



Working Paper 3: System & Service Evaluation

Working Paper 3 provides an overview of the Bullhead Area Transit System (BATS) Short and Long Range Transit Plan purpose, evaluation of the existing system and its services through qualitative, and quantitative analysis. This paper analyzes the services, fleet, and staffing composition. These results will guide the development of the Short and Long Range Transit Plan and the future of transit service in Bullhead City.

Purpose of the Plan

Information presented in Working Paper 3 will be a blueprint that will drive transit planning, service operations, capital investment, and policy decisions. The of the plan is to create a sustainable, safe, innovative, and efficient transit service that improves quality of life of residents, supports economic growth, and provides local and regional transportation options. The Plan aims to:

- Evaluate existing transit service and identify opportunities to improve service and efficiency
- Understand the desires and expectations of residents
- Identify solutions and potential partnerships to support long-lasting, sustainable public transportation
- Develop a plan for short- and long-term public transportation improvements





Service Evaluation

This section presents an assessment of all current Bullhead City transit services, including its four fixed routes, demand response, and senior/disabled transit services. Fixed route service evaluation includes service operations, financial overview, and infrastructure evaluation. Evaluation of the BATS Demand Response and Senior/Disabled Transit include services operations, financial overview, trip cancellations, and an overview of the reservation system. Due to the global impacts of the COVID-19 pandemic, this analysis utilizes recent data from the last five years to understand the long term trends of the Bullhead City transit system. This evaluation summarizes the results of the analysis and provides a comparison to industry standards and peer agencies.

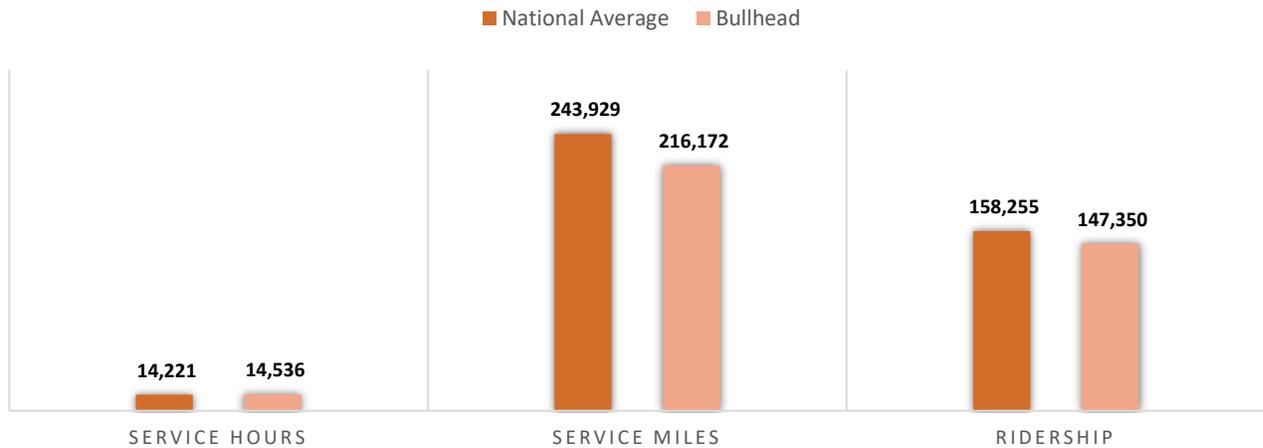


Fixed Route System Performance

Each BATS route serves the Bullhead community in an important and different way (**Figure 3**). The performance of each route are compared to understand how the system operates. **Table 1** demonstrates these trends, delineating total mileage, service hours, and ridership by year and route. **Figure 2** demonstrates the annual on-time performance for each of fixed route services from 2019-2021. In addition, national annual averages for rural transit in 2019 were evaluated to provide an overview of how Bullhead compares to other rural transit systems (**Figure 1**). Data was collected from 2019 to provide a more accurate comparison since data from 2020 and 2021 were impacted by the COVID-19 pandemic.



Figure 1: National and Bullhead Annual Service Data 2019



In comparison BATS is close behind national averages showing similar number of annual service hours, miles, and ridership. This indicates that Bullhead provides a comparable service to other rural transit systems across the country. While the national averages provide insight on how the Bullhead systems operates compared to the other rural transit systems in the country, looking at how well the routes compare against each other, and peer agencies will provide more detailed comparison on how well BATS is operating at a local level.

Table 1: Fixed Route Yearly Summaries

Total Mileage by Year					
Route	2017	2018	2019	2020	2021
Green	71,890	81,121	81,803	81,824	81,329
Red	78,517	47,573	47,312	52,062	51,838
Blue	58,296	42,430	43,343	44,570	44,251
Orange	N/A	40,167	43,714	41,982	42,102

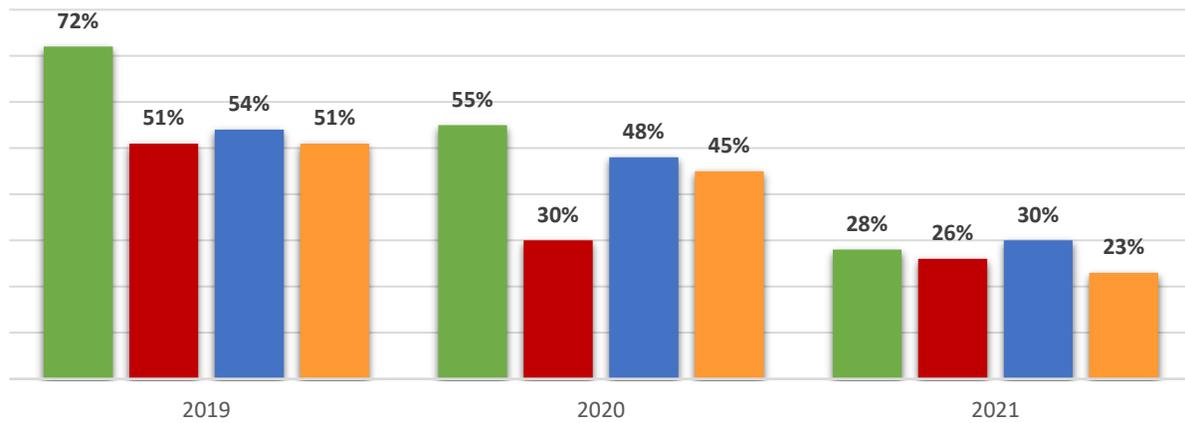
Total Service Hours by Year					
Route	2017	2018	2019	2020	2021
Green	2,811	3,622	3,634	3,639	3,616
Red	6,528	3,622	3,634	3,639	3,922
Blue	3,903	3,622	3,634	3,639	3,616
Orange	N/A	3,349	3,634	3,639	3,616

Total Ridership by Year					
Route	2017	2018	2019	2020	2021
Green	9,484	15,046	15,275	11,128	10,387
Red	103,946	77,772	70,367	49,485	51,556
Blue	53,967	29,939	29,635	19,268	16,578
Orange	N/A	32,182	32,073	21,533	19,963

