Eastbound direction. The adjustment of timepoints has the bus ideally arriving to the timepoint, on average 2-3 minutes late in order to avoid the early departure of buses at the timepoint.

   - Adjust the timepoint interval between Yucca Valley T.C. to Park Blvd. from 12 to 15 minutes Eastbound. As described above, for the core route runs, the scheduled interval is 12 minutes and the average actual running time is 18 minutes. Adjusting the timepoint interval to 15 minutes would enable the bus to be a desirable 3 minutes late to Park Blvd.

     The recommended interval in the Eastbound direction between Yucca Valley Transit Center and Walmart is nine minutes. The recommended interval between Walmart and Park Blvd. is six minutes based on the field tests conducted by MBTA staff.

   - Adjust the timepoint interval between Hi-Desert Hospital and Copper Mountain College from 12 to 10 minutes. The current interval is 12 minutes but the average running time is 8 minutes. Coupled with the above timepoint adjustment, the objective would be to have all buses, on average, arrive five or less minutes late to Copper Mountain College. There has been a significant decline in ridership from Copper Mountain College over the past three years, based on the results of the forthcoming fare analysis. The current scheduling practice results in the bus that is supposed to arrive in the Eastbound direction at 10:28 arriving on average at 10:38 (with the bus arriving one day at 10:47 am). This is not reliable service and steps need to be taken to improve schedule reliability to Copper Mountain College.

   - Adjust the timepoint interval between Stater Bros. and Twentynine Palms T.C. from 13 to 12 minutes. While the actual average running time is 7 minutes, the 12 minutes is necessary to have the scheduled time be at :50 after the hour or before. This enables schedule recovery time to account for the variance in arrival due to passenger boarding volumes, traffic, bicycle boardings, and wheelchair boardings. There was considerable variance in arrival times at the Twentynine Palms T.C. For example, the 3:00 pm run from Yucca Valley T.C. that was supposed to arrive at the Twentynine Palms T.C. at 3:50, actually had a range of arrival times from 3:45 pm to 4:00 pm depending on the day. It is important to maintain the

existing recovery time at the Twentynine Palms T.C. in order to accommodate the known variance and enable the westbound buses to depart on time.

3. **Adjust timepoint intervals in the Westbound direction.**

   The following timepoints should be considered for a timepoint adjustment based on the ridecheck data:

   - Adjust the scheduled timepoint interval between Indian Cove and Copper Mountain College from 9 minutes to 6 minutes. Six minutes is the actual average running time between Indian Cove and Copper Mountain College, meaning that drivers will often arrive to Copper Mountain College and have to wait on runs with low passenger volumes.
   - Adjust the scheduled timepoint between Copper Mountain College and Hi-Desert Hospital from 4 minutes to 6 minutes. The actual average running time is 7 minutes, meaning that on average the bus will be a couple of minutes late to the Hospital.
   - Adjust the scheduled timepoint between Hi-Desert Hospital to Park Blvd. from 5 minutes to 6 minutes.

4. **Consider steps to streamline the driver break and driver shift changes at Park Blvd. and/or consider alternatives.**

   The current practice of having passengers wait on the bus while driver goes through their check-in and check-out routines, while the bus is in service, is inconvenient to the passenger. This added time is not built into the schedule and therefore buses are chronically late when the driver change occurs. Therefore, in the Eastbound direction, this exacerbates the schedule adherence problem at Park Blvd. At 10:12 am when the lunch break driver change occurs, the bus departs on average at 10:25 am, but the variance was significant, and on one day the bus departed 24 minutes late at 10:36 am.

   This has been discussed with MBTA management and steps are being taken to streamline the check-in and check-out procedures. The final resolution and timing of the driver change should be taken into account when the final Highway Route schedule is written.

5. **Eliminate the 6:00 am Eastbound run segment departing from Twentynine Palms T.C. at 6:40 a.m. and arriving at Himalaya Plaza at 6:45 am.**

   This route segment on the first run in the morning has significant schedule adherence problems. The bus is scheduled to arrive at Himalaya Plaza at 6:45 am, but does not arrive on average until 7:06 am, 21 minutes late. This causes the 7:00 am departure from the Twentynine Palms T.C. to depart on average 7:14 am, 14 minutes late. The segment between Twentynine Palms and Himalaya Plaza had less than one boarding and alighting activity per day.

   The recommended change would allow the adjustment of the current unrealistic time interval of arriving at Staters Brothers at 6:37 am and arriving at Twentynine Palms T.C. at 6:40, while the actual running time is 7 minutes.

6. **Adjust the evening schedule to better serve the Copper Mountain College class ending times of 5:50 and 8:50 pm.**

   Discussions with Copper Mountain College revealed that there are a significant number of classes from 3:00 to 5:50 pm and 6:00 to 8:50 pm. Currently, for students having 5:50 pm classes, Route 1 westbound arrives at 7:14 pm and Route 1 Eastbound arrives at 7:10 pm. For students ending classes at 8:50 pm, Route 1 westbound arrives at 9:40 pm and Route 1 eastbound also arrives at 9:40 pm. This schedule is very inconvenient for students which is one factor in why evening ridership on Route 1 is low.

   The recommended schedule adjusts the last three runs of the Route 1 schedule in both directions to better serve evening class departures on Route 1. This should help to encourage ridership and more students to realistically take night classes with transportation home. Westbound runs would leave the College shortly after class lets out at 6:10p and 9:20p. Eastbound runs would leave at 6:20pm and 9:10pm. One evening westbound run starts at the Commissary, but no boardings were recorded at that stop during the ridecheck period. This stop was deleted in order to better serve the College.

The recommended schedule for the first six recommendations is presented in Exhibit B-18.

7. **Invest in a pilot AVL system to enable regular management and monitoring of schedule adherence on Route 1.**

   The ridecheck was conducted over a five-day period and required surveyors on-board the bus to record schedule adherence problems. There is a need to invest in AVL equipment to regularly monitor schedule adherence. Charts similar to what are included in this working paper could be produced on a regular basis to monitor changes made to the timepoints and ongoing schedule adherence. The P.O. for the manual ridecheck and analysis cost is $14,259. For four buses, installation of an AVL system would cost $3,860 for the first year, including set-up, installation of "GPS Trackers," and arrival/prediction software through the vendor Swyftly. Ongoing costs would be $1,680 per month.

   If the pilot AVL system proves to be useful, then it would make sense to expand the system to include systemwide capabilities for the entire fleet. Providing realtime information to passengers should be considered.

Exhibit B-18

RECOMMENDED SCHEDULE - Route 1 Weekday

WESTBOUND	Comm-issary	6th & Bourke	Himalaya Plaza	29 Palms Transit Ctr	29 Palms Staters	Indian Cove	Copper Mtn College	Hi-Desert Hosp.	Park Blvd	Walmart Center	Yucca Valley T.C.	Park & Ride	
Shift AM - A		6:00 AM	6:06 AM	6:14 AM	6:19 AM	6:24 AM	--	6:31 AM	6:38 AM	6:43 AM	6:50 AM		
Shift AM- B				7:00 AM	7:08 AM	7:13 AM	7:19 AM	7:25 AM	7:31 AM	7:35 AM	7:50 AM		
Shift PM - A				8:00 AM	8:08 AM	8:13 AM	8:19 AM	8:25 AM	8:31 AM	8:35 AM	8:50 AM		
Shift PM - B				9:00 AM	9:08 AM	9:13 AM	9:19 AM	9:25 AM	9:38 AM	9:42 AM	9:57 AM	lunch	
				10:00 AM	10:08 AM	10:13 AM	10:19 AM	10:25 AM	10:38 AM	10:42 AM	10:57 AM	lunch	
				11:00 AM	11:08 AM	11:13 AM	11:19 AM	11:25 AM	11:31 AM	11:35 AM	11:50 AM		
				12:00 PM	12:08 PM	12:13 PM	12:19 PM	12:25 PM	12:31 PM	12:35 PM	12:50 PM		
				1:00 PM	1:08 PM	1:13 PM	1:19 PM	1:25 PM	1:31 PM	1:35 PM	1:50 PM		
				2:00 PM	2:08 PM	2:13 PM	2:19 PM	2:25 PM	2:31 PM	2:35 PM	2:50 PM		
				3:00 PM	3:08 PM	3:13 PM	3:19 PM	3:25 PM	3:31 PM	3:35 PM	3:50 PM		
				4:00 PM	4:08 PM	4:13 PM	4:19 PM	4:25 PM	4:31 PM	4:35 PM	4:50 PM		
				5:00 PM	5:08 PM	5:13 PM	5:19 PM	5:25 PM	5:31 PM	5:35 PM	5:50 PM		
leaves earlier				5:51 PM	5:59 PM	6:04 PM	6:10 PM	6:16 PM	6:22 PM	6:26 PM	6:41 PM	6:50 PM	break start
break end	deleted stop	7:26 PM	7:30 PM	7:40 PM	7:45 PM	7:50 PM	7:55 PM	8:04 PM	8:11 PM	8:16 PM	8:25 PM	8:34 PM	
		8:51 PM	8:55 PM	9:05 PM	9:10 PM	9:15 PM	9:20 PM	9:29 PM	9:36 PM	9:41 PM	9:50 PM	9:59 PM	

EASTBOUND	Park & Ride	Yucca Valley T.C.	Walmart Center	Park Blvd	Hi-Desert Hosp.	Copper Mtn College	Indian Cove	29 Palms Staters	29 Palms Transit Ctr	Himalaya Plaza	Comm-issary	6th & Bourke
	6:00 AM	6:10 AM	6:18 AM	6:23 AM	6:27 AM	--	6:36 AM	6:40 AM	6:50 AM			
		7:00 AM	7:09 AM	7:15 AM	7:19 AM	7:29 AM	7:33 AM	7:38 AM	7:50 AM			
		8:00 AM	8:09 AM	8:15 AM	8:19 AM	8:29 AM	8:33 AM	8:38 AM	8:50 AM			
		9:00 AM	9:09 AM	9:15 AM	9:19 AM	9:29 AM	9:33 AM	9:38 AM	9:50 AM			
	lunch	10:00 AM	10:09 AM	10:22 AM	10:26 AM	10:36 AM	10:40 AM	10:45 AM	10:57 AM			
	lunch	11:00 AM	11:09 AM	11:22 AM	11:26 AM	11:36 AM	11:40 AM	11:45 AM	11:57 AM			
		12:00 PM	12:09 PM	12:15 PM	12:19 PM	12:29 PM	12:33 PM	12:38 PM	12:50 PM			
		1:00 PM	1:09 PM	1:15 PM	1:19 PM	1:29 PM	1:33 PM	1:38 PM	1:50 PM			
		2:00 PM	2:09 PM	2:15 PM	2:19 PM	2:29 PM	2:33 PM	2:38 PM	2:50 PM			
		3:00 PM	3:09 PM	3:15 PM	3:19 PM	3:29 PM	3:33 PM	3:38 PM	3:50 PM			
		4:00 PM	4:09 PM	4:15 PM	4:19 PM	4:29 PM	4:33 PM	4:38 PM	4:50 PM			
		5:00 PM	5:09 PM	5:15 PM	5:19 PM	5:29 PM	5:33 PM	5:38 PM	5:50 PM			
leaves earlier		5:51 PM	6:00 PM	6:06 PM	6:10 PM	6:20 PM	6:24 PM	6:29 PM	6:41 PM	break start		
break end	7:30 PM	7:40 PM	7:49 PM	7:55 PM	7:58 PM	8:05 PM	8:12 PM	8:18 PM	8:25 PM	8:32 PM	8:39 PM	8:44 PM
	8:35 PM	8:45 PM	8:54 PM	9:00 PM	9:03 PM	9:10 PM	9:17 PM	9:23 PM	9:30 PM	9:37 PM	9:44 PM	9:49 PM

8. **Take steps to ensure that passengers have valid day and monthly passes.**

   Observations by the consulting team during the ridecheck found that drivers often do not check for the dates on day passes. The Project Manager rode multiple MBTA buses on several occasions with a purchased day pass and the date was never checked as he boarded. The Transit Planner conducting the ridecheck noted the same issue. Given the volume of the day passes, there is potential for abuse of the system by passengers.

   While it not known whether or not passengers are utilizing day passes on multiple days, the opportunity for abuse was present during the ridecheck period. Simple steps that could be taken are different colored passes with large print numerical numbers on the pass. The extra printing costs are a much more cost-effective means of achieving fare pass validity than more expensive options such as electronic fareboxes which are discussed in more detail under longer range alternatives.

   In addition to training drivers to check for a valid pass in a timely manner, it is important to regularly monitor drivers for compliance. This could also be done with on-board security cameras.

   This has been reported to MBTA management and steps are being taken to ensure that day passes and monthly passes are visually validated by the drivers.

Longer Term Alternatives Consideration

There are two longer term options that would provide significant help with schedule adherence. The first would be to transition to low floor buses to avoid the dwell time required for wheelchair boardings.

Low Floor Buses

In the ridecheck, the average wheelchair dwell time was approximately 5 minutes with a range of 5-7 minutes. The rationale for a low floor bus is to have wheelchair boardings on a ramp, reducing overall passenger delay. With a significant number of wheelchair boardings, a discussion of deployment of low floor buses should be undertaken. The primary trade-off of low floor buses is that the seating capacity is typically about 7-9 seated passengers less (however, more research is required). The seated capacity of the El Dorado XHF buses is 27 and many of equivalent low floor buses have seated capacity in the range of 18-23 passengers, depending on the size and configuration of the bus.

The data from the load factor analysis show that westbound Route 1 exceeds the passenger load of 23 passengers for five hours at least once during the westbound runs, and pretty much on every run if the seating capacity was limited to 18 passengers.

Since the useful life of the El Dorado XHF is not until 2021, the last year of the current five-year planning horizon, there is sufficient time to make a decision if a low floor bus should be procured when the XHF buses need to be replaced.

However, the 550 Goshens will need to be replaced in 2017 or 2018, and there should be at least some discussion of whether remaining with standard floor buses is the best option. The 550 Goshens are excellent for seating capacity with 30 passengers, but have a very time consuming rear lift that contributes to schedule adherence issues. Low floor buses should be considered when the 550 Goshens are replaced.

Electronic Fareboxes and Mobile Apps

Most rural transit systems do not have electronic fareboxes primarily due to their cost. However, the benefits of magnetic strip fare cards are that a day pass or 31-day pass is issued and the electronic farebox automatically validates the boarding. This automatic validation would be the primary reason for MBTA to consider electronic fareboxes. It also helps to speed boarding, which reduces dwell time.

Smartphones are becoming increasingly ubiquitous even among the most transit dependent population segments. Recent surveys have shown that 70% of passengers in other rural and small urbanized areas have a smartphone. Apple Pay and other payment services may or may not be more frequently utilized for transit fare transactions, it's too soon to tell. However, larger transit agencies are beginning to make significant investments in mobile fare collection and this technology may be affordable for smaller rural agencies within a five- year period. There will always continue to be a need for cash fare transactions, and the system that MBTA employs for that purposes is adequate. But purchase and transactions of day passes, 10-ride tickets and monthly passes could be streamlined with mobile app transactions, limiting the need to purchase expensive farebox technology. MBTA should monitor technology development.

Route 1X

Existing Service

Sunday service was introduced by MBTA in FY 2013/14 as a pilot project. FY 2015/16 will be the third full year of operation. There are two trips offered in each direction between Bourke & 5th in Twentynine Palms and the Park and Ride facility in Yucca Valley. In the Eastbound direction, service is provided with starting runs at 10:30 am and 3:20 pm. In the Eastbound direction, runs begin at 9:00 am and 1:50 pm.

Existing Performance

Exhibit B-19 provides a summary of performance between FY 2013/14 and expected performance for FY 2015/16. With limited service, ridership and productivity is not surprisingly significantly lower than Route 1 service. The first full year of operation, however, attracted a total of 2,349 passengers and a productivity of 6.9 passengers per vehicle service hour. Ridership and productivity have declined over the past two fiscal years, similar to Route 1 service. The farebox recovery ratio is expected to be 11.7% in FY 2015/16.

Exhibit B-19 Route 1X Performance

Route 1X					
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	No Service	Actual	Actual	Projected*	13/14-15/16
Ridership		2,349	1,828	1,879	-20.0%
Service Hours		342	321	375	9.6%
Service Miles		7,866	7,398	7,281	-7.4%
Fare Revenue		$2,611	$2,963	$3,116	19.3%
Operating Costs		$24,029	$25,149	$26,727	11.2%
Performance					
Passengers/Hour		6.9	5.7	5.0	-27.0%
Passenger/Mile		0.30	0.25	0.26	-13.6%
Average Fare		$1.11	$1.62	$1.66	49.2%
Farebox Recovery		10.9%	11.8%	11.7%	7.3%
Cost/Hour		$70.30	$78.39	$71.33	1.5%
Cost/Trip		$10.23	$13.76	$14.23	39.1%
Subsidy/Trip		$9.12	$12.14	$12.57	37.8%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 1X Alternatives and Recommendations

Two alternatives are highlighted for consideration by MBTA over the next five years. Alternative 1 would fully utilize one bus offering four runs in each direction on Sunday. The alternative would require 624 annual vehicle service hours and an annual cost of $51,110. The projected FY 2015/16 cost is $26,726.

Alternative 2 would operate the Saturday schedule, but eliminate the 7:15 am run Eastbound and end service in the Westbound direction at 5:35 pm and Eastbound at 5:05 pm. The truncated schedule would operate 6 runs in each direction. This alternative would require 936 annual vehicle service hours at a cost of $76,664 compared to the existing cost of $26,726.

The recommendation for the overall service plan is to implement Alternative 1 in FY 2016/17 and, if successful, implement Alternative 2 in FY 2019/20.

Neighborhood Shuttles

Neighborhood Shuttles include Routes 3A, 3B, 7A, 7B and 21. The Neighborhood Shuttles were not a focus of the SRTP. No independent data collection occurred to inform any analysis. Therefore, the discussion below is limited to recent performance.

Routes 3A and 3B provide local transit service in the Twentynine Palms area and Routes 7A and 7B provide local transit service in the Yucca Valley area. All four routes have service frequencies of one

hour, begin service at 7:00 am and end generally at 5:50 pm. MBTA offers deviated fixed route service. The MBTA provides deviated fixed route service to the general public for those that are not able to get to the regular fixed route bus stops within a 3/4-mile corridor along the route. Deviations are by reservation only and the request must be 1 hour in advance of the trip.

Route 21 is the Landers Loop from Yucca Valley to Landers and back. Service is operated every two hours on a long one-way loop. Service operates from 6:45 am to 5:55 pm. For the Landers Loop, the route deviation is expanded to 1.5 miles from the route.

Exhibit B-20 is a composite profile of the five neighborhood routes. The neighborhood route performance is generally reflective of the key trends shown in the systemwide trends: (a) a steady decline in ridership and productivity of 14-16%, and (b) operating cost increases that generally parallel the increased revenue from the July 1, 2014 fare increase, resulting in a fairly constant farebox recovery rate of 18.5% over the past four fiscal years. Of particular note is that while the fare increased from $1.00 to $1.25, a 25% increase, the average fare increased from $0.84 to $1.18, a 40.2% increase between FY 2012/13 and what is projected for FY 2015/16. This is likely due to the purchase of day passes and the 31-day Go Pass, which also saw pricing increases, with many Neighborhood Shuttle riders utilizing more than one route for their complete trip.

Exhibit B-20 Neighborhood Route Performance

Neighborhood Shuttles

	FY 2012/13	FY 2013/14	FY 2014/15	2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	345,599	331,743	292,771	288,396	-16.6%
Service Hours	23,425	23,521	23,353	22,820	-2.6%
Service Miles	483,600	499,385	471,257	490,571	1.4%
Fare Revenue	290,963	273,312	336,247	340,347	17.0%
Operating Costs	1,593,529	1,546,750	1,778,957	1,837,463	15.3%
Performance					
Passengers/Hour	14.75	14.10	12.54	12.64	-14.3%
Passenger/Mile	0.71	0.66	0.62	0.59	-17.7%
Average Fare	$0.84	$0.82	$1.15	$1.18	40.2%
Farebox Recovery	18.3%	17.7%	18.9%	18.5%	1.4%
Cost/Hour	$68.03	$65.76	$76.18	$80.52	18.4%
Cost/Trip	$4.61	$4.66	$6.08	$6.37	38.2%
Subsidy/Trip	$3.77	$3.84	$4.93	$5.19	37.7%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

There are differences among the Neighborhood Shuttle route performance. In particular Route 3A that serves the Twentynine Palms Marine Corp Base had almost a 23% decline in ridership, and productivity declined from 18.8 passengers per vehicle service hour in FY 2012/13 and is projected to decline to 11.8 passengers per vehicle service hour for FY 2015/16. The trends of reduced deployment and more restrictive leave policies had a significant impact on performance. The subsidy required per passenger trip increased from $2.68 in FY 2012/13 to $4.74 for the first three quarters in FY 2015/16, a 77% increase. Declines in performance on Route 7B in Yucca Valley was even more pronounced. Annual ridership declined by 31%, productivity as measured by passengers per vehicle service hour declined by 37.5% and the subsidy per passenger trip increased by 85% between FY 2012/13 and FY 2015/16.

Ridership and productivity declines were much less pronounced on Routes 3B and 7A. The ridership decline on Route 7A was just 8.2% over the past four fiscal years, and the farebox recovery ratio increased by 13.6%, to 19.3% in FY 2015/16, despite a 25% increase in operating costs per vehicle service hour.

Exhibits B-21 and B-22 on the following two pages show the performance of Routes 3A, 3B, 7A and 7B over the last three fiscal years and through the first 9 months of FY 2015/16.