*Red Line was split in 2018 to create Orange Line
 *2017-2021 data from BATS



Figure 2: On-Time Performance

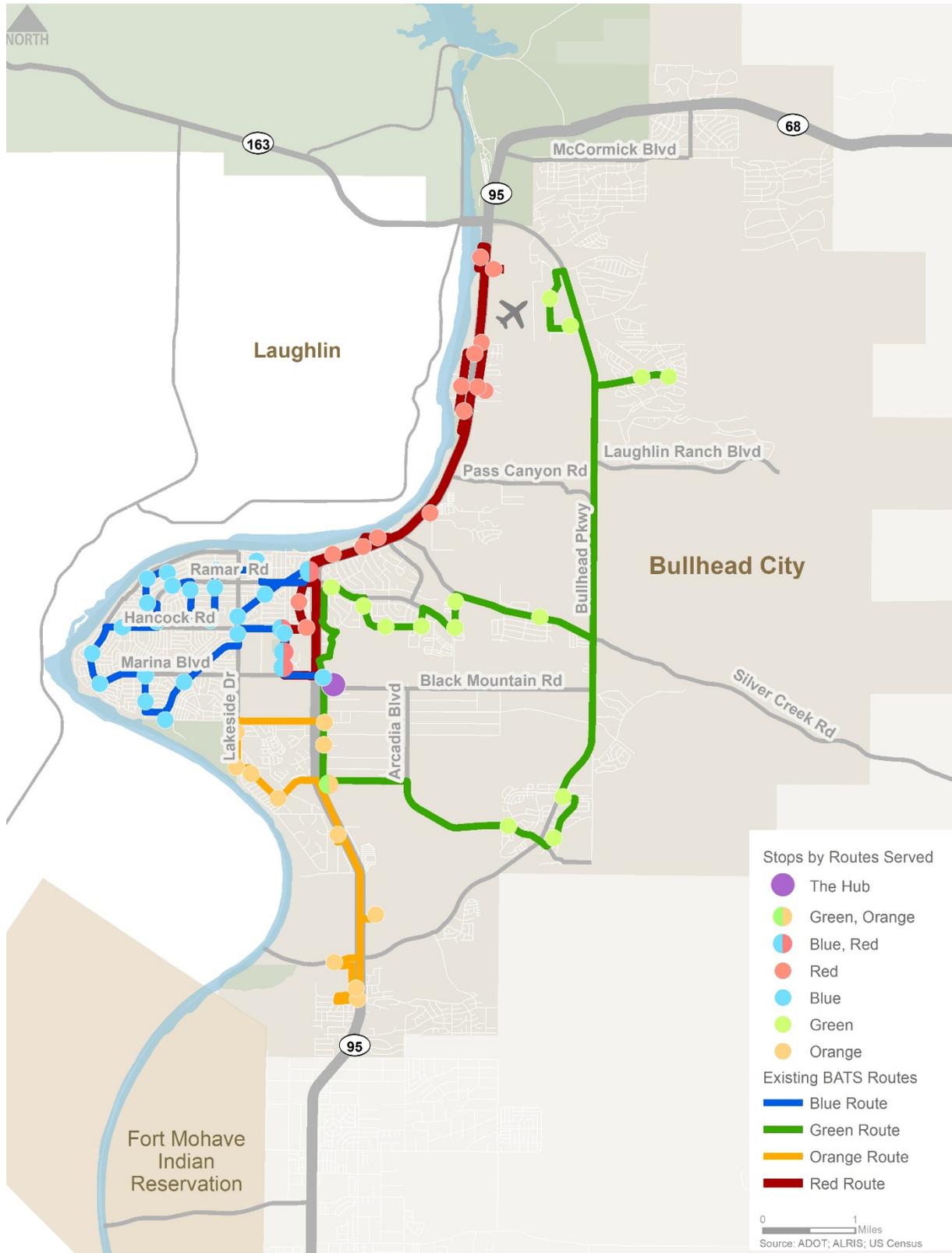


*2019 – 2021 data from BATS

Between 2017 – 2021, the mileage of each of the four routes remained relatively steady, with the exception of 2018 with the addition of the Orange Line. As BATS’ longest route, the Green Line has the highest service mileage by a wide margin each year. However, it is the Red Line that consistently attracts the highest ridership, peaking around 100,000 annual trips in 2017. Since the system peak in 2017, ridership has been on a steady decline, with substantial decreases in 2020, associated with the COVID-19 pandemic. On-time performance has decreased from 2019 to 2021. While on-time performance has decreased this presents an opportunity improve on-time performance in the short and long term plan.



Figure 3: Existing BAT Routes





Historical Annual Ridership

Figure 4 and **Figure 5** show the total annual ridership between 2017 – 2021, by route. The Red Line is consistently BATS’ most populated route. As illustrated in the charts, the Green Line historically has the lowest ridership, while Blue and Orange Lines have had consistent ridership.

Figure 4: Total Rides per Hour by Year

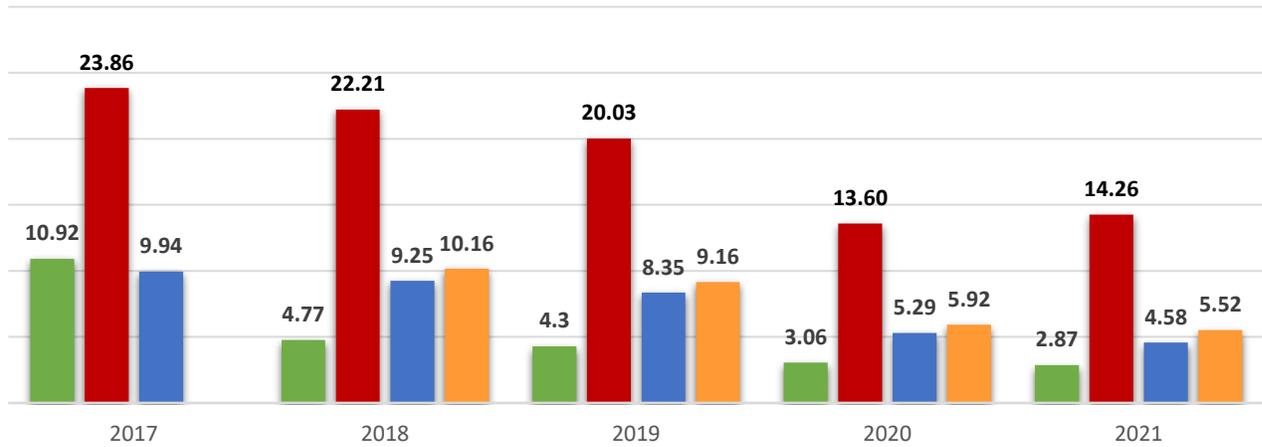
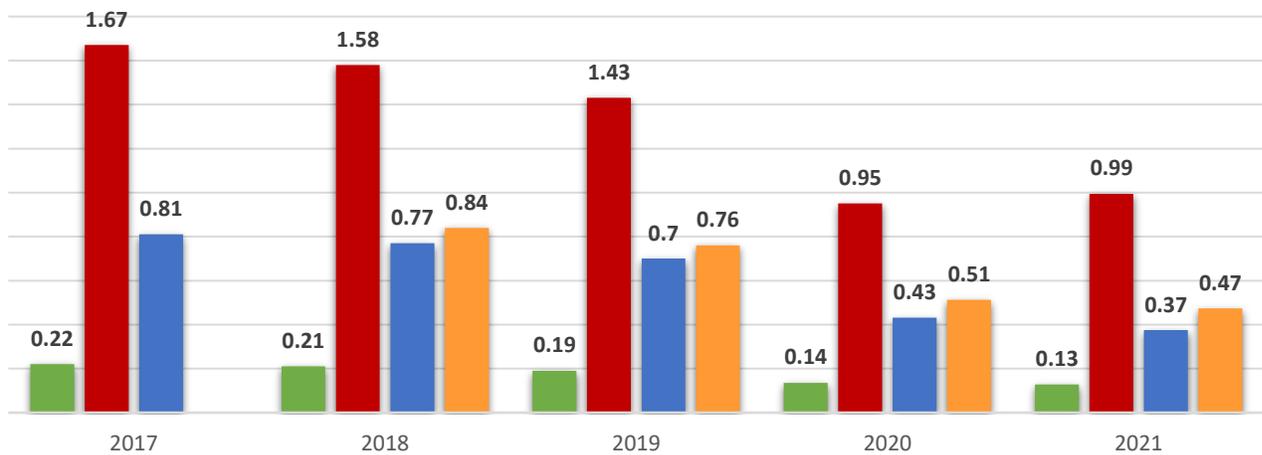