Exhibit B-21 Routes 3A and 3B Performance

Route 3A

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	43,403	38,634	32,903	33,595	-22.6%
Service Hours	2,309	2,779	2,746	2,857	23.7%
Service Miles	51,223	52,591	54,055	53,432	4.3%
Fare Revenue	$41,030	$37,750	$45,110	$47,754.67	16.4%
Operating Costs	$157,433	$171,870	$199,289	$207,050.67	31.5%
Performance					
Passengers/Hour	18.8	13.9	12.0	11.8	-37.5%
Passenger/Mile	0.85	0.73	0.61	0.63	-25.8%
Average Fare	$0.95	$0.98	$1.37	$1.42	50.4%
Farebox Recovery	26.1%	22.0%	22.6%	23.1%	-11.5%
Cost/Hour	$68.18	$61.85	$72.59	$72.46	6.3%
Cost/Trip	$3.63	$4.45	$6.06	$6.16	69.9%
Subsidy/Trip	$2.68	$3.47	$4.69	$4.74	76.8%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 3B

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	31,731	28,396	22,140	25,900	-18.4%
Service Hours	2,346	2,762	2,758	2,781	18.6%
Service Miles	51,868	52,918	54,946	55,608	7.2%
Fare Revenue	$27,614	$23,792	$26,973	$30,605	10.8%
Operating Costs	$160,393	$171,364	$200,995	$211,657	32.0%
Performance					
Passengers/Hour	13.5	10.3	8.0	9.3	-31.1%
Passenger/Mile	0.61	0.54	0.40	0.47	-23.9%
Average Fare	$0.87	$0.84	$1.22	$1.18	35.8%
Farebox Recovery	17.2%	13.9%	13.4%	14.5%	-16.0%
Cost/Hour	$68.37	$62.05	$72.89	$76.10	11.3%
Cost/Trip	$5.05	$6.03	$9.08	$8.17	61.7%
Subsidy/Trip	$4.18	$5.20	$7.86	$6.99	67.1%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Exhibit B-22 7A and 7B Performance

Route 7A

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	34,656	37,736	33,165	31,803	-8.2%
Service Hours	2,512	2,836	2,801	2,756	9.7%
Service Miles	40,777	43,009	43,336	39,136	-4.0%
Fare Revenue	$28,142	$30,883	$39,169	$39,853	41.6%
Operating Costs	$165,424	$175,643	$202,227	$206,283	24.7%
Performance					
Passengers/Hour	13.8	13.3	11.8	11.5	-16.4%
Passenger/Mile	0.85	0.88	0.77	0.81	-4.4%
Average Fare	$0.81	$0.82	$1.18	$1.25	54.3%
Farebox Recovery	17.0%	17.6%	19.4%	19.3%	13.6%
Cost/Hour	$65.86	$61.93	$72.20	$74.85	13.6%
Cost/Trip	$4.77	$4.65	$6.10	$6.49	35.9%
Subsidy/Trip	$3.96	$3.84	$4.92	$5.23	32.1%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 7B

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	40,657	39,639	35,386	28,072	-31.0%
Service Hours	2,468	2,788	2,754	2,719	10.1%
Service Miles	44,275	44,143	43,764	42,032	-5.1%
Fare Revenue	$32,419	$33,258	$41,762	$34,419	6.2%
Operating Costs	$166,602	$173,497	$199,176	$205,424	23.3%
Performance					
Passengers/Hour	16.47	14.22	12.85	10.33	-37.3%
Passenger/Mile	0.92	0.90	0.81	0.67	-27.3%
Average Fare	$0.80	$0.84	$1.18	$1.23	53.8%
Farebox Recovery	19.5%	19.2%	21.0%	16.8%	-13.9%
Cost/hour	$67.49	$62.23	$72.32	$75.56	12.0%
Cost/Trip	$4.10	$4.38	$5.63	$7.32	78.6%
Subsidy/Trip	$3.30	$3.54	$4.45	$6.09	84.6%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

For Route 21 shown in Exhibit B-23, overall performance was slightly better than the Neighborhood Shuttle average. While passengers per vehicle service hour dropped by 18%, farebox recovery for the route increased from 9.5% in FY 2012/13 and is projected to be 10.6% in FY 2015/16. For a long lifeline transit service with service frequency every two hours, overall performance is relatively good for the type of route.

Exhibit B-23 Route 21 Performance

Route 21					
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	21,554	18,887	19,102	18,335	-14.9%
Service Hours	2,575	2,597	2,621	2,669	3.7%
Service Miles	63,371	62,585	61,541	61,948	-2.2%
Fare Revenue	$17,845	$16,282	$22,986	$23,140	29.7%
Operating Costs	$186,934	$181,353	$207,806	$218,987	17.1%
Performance					
Passengers/Hour	8.4	7.3	7.3	6.9	-18.0%
Passenger/Mile	0.34	0.30	0.31	0.30	-13.0%
Average Fare	$0.83	$0.86	$1.20	$1.26	52.4%
Farebox Recovery	9.5%	9.0%	11.1%	10.6%	10.7%
Cost/Hour	$72.61	$69.84	$79.29	$82.04	13.0%
Cost/Trip	$8.67	$9.60	$10.88	$11.94	37.7%
Subsidy/Trip	$7.84	$8.74	$9.68	$10.68	36.2%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Commuter Routes 12 and 15

Existing Route 12 Service

Service is provided between the Yucca Valley Transit Center and the Palm Springs Airport three times a day in each direction on weekdays. Route 12 also serves Morongo Valley with two stops in each direction. Service from the Yucca Valley Transit Center is provided at 7:00 am, 9:00 am and 4:40 pm. Buses return from the Palms Springs Airport at 7:50 am, 10:10 am and 5:40 pm every weekday.

Route 12 Performance

Ridership dropped from 8,146 in FY 2012/13 to a low of 5,055 in FY 2014/15, but is expected to partially recover to 6,156 in FY 2015/16. Fares did not increase on Routes 12 and 15, and therefore fare revenues remained flat, while operating costs increased by 16%. With a drop in ridership in FY 2014/15, the farebox recovery ratio dropped from 28.6% in FY 2012/13 to 18.4% in FY 2014/15, but is expected to partially recover in FY 2015/16 to about 24%.

Exhibit B-24 Route 12 Performance FY 2012/13 to FY 2015/16

Route 12

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	8,146	6,853	5,055	6,156	-24.4%
Service Hours	1,632	1,662	1,725	1,688	3.4%
Service Miles	53,954	53,233	54,302	52,476	-2.7%
Fare Revenue	$37,772	$33,261	$28,313	$36,803	-2.6%
Operating Costs	$131,932	$130,101	$153,885	$153,021	16.0%
Performance					
Passengers/Hour	5.0	4.1	2.9	3.6	-26.9%
Passenger/Mile	0.15	0.13	0.09	0.12	-22.3%
Average Fare	$4.64	$4.85	$5.60	$5.98	28.9%
Farebox Recovery	28.6%	25.6%	18.4%	24.1%	-16.0%
Cost/Hour	$80.85	$78.28	$89.19	$90.65	12.1%
Cost/Trip	$16.20	$18.98	$30.44	$24.86	53.5%
Subsidy/Trip	$11.56	$14.13	$24.84	$18.88	63.3%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 15

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	3,705	3,735	2,574	2,147	-42.1%
Service Hours	816	777	701	669	-17.9%
Service Miles	25,573	25,207	23,866	21,949	-14.2%
Fare Revenue	$23,422	$26,585	$25,711	$20,567	-12.2%
Operating Costs	$71,457	$65,659	$69,556	$69,524	-2.7%
Performance					
Passengers/Hour	4.5	4.8	3.7	3.2	-29.4%
Passenger/Mile	0.14	0.15	0.11	0.10	-32.5%
Average Fare	$6.32	$7.12	$9.99	$9.58	51.6%
Farebox Recovery	32.8%	40.5%	37.0%	29.6%	-9.7%
Cost/Hour	$87.60	$84.46	$99.21	$103.87	18.6%
Cost/Trip	$19.29	$17.58	$27.02	$32.39	67.9%
Subsidy/Trip	$12.96	$10.46	$17.03	$22.81	75.9%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

Route 15 Performance

There has been a significant decline in Route 15 performance since FY 2012/13. Ridership has dropped from 3,705 annual trips in FY 2012/13 to a projected 2,147 in FY 2015/16, a 42% drop. While the farebox recovery ratio is relatively high at almost 30%, the subsidy required per trip has grown to almost $23 per passenger trip, extremely high for a fixed route bus service. However, due to the limited schedule, the overall cost of Route 15 is just under $70,000 per year, or just 2.6% of MBTA's overall operating budget. As discussed earlier, the drop in ridership is likely very correlated to the drop in Service Members stationed at the Twentynine Palms Marine Corps Bases and restrictions on base leave. However, there are upcoming opportunities to boost ridership with the Joshua Tree National Park transit service.

Service Alternatives Consideration

MBTA made a schedule adjustment to Route 12 to provide a later return trip from Palm Springs. The 2012 Comprehensive Operations Analysis had a very small sample for boarding and alighting patterns and passenger input. Unfortunately, there is very little data or information on existing or prospective passenger needs on Routes 12 and 15. At a future date an intercept survey could be conducted at the Yucca Valley Transit Center as well as on board Route 15 buses to determine what improvements could be made to the service and the awareness of existing passengers on the service availability.

Another planning consideration for Routes 12 and 15 are connections from Palms Springs and Morongo Valley to the Joshua Tree National Park Transit Service.

From November 4 to March 1, service will only be operated Friday to Sunday. The options currently available to potential "carless" travelers are:

External travel into Joshua Tree National Park

1) Take Route 12 on Thursday at 10:10 am, arriving to Yucca Valley Transit Center at 11:20 am and transfer to Route 1 or another bus to a hotel/motel. If staying in Yucca Valley, take a Route 1 bus on Friday morning and catch a bus into JTNP in Joshua tree at the stop at Park Blvd. and Twentynine Palms Blvd. (Highway 62). If staying in Twentynine Palms, take a JTNP bus in the morning.

2) Take the 5:40pm Highway 12 bus from Palm Springs or Morongo Valley on Thursday or Friday and stay in hotel along Twentynine Palms Blvd. before getting to the Yucca Valley Transit Center. The next morning, take a Highway 1 bus and connect with a JTNP Transit Bus at Joshua Tree at Twentynine Palms Blvd. and Park Blvd.

3) Take Route 12 on Friday at 10:10 am from Palm Springs, arriving at the Yucca Valley Transit Center at 11:20 am. The final schedule has not been written, but the preliminary schedule would allow the passengers to catch a 2:00 pm bus into JTNP from stop at Highway 62 and Park Blvd.

4) Take a Route 15 bus at 7 pm on Friday, arriving at Yucca Valley Transit Center at 7:50 pm and stay in hotel. If staying in hotel in Yucca Valley, take the Highway 1 bus on Saturday morning to Joshua Tree Highway 62 and Park Blvd. and transfer to JTNP bus.

5) On Saturday or Sunday, take the 12:00 pm bus from Palm Springs Airport and have the bus stop at Highway 62 and Park Blvd. and catch the bus into JTNP.

6) In March and April, the Route 12 options described above for Friday would be available every weekday, expanding the options for getting into Joshua Tree National Park.

Internal from JTNP to Morongo Valley and Palm Springs

On Saturdays and Sundays there is a Route 15 bus departing Park Blvd. and Highway 62 at 11:00 am. The preliminary schedule for JTNP has a timed transfer at 10:59 am. With detailed testing, it may be necessary to have the JTNP bus arrive earlier to guarantee a connection with the Route 15 bus. There needs to be good schedule coordination on this run for visitors wanting to leave JTNP Sunday morning. This would enable passengers to arrive at the Palm Springs Airport at 11:45 am. There is also a bus that departs the Twentynine Palms Transit Center at 4:40 pm and arrives at Joshua Tree Park Blvd. at 5:00 pm. The preliminary schedule has the last bus departing JNTP and arriving at 4:59 pm at Highway 62 and Park Blvd. The final schedule after testing needs to also guarantee a timed connection between the JTNP bus and Route 15 to Palm Springs Airport.

On weekdays, the Route 12 bus departs from the Yucca Valley Transit Center at 4:40 pm. The preliminary JTNP schedule has a bus from JTNP arriving at Highway 62 and Park Blvd. at 2:59 pm. This would enable a visitor on Friday to catch a Highway 1 bus at 3:31 pm to the Yucca Valley Transit Center, with an hour wait for the Highway 12 bus.

In the pilot year, it is not known how much demand there might be for transfers between Routes 12/15/1 to the Joshua Tree National Park service. The final schedules for the JTNP schedule need to consider guaranteed connections that can be promoted on the JTNP page. During the pilot program, there should be some additional market research on passengers riding the JNTP on schedule adjustments that might be made to make these connections better for passengers. A suggestion box onboard the JTNP and Route 12/15/1 buses could solicit this input.

Since Route 15 ridership has significantly declined, the other option is to reconfigure Route 15 resources to make the service more convenient to JNTP visitors when the JTNP service is operating. In this alternative, there would be four convenient connections a day in each direction to Palm Springs. In this alternative, service to MCAGCC would be discontinued due to the lack of ridership.

Recommendations:

- Initiate a third round-trip on Saturdays and Sundays between Twentynine Palms Transit Center and Palms Springs on Route 15, when the JTNP Transit pilot program is operating on weekends only between November 4, 2016 and February 26, 2017.
- Initiate a fourth round-trip on Mondays to Fridays on Route 12 when the JTNP Transit Service operates daily in March and April 2017.
- If ridership from the JTNP transit service does not substantially improve performance on Route 15 after two years of the pilot program, then MBTA should consider eliminating Route 15.

Ready-Ride

Existing Service - The following is a summary of the different geographies:

- Route 30/31-Yucca Valley Ready-Ride. Two buses each weekday from 7:30 am to 4:30 pm.
- Route 34 Lear (twice weekly, Mondays & Thursdays).
- Route 34 Wonder Valley (twice weekly, Tuesdays and Fridays; also first Wednesday of the month).
- Route 36 Morongo Valley. One bus operates Mondays & Thursdays from 8:30 am to 11:30 am.
- Route 50 Joshua Tree Ready Ride. One bus operates Monday to Friday, 7:30 am to 3:00 pm.

Ready-Ride Performance

Exhibit B-25 shows the overall performance trends for Ready-Ride.

Exhibit B-25 Ready Ride Performance

Ready Ride Total					
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	2/13-15/16
Ridership	23,298	24,369	21,189	20,375	-12.5%
Service Hours	7,317	7,382	7,035	7,391	1.0%
Service Miles	103,536	106,542	100,642	88,363	-14.7%
Fare Revenue	31,043	25,288	33,006	27,287	-12.1%
Operating Costs	532,769	507,364	570,714	607,539	14.0%
Performance					
Passengers/Hour	3.18	3.30	3.01	2.76	-13.4%
Passenger/Mile	0.23	0.23	0.21	0.23	2.5%
Average Fare	$ 1.33	$ 1.04	$ 1.56	$ 1.34	0.5%
Farebox Recovery	5.8%	5.0%	5.8%	4.5%	-22.9%
Cost/Hour	$ 72.81	$ 68.73	$ 81.13	$ 82.20	12.9%
Cost/Trip	$ 22.87	$ 20.82	$ 26.93	$ 29.82	30.4%
Subsidy/Trip	$ 21.54	$ 19.78	$ 25.38	$ 28.48	32.2%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three

The overall supply of Ready-Ride service has stayed constant at almost 7,400 annual vehicle service hours. With the fare increase, the average fare for Ready-Ride increased from $1.04 in FY 2013/14 to $1.56 in FY 2014/15. The fare increase was partially responsible for a 12.5% decline in overall ridership. The most pronounced ridership decline was in 2014/15, when ridership declined to 21,189. Based on the first three quarters of FY 2015/16, ridership is expected is drop slightly again to about 20,375 in FY 2015/16.

If the first three quarters of FY 2015/16 hold true for the last quarter of this fiscal year, then overall fare revenue will have dropped by 12.1% since FY 2012/13, while operating costs have increased by 14.0%. The drop in fare revenues is in sharp contrast to fixed route service, which increased by 12.9% during the same time period.

The decline in Ready-Ride fare revenues resulted in a decline in the farebox recovery ratio, from 5.8% in FY 2012/13 to 4.5% in FY 2015/16. The overall subsidy per trip has increased from $21.54 in FY 2012/13 to $28.48 in FY 2015/16.

Ready-Ride service was not a focus of the Short Range Transit Plan. Overall lifeline services were a focus and alternatives for expanding some of the Ready-Ride routes is Appendix D.

Appendix C
Joshua Tree National Park
Transit Service Business Plan

Joshua Tree National Park

Transit Service Business Plan

Final Report, April 2016

Prepared by:

mobility PLANNERS

RONNY KRAFT CONSULTING

TRANSIT marketing

Prepared for:

Morongo Basin Transit Authority

In collaboration with:

Joshua Tree National Park

City of Twentynine Palms

San Bernardino Associated Governments

EXCERPT OF MINUTES

BOARD OF DIRECTORS
MORONGO BASIN TRANSIT AUTHORITY
62405 VERBENA ROAD
JOSHUA TREE, CA 92252

TO: WHOM IT MAY CONCERN
FROM: ASSISTANT BOARD SECRETARY
DATE: JUNE 2, 2016

SUBJECT: Joshua Tree National Park Transit Plan Presentation

Agenda Item 8.2

The Board of Directors of the Morongo Basin Transit Authority approved Joshua Tree National Park service implementation. Voice Vote 7-0.

I, Cheri Holsclaw, Assistant Secretary of the Board of Directors of the Morongo Basin Transit Authority, DO HEREBY CERTIFY UNDER PENALTY OF PERJURY, that the foregoing is a true and correct excerpt of minutes of the Board of Directors of the Morongo Basin Transit Authority held on April 28, 2016.

Cheri Holsclaw, Assistant Secretary

Table of Contents

Chapter 1 Executive Summary

The purpose of the Business Plan is to present transit service alternatives and costs for the proposed Joshua Tree National Park (JTNP) transit service operated by the Morongo Basin Transit Authority (MBTA). MBTA retained Mobility Planners LLC to prepare the Business Plan.

The Business Plan is based on three meetings and site visits with MBTA management, JTNP management, City of Twentynine Palms management, and San Bernardino Associated Governments (SANBAG) staff. One site visit included a bus tour of the potential routes and stops in November 2015. Potential revenue sources were reviewed and discussed with MBTA and SANBAG staff in March 2016.

Overview of Recommended First Year Transit Service

In a meeting on February 11, 2016, there was consensus among the Joshua Tree National Park Service Superintendent and staff, MBTA General Manager, City of Twentynine Palms City Manager, and SANBAG staff to start the pilot transit program with the following parameters dependent on presentation and approval of the MBTA governing board:

Start Date: November 4, 2016

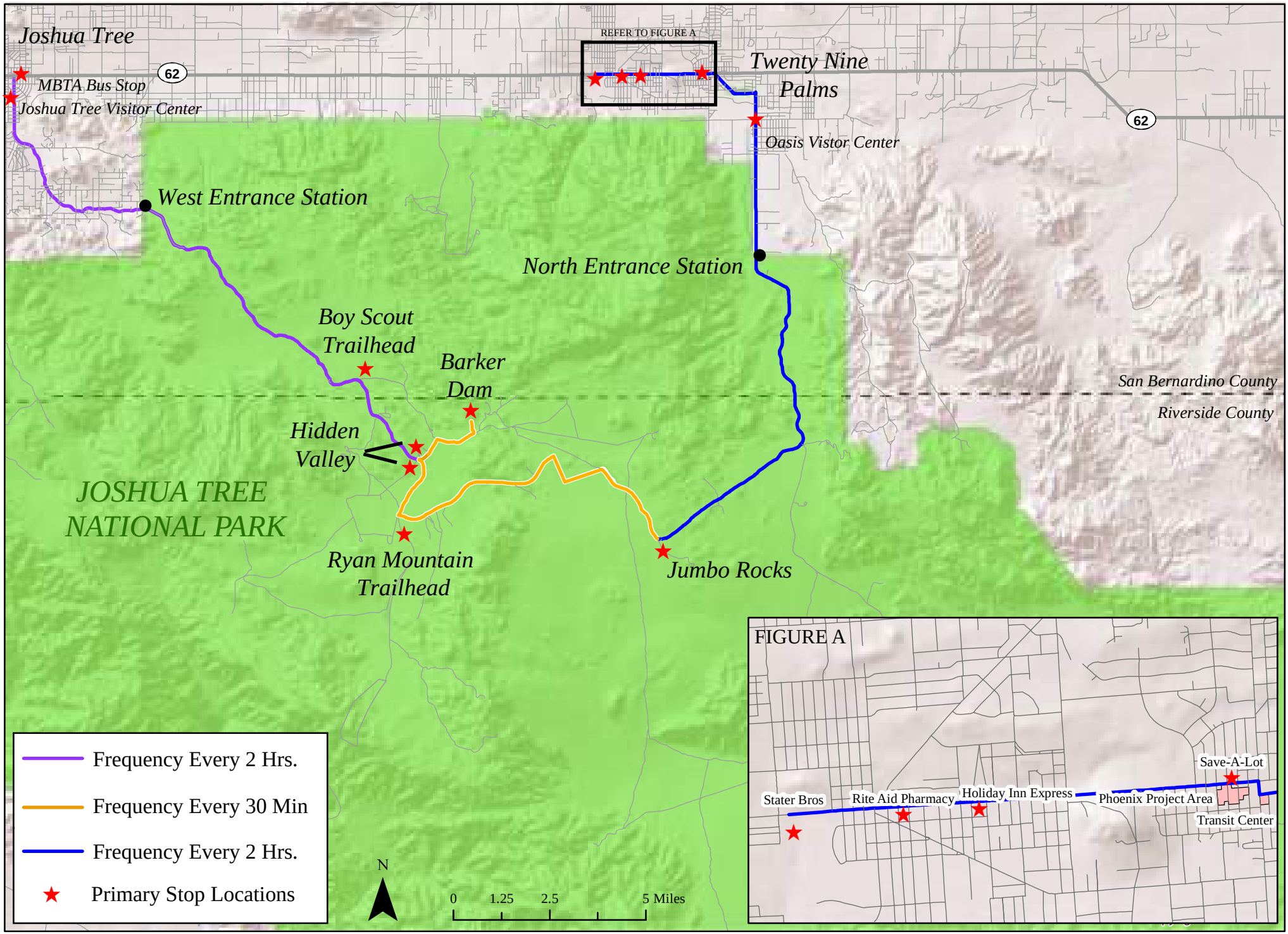
End Date: April 30, 2017

Two Gateway Transit Routes and Frequency: Service to and from the Joshua Tree and Twentynine Palms gateway communities into Joshua Tree National Park every two hours. Exhibit 1 shows the recommended route from both gateways.

Circulator Transit Service among JTNP Key Attractions: Service every thirty minutes among: Jumbo Rocks, Ryan Mtn. Trailhead, Hidden Valley (2 stops) and Barker Dam. Exhibit 1 shows the circulator route within JTNP.

Interpretive Services: While details are still to be worked out, a NPS ranger or docent would provide interpretive services onboard the circulator route.

Two Gateway Alternative



Days of Service: In November, December, January and February, the service would operate on Friday to Sunday, national holidays, and every day between Christmas and New Years. In March and April 2017, the peak visitation months, the service would operate seven days a week.

Hours of operation:

- Standard time: First bus departs the gateway communities into JTNP at 8:00 am and last bus leaves JTNP at approximately 4 pm, arriving to the gateway communities at approximately 5 pm.
- Daylight savings time: First bus departs the gateway communities into JTNP at 8:00 am and last bus leaves JTNP at approximately 7:30 pm, arriving to the gateway communities at approximately 8:30 pm.

Descriptions of service alternatives and the rationale for choosing the preferred service parameters are provided in Chapter 2.

Marketing Plan

The Marketing Plan in Chapter 3 has three key objectives:

- Create awareness of the new service among people researching and planning visits to JTNP, people who arrive at the park in vehicles or otherwise, and local residents who might consider visiting the park.
- Educate potential visitors how the transit service works and the benefits it offers through user-friendly information tools online, in print and at bus stops.
- Encourage utilization of the new service by positioning it as a way to ease and enhance the experience of visiting Joshua Tree National Park.