Figure 5: Total Rides per Mile by Year



*Red Line was split in 2018 to create Orange Line
 *2017-2019 data from NTD, 2020 – 2021 data from BATS

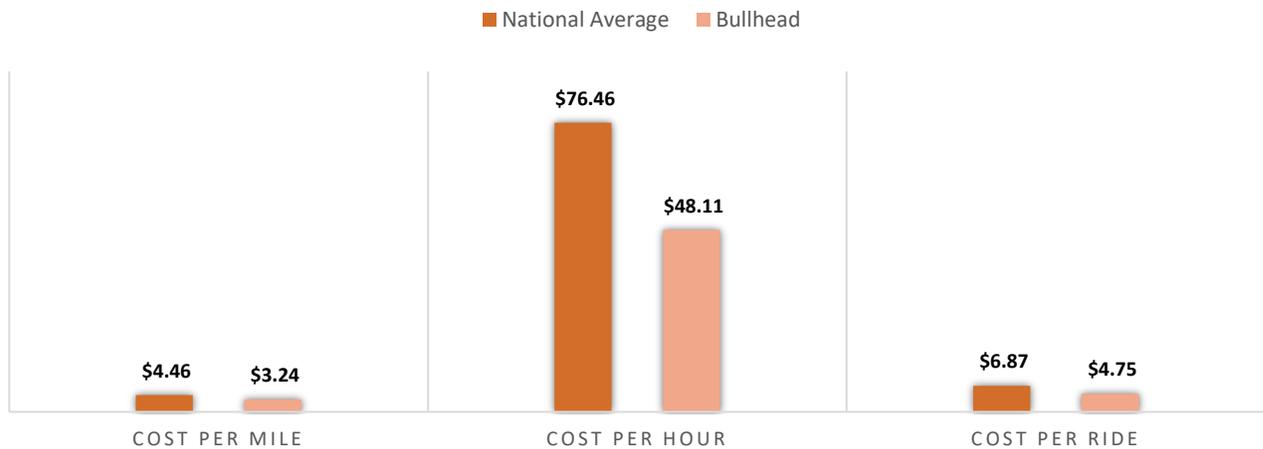


Financial Overview

BATS is housed in Bullhead City’s Public Works Department, and annually included in the City’s budgeting process by means of the General Fund Account. Bullhead City funds serve as the local match for the Federal Section 5311 Rural Transit Grant Program funds that BATS has received since its inception. The Bullhead City’s General Fund also supports a variety of City departments and divisions.

Table 2 delineates BATS’ costs per hour, mile, and trip for each route. **Table 3** delineates the total budget expenditures for each year which include administrative, operations and capital costs. **Figure 6** shows the annual cost per mile, hour, and ride for BATS along with the national averages for rural transit for comparison. In comparison to the national averages, BATS has lower annual costs per mile, hour, and ride. In addition to the comparison to national averages **Table 2** shows a more detailed breakdown of the costs for each route.

Figure 6: National and Bullhead Annual Financial Data in 2019



The financial overview shows that overall, the highest costs for each route occurred in 2018 and in 2020. The Green Line has the highest cost per hour. The highest cost per mile varies between 2017-2020. In 2017 the Red Line had the highest cost per mile. In 2018 and 2020 the Blue Line has the highest cost per mile. In 2019 the Orange Line has the highest cost per mile. The Green Line, with exception in 2018 with the creation of the Orange Line, had the highest cost per trip. In **Table 3** the budget for capital, administration and operations shows the highest costs in 2018 and 2020 with nearly double the budget from previous years. Higher costs can be attributed to the addition of staff, drivers, dispatchers, increases in salary, and maintenance of vehicles.


Table 2: Fixed Route Annual Cost Summaries

Cost per Hour				
Route	2017	2018	2019	2020
Green	\$52.13	\$109.48	\$48.31	\$103.00
Red	\$51.72	\$108.28	\$48.07	\$98.82
Blue	\$51.81	\$108.14	\$48.04	\$97.77
Orange	N/A	\$108.15	\$48.04	\$97.41
System Total	\$51.83	\$108.51	\$48.11	\$99.25

Cost per Mile				
Route	2017	2018	2019	2020
Green	\$2.04	\$4.85	\$2.15	\$4.58
Red	\$4.30	\$8.30	\$3.69	\$6.91
Blue	\$3.47	\$9.05	\$4.03	\$7.98
Orange	N/A	\$8.97	\$3.99	\$8.44
System Total	\$3.29	\$7.28	\$3.24	\$6.55

Cost per Trip				
Route	2017	2018	2019	2020
Green	\$15.45	\$11.80	\$11.49	\$33.68
Red	\$3.25	\$12.54	\$2.48	\$7.27
Blue	\$3.75	\$4.82	\$5.89	\$18.47
Orange	N/A	\$24.93	\$5.44	\$16.46
System Total	\$4.10	\$9.72	\$4.75	\$14.25

*Red Line was split in 2018 to create Orange Line *2017-2020 data from NTD, 2021 was not included as the NTD data is not yet available

Table 3: Fixed Route Budget Breakdown

Administration				
Route	2017	2018	2019	2020
Green	\$43,619	\$117,176	\$56,848	\$115,859
Red	\$100,503	\$115,889	\$56,562	\$111,161
Blue	\$60,191	\$115,741	\$56,529	\$109,978
Orange	N/A	\$115,754	\$56,532	\$109,570
Total	\$204,314	\$464,560	\$226,472	\$446,568

Operating				
Route	2017	2018	2019	2020
Green	\$102,908	\$262,520	\$118,705	\$258,962
Red	\$237,112	\$259,635	\$118,108	\$248,461
Blue	\$142,006	\$259,303	\$118,039	\$245,818
Orange	N/A	\$259,334	\$118,045	\$244,905
Total	\$482,025	\$1,040,793	\$472,897	\$998,145

Capital				
Route	2017	2018	2019	2020
Total	\$234,984	\$468,449	\$398,151	\$728,520