The most important marketing strategies are:

- **Branding** is marketing at its most basic. It is how we identify a service and everything associated with it using a name, logo, and packaging. The objective of branding is to create a unified image in the mind of the potential customer and to create immediate recognition of all facets of the service. JTNP staff engaged the Otis College of Art and Design to conduct a student workshop to work on the branding, name and logo that may be utilized on the buses, bus stop signs and promotional materials. The class met in Joshua Tree the week of March 21 to 25 for the workshop and a final proposal is scheduled to be presented on April 11, 2016. The recommended branding will be refined by a marketing professional and utilized in a

bus wrap on the buses, on the bus stop signs, on a project web site and in promotional materials.

- **Online Information:** Most travelers planning a trip research their travel options online. Having JTNP transit information readily available and apparent as potential visitors are making their travel plans will be key to building awareness and usage.
- **Printed Information:** It will be equally important to have user-friendly printed information that can be given to visitors once they arrive in the Morongo Basin. The JTNP transit guide should be attractive, clearly branded and include the following elements:
    - Easy to read map clearly showing stop locations, destinations, and parking along routes.
    - Hours and frequency for the internal shuttle; detailed schedule for gateway routes.
    - Fare information, if appropriate.
    - If rangers are onboard the internal shuttles to provide interpretive services, this would be another important message and added value service.
    - Information about taking bikes and other equipment on the JTNP transit service.

Bus Stop Sign and Information Panel: The most immediate place potential riders will look for information is at the bus stop. Signage at pick up locations within the gateway communities and within the park has the potential to build visibility, clearly communicate where riders can catch the JTNP transit bus, and provide route and schedule information at the point where riders need it most. The sample at the right combines a basic bus stop sign (for visibility) with a changeable information panel which provides detailed route and schedule information for the specific stop.

- **Promotional/PR Activities:** To engage local stakeholders and create early PR coverage for the new service, MBTA and NPS may wish to jointly host a VIP Preview Event during the week before the launch of the JTNP transit service. Social Media – Facebook and other platforms – offers a host of opportunities to communicate directly with current and potential park visitors. Local marketing efforts can encourage residents of the Morongo Basin to use the transit service to visit JTNP. This would include 1) working with local newspaper or radio stations to develop feature stories about the new JTNP transit service; and 2) targeted outreach to Copper Mountain College and

Twentynine Palms Marine Corp base via bulletin board posters, news releases in in-house publications, and social media links.

Significantly more detail on target markets, marketing strategies and marketing implementation milestones are included in Chapter 3.

5-Year Financial Plan

The first year pilot transit service operating cost is approximately $275,000 to operate the bus service between November 4, 2016 and April 30, 2017. Additionally, $70,000 in marketing and communications efforts to promote the service is being budgeted for a total operating cost of $345,000. The capital costs for the first season include wrapping of four existing MBTA transit buses, bus stop signs, and information panels for a total capital cost of $43,500.

The large majority of the operating revenue, $200,000, would be from the National Park Service, leaving $75,000 in needed local contributions. It is recommended that San Bernardino County and the City of Twentynine Palms each provide 50%, or $37,500 each, in Local Transportation Funds (LTF). It is also recommended that MBTA apply for Low Carbon Transit Operations Program (LCTOP) funds from SANBAG, which if approved, may substitute for some or all of the LTF funding during the pilot year for the 2016/17 season. State Transit Assistance (STA) would fund the marketing, branding, bus stop signs and information panels.

If the pilot transit service is successful, the transit service could potentially expand. In Chapter 5, details on three service level scenarios are provided. The most likely and potentially affordable scenario is the slow growth scenario that expands the period of service from October 1 to May 31. The recommended financial plan would increase operating costs, including marketing communications, from $345,000 for the 2016/17 season to $443,283 for the 2020/21 season.

Assuming a very successful pilot program, the JTNP operating revenues contribution could increase from $200,000 to $300,000 over a five-year period. The LTF funding required from San Bernardino County and City of Twentynine Palms would each increase from $37,500 to $51,500 over a five-year period.

If the pilot program is successful over two years, five new dedicated buses would be ordered the third year and put into service in FY 2019/20. Trolley buses at $214,000 in 2016 dollars are a placeholder figure at total cost of $1.14 million in 2019/20. The actual type of bus will be determined based on the branding process as well as the first year of actual operating experience.

The funding for the buses has not been determined, and chapter 5 discusses potential revenue sources for vehicle acquisition. The following is a brief summary of possible capital revenue sources for the buses:

Federal Lands Transportation Program(FLTP): The FLTP funds projects that improve access within the Federal estate (national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on transportation facilities in the national Federal Lands transportation inventory and owned and maintained by the Federal government.

Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program): A relatively new formula program that provides funding for capital projects to replace, rehabilitate, and purchase buses and bus-related equipment, and to construct bus-related facilities.

State Transit Assistance (STA): Since STA can be utilized for both operating and capital, in the short-term, STA funding is recommended to fund the bus branding and the signage information panels. If MBTA is successful in applying for FTA 5339 funding, STA funding could be utilized for the 20% local match.

Low Carbon Transit Operations Program (LCTOP) It is not known how much LCTOP money will be available in future years. While $1.14 million for the buses is likely not going to be available for MBTA, LCTOP could potentially fund the matching portion of the capital costs if other capital funding sources do not work out.

Cooperative Agreement

A cooperative agreement between Morongo Basin Transit Authority and Joshua Tree National Park would be executed. An outline of the key elements is provided in Chapter 4.

Chapter 2 Service Alternatives, Costs and Recommendations

There were four levels of alternatives explored for the Joshua Tree National Park transit service that affect the range of costs presented at the end of this chapter.

- Route and Schedule alternatives including a One Gateway Alternative from Twentynine Palms and a Two Gateway Alternative from Joshua Tree and Twentynine Palms.
- Service Time Period alternatives for the date when service commences and when service ends for the season.
- Service Days of Week alternatives for which days of the week the service would operate, including alternatives that include weekend service only and daily service during peak months.
- Daily Span of Service of when the service starts on a daily basis and when the last bus is available, including span of service differences for Standard Time and Daylight Savings Time.

Route and Service Alternatives

Based on the field test discussions, two primary route and service alternatives were prepared, including:

- One Gateway Alternative from only the Twentynine Palms gateway community.
- Two Gateway Alternative from both the Twentynine Palms and Joshua Tree gateway communities.

In the One Gateway Alternative, a bus would be provided from Stater Brothers in Twentynine Palms and would serve shopping and hotel destinations along Highway 62 at existing MBTA bus stops, including Save-A-Lot, Holiday Inn Express and Rite-Aid pharmacy. After serving the MBTA Twentynine Palms Transit Center, the bus would stop at the Oasis Visitor Center, and then proceed and serve the primary stops at Jumbo Rocks, Ryan Mtn. Trailhead, Hidden Valley and Barker Dam.

In the Two Gateway alternative, the same One Gateway Alternative route from Twentynine Palms into the Park serving the four main primary stops inside JTNP would be provided. In addition, a route segment from Hidden Valley to the Joshua Tree gateway community would have primary stops at the Boy Scout Trailhead, the Joshua Tree Visitor Center, and the MBTA stop at Park Blvd.

In both alternatives, in the inbound direction to JTNP the final schedules would be written so that service on MBTA Routes 1 and Route 15 are coordinated on at least some runs. The tentative schedules in Appendix A were developed to provide a range of potential costs and the schedule coordination would be addressed in subsequent iterations of the schedule development.

In both alternatives, the schedule would allow campers or others in JTNP to stop at Save-A-Lot or Stater Bros in Twentynine Palms in the outbound direction and have at least 45 minutes to shop before the bus returns in the inbound direction back to the primary stops within JTNP.

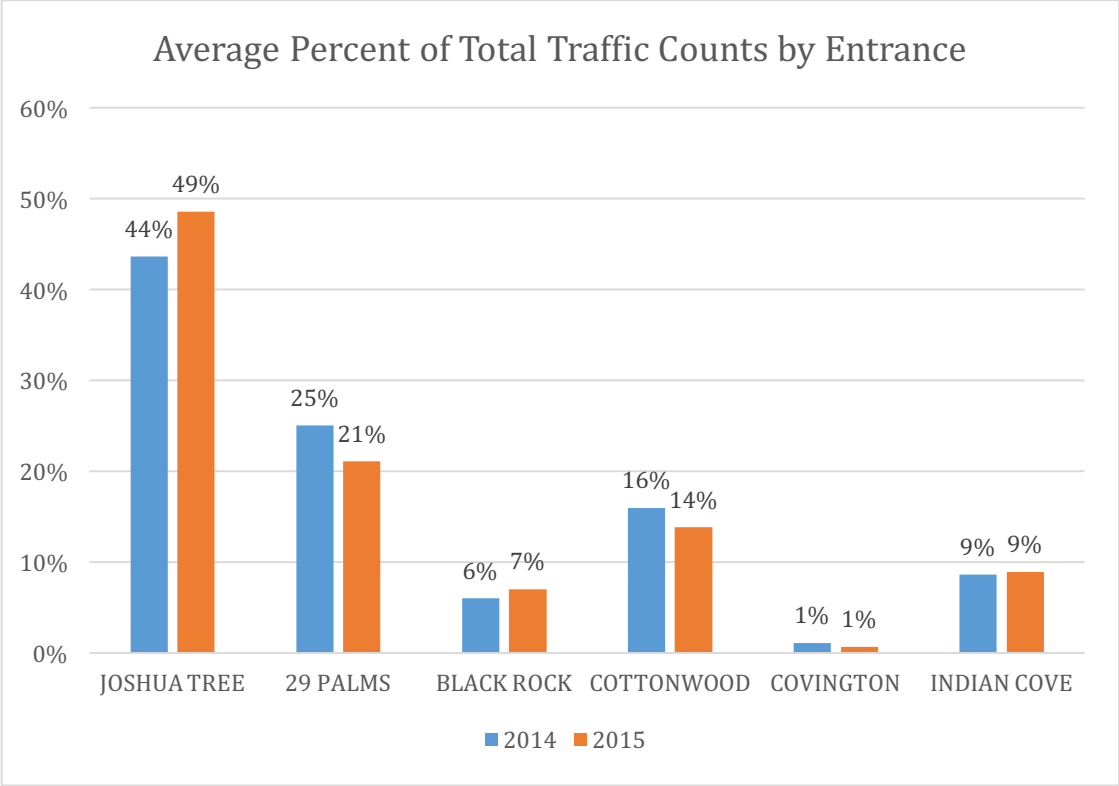
In both alternatives, a circulator shuttle bus every 30 minutes in both directions would circulate among the primary park attractions of Jumbo Rocks, Ryan Mtn. Trailhead, Hidden Valley and Barker Dam. In a survey of 213 visitor groups by the Institute of Transportation Engineers Student Chapter at UC Irvine, visitors were asked the question "How often would a shuttle need to pass by a stop to consider using the service in Joshua Tree National Park?" 38.6% responded every 30 minutes, 29.2% said every 15 minutes and 11.6% indicated every hour. From the survey results and consultant transit experience, 30 minutes is the minimum assumed frequency for service among key destinations within the park in order to generate ridership. In the opinion of the consulting team and MBTA staff, less frequent service between major JTNP destinations would not generate sufficient ridership. Of course, operating more frequently, such as every 15-20 minutes, between major locations would be desirable from the passenger perspective, and more frequent service could be considered after the pilot program is proven to be successful.

The service frequency to and from the gateway communities can be less frequent. In the One Gateway Alternative, the bus frequency to and from Stater Bros. and other Twentynine Palms destinations to and from the primary stops inside JTNP would be every two and half hours. In the Two Gateway Alternative, service into and out of JTNP from the key stop locations within JTNP would be provided every two hours.

Due to CNG fueling constraints, these service frequencies to and from the gateway communities are also necessary to enable buses to refuel in either of MBTA's facilities in Twentynine Palms or Joshua Tree. The refueling of the vehicles is included into the tentative schedule in Appendix A.

One of the considerations for deciding upon the One Gateway or the Two Gateway Alternative is cost. The One Gateway Alternative is less expensive. For example, for JTNP Transit that only operates on Fridays, Saturdays, and Sundays between November 4 and April 30, the One Gateway Alternative would cost $156,080 and the Two Gateway Alternative would cost $181,200.

Exhibit 2



A second consideration is the traffic count by entrance as shown in Exhibit 2 above. The Joshua Tree gate has almost twice the amount of traffic as the Twentynine Palms entrance, as shown in the chart above. The traffic counts could provide justification for consideration of the Two Gateway Alternative, since almost 50% of visitors have a strong desire to enter the park from the Joshua Tree gateway.

Conceptual maps showing the primary stop locations and frequency of the route segments are shown on the following two pages in Exhibit 3 for the One Gateway Alternative and Exhibit 4 for the Two Gateway Alternative.

Potential schedules for both the One and Two Gateway Alternatives are shown in Appendix A. These schedules would need to be field tested and adjusted based on actual field tests, but provide a reasonable estimate of what a schedule might look like and the resulting vehicle service hours of operation.

One Gateway Alternative

Exhibit 3

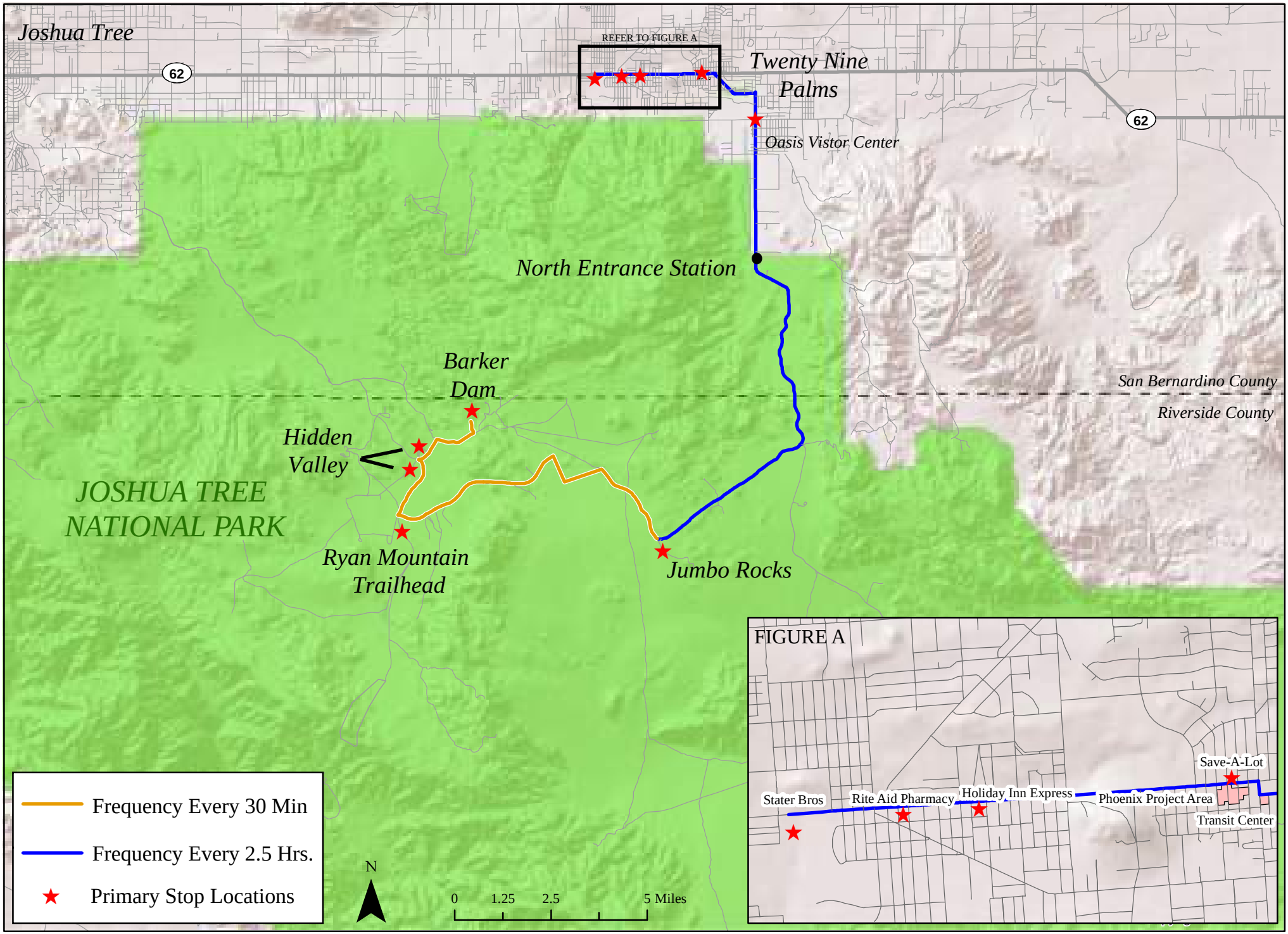
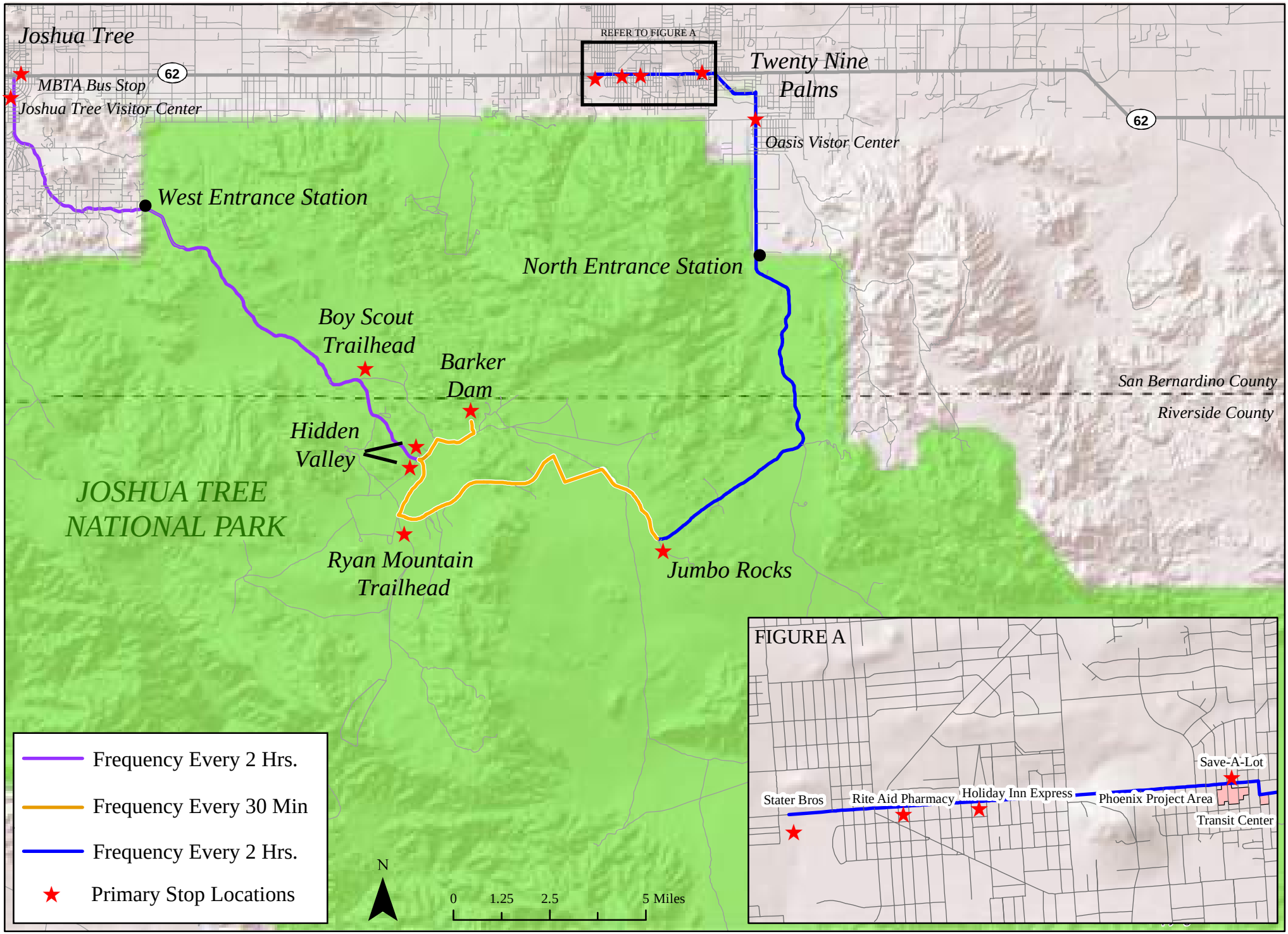


Exhibit 4

Two Gateway Alternative



At the bus field test on November 19, 2015, the value of time spent in circulating from the Oasis Visitor Center to Stater Brothers was discussed. The cost of operating from the Oasis Visitor Center versus starting the service from Stater Bros. is relatively small, representing about 6.9% of the estimated cost for the Two Gateway Alternative. In the consulting team judgment, the ridership potential from the Twentynine Palms gateway community has significantly greater benefit than the potential cost. The value will be increased as the downtown redevelopment area is developed. Therefore, both alternatives include service to Stater Brothers in Twentynine Palms and to Park and Highway 62 in Joshua Tree.

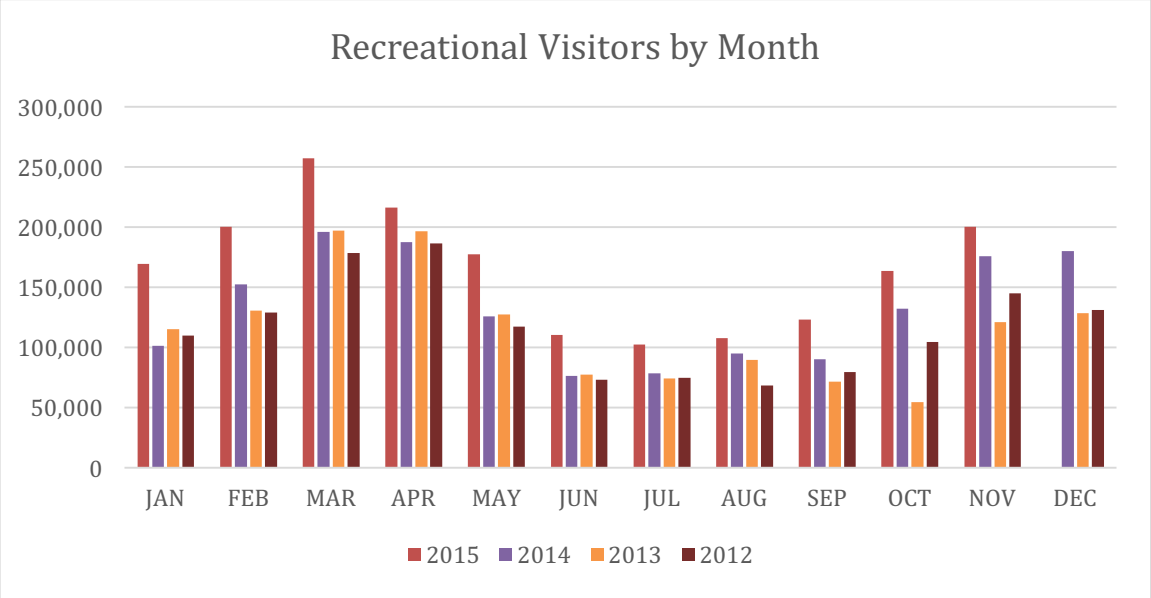
For the 2016/17 pilot project, there was consensus among JTNP, MBTA and Twentynine Palms staff to move forward with the Two Gateway Alternative with two hour frequencies from each gateway community and 30-minute frequency among the key destinations within Joshua Tree National Park.

Service Time Period

The second major variable is which month the JTNP transit begins and when it ends. Based on a review of visitor information to Joshua Tree National Park over the last four years, as shown in Exhibit 5 below, the two alternative spans of service are:

- October 1, 2016 to May 31, 2017
- November 4, 2016 to April 30, 2017

Exhibit 5



Overall visitation has significantly increased for all months over the past four years, but October 2015 visitation is more than 50,000 monthly visitors greater than that the 2012 visitation

statistics. May 2015 visitation was 177,545, which exceeded recreation visitation in January 2015. The recent recreation visitation statistics trends, if sustained in 2016 and 2017, would appear to support the service time period of October 2016 through May 2017. For budget purposes, the decision was made to operate the pilot project between November 4, 2016 and April 30, 2017.

For the 2016/17 pilot transit service, there was consensus among JTNP, MBTA and City of Twentynine Palms staff to proceed with the November 4, 2016 to April 30, 2017 time period for the first year transit service.

Service Days of Week

The third major variable for the range of JTNP transit service costs is the days of the week the service would operate.

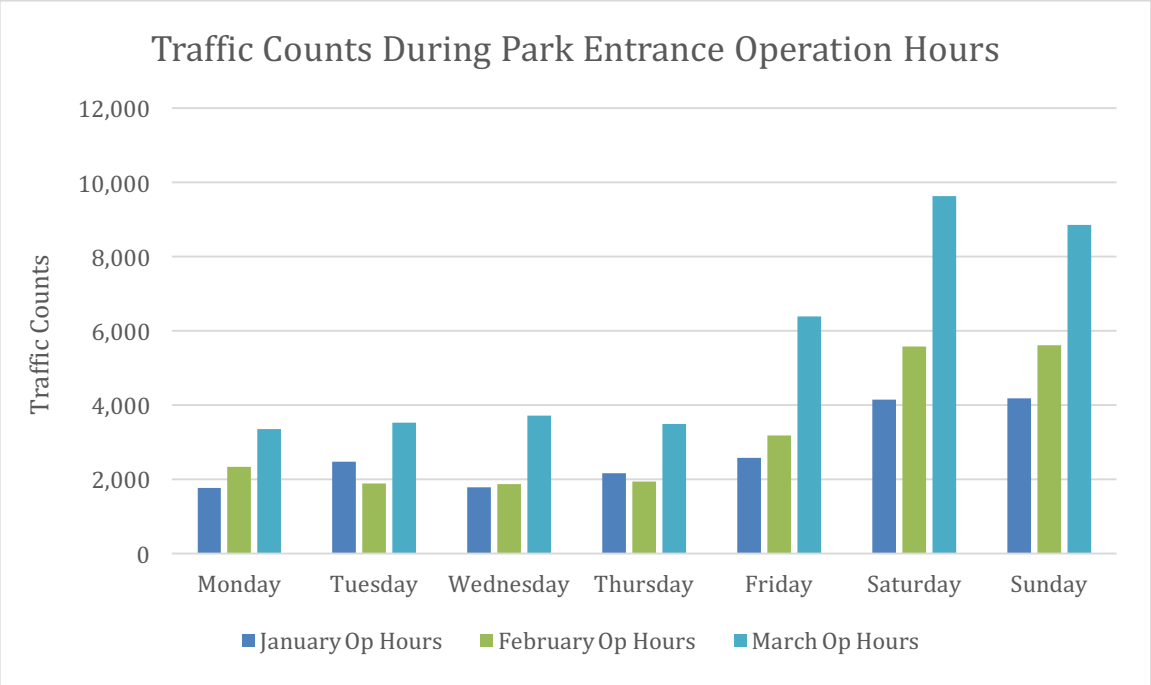
Exhibit 6 is based on a revenue analysis for an internal analysis by JTNP that utilized traffic counts by the day of the week in 2013 when the JTNP entrance stations were staffed and collecting revenue. It should be noted that when the data was collected, the West (Joshua Tree) and North (Twentynine Palms) gates were staffed until 10 pm on Fridays and Saturdays, and until 8 pm on Sundays, so data is a bit skewed upwards on weekends. It is assumed that all traffic counts have gone up, but the day of the week patterns have generally remained the same. The January, February and March data was the only information readily available.

The primary conclusion from the Exhibit 6 2013 vehicle count data by the day of week is that Monday through Thursday traffic is significantly less than Saturday and Sunday traffic. Friday traffic is slightly higher in January and February compared to Monday to Thursday traffic, but substantially higher in March. However, March traffic from Monday to Thursday was higher than Friday traffic in January and February.

Based on discussions during the bus field test and further analysis, the following assumptions were formulated to be utilized in both gateway routes and schedule alternatives:

- At a minimum, service would operate on Friday, Saturdays, Sundays and National Holidays for the transit pilot program. Visitation on Monday to Thursday during the shoulder months is likely not enough to generate sufficient ridership to justify the cost of service operation.
- Sub-alternatives are also presented for operating service during the holiday weeks of Christmas and Easter, and seven days per week during two or three months from February to April, the peak time frame for recreation visitation.

Exhibit 6



There was consensus among JTNP, MBTA and City of Twentynine Palms staff to proceed with service from Friday to Sunday from November 4 to February 28, with operation every day between Christmas and New Years, and every day in March and April 2017.

Daily Span of Service

In both time period alternatives, service would operate both during Standard Time and Daylight Savings Time. Service in December 2016, when sunset is approximately 4:45 pm, is significantly different than the 7:30 pm and later sunsets in May 2017. From the recreational visitor standpoint, there would be an expectation for longer transit service during the Daylight savings time than Standard time. In discussions with MBTA staff, it was decided to include the following schedule for the daily span of service for all alternatives:

- During Standard Time, the hours of operation would begin at 8:00 am with the last bus departing Joshua Tree at approximately 4:00 pm.
- During the Daylight Savings time, service would operate from 8:00 am with the last bus departing Joshua Tree at 7:30 pm.

There was consensus among JTNP, MBTA, and City of Twentynine Palms staff to operate the expanded schedule, with the last bus departing at approximately 7:30 pm, from March 12, 2017, the first day of daylights savings time, to April 30, 2017.

Summary of Costs by Alternatives for First Year Operation

Exhibit 7 is a summary of the estimated costs for both the One Gateway and Two Gateway Alternatives. The table also includes the service days of the week alternatives for the two service time periods of November 4, 2017 to April 30, 2017 and October 1, 2016 to May 31, 2017.

Exhibit 7 Estimated Costs by Alternative

	Estimated Costs	
	One Gateway	**Two Gateways**
November 4, 2016 to April 30, 2017		
Weekends* and Holidays Only	$156,080	$181,200
Weekends, Holidays, and Holiday Weeks**	$172,087	$199,877
Shoulder Weekends***, Holiday weeks, and every day March-April 2017	$236,110	**$275,037**
October 1, 2016 to May 31, 2017		
Weekends* and Holidays Only	$219,098	$255,530
Weekends, Holidays, and Holiday Weeks**	$235,106	$274,208
Shoulder Weekends***, Holiday weeks, and every day February-April 2017	$325,895	$380,227

* Weekends includes Fridays, Saturdays and Sundays

** Holiday weeks include Christmas and Easter weeks

*** Shoulder weekends are when service is only operated on weekends.

$275,037 Consensus recommendation of JTNP Transit Service Partners

The potential costs for operating a pilot project transit service in Joshua Tree National Park range from approximately $156,080 for weekend and holiday service only from November 4, 2016 to April 30, 2017 to $380,227 for a two gateway alternative that operates weekends only during the shoulder season, but everyday between February and April 2017.

For the first year of the JTNP pilot transit service, there was consensus among JTNP, MBTA, and City of Twentynine Palms staff to operate on two gateways from November 4 to April 30, with service on weekends only from November to February, every day in March and April 2017, and every day between Christmas and New Years. The estimated cost for the pilot program would be $275,037.

The primary methodology for calculating the costs is based on:

- Determining the vehicle service hours for each gateway alternative, service time period alternative, and service days of the week alternative. Vehicle service hours are the hours that the JTNP bus service is available for passenger boarding or alighting by alternative.
- Apply the fully allocated cost of $78.42 per vehicle service hour for the Morongo Basin Transit Authority times the vehicle service hours for each alternative.

It should be pointed out that the reason that service between October 1, 2016 and May 31, 2017 is disproportionally higher than the November 4, 2016 to April 30, 2017 time period is that both October and May are in Daylight Saving Time and therefore have longer periods of service per day.

Buses to Be Utilized in JTNP service

The four buses to be utilized in the first and second year pilot are existing MBTA buses.

Service Plan Implementation Milestones

The service plan that received consensus from Joshua Tree National Park staff, MBTA staff, and the City of Twentynine Palms has a number of implementation milestones to achieve. One of the purposes of the Business Plan is to identify these implementation milestones and establish the roles and responsibilities for each so that the service can be launched on November 4, 2016.

There are a number of critical implementation milestones provided in Exhibit 8. MBTA should appoint a staff person to be responsible for coordinating and implementing the service, marketing, and institutional implementation milestones identified in the subsequent chapters.

The draft service schedule in Appendix A is based on the initial ride along with JTNP and MBTA staff in November 2015 and was developed primarily to estimate costs of the service. The schedule in Appendix A was developed based on this initial gathering of distance and time intervals between key stops with a rough estimate of dwell time (the time it takes to load passengers). There are several factors that could affect dwell time, including 1) whether or not flag stops will be allowed between designated stops, 2) the required transaction time between the driver and passenger for proof of payment of the gate fee, and 3) boarding locations and the number of wheelchair individuals that will actually utilize the service. The first two items need to be addressed before the final schedule is written. The current schedule has sufficient recovery time included for the occasional wheelchair boarding.

The draft schedule made conservative assumptions on when the buses enter and exit the two gateways. Conservative assumptions were also made on CNG fast fill operations. These will all need to be reviewed and validated by the MBTA Operations Manager before the final schedule is written, maintaining the overall goal of having service into and out of the JTNP every two hours, staggered for entrance and exit of the park, and service at a minimum of every 30 minutes. Rigorous field testing of the schedule prior to adopting of the final schedule is also needed to ensure on-time performance. Assuming that adjustments would be made, the preliminary schedule and calculated vehicle service hours include a 5% contingency of vehicle service hours.

The other scheduling factor that needs to be considered in writing the final schedule is when and where the JTNP bus should connect with Route 1 and Route 15. Connections to Route 12 should also be thought through, as there will be a market of individuals wanting to travel carless from Palm Springs airport/Greyhound/Amtrak to Joshua Tree National Park.

Exhibit 8

Timing	Implementation Milestone	Roles and Responsibilities
Service Implementation Planning		
May 2016	Define project management duties to coordinate/manage implementation	MBTA or Outsource
May	Field Test Preliminary Schedule and Suggest Revisions	MBTA
May	Identify Schedule Coordination Opportunities with Routes 1, 12 and 15	MBTA
May	Develop Final Schedule	MBTA or Outsource
May	Finalize Bus Stop locations, consider locations of flag stops	NPS/MBTA
May	Identify parking locations	MBTA or Outsource
May	Finalize NPS visitor payment policy	NPS
May	Outreach to hotels and activity centers along route in Twentynine Palms and Joshua Tree	MBTA or Outsource
June	Develop passenger policies for brochure and website, including ADA requests	MBTA or Outsource
June	Interpretive Services Aboard Bus	NPS
June	Finalize Brochure and Poster Content	MBTA/NPS/Outsource
June	Develop Driver Paddles/Coach Operator/ Dispatching Staffing Needs	MBTA
June	Define maintenance implications/staffing/inventory needs for increased VSH	MBTA
July	Memorandum of Understanding on Policies and Procedures between MBTA and NPS	MBTA/NPS
July	Develop Job Description for Seasonal Coach Operators/Dispatchers	MBTA
July	Develop Communications Protocol Between NPS and MBTA for routine and emergency matters	MBTA/NPS
Aug-Sept	Recruiting and Hiring of Needed Staff	MBTA
October	Training on new route and schedule	MBTA
4-Nov	Start service operations	MBTA

MBTA staff will need to determine the number of seasonal part-time and full-time coach operators that will be required for implementing the service. Since the first year provides weekend service between November 4-6, 2016 and February 24-26, 2017, there will need to be a transition to every day service on approximately March 1. This could be delayed to March 3, 2017, the first full weekend of March, and then service will be provided every day until April 30, 2017, when the transit pilot program concludes. It may be possible to utilize some existing coach operators and dispatchers for the weekend service, but seasonal drivers will likely be required when service operates every day between March and April. MBTA will need to work though the logistics of when additional seasonal coach operators and dispatchers are recruited, hired, and trained to ensure seamless service delivery when service begins November 4, 2016.

The JTNP service will increase the workload on MBTA maintenance staff. There will need to be an internal MBTA determination if current staffing is sufficient to accommodate the increased work load, especially since four buses will be operating on both Saturday and Sunday.

Another important logistical issue that needs to be addressed is identifying where riders can park their cars at one of the gateway communities then take the bus into and out of Joshua Tree National Park.

A memorandum of understanding (MOU) between MBTA and JTNP is also recommended for handling both routine and emergency communications and customer relations. There are areas of the JTNP where radio communication is not feasible. Policies and procedures will need to be developed on how communications should be handled for any law enforcement issues, bus and passenger accident and injuries, as well as routine matters such as lost and found. Written policies should also be established on the roles and responsibilities for handling what JTNP will require for gate proof of payment, currently an unresolved issue. JTNP visitors often arrive with a significant amount of rock climbing gear. Policies and procedures need to be clearly communicated in written materials on limits on what is allowed on board the buses. Finally, JTNP may have interpreters on board the bus and the MOU should address any logistical issues to make sure the drivers, interpreters, and passengers know where and when this will take place. Many of these issues need to be resolved in the MOU prior to finalizing the content of the promotional materials.

Chapter 3: Marketing Plan

At present, 99.5% of visitors to JTNP arrive by personal automobile to Joshua Tree National Park and use that same automobile to visit the various sites within the park. The other 0.5% arrive in a tour bus and are escorted through the park by the tour bus company. A very strong marketing communications effort will be needed to encourage utilization of the buses in order to avoid parking problems at key destinations and promote a green alternative (buses are compressed natural gas) for travel to and within JTNP.

Marketing Objectives

- Create awareness of the new service among people researching and planning visits to JTNP, people who arrive at the park in vehicles or otherwise, and local residents who might consider visiting the park.
- Educate potential visitors on how the transit service works and the benefits it offers through user friendly information tools online, in print, and at bus stops.
- Encourage utilization of the new service by positioning it as a way to ease and enhance the experience of visiting Joshua Tree National Park.

Target Markets

There are a variety of "types" of park visitors who may be attracted to use the new transit service for distinctly different reasons. These include:

- **Visitors with cars** who are staying in local hotels and may prefer to leave the car at the hotel and use the gateway bus to travel within Joshua Tree.
- **Visitors with campers or RVs** who are staying within the park, but would prefer not to move their vehicle for trips within the park or to pick up supplies in the gateway communities.
- **Millennials, foreign travelers**, and others who prefer to have the experience of traveling without a private vehicle. They may fly into Palm Springs, take MBTA's intercity bus service to Joshua Tree or Twentynine Palms and then take the one of the gateway buses into the park where they will camp, using the shuttle to travel internally.
- **Backpackers** traveling through and camping within the park who can use the bus to access supplies and services in gateway communities.
- **One-way hikers** who can make a longer hike within the park, then use the bus to return to their base camp or vehicle.

- **Local Residents** for whom the bus would offer an easy, economical way to visit Joshua Tree. There are a variety of sub-targets within the local population including Copper Mountain College Students**,** Service Members stationed in Twentynine Palms, active retirees, and families.

Marketing Strategies

Branding

Branding is marketing at its most basic. It is how we identify a service and everything associated with it using a name, logo, and packaging. The objective of branding is to create a unified image in the mind of the potential customer and to create immediate recognition of all facets of the service.

For a transit system, the key elements of its visual brand are its name, logo, vehicle colors, vehicle graphics, bus stop signage, and bus stop facilities (shelters, benches, etc.). The vehicles and bus stops are in essence a transit system's "packaging."

For a transient market, such as visitors at JTNP, the brand must communicate quickly and clearly. There is not time to develop awareness and image over time as there might be with traditional transit services. The potential customer must immediately recognize the service and its role as soon as they see a bus or bus stop.

JTNP staff have engaged Otis College of Art and Design's Rebecca Lowry to conduct a student workshop to work on the branding and logo that may be utilized on the buses. The class met in Joshua Tree the week of March 21 to 25th for the workshop. Meetings were held among JTNP staff and the students at beginning of the week and end of the week to receive input and feedback from the student group. On April 11, 2016, the students were scheduled to give a presentation on the proposed design to JTNP and MBTA staff at Otis College of Art and Design in Los Angeles.

The goal of the workshop is to develop a branding scheme and logo that can be utilized on all promotional materials including a wrap on each of the four buses that will be utilized during the pilot program for the JTNP service. The brand needs to accomplish several things:

- Clearly identify that this is ***public transportation to Joshua Tree National Park*** - differentiating it from specialized tour services that are not available to the general public and from local transit services not associated with JTNP.

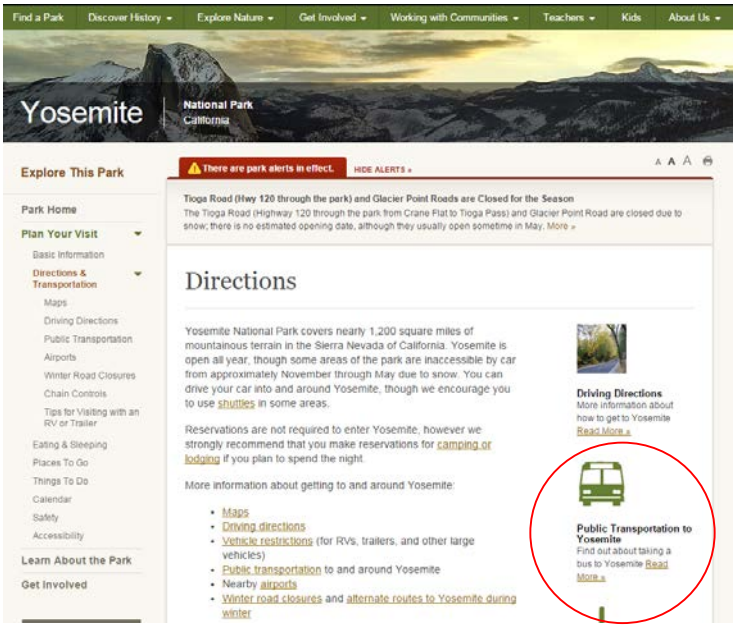
- Communicate the message that this transportation service is an appealing part of the JTNP experience.

- Catch the attention of and create awareness of the service among potential visitors who had not considered using the JTNP transit– for example local residents.

For example, the bus image to the right provides public transit from gateway communities into Yosemite National Park. The vehicle graphics are designed to accomplish similar objectives.

Online Information

Most travelers planning a trip research their travel options online. Having JTNP transit information readily available and apparent as potential visitors are making their travel plans will be key to building awareness and usage.



Information about the JTNP transit service should be available through links from websites that potential visitors are likely to visit:

- **NPS website**. The directions and transportation pages of the Joshua Tree National Park website should provide visibility and a direct link to detailed information about the JTNP transit service. At the right is the Yosemite Directions page with a public transit link which the viewer can use to click through to the YARTS website.

- **Dedicated domain**. To make finding information about the JTNP transit system easy, for someone who has seen a bus or bus stop, a dedicated and easy to remember domain name should be acquired (e.g. joshuatreeshuttle.com). This can direct viewers to a separate webpage or to the MBTA webpage where detailed route, stop, and schedule information can be accessed. It will be important that this information be presented in a mobile friendly format, as many visitors will be accessing it on a smartphone.

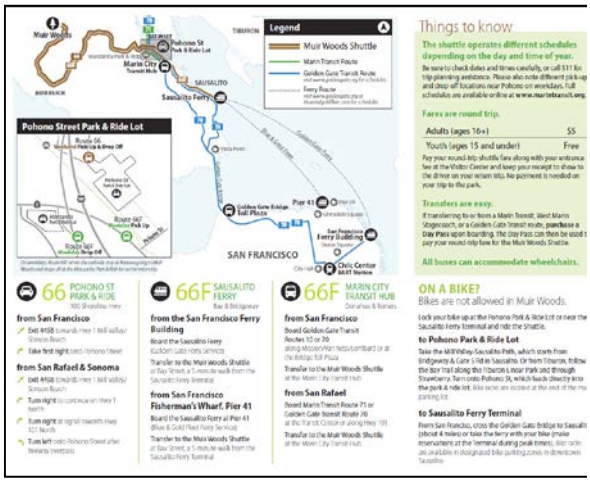
- **MBTA website**. The Morongo Basin Transit Authority will likely be the home of the route and schedule information for the transit service. It should be easy to find through a link from the MBTA homepage.

- **Chamber/visitor bureau websites**. Other websites which promote visitation in the Morongo Basin and to JTNP should be encouraged to include links to the JTNP transit information on

their websites. This will allow visitors to "discover" the transit service as they are booking hotels and planning activities.

Printed Information

It will be equally important to have user-friendly printed information that can be given to visitors once they arrive in the Morongo Basin. The JTNP transit guide should be attractive, clearly branded and include the following elements:

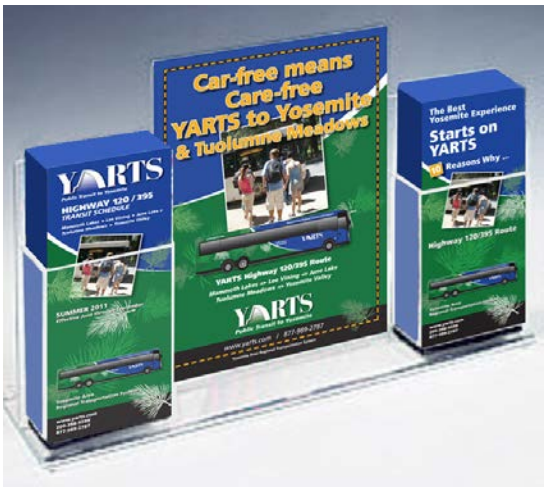


- Easy to read map clearly showing stop locations, destinations, and parking along routes.
- Hours and frequency for internal shuttle; detailed schedule for gateway routes.
- Fare information, if appropriate.
- If rangers are onboard the internal shuttles to provide interpretive services, this would be another important message.
- Information about taking bikes and other equipment on the JTNP transit service.

The sample in the above right is a guide for the Muir Woods Shuttle which serves Muir Woods in Marin County and is operated by Marin Transit.