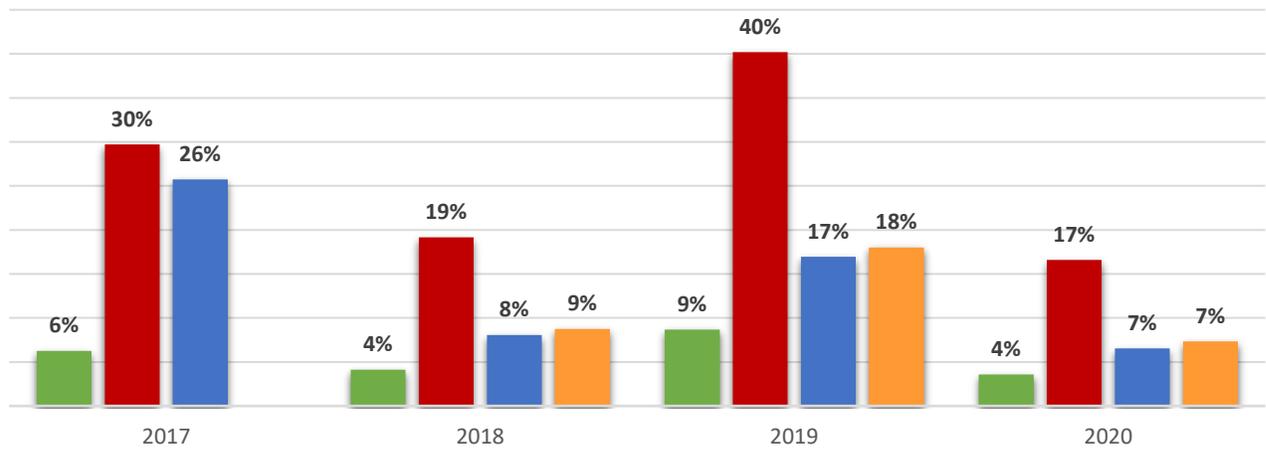
*Red Line was split in 2018 to create Orange Line *2017-2020 data from NTD, 2021 was not included as the NTD data is not yet available



Revenue

In addition to the local and federal funds that BATS receives to operate its system, fare revenue contribute to a portion of BATS’ annual operations budget. **Figure 7** delineates farebox recovery by route. The farebox recovery ratio is calculated by dividing fare revenue by total costs per route. Overall the Red Line has the highest farebox recovery ratio.

Figure 7: Farebox Recovery Ratio by Year



*Red Line was split in 2018 to create Orange Line
 *2017-2019 data from NTD

Fixed Route Profiles

The following section contains a summary of each route based on historic data and field observations. This section provides a more detailed comparison for each metric for each fixed route. In addition, this section identifies key takeaways and potential opportunities for each of the fixed route.



Green Line

As the BATS’ longest route, the Green Line serves a variety of destinations in central, northern, and eastern Bullhead City. The Green Line has two main transfer points at The Hub and Walmart. The Green Line has the highest mileage and the lowest ridership compared to the other routes. The Green Line also has the highest cost per service hour and cost per trip, except for the Orange Route in 2018. **Figure 11** displays ridership by stop in 2019, and **Figure 12** displays the percent change in ridership between 2019 – 2021. All Green Line stops have experienced a decrease in ridership during the COVID-19 pandemic. The Green Line, although shows less utilization as compared to other routes, this provides an opportunity to look at potential solutions to provide a more utilized route.

Table 4: Green Line Yearly Summary

	Mileage	Hours	Rides
2017	71,890	2,811	9,484
2018	81,121	3,622	15,046
2019	81,803	3,634	15,275
2020	81,824	3,639	11,128
2021	81,329	3,616	10,387

Table 5: Green Line Yearly Cost Summary

	Cost per Service Hour	Cost per Service Mile	Cost per Trip
2017	\$52.13	\$2.23	\$15.45
2018	\$109.48	\$4.85	\$11.80
2019	\$48.31	\$2.15	\$11.49
2020	\$103.00	\$4.58	\$33.68

Figure 8: Green Line Farebox Ratio

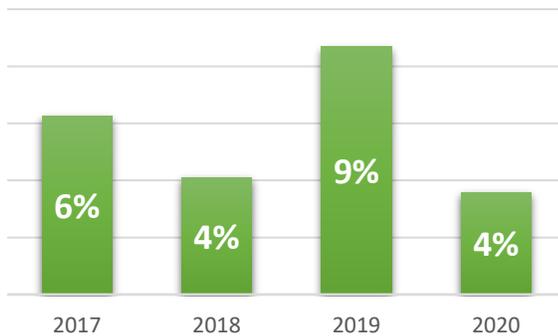


Figure 9: Green Line On-Time Performance

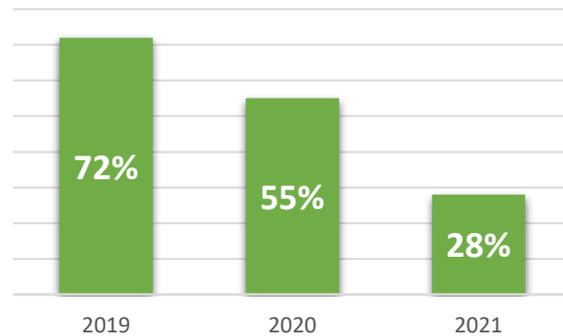


Figure 10: Green Line Infrastructure



Table 6: Green Line Yearly Rides

	Rides per Hour	Rides per Mile
2017	5.12	0.22
2018	4.77	0.21
2019	4.30	0.19
2020	2.78	0.13
2021	1.86	0.09