Locations where the JTNP transit guide should be distributed include:

- At the park entrance booth
- JTNP visitor center
- Other visitor centers in Morongo Basin
- Hotels in gateway communities
- At locations within the Morongo Basin where local target markets gather – Copper Mountain College, Marine Base, bike shops or outdoor activities stores



Simple displays, such as the one shown at the right, can be provided to hotels and other visitor focused locations to encourage them to display information about the JTNP transit service.

It may be desirable to have more than one version of the guide, focused on the needs of different target groups.

Signage/Posted Information

The most immediate place potential riders will look for information is at the bus stop. Signage at pick up locations within the gateway communities and within the park has the potential to accomplish three important objectives.

- Build visibility for the JTNP transit service – making visitors and local residents aware that it is available.
- Clearly communicate where riders can catch the JTNP transit bus – reinforcing information they've received online or through the guide.
- Provide route and schedule information at the point where riders need it most.

The sample at the right combines a basic bus stop sign (for visibility) with a changeable information panel which provides detailed route and schedule information for the specific stop.

Promotional/PR Activities

Beyond the basics outlined to this point, it may be desirable to promote the service through outreach, public relations, and social media activities which target specific market segments.

VIP Preview Event

To engage local stakeholders and create early PR coverage for the new service, MBTA and NPS may wish to jointly host a VIP Preview Event during the week before the launch of the JTNP transit service. Those invited to the event should include the MBTA Board of Directors and other Morongo Basin community leaders; local news media; Chamber of Commerce representatives; businesses in the gateway communities – especially those that target visitors; leaders of climbing, hiking, and biking clubs; and other relevant stakeholders. The Oasis Visitor Center would be a likely location for the event.

The event might include a large display showing the route, a ride on the branded bus with a park interpreter, and the opportunity for participants to leave with a press packet (for the media) and promotional materials that local entities can use to help promote the new service.

Social Media

Social Media – Facebook and other platforms – offers a host of opportunities to communicate directly with current and potential park visitors. The Joshua Tree National Park Facebook page is an ideal place to promote the new JTNP transit service.

Local Marketing

Local marketing efforts can encourage residents of the Morongo Basin to use the transit service to visit JTNP. Potential strategies include:

- Work with local newspaper or radio stations to develop feature stories about the new JTNP transit service and how it provides an easier, more enjoyable way to visit the park.
- Targeted outreach to Copper Mountain College and Marines via bulletin board posters, news releases in in-house publications and social media links.

Interest Group Marketing

Marketing efforts can focus on individuals with interests related to JTNP. For example:

- News releases to publications and blogs that target high potential visitors – e.g. backpackers, campers and RV'ers.
- Posters and brochures at businesses likely to be frequented by backpackers, campers and bikers traveling through the Morongo Basin area.

Marketing Milestones and Costs

Exhibit 9 is a table showing the recommended marketing milestones and costs for the first year pilot program.

A final branding proposal will be presented to MBTA and JTNP staff on Monday April 11th at Otis College in Los Angeles. There will need to be collaboration among MBTA and JTNP in determining whether or not to move forward with the recommended branding proposal.

Specific print ready versions of branding and logo for the buses, promotional material, and online pages will need to be developed. It is recommended that a marketing professional be retained for these purposes. Selena Barlow from Transit Marketing, who developed the high level marketing strategies above, has provided estimated professional services and direct costs for printing of material in the table on the next page.

Exhibit 9 Marketing and Communications Milestones

Timing	Activity	Roles and Responsibilities	Professional Services	Expenses
Marketing and Communications				
Mar-Apr 2016	Develop Branding	Otis Design Class		
	Mar 21: Branding Kickoff Meeting			
	March 25: Students Report			
	Apr 11: Final Design Proosal			
May-Nov	Coordination of Marketing Development	Marketing Professional	$6,000	
May	Refine Branding and Develop Brand Applications (Vehicle Graphics, Bus Stop Signage)	Marketing Professional	$4,000	
May	Purchase Web Domain	MBTA		$35
June	Develop and launch webpage with "Coming Date"	Website Professional	$4,000	
June	Establish link from JTNP Directions page to the webpage	NPS		
July-Aug	Develop Content & Artwork for Printed Materials - brochure, poster, info panels	Marketing Professional	$6,000	
July-Aug	Develop Plan for Information Distribution, News Release List and Promotional Outreach Activites	Marketing Professional	$3,000	
Aug	Manufacture of Signs	MBTA		$1,500
Aug	Purchase of Changeable Info Panels	MBTA		$2,000
Aug	Issue News Releases to relevant interest based publications and blogs	NPS		
Sep	Initial Printing of Shuttle Guide/Poster/Info Panels	MBTA		$20,000
Sep	Bus wraps	MBTA		$40,000
Sep	Initiate Social Media Posts on Joshua Tree Facebook Page	NPS		
Oct	Install Signage and Info Panels	NPS/MBTA		
Oct	Post Shuttle Information at JTNP campgrounds and trail heads	NPS		
Oct	VIP Preview Tour	NPS/MBTA		
Oct	Distribute printed materials to marketing partners in Morongo Basin	MBTA		
Oct	Issue News Releases to local news media	MBTA		
1-Nov	Initiate Distribution of shuttle guide at JTNP Gate & Visitor Center	NPS		
Jan. 2017	Decisions on need to change schedule, JTNP transit guide, stop locations, etc.	MBTA/NPS		
Feb	Update Printed Materials and Website	Marketing Professional	$2,000	
Feb	Second Printing of Shuttle Guide/Poster/Info Panels targeted to Daylight Saving Time Launch	MBTA		$25,000
1-Mar	Make service changes and introduce new guide with daylight savings time schedule	NPS/MBTA		

A page will need to be developed on the MBTA website that includes information on the JTNP service. MBTA will be responsible for developing this page and the budget includes some money for outsourcing this to a vendor such as Trillium Solutions who just completed the new YARTS website for gateway service into Yosemite. JTNP can include a link to the MBTA page on their JTNP website. Money has been included in the budget for marketing coordination between MBTA's marketing professional and JTNP staff. We are recommending that the JTNP web page launch in June to let travelers know that November 4 is the planned start date for the service.

In July and August 2016, content and artwork for promotional materials will be developed in collaboration with JTNP staff. It will be decided what collateral materials will available at Joshua Tree Visitor Center and West Entrance station and Oasis Visitor Center and North Entrance Station (Twentynine Palms gateway). This same material will available on all MBTA buses and key activity centers such as hotels in Twentynine Palms served by the proposed route. Special outreach should occur at these key activity centers. A detailed timetable for production and printing would be established.

Also occurring in August will be the manufacture of bus stop signs with the new branded logo. The purchase of changeable information panels for each stop will be provided. The schedules for each stop panel will need to be prepared, and this can be outsourced to the marketing professional.

In September 2016, the bus wrapping, social media posts on the MBTA and JTNP Facebook pages, and news releases about about the November 4 launch of service will start, and will continue into October.

In October 2016, in addition to the new releases, the printed materials will be distributed to the marketing partners in Morongo Basin.

Chapter 4: Cooperative Agreement with National Park Service

This is a new partnership between MBTA and Joshua Tree National Park. The primary institutional consideration is the Cooperative Agreement between MBTA and Joshua Tree National Park. The Cooperative Agreement is the legal document authorized by Federal Law[1] that enables the Secretary of the Interior to enter into a "cooperative agreement that involves the transfer of Service appropriated funds to a State, local, or tribal government or other public entity, an educational institution, or a private nonprofit organization to carry out public purposes of a Service program is a cooperative agreement entered into under section 6305 of title 31."

The Cooperative Agreement will be drafted by JTNP staff and will have a number of key sections including:

1. Background and Objectives. Language from Chapter 1 can be incorporated into this section.
2. Statement of Work. This section sets forth the roles and responsibilities of MBTA and the National Park Service. Many of the implementation milestones incorporated in Chapters 3 and 4 are typically incorporated into the statement of work.
3. Term of Agreement. This section is typically for a five-year period. However, the annual financial assistance and budget is typically authorized for the current federal fiscal year which commences on October 1 of each year.
4. Key Officials. This section names the officials that are essential to "ensure maximum coordination and communication between the parties and the work being performed."[2] For MBTA, Mark Goodale, General Manager of MBTA, will be the key official.
5. Award and payment. This section provides the fiscal year for funding, the source, and amount of funding. For the first year pilot program, NPS would provide $200,000 towards the operation of JTNP transit service. Method of payment can be made by advance and/or reimbursement through the Department of Treasury's Standard Application for Payment (ASAP). According to the Yosemite Cooperative Agreement, "Requests for advances must be submitted via the ASAP system. Requests may be submitted as frequently as required to meet the need of the Financial Assistance (FA) Recipient to disburse funds for the Federal share of project costs. This section provides

[1] 54 USC Section 101702 (a)

[2] Language utilized from "Cooperative Agreement P14AC01314, United States Department of Interior, National Park Service and Yosemite Area Regional Transportation Authority…" Hereinafter this is referred to as the Yosemite Cooperative Agreement.

significant details on the financial assistance transaction procedures as well as allowable and eligible costs.

6. Prior approval. MBTA will need to obtain prior approval for budget and program revisions, in accordance with 2 CFR Section 200.308.
7. Insurance and Liability. Requires MBTA to obtain sufficient liability insurance, names the federal government as an additional insured under MBTA's insurance policy, and includes indemnification language.
8. Reports and/or deliverables. Requires that MBTA submit Standard Federal Form 424, Federal Financial Report (FFR) on a quarterly basis. They are due 30 days after close of each federal fiscal quarter. MBTA will also be required to submit quarterly performance reports. A final performance report is due 90 days after the term of the agreement or upon termination.
9. A number of boilerplate contract provisions, general and specific provisions are required for Federal contracts. Since MBTA already receives Federal funding, most of these provisions are familiar to MBTA management. However, there is one very important provision in the Cooperative Agreement that needs to be resolved. There is a provision in the Yosemite Cooperative Agreement that no indirect costs can be included in the costs. The $78.42 that the 2016/17 service was based upon is MBTA's fully loaded rate in FY 2014/15. The $78.42 per vehicle service hours includes all costs including indirect costs. JTNP staff is looking into this issue at the time of this writing, and it will need to be resolved before the Cooperative agreement can be executed.

The Cooperative Agreement will be presented to the MBTA Board at its June 23rd meeting for approval.

Chapter 5: Five Year Financial Projections

This chapter provides cost projections for Joshua Tree National Park transit over the next five years and proposes the revenue sources that could be utilized to pay for the service. The projections are based on a series of assumptions that are documented in each of the sections of this chapter. The overall organization of the chapter is divided into five sections:

- Operating Costs
- Operating Revenues
- Capital Costs
- Capital Revenues
- Summary of Total Costs and Revenues

Operating Costs

2016/17 Cost Estimate

Chapter 2 provided the detailed service alternatives and costs for the FY 2016/17 season. The preferred alternative was to:

- Operate from both Joshua Tree and Twentynine Palms gateway communities.
- The pilot program service will begin November 4, 2016 and end April 30, 2017.
- Service frequency to and from both gateways will be approximately every two hours.
- Service will operate approximately every 30 minutes among Jumbo Rocks, Ryan Mountain Trailhead, Hidden Valley and Barker Dam.
- Service in November, December, January, and February will operate from Friday to Sunday, with the exception being that service will operate every day between Christmas and New Years.
- Service will operate every day in March and April 2017.

The primary methodology for determining the operating costs is to determine the number of vehicle service hours that will be required to operate the above service and to apply the hourly rate that it costs MBTA to operate the service.

Exhibit 10 documents how the number of vehicle service hours were calculated.

Exhibit 10

Preferred Two Gateway Alternative

November 4 to April 30, 2017

Time	Service Days	Daily Vehicle Service Hours	Season Total
Standard Time	68	25.69	1,747
Daylight Savings Time	52	33.85	1,760
Total	120		3,507

The above vehicle service hours are based on the schedule in Appendix A and include a 5% contingency for additional vehicle service hours, recognizing that the final schedule and vehicle service hours will need to be adjusted based on field testing and making necessary adjustments.

In 2014/15, the total cost per vehicle service hour for MBTA operations was $78.42 per hour. This figure is what was included in the working paper and Chapter 2 to calculate the estimated costs for the various service alternatives provided. With 3,507 total estimated vehicle service hours, the total estimated cost for the 2016/17 season is $275,000. As discussed above, once the final schedule is written, there may be some variance in actual costs, but efforts will be made to limit this to a 5% variance.

Estimated Five-Year Service Levels and Operating Costs

Service Level Scenarios

Assuming that the first season of the pilot program is successful, it is not known how the service will be developed to meet the potential demand. A significant factor in determining future year service level is the available revenue needed to subsidize the JTNP transit service. Three scenarios have been prepared to bracket the possible service levels and financial needs over the next five years, assuming the first year pilot program is successful. All scenarios assume that service delivery costs increase at 4.1% per year, the average increase for MBTA's cost per vehicle service hour over the past three years. The three scenarios and their service level and financial requirements are summarized below and in Exhibit 11 on the next page.

Exhibit 11 JTNP Transit Service Development: 5-Year Operating Costs for Three Scenarios

Service Year	Start	End	Ciculator Frequency	Gateway Frequency	# of Buses	Every Day Service	Assumed Cost per Hour*	Vehicle Service Hours	Total Operating Cost
Base									
2016/17	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$78.42	3,507	$275,037
2017/18	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$81.64	3,507	$286,313
2018/19	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$84.98	3,507	$298,052
2019/20	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$88.47	3,507	$310,272
2020/21	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$92.09	3,507	$322,993
Slow Growth									
2016/17	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$78.42	3,507	$275,037
2017/18	Nov. 1	May 31	30	120	4	Mar-Apr	$81.64	3,930	$320,808
2018/19	Oct. 1	May 31	30	120	4	Mar-Apr	$84.98	4,378	$372,053
2019/20	Oct. 1	May 31	30	120	4	Mar-Apr	$88.47	4,378	$387,307
2020/21	Oct. 1	May 31	30	120	4	Mar-Apr	$92.09	4,378	$403,187
High Growth									
2016/17	Nov. 1	Apr. 30	30	120	4	Mar-Apr	$78.42	3,507	$275,037
2017/18	Nov. 1	May 31	30	120	4	Mar-Apr	$81.64	3,930	$320,808
2018/19	Oct. 1	May 31	30	120	4	Mar-Apr	$84.98	4,378	$372,053
2019/20	Oct. 1	May 31	20	110	5	Mar-May	$88.47	6,426	$568,488
2020/21	Oct. 1	May 31	15	100	6	Feb-May	$92.09	8,415	$774,991

*Escalation assumes 4.1%, average of the past three years

Base Case: Keeps the service levels the same as the pilot year – two gateway service, operating November 4, 2016 to April 30, 2017, with 120 minute headways from each of the two gateways and 30 minute headways for internal circulation.

In this base case, service levels remain the same at 3,507 seasonal vehicle service hours and costs slowly escalate from approximately $275,000 to $323,000 over a five-year period. The base case financial scenario is incorporated into Appendix B.

Slow Growth: The JTNP transit service expands to October 1 to May 31 over time, but service levels remain the same. In this scenario, the number of buses required in peak service remains at four, but vehicle service hours increase from 3,507 to 4,378. Operating costs increase from $275,000 to $403,187. Due to the slow increase in financial subsidy required to operate the JTNP transit service, the slow growth is likely the scenario that will be most affordable by the participating partners in the service. This is the recommended scenario that will be utilized in the 5-Year Financial Plan.

High Growth: The JTNP transit service's time period is expanded from October 1 to May 31, service levels from the gateways are improved to every 100 minutes, and internal circulation is improved to every 15 minutes at the end of the five-year period. In this high growth scenario, the number of buses increase from 4 to 6, and the vehicle service hours increase from 3,507 to 8,515. The total operating cost would increase from $275,000 to $774,991 over a five-year period. This scenario is included in Appendix B, but would require more local contributions than is currently affordable and is not recommended at this time.

Operating Revenues

National Park Service

For the pilot program season in 2016/17, the financial participation for the National Park Service would be $200,000. JTNP management has indicated if the pilot project is extremely successful, the financial participation of the National Park Service could increase to $250,000 - $300,000. The financial scenarios assume that the pilot program is successful and the NPS financial contribution would gradually increase to $300,000 over the next five years.

With the estimated cost of the first year pilot project being approximately $275,000, there is a need for $75,000 in additional subsidies by the partners in the program. There are two potential sources of funding for this subsidy.

Local Transportation Fund

Local Transportation Funds (LTF) are from a ¼ cent sales tax authorized by the Transportation Development Act (TDA) and allocated to jurisdictions by the San Bernardino Association of Governments (SANBAG). The first priority for these funds is transit and in FY 2014/15, the MBTA financial audit cites $1,624,040 in LTF funds for operating revenues for MBTA services. If there

are no unmet transit needs that are reasonable to meet, then entities can utilize LTF funds for streets and road purposes.

Since the pilot project is operating from both the Joshua Tree and City of Twentynine Palms gateways, 50% of the net local subsidy requirement would be from San Bernardino County and 50% would be from the City of Twentynine Palms. As explained above, there is a need for $75,000 in local financial contributions. SANBAG would therefore need to allocate an additional $37,500 in LTF funds from San Bernardino County and the City of Twentynine Palms to subsidize the first year pilot JTNP transit service.

Low Carbon Transit Operations Program (LCTOP)

The Low Carbon Transit Operations Program (LCTOP) is one of several programs that are part of the Transit, Affordable Housing, and Sustainable Communities Program established by the California Legislature in 2014 by Senate Bill 862. The LCTOP was created to provide operating and capital assistance for transit agencies to reduce greenhouse gas emissions and improve mobility, with a priority on serving disadvantaged communities. Approved projects in LCTOP will support new or expanded bus or rail services, expand intermodal transit facilities, and may include equipment acquisition, fueling, maintenance and other costs to operate those services or facilities, with each project reducing greenhouse gas emissions.

In San Bernardino County, LCTOP funds are allocated to various projects by SANBAG based on a competitive basis. If SANBAG were to approve LCTOP funding for the JTNP transit service, it would decrease the amount of LTF funding required by the City of Twentynine Palms and San Bernardino County for the JTNP transit service. LCTOP funds must be approved by the SANBAG Board. A line item for LCTOP is included in the financial plan for the three scenario; however, since it is not known if the monies will be approved, the monies are not included in the five-year plan budget.

State Transit Assistance Funds

State Transit Assistance (STA) Funds are also authorized by the Transportation Development Act and allocated by SANBAG. STA was originally derived from the statewide sales tax on gasoline and diesel fuel. On March 22, 2010, STA funds were restored under a new legislative package known as the “gas tax swap.” Designed to be revenue neutral, the tax swap replaces the sales tax on gasoline, and increases the sales tax on diesel fuel to partially supplement STA funds. Now STA funds come solely from the statewide sales tax on diesel fuel. Therefore, STA revenue to the region depends on diesel fuel prices and diesel consumption. STA is a formula driven allocation based on *population* and *revenue*. The STA funds are appropriated by the Legislature to the State Controller’s Office. The Office then allocates the tax revenue, by formula, to planning agencies. Statute requires 50% of STA funds be allocated according to population and 50% be allocated according to operator revenues from the prior fiscal year.

STA funds can be utilized for operating or capital transit purposes only. While STA funding had been on a roller coaster ride for several years prior to 2010, the gas tax swap in March 2010 and subsequent legislation guaranteed that the STA share of the Public Transportation Account be 50 percent of sales tax on diesel fuel revenues. Proposition 22 restricted the use of fuel excise tax for transportation purposes. Importantly, it also prohibited borrowing from the fuel excise tax revenues.

It is recommended that STA funds be utilized to fund the necessary marketing and communication costs. These are considered operating expenses. Later in this chapter, STA funds are also recommended to fund start-up capital costs including the branding of the buses, bus stop signs and information panels.

The first year marketing budget is estimated at $75,000, with subsequent years starting at approximately $35,000 and inflated to approximately $40,000 per year at the end of the five-year planning horizon.

Capital Costs

In the five-year financial plan, there are three primary categories of capital costs: buses, bus branding, and bus stop signage and information panels on bus stop poles.

Buses

MBTA is able to utilize buses from its existing fleet for the pilot program. If the pilot program is successful after the two years of operation, then a fleet of five buses would be ordered the third year with delivery expected for the beginning of the fourth year of operation. It is not known what branding scheme the Otis College of Art and Design students will develop and the type of vehicle that would best highlight the recommended branding. It is recommended that decisions on the vehicle type be delayed until after the branding process is completed and first year operations determine the type and peak patterns of demand.

There are several candidate buses that that could be in operation for the JTNP transit service, but the turning radii of several turns within the park limit the bus length to about 30 feet. The buses would be similar to MBTA existing cutaway vehicles that are in service. An alternative would be 30-foot trolley buses that are currently being utilized in a number of recreation areas. Trolley buses would cost about $214,000 each, with cutaway buses costing almost 50% less depending on the cutaway size selected. The financial plan includes a procurement of $1.14 million for five trolley buses in FY 2019/20. The cost would be substantially less if cutaways are utilized. As discussed later, capital revenues have not been identified to pay for the buses, but several options are discussed below.

JTNP has additional capital expenses for curb cuts, benches, shelters, and concrete pads for ADA accessibility that are not included in the capital cost budget as JTNP will utilize NPS resources for the needed physical improvements.

Bus Branding

The bus branding scheme is being developed by the Otis College of Art Design student workshop. The cost of branding existing MBTA buses for the pilot transit program is approximately $10,000 per bus or $40,000 total. Coordination and final art production costs are included in the marketing budget under operating costs.

Signage and Information Panels

Bus stop signs will be fabricated and installed at all bus stops both inside and outside JTNP. Inside JTNP, the signs and poles will be installed by NPS personnel. Outside JTNP, the signs and poles will be installed by MBTA staff. Information panels will be provided for each bus stop. Development of the format for the information signs at bus stops is included in the marketing budget. The installation of the information panels can be done at the same time as the bus stop signs. $3,500 is budgeted for the procurement of the bus stop signs and information panels.

Capital Revenues

In FY 2019/20, the largest need by far for capital revenues is to purchase five dedicated buses for JTNP transit. Determination of the type of buses that should be procured, as discussed above, will need to wait until the branding scheme is finalized and experience is garnered from the first year pilot program. Since buses would not have to be ordered until FY 2018/19, the funding source for the buses will be determined after the first two years of service operation. Candidate capital revenue sources are described below.

Federal Lands Transportation Program

The FLTP funds projects that improve access within the Federal estate (national forests, national parks, national wildlife refuges, national recreation areas, and other Federal public lands) on transportation facilities in the national Federal Lands transportation inventory and owned and maintained by the Federal government. According to the most recent guidance, under (B) above, “operation and maintenance of transit facilities" includes the operation and maintenance of any components of a transit system, including vehicles.[3] The guidance is being updated to reflect the new federal reauthorization “Fixing America’s Surface Transportation Act” (FAST). The Federal share of the program is 100%.

3 Source: http://www.fhwa.dot.gov/map21/guidance/guidefltp.cfm

Since there are a couple of years before new buses need to be ordered, it is recommended that MBTA and SANBAG seriously consider this funding source for new buses for the JTNP transit service if the pilot program is successful.

Federal Transit Administration 5339

The Federal Transit Administration (FTA) Section 5339 (Bus and Bus Facilities Program) is a relatively new formula program that provides funding for capital projects to replace, rehabilitate, and purchase buses and bus-related equipment, and to construct bus-related facilities. This program was established under Moving Ahead for Progress in the 21st Century (MAP-21), replacing the previous Section 5309 discretionary program established under the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU). It was recently reauthorized in FAST Section 3017.

In order to receive Section 5339 funding, projects must have a significant impact on desirable long-term outcomes for improving and maintaining California's buses and bus facilities so that the State's public transportation systems are in good physical condition and successfully accomplish their performance objectives. The California State Department of Transportation, Division of Rail and Mass Transportation (DRMT) has been delegated the designated recipient responsibilities by the Governor and is the direct recipient for these funds. DRMT administers these funding components to eligible sub-recipients which include: public agencies and private nonprofit organizations engaged in public transportation. The last Call for Projects was in July 2015, and MBTA could submit an application in a future funding cycle. The federal 5339 share is 80% of the total cost. If this is the direction that MBTA decides to pursue, LCTOP or STA funding could be utilized for local match purposes.

State Transit Assistance (STA)

STA funding was recommended as operations revenue to fund the marketing and communications expenses. Since STA can be utilized for both operating and capital, in the short-term, STA funding is recommended to fund the bus branding and the signage information panels. This adds up to $43,500 in FY 2016/17.

If MBTA is successful in applying for FTA 5339 funding, STA funding could be utilized for the 20% local match.

LCTOP Funding

The LCTOP funding program was described earlier in Chapter 5. It is not known how much LCTOP money will be available in future years. While $1.14 million is likely not going to be available for MBTA, it could potentially fund the matching portion of the capital costs if other capital funding sources do not work out.

Bus Capital Revenues to Be Determined

Due to the uncertainty of the type of vehicle that will be needed in a permanent JTNP transit service, the capital revenue source in the financial plan is currently labelled "to be determined." If the first year pilot project is successful, MBTA and SANBAG should collaborate to determine the process necessary for applying for the necessary grant applications for one or more of the above funding sources.

Recommended Five-Year Financial Plan

Exhibit 12 provides the recommended five year operating and capital costs by plan year. The first year total operating costs and revenues, including marketing and communications, total $345,072. The five-year total operating costs and revenues total $3.2 million.

The National Park service contribution is estimated at $200,000 the first year, and a total of $1.3 million over a five-year period. LTF funding is a little over $75,000 the first year, and $458,000 over five years. STA funding for marketing is $70,000 the first year and approximately $222,000 over the five-year period.

For the first year of operation in FY 2016/17, the capital costs for bus branding, signage, information panels are estimated at $43,500. In FY 2019/20, five buses are purchased, and if those buses are trolley buses it would cost approximately $1.14 million. The total capital costs over the five-year period are estimated at $1.23 million.

The recommended capital revenues are the utilization of STA funds in 2016/17 for the bus branding, bus stop signage, and information panels at $43,500. Minor amounts of STA funding are needed for bus stop signage and information panels over the remaining four-year period.

The revenue source for the buses is to be determined. Candidate sources of funding include Federal Lands Transportation Program, Federal Transit Administration 5339 funding with STA and LCTOP funding potential for local match requirements.

Overall, the total operating capital costs over the five-year period are expected to be approximately $3.2 million.

Exhibit 12 Recommended Five Year Service Plan

Season	2016/17	2017/18	2018/19	2019/20	2020/21	5-YEAR TOTAL
Slow Growth Scenario						
Operating Costs						
Service Delivery Costs	$ 275,037	$ 320,808	$ 372,053	$ 387,307	$ 403,187	$ 1,758,392
Marketing and Communications	$ 70,035	$ 35,374	$ 37,662	$ 38,869	$ 40,096	$ 222,036
Subtotal Operating Costs	$ 345,072	$ 356,182	$ 409,715	$ 426,177	$ 443,283	$ 1,980,428
Capital Costs						
4 Peak Service Trolleys/1 spare (1)				$ 1,135,163		$ 1,135,163
External Bus Stop Signs/Signage	$ 3,500	$ 1,000	$ 1,030	$ 1,092	$ 1,223	$ 7,845
Bus Wraps	$ 40,000			$ 50,000		$ 90,000
Subtotal Capital Costs	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 1,223	$ 1,233,008
TOTAL COSTS	$ 388,572	$ 357,182	$ 410,745	$ 1,612,431	$ 444,505	$ 3,213,435
Operating Revenues						
National Park Service	$ 200,000	$ 225,000	$ 275,000	$ 300,000	$ 300,000	$ 1,300,000
Local Transportation Fund						
San Bernardino County (50%)	$ 37,518	$ 47,904	$ 48,527	$ 43,654	$ 51,593	$ 229,196
City of Twentynine Palms (50%)	$ 37,518	$ 47,904	$ 48,527	$ 43,654	$ 51,593	$ 229,196
State Transit Assistance	$ 70,035	$ 35,374	$ 37,662	$ 38,869	$ 40,096	$ 222,036
LCTOP (2)						
Subtotal Operating Revenues	$ 345,072	$ 356,182	$ 409,715	$ 426,177	$ 443,283	$ 1,980,428
Capital Revenues						
LCTOP (2)						
State Transit Assistance	$ 43,500	$ 1,000	$ 1,030	$ 51,092	$ 1,223	$ 97,845
To Be Determined (3)				$ 1,135,163		$ 1,135,163
Subtotal Capital Revenues	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 1,223	$ 1,233,008
TOTAL REVENUES	$ 388,572	$ 357,182	$ 410,745	$ 1,612,431	$ 444,505	$ 3,213,435

(1) Placeholder value for purchase of trolley buses. Could be amended based on branding and pilot project.

(2) Low Carbon Transit Operations Progam. If approved by SANBAG, could subsitute for share of LTF funding.

(3) Revenue for purchase of buses after pilot program to be determined.

SCHEDULE WORKSHEET - One Gateway - Standard Time

Twentynine Palms to Barker Dam

	Stater Bros	29 Palm TC	Oasis VC	Jumbo Rocks	Ryan Mt Trail	Hidden Valley	Barker Dam	Hidden Valley	Ryan Mt.	Jumbo Rocks	Oasis VC	29 Palms TC	Stater Bros.	
Time Interval*	0	0:08	0:05	0:21	0:10	0:12	0:06	0:06	0:12	0:10	0:21	0:05	0:08	
Miles interval	0	2.8	1.2	11.6	4	4.4	2	2	4.4	4	11.6	1.2	2.8	
Bus #														**Notes**
1	8:00	8:08	8:13	8:34	8:44	8:56	9:02	9:08	9:20	9:30				
2	8:30	8:38	8:43	9:04	9:14	9:26	9:32	9:38	9:50	10:00				
1				9:34	9:44	9:56	10:02	10:08	10:20	10:30				
2				10:04	10:14	10:26	10:32	10:38	10:50	11:00				
1				10:34	10:44	10:56	11:02	11:08	11:20	11:30	11:51	11:56	12:04	Fast Fill
2				11:04	11:14	11:26	11:32	11:38	11:50	12:00				
3	11:00	11:08	11:13	11:34	11:44	11:56	12:02	12:08	12:20	12:30				
2				12:04	12:14	12:26	12:32	12:38	12:50	13:00				
3				12:34	12:44	12:56	13:02	13:08	13:20	13:30				
2				13:04	13:14	13:26	13:32	13:38	13:50	14:00	14:21	14:26	14:34	Out of Service
3				13:34	13:44	13:56	14:02	14:08	14:20	14:30				
1	13:30	13:38	13:43	14:04	14:14	14:26	14:32	14:38	14:50	15:00				
3				14:34	14:44	14:56	15:02	15:08	15:20	15:30				
1				15:04	15:14	15:26	15:32	15:38	15:50	16:00				
3				15:34	15:44	15:56	16:02	16:08	16:20	16:30	16:51	16:56	17:04	Out of Service
1				16:04	16:14	16:26	16:32	16:38	16:50	17:00				
1				17:04	17:14	17:26	17:32	17:38	17:50	18:00	18:21	18:26	18:34	Sweeper, Out of Service

* Includes estimated dwell time for passenger boardings and alightings

SCHEDULE WORKSHEET - One Gateway - Daylight Savings Time

Twentynine Palms to Barker Dam

	Stater Bros	29 Palm TC	Oasis VC	Jumbo Rocks	Ryan Mt Trail	Hidden Valley	Barker Dam	Hidden Valley	Ryan Mt.	Jumbo Rocks	Oasis VC	29 Palms TC	Stater Bros.	
Time Interval*	0	0:08	0:05	0:21	0:10	0:12	0:06	0:06	0:12	0:10	0:21	0:05	0:08	
Miles interval	0	2.8	1.2	11.6	4	4.4	2	2	4.4	4	11.6	1.2	2.8	
Bus #														**Notes**
1	8:00	8:08	8:13	8:34	8:44	8:56	9:02	9:08	9:20	9:30				
2	8:30	8:38	8:43	9:04	9:14	9:26	9:32	9:38	9:50	10:00				
1				9:34	9:44	9:56	10:02	10:08	10:20	10:30				
2				10:04	10:14	10:26	10:32	10:38	10:50	11:00				
1				10:34	10:44	10:56	11:02	11:08	11:20	11:30	11:51	11:56	12:04	Fast Fill
2				11:04	11:14	11:26	11:32	11:38	11:50	12:00				
3	11:00	11:08	11:13	11:34	11:44	11:56	12:02	12:08	12:20	12:30				
2				12:04	12:14	12:26	12:32	12:38	12:50	13:00				
3				12:34	12:44	12:56	13:02	13:08	13:20	13:30				
2				13:04	13:14	13:26	13:32	13:38	13:50	14:00	14:21	14:26	14:34	Out of Service
3				13:34	13:44	13:56	14:02	14:08	14:20	14:30				
1	13:30	13:38	13:43	14:04	14:14	14:26	14:32	14:38	14:50	15:00				
3				14:34	14:44	14:56	15:02	15:08	15:20	15:30				
1				15:04	15:14	15:26	15:32	15:38	15:50	16:00				
3				15:34	15:44	15:56	16:02	16:08	16:20	16:30	16:51	16:56	17:04	Out of Service
1				16:04	16:14	16:26	16:32	16:38	16:50	17:00				
2	16:00	16:08	16:13	16:34	16:44	16:56	17:02	17:08	17:20	17:30				
1				17:04	17:14	17:26	17:32	17:38	17:50	18:00				
2				17:34	17:44	17:56	18:02	18:08	18:20	18:30				
1				18:04	18:14	18:26	18:32	18:38	18:50	19:00	19:21	19:26	19:34	Out of Service
2				18:34	18:44	18:56	19:02	19:08	19:20	19:30				
2				19:34	19:44	19:56	20:02	20:08	20:20	20:30	20:51	20:56	21:04	Sweeper, Out of Service

* Includes estimated dwell time for passenger boardings and alightings

SCHEDULE WORKSHEET - Two Gateway - Standard Time

Twentynine Palms to Joshua Tree Visitor Center (EB)											**Joshua Tree Visitor Center to Twentynine Palms (WB)**											
	Stater Bros	29 Palm TC	Oasis VC	Jumbo Rocks	Ryan Mt.	Hidden Valley	Boy Scout Tr.	Hwy 62/Park Blvd	JT VC			JT VC	Boy Scout Tr	Hidden Valley	Barker Dam	Hidden Valley	Ryan Mt.	Jumbo Rocks	Oasis VC	29 Palms TC	Stater Bros.	
Time Interval*	0	0:08	0:05	0:21	0:10	0:12	0:06	0:24	0:03			0:00	0:24	0:06	0:06	0:06	0:12	0:10	0:21	0:05	0:08	
Miles interval	0	2.8	1.2	11.6	4	4.4	3	11.2	1			0	11.2	3	2	2	4.4	4	11.6	1.2	2.8	
										Note	**Bus #**											**Note**
Bus #											2	8:00	8:24	8:30	8:36	8:42	8:54	9:04				
1	8:00	8:08	8:13	8:34	8:44	8:56					1			9:00	9:06	9:12	9:24	9:34				
2				9:04	9:14	9:26					2			9:30	9:36	9:42	9:54	10:04				
1				9:34	9:44	9:56					1			10:00	10:06	10:12	10:24	10:34	10:55	11:00	11:08	fast fuel /break
2				10:04	10:14	10:26	10:32	10:56	10:59	fast fill/break	4	10:00	10:24	10:30	10:36	10:42	10:54	11:04				
3	10:00	10:08	10:13	10:34	10:44	10:56					3			11:00	11:06	11:12	11:24	11:34				
4				11:04	11:14	11:26					4			11:30	11:36	11:42	11:54	12:04				
3				11:34	11:44	11:56					3			12:00	12:06	12:12	12:24	12:34	12:55	13:00	13:08	Fast fuel /break
4				12:04	12:14	12:26	12:32	12:56	12:59	fast fill/break	2	12:00	12:24	12:30	12:36	12:42	12:54	13:04				
1	12:00	12:08	12:13	12:34	12:44	12:56					1			13:00	13:06	13:12	13:24	13:34				
2				13:04	13:14	13:26					2			13:30	13:36	13:42	13:54	14:04				
1				13:34	13:44	13:56					1			14:00	14:06	14:12	14:24	14:34	14:55	15:00	15:08	Out of service
2				14:04	14:14	14:26	14:32	14:56	14:59	out of service	4	14:00	14:24	14:30	14:36	14:42	14:54	15:04				
3	14:00	14:08	14:13	14:34	14:44	14:56					3			15:00	15:06	15:12	15:24	15:34				
4				15:04	15:14	15:26					4			15:30	15:36	15:42	15:54	16:04				
3				15:34	15:44	15:56					3			16:00	16:06	16:12	16:24	16:34	16:55	17:00	17:08	Out of service
4				16:04	16:14	16:26	16:32	16:56	16:59	Out of service												

* Includes estimated dwell time for passenger boardings and alightings

SCHEDULE WORKSHEET - Two Gateway - Daylight Savings Time

Twentynine Palms to Joshua Tree Visitor Center (EB)											Joshua Tree Visitor Center to Twentynine Palms (WB)											
	Stater Bros	29 Palm TC	Oasis VC	Jumbo Rocks	Ryan Mt.	Hidden Valley	Boy Scout Tr.	Hwy 62/Park Blvd	JT VC			JT VC	Boy Scout Tr	Hidden Valley	Barker Dam	Hidden Valley	Ryan Mt.	Jumbo Rocks	Oasis VC	29 Palms TC	Stater Bros.	
Time Interval*	0	0:08	0:05	0:21	0:10	0:12	0:06	0:24	0:03			0:00	0:24	0:06	0:06	0:06	0:12	0:10	0:21	0:05	0:08	
Miles interval	0	2.8	1.2	11.6	4	4.4	3	11.2	1			0	11.2	3	2	2	4.4	4	11.6	1.2	2.8	
										Note	**Bus #**											**Note**
Bus #											2	8:00	8:24	8:30	8:36	8:42	8:54	9:04				
1	8:00	8:08	8:13	8:34	8:44	8:56					1			9:00	9:06	9:12	9:24	9:34				
2				9:04	9:14	9:26					2			9:30	9:36	9:42	9:54	10:04				
1				9:34	9:44	9:56					1			10:00	10:06	10:12	10:24	10:34	10:55	11:00	11:08	fast fuel /break
2				10:04	10:14	10:26	10:32	10:56	10:59	fast fill/break	4	10:00	10:24	10:30	10:36	10:42	10:54	11:04				
3	10:00	10:08	10:13	10:34	10:44	10:56					3			11:00	11:06	11:12	11:24	11:34				
4				11:04	11:14	11:26					4			11:30	11:36	11:42	11:54	12:04				
3				11:34	11:44	11:56					3			12:00	12:06	12:12	12:24	12:34	12:55	13:00	13:08	Fast fuel /break
4				12:04	12:14	12:26	12:32	12:56	12:59	fast fill/break	2	12:00	12:24	12:30	12:36	12:42	12:54	13:04				
1	12:00	12:08	12:13	12:34	12:44	12:56					1			13:00	13:06	13:12	13:24	13:34				
2				13:04	13:14	13:26					2			13:30	13:36	13:42	13:54	14:04				
2				14:04	14:14	14:26	14:32	14:56	14:59	Fast Fill	1			14:00	14:06	14:12	14:24	14:34	14:55	15:00	15:08	Fast Fill
3	14:00	14:08	14:13	14:34	14:44	14:56					4	14:00	14:24	14:30	14:36	14:42	14:54	15:04				
4				15:04	15:14	15:26					3			15:00	15:06	15:12	15:24	15:34				
3				15:34	15:44	15:56					4			15:30	15:36	15:42	15:54	16:04				
4				16:04	16:14	16:26	16:32	16:56	16:59	Out of service	3			16:00	16:06	16:12	16:24	16:34	16:55	17:00	17:08	Out of Service
1	16:00	16:08	16:13	16:34	16:44	16:56					2	16:00	16:24	16:30	16:36	16:42	16:54	17:04				
2				17:04	17:14	17:26					1			17:00	17:06	17:12	17:24	17:34				
1				17:34	17:44	17:56					2			17:30	17:36	17:42	17:54	18:04				
2				18:04	18:14	18:26					1			18:00	18:06	18:12	18:24	18:34	18:55	19:00	19:08	Out of Service
2				19:04	19:14	19:26					2			18:30	18:36	18:42	18:54	19:04				
											2			19:30	19:36	19:42	19:54	20:04	20:25	20:30	20:38	Out of Service,sweeper

* Includes estimated dwell time for passenger boardings and alightings

Appendix B Base Case Scenario

Base Case Scenario

Season	2016/17	2017/18	2018/19	2019/20	2020/21	5-YEAR TOTAL
Operating Costs						
Service Delivery Costs	$ 275,037	$ 286,313	$ 298,052	$ 310,272	$ 322,993	$ 1,492,666
Marketing and Communications	$ 70,035	$ 34,339	$ 35,442	$ 36,558	$ 37,690	$ 214,064
Subtotal Operating Costs	$ 345,072	$ 320,652	$ 333,493	$ 346,830	$ 360,683	$ 1,706,730
Capital Costs						
4 Peak Service Trolleys/1 spare (1)				$ 1,135,163		$ 1,135,163
External Bus Stop Signs/Signage	$ 3,500	$ 1,000	$ 1,030	$ 1,092	$ 1,223	$ 7,845
Bus Wraps	$ 40,000			$ 50,000		$ 90,000
Subtotal Capital Costs	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 1,223	$ 1,233,008
TOTAL COSTS	$ 388,572	$ 321,652	$ 334,523	$ 1,533,085	$ 361,906	$ 2,939,738
Operating Revenues						
National Park Service	$ 200,000	$ 225,000	$ 275,000	$ 300,000	$ 300,000	$ 1,300,000
Local Transportation Fund						
San Bernardino County (50%)	$ 37,518	$ 30,657	$ 11,526	$ 5,136	$ 11,497	$ 96,333
City of Twentynine Palms (50%)	$ 37,518	$ 30,657	$ 11,526	$ 5,136	$ 11,497	$ 96,333
State Transit Assistance	$ 70,035	$ 34,339	$ 35,442	$ 36,558	$ 37,690	$ 214,064
LCTOP (2)						
Subtotal Operating Revenues	$ 345,072	$ 320,652	$ 333,493	$ 346,830	$ 360,683	$ 1,706,730
Capital Revenues						
LCTOP (2)						
State Transit Assistance	$ 43,500	$ 1,000	$ 1,030	$ 51,092	$ 1,223	$ 97,845
To Be Determined (3)				$ 1,135,163		$ 1,135,163
Subtotal Capital Revenues	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 1,223	$ 1,233,008
TOTAL REVENUES	$ 388,572	$ 321,652	$ 334,523	$ 1,533,085	$ 361,906	$ 2,939,738

(1) Placeholder value for purchase of trolley buses. Could be amended based on branding and pilot project.

(2) Low Carbon Transit Operations Progam. If approved by SANBAG, could subsitute for share of LTF funding.

(3) Revenue for purchase of buses after pilot program to be determined.

Appendix B High Growth Scenario Financial Plan

High Growth Scenario

Season	2016/17	2017/18	2018/19	2019/20	2020/21	5-YEAR TOTAL
Operating Costs						
Service Delivery Costs	$ 275,037	$ 320,808	$ 372,053	$ 568,488	$ 774,991	$ 2,311,377
Marketing and Communications	$ 70,035	$ 35,374	$ 37,662	$ 44,305	$ 51,250	$ 238,625
Subtotal Operating Costs	$ 345,072	$ 356,182	$ 409,715	$ 612,793	$ 826,241	$ 2,550,002
Capital Costs						
Trolley Buses (1)				$ 1,135,163	$ 479,360	$ 1,614,523
External Bus Stop Signs/Signage	$ 3,500	$ 1,000	$ 1,030	$ 1,092	$ 1,223	$ 7,845
Bus Wraps	$ 40,000			$ 50,000		$ 90,000
Subtotal Capital Costs	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 480,583	$ 1,712,368
TOTAL COSTS	$ 388,572	$ 357,182	$ 410,745	$ 1,799,048	$ 1,306,823	$ 4,262,370
Operating Revenues						
National Park Service	$ 200,000	$ 225,000	$ 275,000	$ 300,000	$ 300,000	$ 1,300,000
Local Transportation Fund						
San Bernardino County (50%)	$ 37,518	$ 47,904	$ 48,527	$ 134,244	$ 237,495	$ 505,688
City of Twentynine Palms (50%)	$ 37,518	$ 47,904	$ 48,527	$ 134,244	$ 237,495	$ 505,688
State Transit Assistance	$ 70,035	$ 35,374	$ 37,662	$ 44,305	$ 51,250	$ 238,625
LCTOP (2)						
Subtotal Operating Revenues	$ 345,072	$ 356,182	$ 409,715	$ 612,793	$ 826,241	$ 2,550,002
Capital Revenues						
LCTOP (2)						
State Transit Assistance	$ 43,500	$ 1,000	$ 1,030	$ 51,092	$ 1,223	$ 97,845
To Be Determined (3)				$ 1,135,163	$ 479,360	$ 1,614,523
Subtotal Capital Revenues	$ 43,500	$ 1,000	$ 1,030	$ 1,186,255	$ 480,583	$ 1,712,368
TOTAL REVENUES	$ 388,572	$ 357,182	$ 410,745	$ 1,799,048	$ 1,306,823	$ 4,262,370

(1) Placeholder value for purchase of trolley buses. Could be amended based on branding and pilot project.

(2) Low Carbon Transit Operations Progam. If approved by SANBAG could subsitute for share of LTF funding.

(3) Revenue for purchase of buses after pilot program to be determined

Appendix D: Lifeline Service Alternatives and Recommendations

Introduction

This chapter examines needs and opportunities for transportation services to and from the outlying areas of the Morongo Basin where residents are living at distances from the Highway 62 corridor, between Morongo Valley and Twentynine Palms, where the bulk of MBTA services are provided.