Figure 11: Green Line 2019 Ridership by Stop

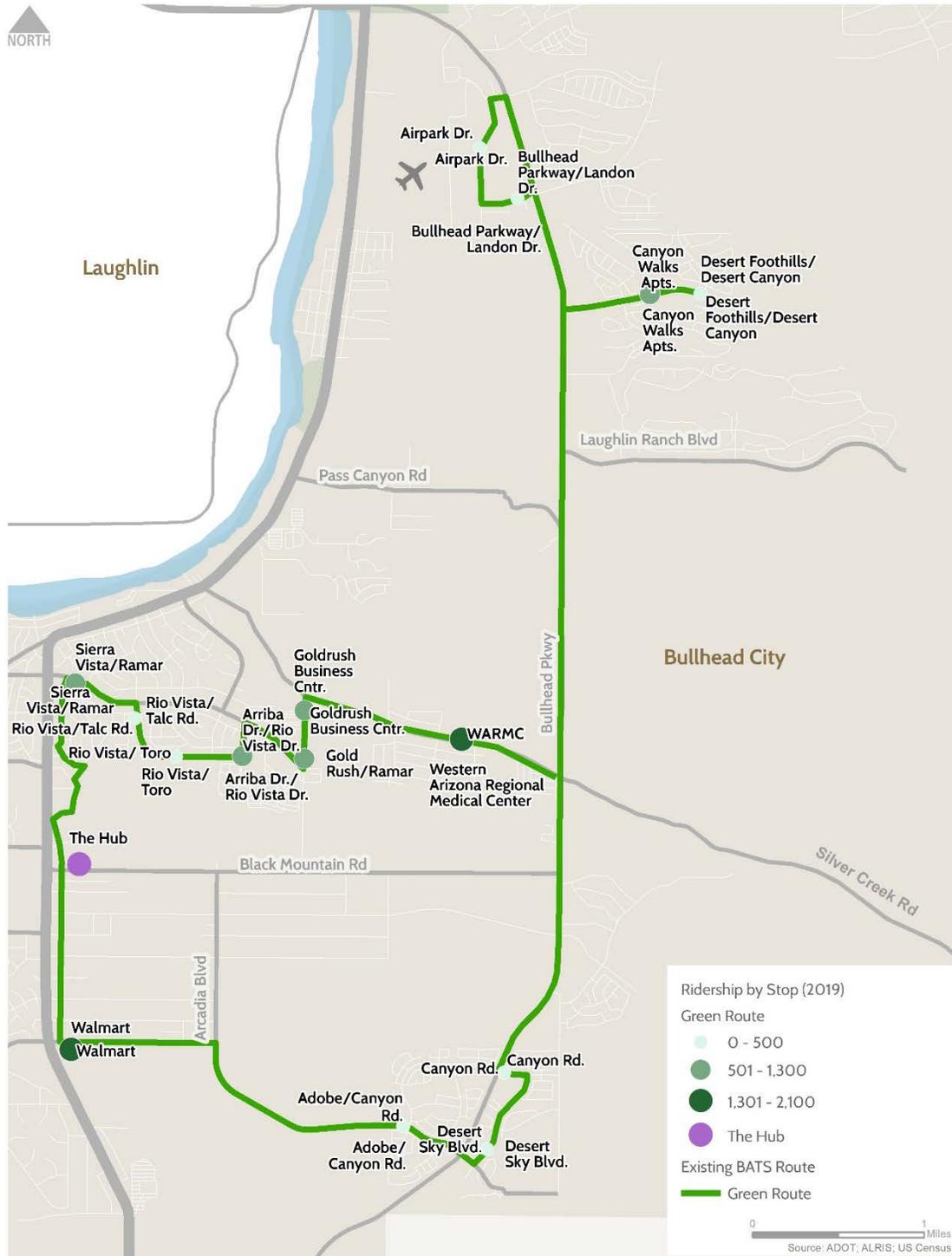
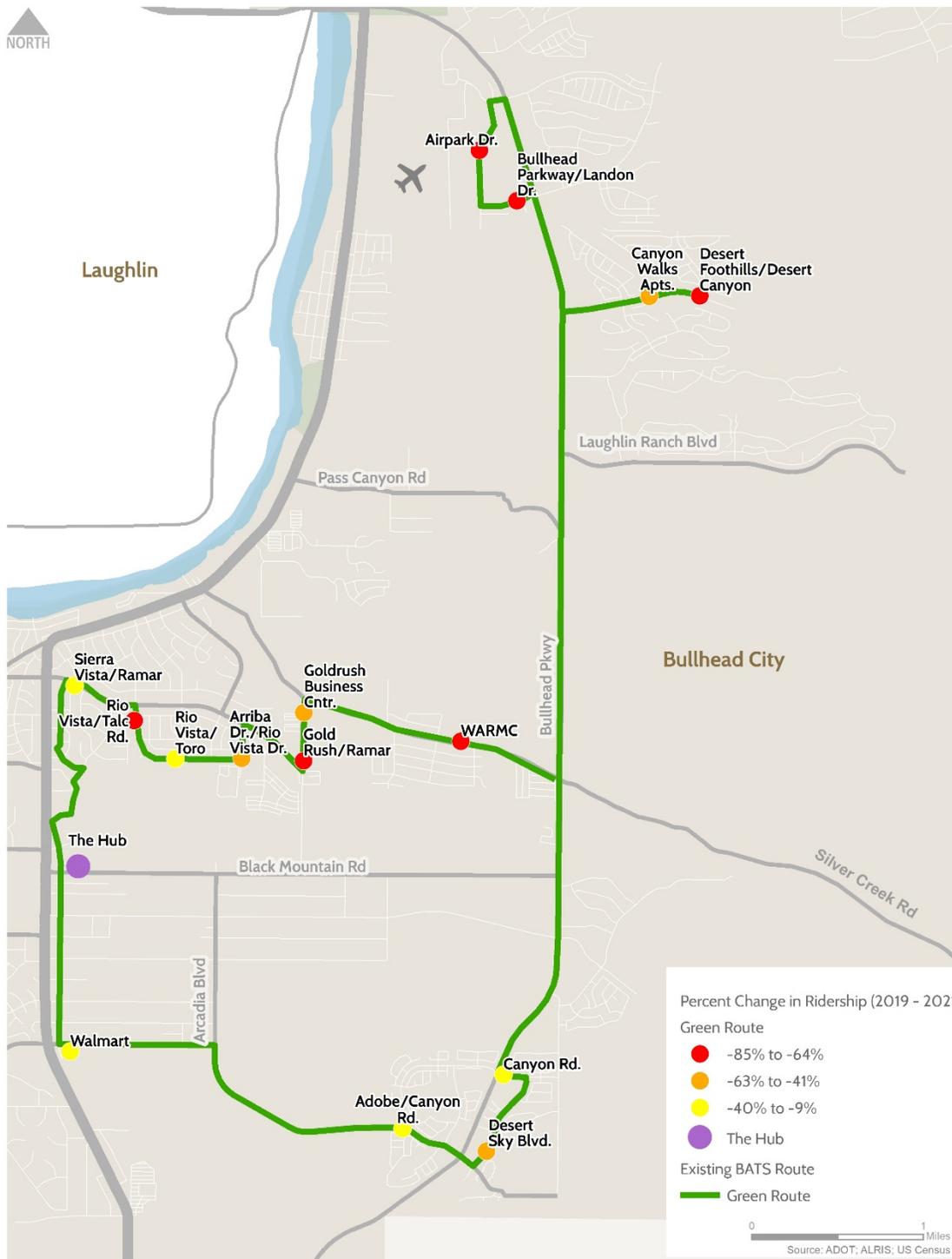




Figure 12: Green Line 2019-2021 Change in Ridership





Red Line

Primarily serving the northern extent of the US-95 corridor within Bullhead City, the Red Line includes important commercial destinations. The Red Line attracts the highest ridership on the BAT system and provides several connection points with Blue Line stops. **Figure 16** displays ridership by stop in 2019, and **Figure 17** displays the percent change in ridership between 2019 – 2021. All Red Line stops have experienced a decrease in ridership during the COVID-19 pandemic. A key takeaway is the on-time performance. The Red Line serves the most riders and destinations and has the lowest on-time performance. On-time performance can be attributed to the number of stops and the number of left/right rights the Red Line makes to service stops off SR-95. The Red Line provides an opportunity to look at number of stops, direction, and frequency to improve on-time performance.

Table 7: Red Line Yearly Summary

	Mileage	Hours	Rides
2017	78,517	6,528	103,946
2018	47,573	3,622	77,772
2019	47,312	3,634	70,367
2020	52,062	3,639	49,485
2021	51,838	3,922	51,556

Table 8: Red Line Yearly Cost Summary

	Cost per Service Hour	Cost per Service Mile	Cost per Trip
2017	\$51.72	\$4.30	\$3.25
2018	\$108.28	\$8.30	\$12.54
2019	\$48.07	\$3.69	\$2.48
2020	\$98.82	\$6.91	\$7.27