The San Bernardino Associated Governments (SANBAG) is required by the *Transportation Development Act* (TDA) 99401.5 (b) to "identify the transit needs of the jurisdiction which have been considered as part of the planning process." As part of this process, SANBAG annually conducts unmet transit needs public hearings in those areas of the county where the Local Transportation Fund (LTF) allocation is still split between maintenance of streets and roads and the operation of transit services. In the Morongo Basin, at SANBAG's annual public hearings, there has been regular testimony about unmet transit needs in various areas of the Morongo Basin.

This Focused Short Range Transit Plan includes a specific element to study service alternatives specifically for those areas of the Morongo Basin where traditional public transit may not be feasible. Potential "lifeline services", those providing some minimal level of mobility to local residents, are considered in this chapter which documents what services currently exist and considers further responses which may be feasible over the next five years. Lifeline service goals to be adopted by the MBTA Board of Directors are considered here, in relation to both the needs and potential responses to them.

1. MBTA Responses to Unmet Transportation Needs

MBTA has developed important programmatic responses since its inception to address the mobility needs and difficulties presented by its constituents. The current MBTA service network has evolved largely in response to the travel patterns and requirements of Morongo Basin residents. Beyond that, MBTA has developed several responses that are essentially Mobility Management functions, supporting and using a mix of services to address additional mobility needs of its constituents that may not be readily served by a traditional public transit solution.

Continued Public Transit Service Improvements

MBTA has made and continues to make service improvements that serve people and trips both within and beyond the Highway 62 corridor. Specific service enhancements made during the past decade include:

- Additional Yucca Valley Door to Door Service (Route 31)
- Additional Saturday Highway Bus Service (mid-day)
- Sunday Highway Bus Service (Route 1)
- Later bus on Palm Springs (Route 12)
- Service to the Monterey Business Center in Yucca Valley

- Added afternoon service hours to 29 Palms Ready Ride
- Numerous bus stop amenities (shelters, stops, benches, etc.) and minor service adjustments

Among its service mix, MBTA has several routes which don't meet the state-mandated 10% minimum farebox recovery requirement, but which the agency continues to support and on which it provides service. These are made possible by more productive services. All Ready Ride routes below the minimum 10% farebox recovery requirement are to or from outlying areas and include:

- Route 30/31-Yucca Valley Ready Ride (2 buses daily)
- Route 34 Lear (twice weekly, Mondays & Thursdays)
- Route 34 Wonder Valley (twice weekly, Tuesdays and Fridays; also first Wednesday of the month)
- Route 36 Morongo Valley (twice weekly, Mondays & Thursdays)
- Route 50 Joshua Tree Ready Ride (daily)

In particular, Ready Ride Routes 34 and 36 are examples of existing Dial-a-Ride lifeline service that MBTA is already operating outside its fixed route service boundary. The recent implementation of Sunday service on Route 1 is another example of providing lifeline service within the fixed route service boundary.

TAG Program as a Response to Unmet Transit Needs

An important tool for addressing unmet transit needs, and quite unique among public transit agencies, is MBTA's Transportation Assistance Grant (TAG) program. In September 2011 the MBTA General Manager, with support of the agency's Board of Directors, initiated the MBTA Transportation Assistance Grant (TAG) and commenced an annual call for projects. The program is funded by fees from agencies procuring vehicles through the MBTA vehicle purchasing contracts. Its purposes are stated in the MBTA grant application as:

> "To support eligible transportation assistance projects within the Morongo Basin subarea of San Bernardino County" … for projects that "assist in meeting unmet transportation needs, accessing, promoting or augmenting MBTA services."

Entities eligible to apply are local government agencies and non-profits with 501(c)3 IRS status. In the past four cycles, the MBTA organization has annually distributed $40,000 to $60,000 per cycle to applicant transportation programs. Ten organizations have been supported to date, including:

- Reach-Out Morongo Basin
- San Bernardino County, Dept. of Aging and Adult Services
- San Bernardino County Public Defenders office
- Morongo Basin Adult Literacy program
- Morongo Basin Haven
- High Desert Medical Center Foundation
- 29 Palms Historical Society
- Pacific Clinics
- Copper Mountain College

Grants of varying amounts have been provided for projects submitted by these agencies and organizations. Awards have ranged from a planning grant, to vehicle purchases, to support for daily vehicle operations and for the purchase of MBTA passes for distribution to agencies' consumers. Applicant agencies included two community-based transportation providers further discussed in this chapter, Reach-Out 29 and the Hi Desert Medical Center Transportation.

The TAG program is a very significant annual contribution made by MBTA to improve mobility choices of residents of the region. This mobility management function extends what is possible with MBTA's traditional fixed-route transportation services. The program is possible because of MBTA's vehicle procurement program, and the level of funding available to it will depend upon the volume and experience of the procurement program. As such, it is a voluntary program that the MBTA organization has chosen to sponsor. The program has strengthened the network of mobility choices beyond that which MBTA can provide with regular fixed route and Ready Ride service. Overall, the TAG program has increased the number and quality of trips provided to area residents.

Additional MBTA Efforts to Promote Coordination – December 2014 Workshop

Following the 2014 SANBAG Unmet Transit Needs Hearing cycle, MBTA senior staff hosted a December 2014 workshop with key human service organizations to further consider unmet transit needs and opportunities for addressing identified mobility needs. In December 2014, MBTA convened a group that included representatives from the Hi Desert Medical Center Foundation, Reach-Out Morongo Basin, the Dept. of Aging and Adult Services, and SANBAG.

Commonly heard needs were reviewed and the status of current transportation provided by Hi Desert Medical Center Foundation and by Reach-Out Morongo were described. Various next steps were identified at that meeting, mostly focused on further documenting what services are being provided and which contributed to the inclusion of this Lifeline services element in MBTA's Focused SRTP.

MBTA Support to the Disabled American Veterans (DAV) Program

In support of the mobility of local veterans, MBTA has provided long-standing support to the voluntary Disabled American Veterans' program, allowing them to park DAV vehicles on MBTA property. This ensures a safe, secure parking location for DAV vehicles. Its central location aides volunteer drivers who can more easily get to the DAV vehicle, and from which they can travel out to pick up veterans needing rides into the Loma Linda Veterans Administration Medical Center or elsewhere.

2. Existing Community Based Transportation

In addition to MBTA fixed route and Ready Ride services, there are three organizations that currently provide lifeline mobility services to their clients:

- Reach-Out Morongo
- Hi-Desert Medical Center
- Transportation Reimbursement Escort Program (TREP)

The section bellows describes the lifeline transportation services offered and includes available information on trip characteristics, budget, performance, and a discussion of the challenges each agency is facing with future service delivery.

Reach-Out Morongo

Reach-Out Morongo is a community-based voluntary organization, a non-profit that has been providing a range of services throughout the basin for several decades, including transportation. Its transportation program consists of three vehicles operated with a mix of paid and volunteer drivers. It provided an estimated 1,600 to 1,800 trips during the 2014/2015 fiscal year. Its operating budget is almost $46,000 and comes from a mix of funding sources that include the TAG program, city grants from Twentynine Palms and Yucca Valley, and agency fundraising. The budget information is summarized in Exhibit D-1 below.

An analysis of trips provided during August 2015 suggests a fully loaded per trip cost of almost $27.94, using 2014 cost information in relation to August 2015 trips provided. This per trip cost reflects the long-distance trips taken by many riders into Loma Linda and the Arrowhead County Medical Offices as well as within the Morongo Basin itself. There is no fare to passengers. For perspective, the projected overall cost per trip for all Ready Ride service in FY 2015/16 is $29.82, very comparable to the fully loaded cost of Reach-Out Morongo service.

Challenges Faced by the Reach-Out Morongo Transportation Program

- ***Serving hard-to meet needs.*** The Reach-Out Morongo transportation service, while a small program, is providing some hard-to-meet needs. Most critical is the provision of trips down into Palm Springs and to medical facilities in Loma Linda or Colton. MBTA is providing regular, scheduled service to Palm Springs, weekdays on Routes 12 and weekends on Route 15. MBTA-provided trips, however, are not the curb-to-curb trips of the sort Reach-Out Morongo provides. No other provider, beyond Reach-Out Morongo, is serving such trips into the greater San Bernardino area and its medical facilities.

Similarly, Reach-Out Morongo provides some transportation for residents of Johnson Valley and Pioneer Town, areas of the Morongo basin not served by MBTA.

Exhibit D-1 Reach-Out Morongo Trips, Expenditures and Revenues

Reach Out Morongo Transportation Program
August 2015 Trips Provided and Performance

Locations/ Vehicle	Passenger Trips	Total Persons	Total Revenue Hours	Total Mileage	Pax Trip/Rev Hr	Miles per Pax Trip	Est. Cost/ Pax	Est. Cost/ Mile	Est. Cost/ Revenue Hour
29 Palms Dodge	59	30	57.33	3363	1.0	57.0	Total costs of $45,929 divided by 12 months to get monthly unit costs:		
29 Palms Toyota	26	13	20.21	570	1.3	21.9			
Yucca Valley Toyota	52	26	44.21	910	1.2	17.5			
Reach Out Totals	137	69	121.75	4843	1.1	35.4	$27.94	$0.79	$31.44

FY 2014 Expenditures and Revenue

Expenses

Direct Labor			
Drivers	$14,040		
Schedulers	5265		
Direct Labor		$19,305	42%
Direct Expense			
Vehicle maintenance	$2,576		
Fuel	8,086		
DMV registration	399		
Insurance - auto	7,809		
Insurance - general liability	6,874		
Drivers telephones	480		
Misc. supplies	400		
Direct Expense		$26,624	58%
Administrative Overhead			
Management and Rent			
Adminstrative Overhead			0%
		$45,929	100%

Revenues

MBTA TAG Program	$11,000	24%	
City of 29 Palms Grant	15,000	33%	
Town of Yucca Valley Grant	7,500	16%	*Two year-grant of $15,000*
County of San Bernardino	0	0%	*Calendar year 2015 $3,500 grant; no grant in 2014*
Reach Out Fundraising*	12,429	27%	*Share of agency fundraising applied to Transportation*
	$45,929	*100%*	

** Note: Reach Out Morongo Fundraising for FY 2014 $28,979*

- ***Some possible duplication.*** There may be some duplication of transportation service availability for residents of Landers and for service into Wonder Valley. These areas are both served by MBTA. With better coordination, Reach-Out Morongo services could choose to focus their transportation on the days and at the times when MBTA services are not operational.
- ***Volunteer versus paid drivers.*** The provision of services by volunteer drivers based out of Reach-Out Morongo's Yucca Valley office has made it difficult to promise trips. Program administrators indicate that they are able to ensure more regular transportation service out of their Twentynine Palms office with the paid driving staff based there, than the volunteer-based service operating from Yucca Valley.
- ***Funding base and potential for service expansion or enhancement.*** The program's operating funding base currently comes from 100% local funding. This includes a small grant from the TAG program, almost half the operating budget in grants from two Morongo Basin cities, and the

balance (27%) raised by the agency through various fundraising initiatives. This funding base makes it difficult to consider any sort of expansion or enhancements to the existing operation.

Opportunities for Enhancing Lifeline Service in the Morongo Basin

The TAG program did provide a vehicle for Reach-Out Morongo in a prior TAG funding cycle, ensuring reliable vehicle operation. However, any further expansion or enhancement of the program is not feasible within its existing funding base. Potential expansion or enhancement could include:

1. Securing a paid driver position for the Yucca Valley area.
2. Establishing a formalized dispatch function to increase the efficiency and number of trips that can be booked.
3. Increasing service into the Arrowhead Medical Center/Loma Linda medical facilities, including advertising and promoting this capability.
4. Increasing the service available to the Johnson Valley where there is no MBTA service, and potentially to Pioneer Town as well.

The Reach-Out Morongo Basin transportation program has many elements that point to potential success in pursuing additional operating and capital funding from the FTA Section 5310 program to address the expansion and enhancement items described above. The parent agency, Reach-Out 29, is developing the organizational capacity to be a Federal sub-recipient but would need technical assistance from SANBAG or from MBTA to successfully compete in the Section 5310 program and to develop all of the transportation management pieces expected of an FTA sub-recipient. These will range from driver manuals and safety training, driver hiring and drug testing practices, and various agency accounting practices, to name a few.

Hi-Desert Medical Center

The Hi-Desert Memorial Health Care District (HDMHCD) transportation program has been funded by Section 5310 and contributions from the Health Care District, a public joint powers entity in place to assure that quality health care is available to the residents of the Morongo Basin. Patients are transported to HDMHCD destinations, of which there are quite a number throughout the Basin. These destinations are defined as those at which the HDMHCD organization directly provides medical services or to which they make patient referrals.

Trip origins or destinations are only within the Basin; at this time HDMHCD does not transport riders beyond the Morongo Basin. The program has been operating with two vehicles and three paid drivers, a mix of part-time and full-time, and is expanding to three vehicles with Section 5310 support, following some changes in the vehicle mix as a result of changes in the Hi-Desert Medical Center ownership.

Exhibit D-2 presents trip-making history by primary destination served. The top three trip destinations are to the two rural health clinics in Yucca Valley and Twentynine Palms respectively, and to the HDMC Behavioral Health program, together accounting for 66% of trips. The Medical Center itself accounts for almost 12% of trips provided, looking at this almost three-year history of trip-making by destination.

Exhibit D-2 Hi-Desert Medical Center Transportation
Multi-Year Trip-Making by Destination

		As of 10/2015			
DESTINATION	**2013-2014**	**2014-2015**	**2015-2016**	**3 YR. TOTAL TO DATE**	
Yucca Valley Clinic	1,468	2,274	1,182	4,925	23.7%
Twentynine Palms Clinic	887	1,198	2,650	4,735	22.8%
Behavioral Health	1,221	2,634	106	3,962	19.1%
Hi-Desert Medical Center	766	1,196	462	2,425	11.7%
Hi-Desert Rehabilitation	461	718	256	1,436	6.9%
Airway Outpatient	335	466	286	1,087	5.2%
Dental	0	0	720	720	3.5%
Chiropractic	0	0	626	626	3.0%
Pharmacy	85	132	194	412	2.0%
Other/Transfers from ER	81	120	2	203	1.0%
Orthopedics	39	24	95	158	0.8%
Special Events	70	0	12	81	0.4%
TOTAL	**5,413**	**8,762**	**6,591**	**20,769**	**100%**
Annualized 2015-2016 Trips			**7,909**		
% change from prior year		**62%**	**-10%**		
Comparing two full fiscal years:					
Highest # transports/wk	162	264			
% change		***63%***			
Average # transports/wk	103	167			
% change		***62%***			
Total Unique Users	350	575			
% change		***64%***			

For the current fiscal year, the program anticipates providing almost 8,000 one-way passenger trips, annualized from the 10-month total reported above. Assuming an operating budget of just over $195,000, as shown in Exhibit D-3 following, this represents a per trip cost of $24.70. This is also reflective of long-distance trips provided to riders from throughout the Morongo Basin region, although revenue hour and revenue mile information was not available for this analysis.

Revenues were previously a mix of Section 5310 funds and a contribution from the HDMC organization. That is anticipated to change with the organizational changes of the Health Care District and the program will be operating solely on Section 5310 funds. There is no fare from passengers.

Exhibit D-3 Hi-Desert Memorial Health Care District Trips, Expenditures and Revenues

Hi-Desert Memorial Health Care District
Trips Provided and Performance

2015/2016 Trip Performance, annualized 10 months of data

Locations/ Vehicle	Passenger Trips	Total Revenue Hours	Total Mileage	Pax Trip/Rev Hr	Miles per Pax Trip	Est. Cost/ Pax	Est. Cost/ Mile	Est. Cost/ Revenue Hour
2 vheicles as of July 2015	7,909	n/a	n/a	n/a	n/a	$24.70	n/a	n/a
Hi-Desert MHCD Totals	7,909					$24.70		

FY 2014 Expenditures and Revenue, from Section 5310 Grant Application

Expenses

Direct Labor				
Drivers		$28,080		2,080 hours
Drivers II		$61,776		4,160 hours
Operations Manager		46800		2080 hours
	Direct Labor		$136,656	70%
Direct Expense				
Equipment and Supplies		$1,500		
Local Travel (to PASTACC)		$500		
Advertising		$2,500		
Fuel		32,377		
Telephone/ Cellular		2,200		
Training/ Development		1,200		
Uniforms		500		
Vehicle Insurance		11,026		
Vehicle Maintenance		6,926		
	Direct Expense		$58,729	30%
Administrative Overhead				
Management and Rent				
	Adminstrative Overhead			0%
			$195,385	100%

Revenues (2014 only)

FTA Section 5310 grant 50%	$74,834	38%
FTA Section 5310 Toll Credits Match 50%	74,834	38%
Health Care District Contribution	45,717	23%
	$195,385	*100%*

Challenges Faced by the Hi-Desert Medical Center Transportation

The HDMHCD is providing significant additional transportation resources to the Morongo Basin, adding 8,700 trips during the last fiscal year. They are likely to provide a comparable number of trips during the current fiscal year, despite changes in agency ownership that reduced the number of vehicles available to this transportation program. Areas of challenge, difficulty and opportunity include:

- ***Serving hard-to-meet needs.*** This program is also providing some service in areas of the Morongo Basin which MBTA does not serve. This specifically includes Johnson Valley. The HDMHCD is also providing curb-to-curb transportation for residents of the basin who may need it but who live outside of the Ready Ride service area and/or are traveling to medical destinations within the Morongo Basin that are at distances from their home neighborhood.

- ***Some possible duplication.*** Within the Wonder Valley, where MBTA is providing twice-weekly service (three-times weekly in the first week of the month), there may be some minimal level of duplication. That said, MBTA doesn't operate in the afternoons so return trips home in the afternoon, even on days when MBTA is operating, will not be duplicative trips.

- ***Vehicle safety and security.*** There was a vandalism incident this year that resulted in some vehicles being out of service for some time. There may be opportunity to park vehicles at MBTA in a locked, more secure environment, or it may make sense to pursue funding to build a more secure facility for HDMHCD transportation rolling stock.

- ***Increased operating efficiency***. Information was not available for this analysis on vehicle revenue hours or vehicle revenue miles that would enable comment upon the relative efficiency of the HDMHCD transportation services. That said, the program had projected for the provision of trips at a level exceeding 10,000 one-way passenger trips annually; it is now likely to come in around 8,000 trips. Some technical assistance around current agency trip scheduling practices may improve system efficacies and carry more trips. However, the reduction in the number of vehicles available for operation has most likely had a significant impact on overall program capacity.

- ***Reliance on Grant Based Funding.*** This program is currently funded entirely by the FTA Section 5310 program. In the past, the hospital organization did contribute to the program's funding base, both through provision of vehicles and with some cash match. Under the new organizational structure, that is apparently no longer possible. While the program has certainly enabled the HDMHCD to demonstrate its capacity to operate a successful transportation service focused on medically-related needs within the Morongo Basin, it is now in a period of transition regarding both capital and operating support previously provided to the program.

Opportunities for Enhancing and Sustaining HDMHCD Transportation

The HDMHCD transportation is an exemplary example of a partnership among a medical facility foundation, MBTA, and SANBAG technical assistance in providing mobility services. While HDMHCD has its own interests in providing the program, it has expended mobility options for medical trips to areas currently not served by MBTA. In its role as mobility manager, MBTA, through the SANBAG technical assistance program, should continue to support the sustainability of these services by providing technical assistance in grant writing, driver training, safety, and vehicle storage. A good mobility management organization such as MBTA should be a facilitator to provide mobility options that is more effectively provided and administered directly by the Health District.

Transportation Reimbursement Escort Program (TREP)

Since 1998, the Transportation Reimbursement and Escort Program (TREP) has been operating in the Morongo Basin. This program was started and maintained by the San Bernardino County Department of Aging and Adult Services (DAAS). TREP serves disabled and frail elderly senior citizens in the Rural Mountain/Desert Region, including the Morongo Basin. The TREP program was historically successful in providing lifeline transportation through the use of volunteers; DAAS clients would reimburse for miles provided by volunteers to locations such as doctor's appointments, grocery shopping, banking and other destinations. The TREP program provides a lifeline mobility option for individuals whose needs are not met by existing fixed route or Dial-a-Ride transportation services. The program is available in very rural areas where no public transportation services are offered. The DAAS TREP was successful, but suffered with funding for participants as the program often ran out of funding before the fiscal year, often after only six months of use.

Valley Transportation Service (VTrans) was the sub-recipient of two one-year New Freedom grants through the Victor Valley Transportation Authority to enhance, expand and streamline the TREP program in partnership with DAAS. In January 2013, DAAS shifted the administration piece of TREP to VTrans, but DAAS continued to provide community outreach of TREP through their Senior Information and Assistance (SIA) staff. This staff has direct contact with individuals living in the very rural areas of the Morongo Basin, including the Johnson Valley, Landers, Pioneer Town, and Wonder Valley.

A 5310 grant application, submitted to Caltrans in November 2014 and subsequently approved, extended the TREP partnership between DAAS and VTrans for another two years.

Under this program, the individual in need of transportation applies to the program and meets conditions of age or disability. Upon acceptance into the program, their mobility needs are reviewed and a monthly mileage cap is determined. This is the number of miles per month for which the program will provide reimbursement. The consumer's application provides some general information about the types of trips needed and their distances. Consumers are then reimbursed up to that level, following provision of documentation that the trips were made. The consumer is than responsible for reimbursing their volunteer driver, with mileage reimbursement averaging $0.44 per mile, according to the November 2014 VTrans 5310 grant applications.

Exhibit D-4 below shows the number and zip code location of individuals enrolled in the program as of August 2015. While the bulk of TREP program participants are living within the incorporated towns and along the Highway 62 corridor, this zip code analysis shows that at least 12% of participants are in the outlying areas, including Landers and Johnson Valley.

Exhibit D-4 Morongo Basin TREP Experience, Reported by VTrans

TREP Participants and Applicants, as of August 2015		
Yucca Valley 92284	31	29.5%
Twentynine Palms 92277	30	28.6%
Joshua Tree 92252	19	18.1%
Morongo Valley 92256	12	11.4%
Landers	10	9.5%
Johnson Valley	3	2.9%
	105	100%

According to the VTrans 5310 application, the cost of this program in 2012 was $8.18 per passenger trip, a highly cost-effective means of filling mobility gaps.

Challenges Faced by the TREP Program

This is clearly a cost-effective program that is comparatively easy to administer. Provision of FTA Section 5310 funding has made it a boon to the region, bringing in Federal funds to make this possible. VTrans' future as its administrator beyond 2017 is uncertain. In December 2015, the SANBAG policy board voted to move the VTrans organization into Omnitrans at the end of the current contract between VTrans and SANBAG. One of the issues was a concern that services provided by VTrans and paid for with San Bernardino Valley Measure I funds be based solely in the Valley. This Section 5310-funded project is largely self-funded through the Caltrans grant. However, decisions will need to be made as to where to house and who should administer a TREP program beyond the end of the current VTrans agreement with Caltrans.