Figure 13: Red Line Farebox Ratio

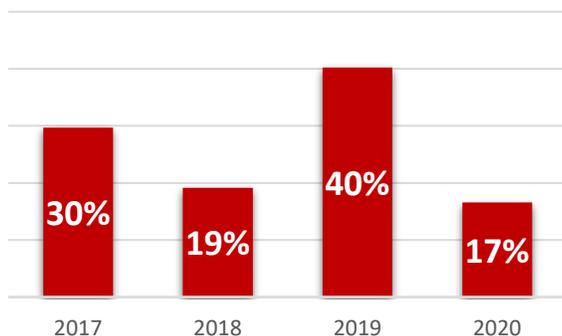


Figure 14: Red Line On-Time Performance

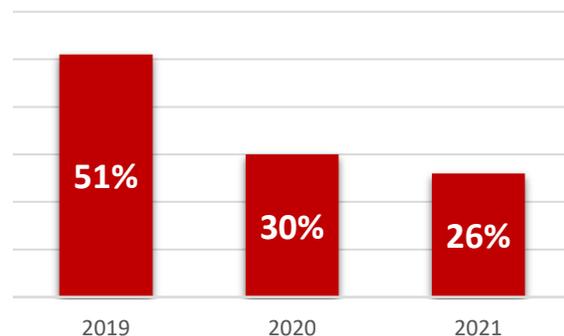


Figure 15: Red Line Infrastructure



Table 9: Red Line Yearly Rides

	Rides per Hour	Rides per Mile
2017	23.86	1.67
2018	22.21	1.58
2019	20.03	1.43
2020	12.99	0.95
2021	9.99	0.73



Figure 16: Red Line 2019 Ridership by Stop





Figure 17: Red Line 2019-2021 Change in Ridership





Blue Line

Considered a downtown circulator, the Blue Line provides important connectivity between community destinations and residential areas. The Blue Line also services several stops that provide a transfer point to the Red Line. **Figure 21** displays ridership by stop in 2019, and **Figure 22** displays the percent change in ridership between 2019 – 2021. While most Blue Route stops have experienced a decrease in ridership during the COVID-19 pandemic, a few have shown an increase in ridership. The Blue Line has the third highest ridership, closely behind Orange Line, among the four routes. The Blue Line’s on-time performance is the second highest compared to the other fixed routes; however, the Blue Line has some of the lowest ridership stops. The Blue Line also has a significant number of left and right turns along the route. The Blue Line has a great opportunity to be a more streamlined service that still provides access to important downtown destinations and residential areas.

Table 10: Blue Line Yearly Summary

	Mileage	Hours	Rides
2017	58,296	3,903	53,967
2018	42,430	3,622	29,939
2019	43,343	3,634	29,635
2020	44,570	3,639	19,268
2021	44,251	3,616	16,578

Table 11: Blue Line Yearly Cost Summary

	Cost per Service Hour	Cost per Service Mile	Cost per Trip
2017	\$51.81	\$3.47	\$3.75
2018	\$108.14	\$9.05	\$4.82
2019	\$48.04	\$4.03	\$5.89
2020	\$97.77	\$7.98	\$18.47

Figure 18: Blue Line Farebox Ratio

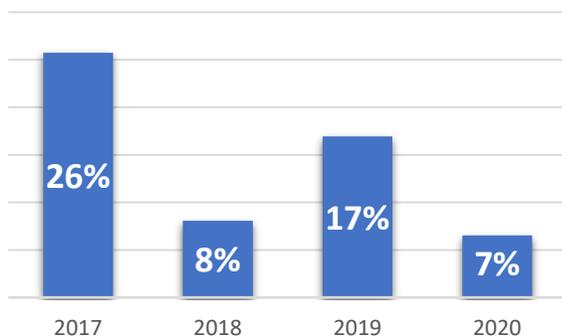


Figure 19: Blue Line On-Time Performance

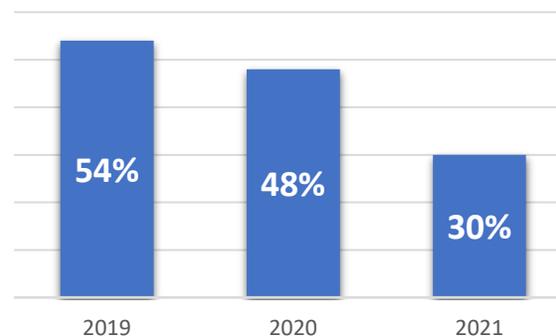


Figure 20: Blue Line Infrastructure



Table 12: Blue Line Yearly Rides

	Rides per Hour	Rides per Mile
2017	9.94	0.81
2018	9.25	0.77
2019	8.35	0.70
2020	4.75	0.42
2021	2.82	0.25



Figure 21: Blue Line 2019 Ridership by Stop





Figure 22: Blue Line 2019-2021 Change in Ridership





Orange Line

Serving the southern extent of the US-95 corridor in Bullhead City, the Orange Line was created from the Red Line in 2018. The Orange Line provides connectivity with residential areas in southern Bullhead City and links with a few Green Route stops. **Figure 26** displays ridership by stop in 2019, and **Figure 27** displays the percent change in ridership between 2019 – 2021. While most Orange Line stops have experienced a decrease in ridership during the COVID-19 pandemic, a few have increased. The Orange Line has the second highest ridership amongst the four routes. The Orange Line also has similar cost per mile and cost per trip as the Red Line, since the Orange Line was once part of the Red Line. The Orange Line, like most of the routes, doesn't have very many transfer points. The only transfer points along the Orange Line are at The Hub and Walmart. This provides an opportunity to look at more potential connection points, especially with the Orange Line having the second highest ridership.

Table 13: Orange Route Yearly Summary

	Mileage	Hours	Rides
2017	N/A	N/A	N/A
2018	40,167	3,349	32,182
2019	43,714	3,634	32,073
2020	41,982	3,639	21,533
2021	42,102	3,616	19,963

Table 14: Orange Route Yearly Cost Summary

	Cost per Service Hour	Cost per Service Mile	Cost per Trip
2017	N/A	N/A	N/A
2018	\$108.15	\$8.97	\$24.93
2019	\$48.04	\$3.99	\$5.44
2020	\$97.41	\$8.44	\$16.46

Figure 23: Orange Route Farebox Ratio

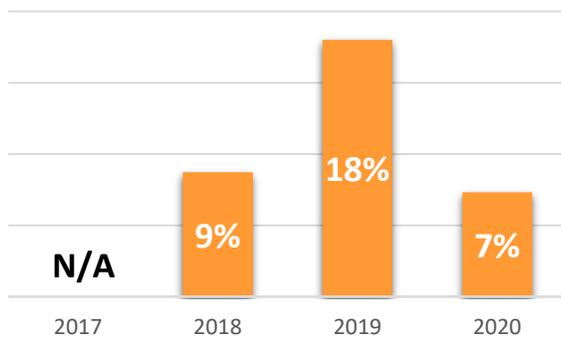


Figure 24: Orange Route On-Time Performance

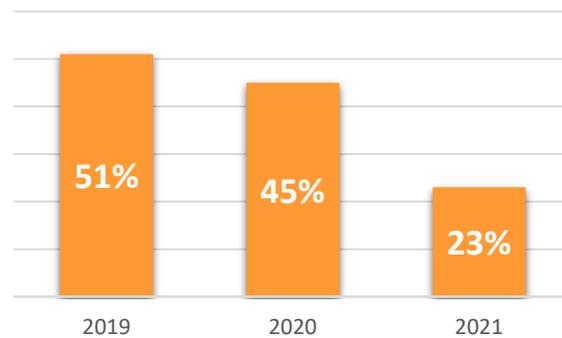


Figure 25: Orange Route Infrastructure



Table 15: Orange Route Yearly Rides

	Rides per Hour	Rides per Mile
2017	N/A	N/A
2018	10.16	0.84
2019	9.16	0.76
2020	5.39	0.50
2021	3.66	0.34



Figure 26: Orange Line 2019 Ridership by Stop





Figure 27: Blue Line 2019-2021 Change in Ridership





Paratransit

The BATS also provides a door-to-door, shared-ride paratransit service for mobility-limited riders called “Dial-a-Ride”. This demand response service provides crucial connectivity for pre-approved passengers in and around Bullhead City for rides that are scheduled at least one day in advance, by phone or email. Additionally, BATS offers its senior/disabled transit service, which relies upon volunteer drivers to connect elderly and disabled riders for medical and errand-based trips. Demand response provides service within Bullhead City limits Monday through Friday 6 AM – 7 PM and Saturday 8 AM – 2 PM. In total demand response and senior/disabled transit serves 110-square miles which includes Bullhead City limits and west-central Mohave County, Monday through Friday 8 AM – 2 PM. This section provides an overview of the performance of these paratransit services. **Figure 33** illustrates the existing demand response and senior/disabled transit. **Table 15** shows the total miles, service hours and rides provided between 2017 – 2021. While the COVID-19 pandemic impacted ridership in 2020, an increase in ridership in 2021 indicates a trend back towards pre-pandemic levels.

In addition, demand response and senior/disabled transit were compared to national averages for rural paratransit. **Figure 28** compares the total hours, miles and ridership of both BATS demand response and senior/disabled transit. The BATS paratransit service has lower hours, miles and ridership compared to national averages. A more detailed comparison of demand response and senior/disabled transit are provided below in **Table 16**.

Figure 28: Paratransit Average Annual Service in 2019

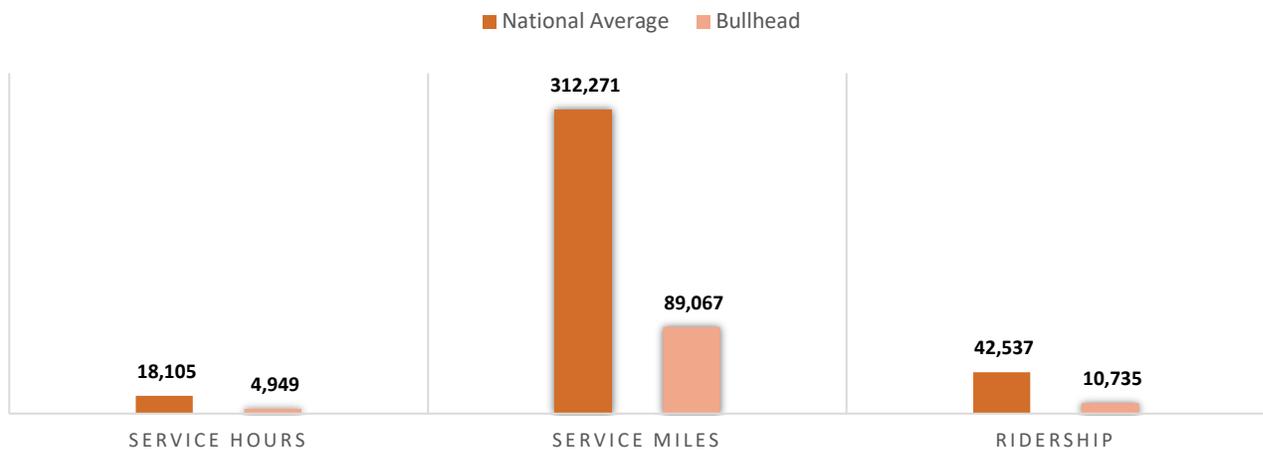




Table 16: Paratransit Yearly Summaries

Service	Total Mileage by Year				
	2017	2018	2019	2020	2021
Demand Response	5,8907	6,7654	6,7254	4,9692	5,1629
Senior/Disabled Transit	19,325	22,575	21,813	19,322	23,199

Service	Total Service Hours by Year				
	2017	2018	2019	2020	2021
Demand Response	3,730	3,527	3,629	3,314	3,153
Senior/Disabled Transit	1,199	1,270	1,320	1,194	1,210

Service	Total Ridership by Year				
	2017	2018	2019	2020	2021
Demand Response	9,253	9,524	9,744	5,955	6,401
Senior/Disabled Transit	958	1,038	991	939	997

*2017-2021 data from BATS

National annual costs were also compared to BATS paratransit. The BATS paratransit system overall costs more per mile, hour, and ride compared to national averages. **Table 17** provides a more detailed breakdown of the costs for both demand response and senior/disabled transit. Total budget expenditures for each year looked at total administrative, operations and capital costs in **Table 18**.

Figure 29: Paratransit Annual Financial Data in 2019

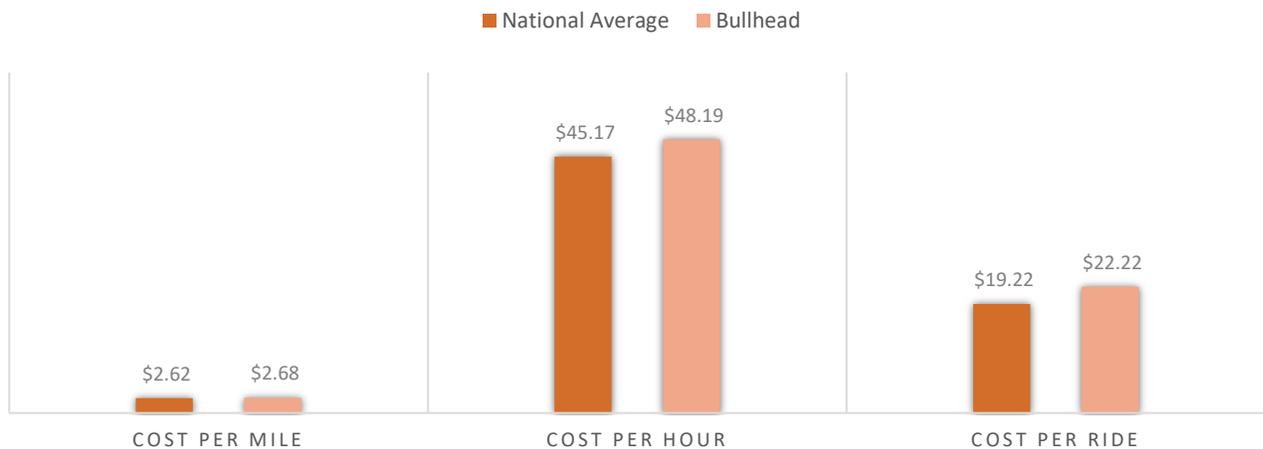




Table 17: Paratransit Annual Cost Summaries

Service	Cost per Hour			
	2017	2018	2019	2020
Demand Response	\$51.83	\$108.98	\$48.21	\$99.18
Senior/Disabled Transit	\$51.84	\$108.72	\$48.16	\$99.78
System Total	\$51.83	\$108.91	\$48.19	\$99.34

Service	Cost per Mile			
	2017	2018	2019	2020
Demand Response	\$3.28	\$5.87	\$2.60	\$6.61
Senior/Disabled Transit	\$3.22	\$6.56	\$2.91	\$6.17
System Total	\$3.27	\$6.04	\$2.68	\$6.49

Service	Cost per Trip			
	2017	2018	2019	2020
Demand Response	\$20.90	\$39.63	\$17.95	\$55.19
Senior/Disabled Transit	\$64.88	\$131.95	\$64.14	\$126.88
System Total	\$25.02	\$48.70	\$22.22	\$64.96