The TREP program, while modest in program participation in the Morongo Basin area, provides a very important lifeline service for residents in areas not served by MBTA. The landscape of the current partnership between VTrans and DAAS will be changing during the planning horizon of the SRTP. There are a number of potential outcomes for the TREP program:

- MBTA takes over responsibility of the TREP program for the Morongo Basin.
- Transfer the program administration from VTrans to VVTA. Discussions with VVTA staff could be made ensure that the Morongo Basin is included in the overall program. DAAS would continue to provide the outreach and referrals in the Morongo Basin area.
- The overall program for the Morongo Basin reverts back to administration by DAAS. In this scenario, additional program funding would be provided through a subsequent 5310 grant, TAG grant or other funding source.
- The TREP program is discontinued when the current FTA 5310 funding expires.

MBTA in its Mobility Manager function should be involved with discussions of the future of the TREP program. TREP provides an extremely valuable lifeline function and MBTA management should proactively ensure that any new TREP partnership includes the Morongo Basin area. Recommendations for the lifeline services are provided in Section 5 of this Appendix.

3. Considering Lifeline Service Needs and Opportunities in the Morongo Basin

This chapter of MBTA's Focused Short Range Transit Plan considers the mobility challenges of specific outlying areas of the Morongo Basin in order to:

1. Better identify spatial and temporal needs;
2. Define various alternatives by which to meet these needs;
3. Identify potential partnerships to expand options for meeting those needs;
4. Define additional next steps to expand ways of meeting outlying area trip needs.

Discussed in this section are the implications of service and the lack thereof, by area of the Morongo Basin.

Defining Needs and Gaps in Service

MBTA hosted a September 2015 workshop with local transportation service providers, as an element of this *Focused Short Range Transit Plan (Focused SRTP)*, to bring together local stakeholders to identify mobility concerns and needs specifically focused on the outlying areas of the Morongo Basin. Led by the consultant team, the following organizations were represented:

- San Bernardino County Department of Aging and Adult Services
- Reach-Out Morongo Basin
- VTrans
- United Way 211
- San Bernardino Associated Governments
- Morongo Basin Transit Authority

Participants discussed known services to or from the outlying communities of Wonder Valley, Pioneer Town, Landers, and Johnson Valley, by the public and non-profit organizations.

Transportation services operating within the Basin are summarized in Exhibit D-5 below, in relation to the outlying areas. Not represented here is any DAV or volunteer transportation between the Morongo Basin and the Veterans Administration Medical Center in Loma Linda, CA for which information was not readily available.

Exhibit D-5 Morongo Basin Existing Transportation Options for Residents of Outlying Areas

Provider	Outlying Area Transportation Options				
	Johnson Valley	**Landers**	**Pioneer Town**	**Wonder Valley**	**Beyond the Morongo Basin**
MBTA Fixed Route (operating seven days a week, depending on route)	Not served	Route 21 – Landers Loop: 3 a.m. runs and 3 p.m., Monday – Friday between Yucca Valley Transit Ctr. & Landers destinations	Not served		Route 12 weekdays, 3 runs roundtrip daily to the Palm Springs airport Route 15 2 runs roundtrip on Fridays, Saturdays, Sundays to Palm Springs airport
MBTA Ready Ride (operating weekdays only)		Monday – Friday 7 a.m. to 5 p.m. Route deviation on Rt. 21.		- Tuesdays & Fridays - Monthly, first Wednesday 7 a.m. to 11:30 a.m.	Ready Ride connects on weekdays only to Highway Buses
Reach-Out Morongo	1 vehicle with ***volunteer driver,*** operating five days a month; approximately once weekly. Vehicle not lift-equipped.			2 vehicles with paid drivers; operating for local trips Monday thru Friday; vehicle not lift-equipped.	Once weekly, on alternating weeks to San Bernardino or Palm Springs. Vehicle not lift-equipped.
Hi Desert Medical Center	2 vehicles with ***paid drivers***; in transition on vehicle availability with two returned to the HDMC organization and delivery on a new Section 5310 vehicle. Regular, scheduled subscription trips to HDMC Behavioral Health and to Rural Health Clinics in Twentynine Palms and Yucca Valley. On demand trips on a space-available basis to HDMC destinations only.				Not served
TREP mileage reimbursement	3 enrolled consumers (August 2015)	10 enrolled consumers (August 2015)	12 Morongo Valley and 32 Yucca Valley enrolled consumers (August 2015)	Some number of 30 Twentynine Palms enrolled consumers (August 2015)	Reimbursable trips under TREP

Below is a review of the areas presented in the above table. Demographic maps of the Morongo Basin Area, showing the senior and auto-less populations and MBTA fixed route network, are included on the following pages to help to define the overall needs of these areas:

Wonder Valley, on the eastern edge of the Morongo Basin, is reasonably well served with MBTA's Ready Ride twice weekly service, with regular service provided by Reach-Out Morongo and by the Hi Desert Medical Center transportation to its medical facilities.

Landers, at the southwestern end of the valley, is similarly reasonably well served with six daily runs on the MBTA service and route deviation service also provided by MBTA. Periodic trips are provided by Reach-Out Morongo, albeit with volunteer drivers. The Hi Desert Medical Center transportation provides transportation to its patients in Landers.

Pioneer Town is not directly covered by MBTA but is, to a limited degree, by the Reach-Out Morongo organization and the Hi Desert Medical Center. However, for Pioneer Town there are comparatively fewer options.

Johnson Valley is not at all covered by MBTA. There is some limited service by Reach-Out Morongo and by the Hi Desert Medical Center. There are three identified TREP consumers enrolled from the Johnson Valley zip code.

The TREP program also appears to have enrollees in these various communities in the zip code analysis provided above.

Transportation to areas beyond the Morongo Basin. MBTA service into Palm Springs is available on Route 12 on weekdays and Route 15 on Fridays, Saturdays and Sundays, although a rider has to get to a Highway Bus stop in order to utilize the Route 15 service as it originates at the Park and Ride lot at the west end of Yucca Valley. Only Reach-Out Morongo is providing service into the greater San Bernardino area, providing trips to Loma Linda VA, to the Colton Regional Medical Center and to other downtown San Bernardino destinations.

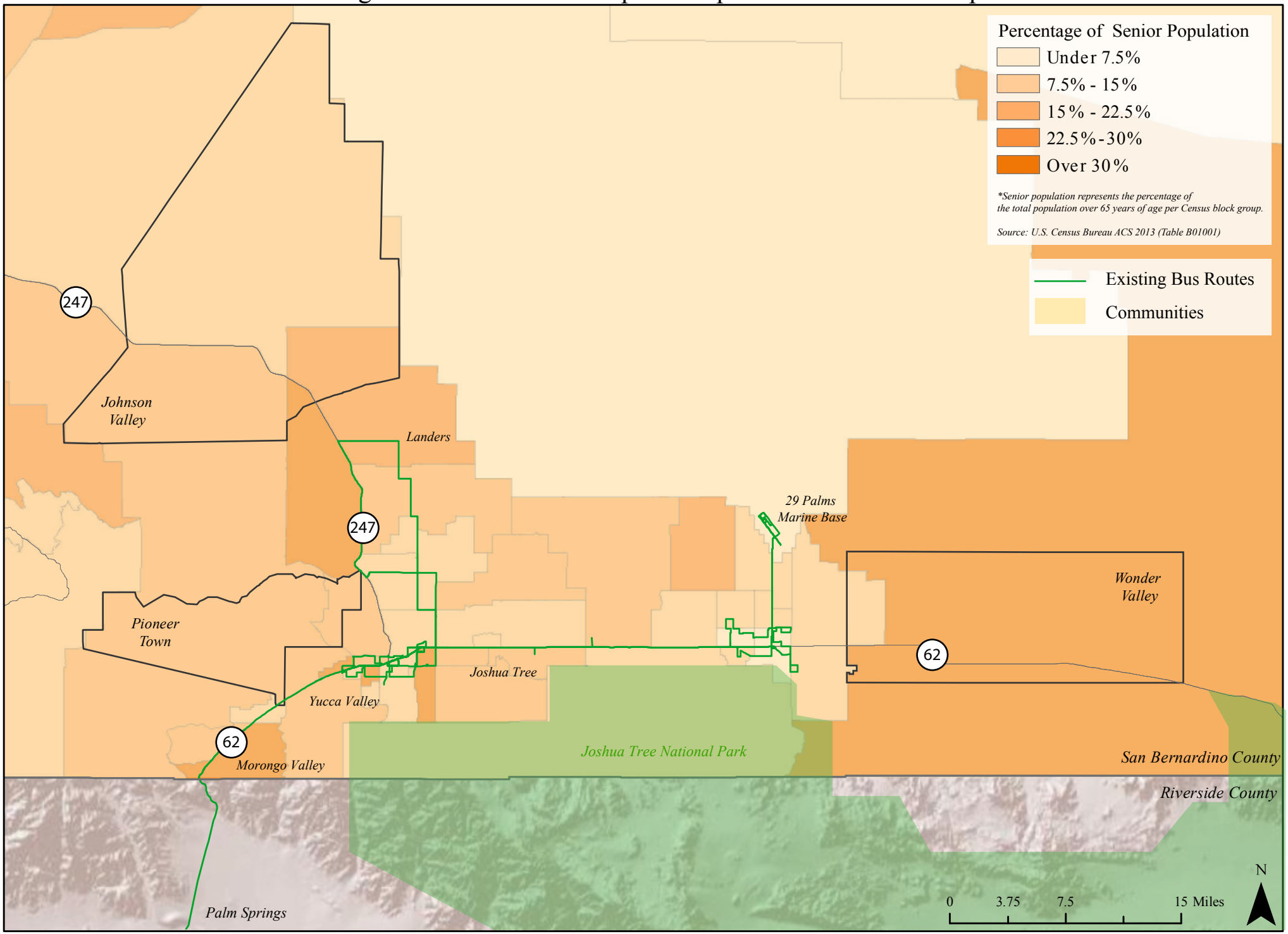
Overview of Gaps by Geography

A summary of gaps suggested by this overview are both spatial and temporal in nature:

- Wonder Valley is well served on weekdays but with no weekend service. Limited access to out-of-the-area trips is available through Reach-Out Morongo and MBTA.
- Landers is well served on weekdays and weekends by MBTA. Limited access to out-of-the-area trips is available through Reach-Out Morongo and MBTA.
- Pioneer Valley is not well served, although there may be more trips provided by TREP and the two community-based transportation providers than is immediately evident.
- Johnson Valley is not well served. There is some limited service by the two community-based organizations but it is not easily quantified. Reach-Out Morongo operates this with a volunteer driver and may or may not be able to field a driver when trip requests come in.
- Weekend trips are more difficult because there is no Ready Ride on Sundays to provide connections to the Highway Bus, Route 15.
- Out-of-the area trips are very limited – to MBTA's routes into Palm Springs and to the capacity of the Reach-Out Morongo organization to provide its limited once weekly service.

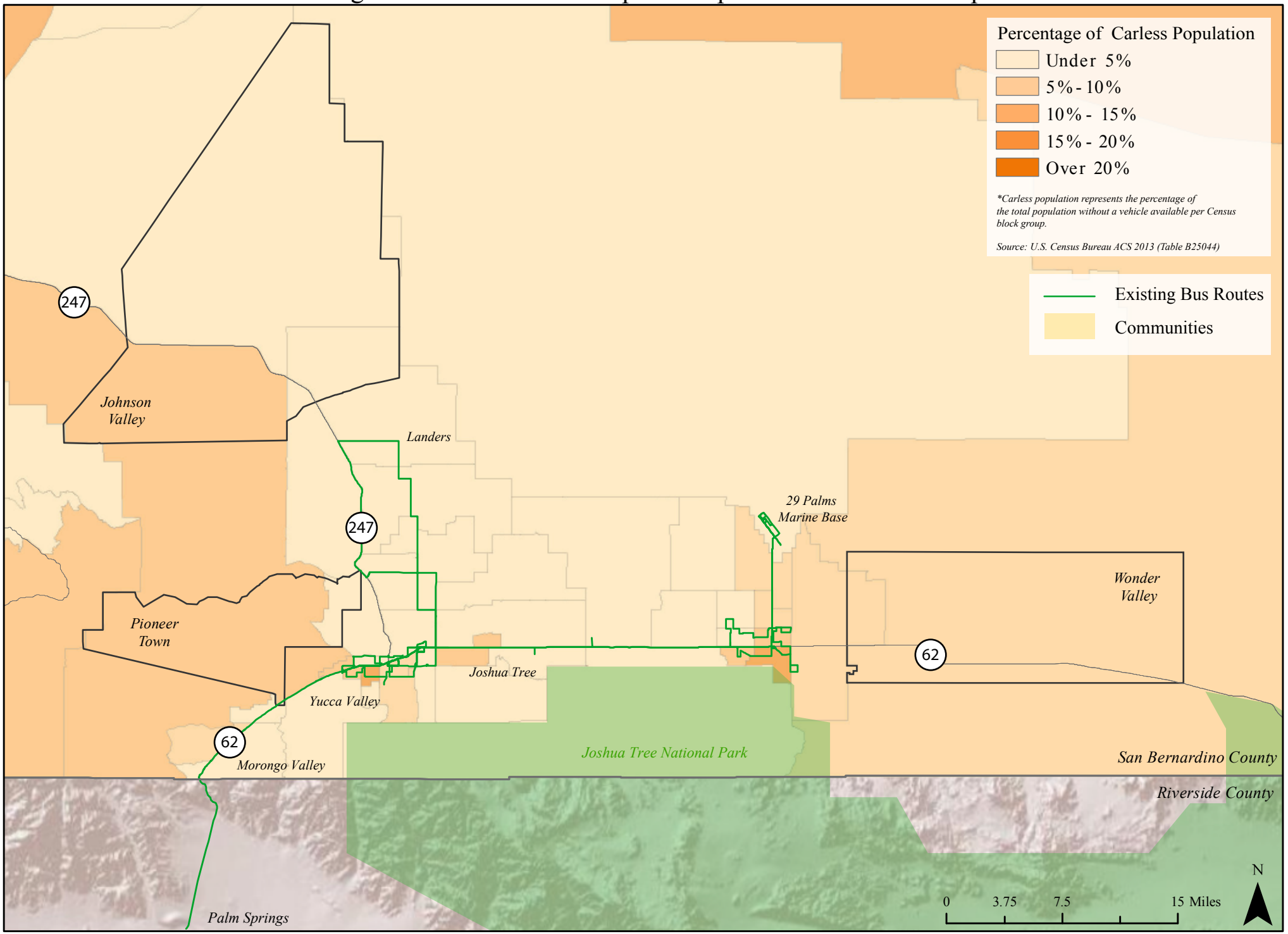
Morongo Basin Transit Authority

Existing Routes with Senior Population per Census Block Group



Morongo Basin Transit Authority

Existing Routes with Carless Population per Census Block Group



4. Summary of Needs and Opportunities Related to Outlying Areas' Mobility

The preceding examination has identified spatial, temporal and some institutional gaps in the existing transportation network available to Morongo Basin residents living in the outlying areas. It has documented the considerable role that MBTA plays in meeting mobility needs for residents living at distances from the Highway 62 corridor. It has also discussed the programmatic efforts of the community-based organizations discussed here to provide some level of mobility.

That said, mobility gaps do exist. These gaps are greatest for Johnson Valley where there are very limited service options. To a somewhat lesser degree, gaps for residents of Landers and Pioneer Town exist but there is also some adjacency to MBTA service for some residents. For Wonder Valley residents, there is both public and private transportation on most weekdays but no real options on the weekends.

Two community based organizations, Reach-Out Morongo and the Hi-Desert Memorial Health Care District, are providing service that does ameliorate some needs. Hi-Desert MHCD is providing about 8,000 trips and Reach-Out Morongo an estimated 1,200 trips annually. Each is serving important niche markets: HDMHCD is getting consumers regularly to medical services in and around the Morongo Basin while Reach-Out Morongo is providing local, curb-to-curb trips for a variety of purposes and providing weekly out-of-the area trips to medical facilities in Palm Springs, Loma Linda and Colton. Both services provide some limited service to Johnson Valley residents, although each within their respective program constraints and limitations.

TREP program information about the volume of trips provided was not available for analysis but it too is an important gap-filling resource for those in these outlying areas of the Morongo Basin.

Specific issues suggested by this examination include:

- ***Information Alternatives*** – Residents of the area, and even these transportation providers, may not be aware of what resources, however limited, do exist. Potential use of VetLink's new computer-aided trip planner (www.vetlink.org) can help to address this. While it is marketed to Veterans, it is available to all persons and will soon have a new "skin", making it more inviting to non-veteran populations. It provides trip planning on a zip code specific basis, as well as provision of more detailed information about each service on MBTA's website.
- ***Coordination of Services*** – The MBTA's Ready Ride, HDMHCD and Reach-Out Morongo services to the Wonder Valley may be somewhat duplicative. There may be some opportunity for coordination of existing vehicle runs and trip requests to the Wonder Valley that can increase the number of trips provided within existing resources, by each provider. For example, if Reach-Out Morongo were provided a lift-equipped vehicle, Reach-Out Morongo might have a contract with MBTA to provide services to the Wonder Valley, shifting Ready Ride resources to the core MBTA service area.
- ***Extension of Services*** – Pioneer Town trip needs may be geographically close enough to the Morongo Valley Ready Ride service that some modest expansion of that could help to serve some trip needs. This could be provided by a Ready Ride route, similar to the Wonder Valley, or

a contract with MBTA could be provided with Reach-Out Morongo to provide services with a paid driver.

- ***Expansion of Services*** – The anticipated third vehicle to the HDMHCD, funded with Section 5310 funds, may provide some opportunity to expand services in a meaningful way to the outlying areas. This would take coordination with and likely some additional revenue to HDMHCD to support a coordinated service capability.
- ***Building Capacity*** – The Reach-Out Morongo organization is operating with two paid drivers in the 29 Palms and Wonder Valley area but with volunteer drivers in the Yucca Valley and west area. If resources can be found to support a paid driver out of their Yucca Valley office, there may be opportunity to pick up more passenger trips, including in Pioneer Town and Johnson Valley, communities of interest to this analysis.

5. Recommendations for Lifelines Services

There are three specific recommendations that emanate from the analysis of lifeline service. They are described below.

1. **Provide Direct Service to Pioneer Town and Johnson Valley**

   There is no regular transit service to Pioneer Town and Johnson Valley, similar to existing service to Lear, Wonder Valley, and Morongo Valley. Demand responsive service to Pioneer Town and Johnson Valley is recommended at a minimum of two days a week. There are essentially two options for serving Pioneer Town and Johnson Valley. The first option would be directly-operated MBTA service. The second option is to partner with Reach-Out Morongo Basin.

   The first option would be to operate service on Ready Ride Route 36 two days per week to Pioneer Town and Johnson Valley. Route 36 provides service to Morongo Valley in the mornings on Mondays and Thursday. Approximately 550 annual vehicle service hours are provided two days a week at an average cost of $88.35 per vehicle service hour. In this alternative, Route 36 would be provided on Tuesday and Friday mornings, similar to service from the Morongo Valley. Due to the trip lengths, eight vehicle service hours per day for two days a week would be required or 832 additional annual vehicle service hours. Given the very low population density of the Pioneer Town and Johnson Valley, productivity would be expected to be lower than the 1.8 passengers per vehicle service hour provided by Ready Ride Route 36. This would increase the cost per passenger, which is expected to be almost $50 per trip in FY 2015/16. The farebox recovery ratio is just 2.8%. The cost of the first option of directly provided MBTA service would be approximately $74,000.

   The second alternative is to partner with Reach-Out Morongo Basin for a contract of $40,000 annually. At a slightly inflated rate of $35 per vehicle service hour, Reach Out Morongo Basin would be able to hire a driver and provide 832 vehicle service hours. This alternative would provide more service at 54% of the cost and is the recommended alternative.

Exhibit D-6 Ready Ride 36 Performance

Ready Ride 36

	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	% Change
Base Statistics	Actual	Actual	Actual	Projected*	12/13-15/16
Ridership	965	962	902	985	2.1%
Service Hours	519	568	555	548	5.5%
Service Miles	6,234	7,337	9,209	3,885	-37.7%
Fare Revenue	$1,206	$1,002	$1,415	$1,335	10.7%
Operating Costs	$39,936	$39,858	$48,973	$48,417	21.2%
Performance					
Passengers/Hour	1.9	1.7	1.6	1.8	-3.2%
Passenger/Mile	0.15	0.13	0.10	0.25	63.8%
Average Fare	$1.25	$1.04	$1.57	$1.35	8.4%
Farebox Recovery	3.0%	2.5%	2.9%	2.8%	-8.7%
Cost/hour	$76.89	$70.21	$88.27	$88.35	14.9%
Cost/Trip	$41.38	$41.43	$54.29	$49.14	18.7%
Subsidy/Trip	$40.13	$40.39	$52.73	$47.78	19.1%

* Interpolated by including third quarter total to date and adding 3rd qtr. total divided by three
The figure 3,885 for vehicle service miles is highlighted in yellow because the TransTrack figures do not make sense compared to the vehicle service hours provided.

It is recommended that MBTA include a line item in its FY 2017/18 budget for a contract with Reach-Out Morongo Basin to provide demand response service to Pioneer Town and the Johnson Valley two days a week. This would enable Reach-Out Morongo Basin to hire a driver and dispatcher to provide increased lifeline service levels.

If proven successful in this pilot partnership for service delivery by Reach-Out Morongo Basin, it may be feasible to consider additional contracts for lifeline service in the Morongo Basin.

2. MBTA should apply for FTA 5310 funding to provide TREP services in the Morongo Basin

The TREP program is a very important lifeline transportation program in the Morongo Basin. With the transfer of the TREP program from VTrans to VVTA, it is important that MBTA retain direct local control over the program. It is recommended that MBTA apply for a FTA 5310 grant application to provide funding for a MBTA sponsored TREP program in the Morongo Basin.

There are third party programs, such as Assisted Rides, that MBTA could outsource for back office fulfillment of mileage reimbursement. An example of the capabilities of a third party vendor is at http://assistedrides.com.

3. Adopt a formal MBTA objective for mobility management

The MBTA organization is already playing a significant role in addressing mobility needs of residents of outlying areas. These are mobility management functions in at least three key areas:

1. Providing operating and capital funding through the TAG program
2. Providing support services through secure parking for agency vehicles
3. Convening coordination meetings to explore the continuing next-steps of coordinated transportation

Formalizing this role in terms of a stated Board policy is appropriate at this juncture, including allowing the agency to pursue special funding given formal policy direction. This could be formally done by adopting one or more specific objectives for the adopted MBTA Goals. As part of the 2012 Comprehensive Operations Analysis, the stated goals of MBTA includes the following:

"Goal IV; Provide transit service that is accessible to all persons while maintaining system productivity."

The two current objectives for this goal are:

- "Handicap Accessibility"
- "Bicycle Accessibility"

It is recommended to expand this goal to a general mobility management goal:

"Develop and fund public/private partnerships that cost-effectively expand mobility options to individuals living in Morongo Basin areas that cannot generate minimum productivity and farebox revenue standards with traditional fixed route or demand response services (mobility management goal)."