*2017-2020 data from NTD, 2021 was not included as the NTD data is not yet available

Table 18: Paratransit Annual Budget Summaries

Service	Administration			
	2017	2018	2019	2020
Demand Response	\$57,559	\$116,481	\$56,653	\$101,593
Senior/Disabled Transit	\$18,503	\$42,268	\$20,584	\$36,827
Total	\$76,062	\$158,748.55	\$77,236	\$138,420

Service	Operations			
	2017	2018	2019	2020
Demand Response	\$135,796	\$260,962	\$118,297	\$227,075
Senior/Disabled Transit	\$43,654	\$94,696	\$42,981	\$82,313
Total	\$179,450	\$355,658	\$161,278	\$309,389

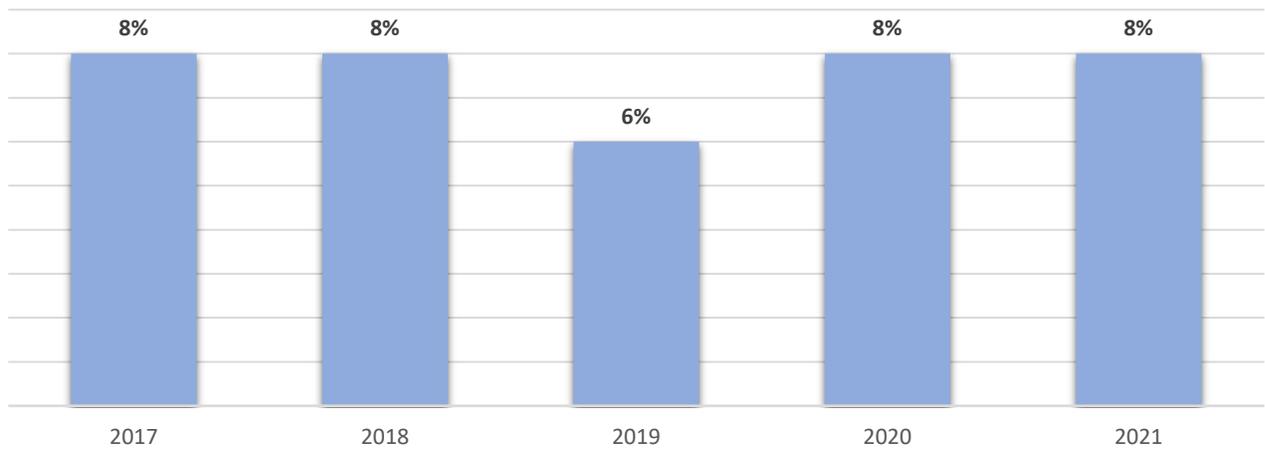
Service	Capital			
	2017	2018	2019	2020
Total	\$234,984	\$468,449	\$398,151	\$728,520

*2017-2020 data from NTD, 2021 was not included as the NTD data is not yet available

The financial overview shows that overall senior/disabled transit cost more per hour and per trip as compared to demand response. Cost per mile, while demand response has a slightly here cost, costs are relatively similar for both services. As compared to fixed route services the paratransit services cost similar per mile and per hour. Cost per ride costs about three to eight times more than the fixed route services. Similar to fixed route services **Table 18** shows the highest cost occurred in 2018 and 2020. These higher costs are attributed to the addition of staff, drivers, dispatchers, increases in salary, and maintenance of vehicles.



Figure 30: Demand Response Cancellation and No-Show Rate



*Data from NTD

Figure 31: Total Rides per Hour by Year

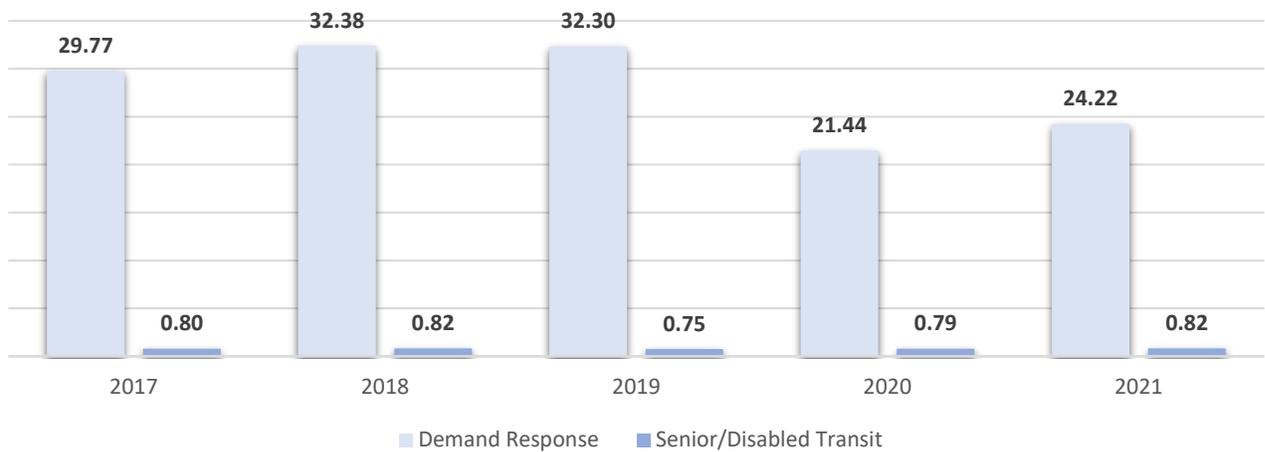
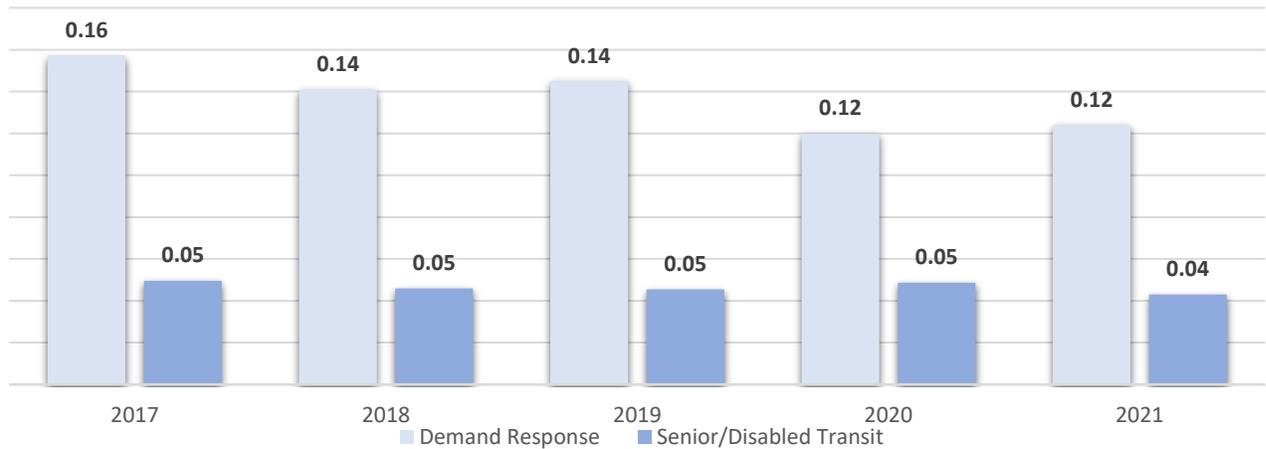




Figure 32: Total Rides per Mile by Year

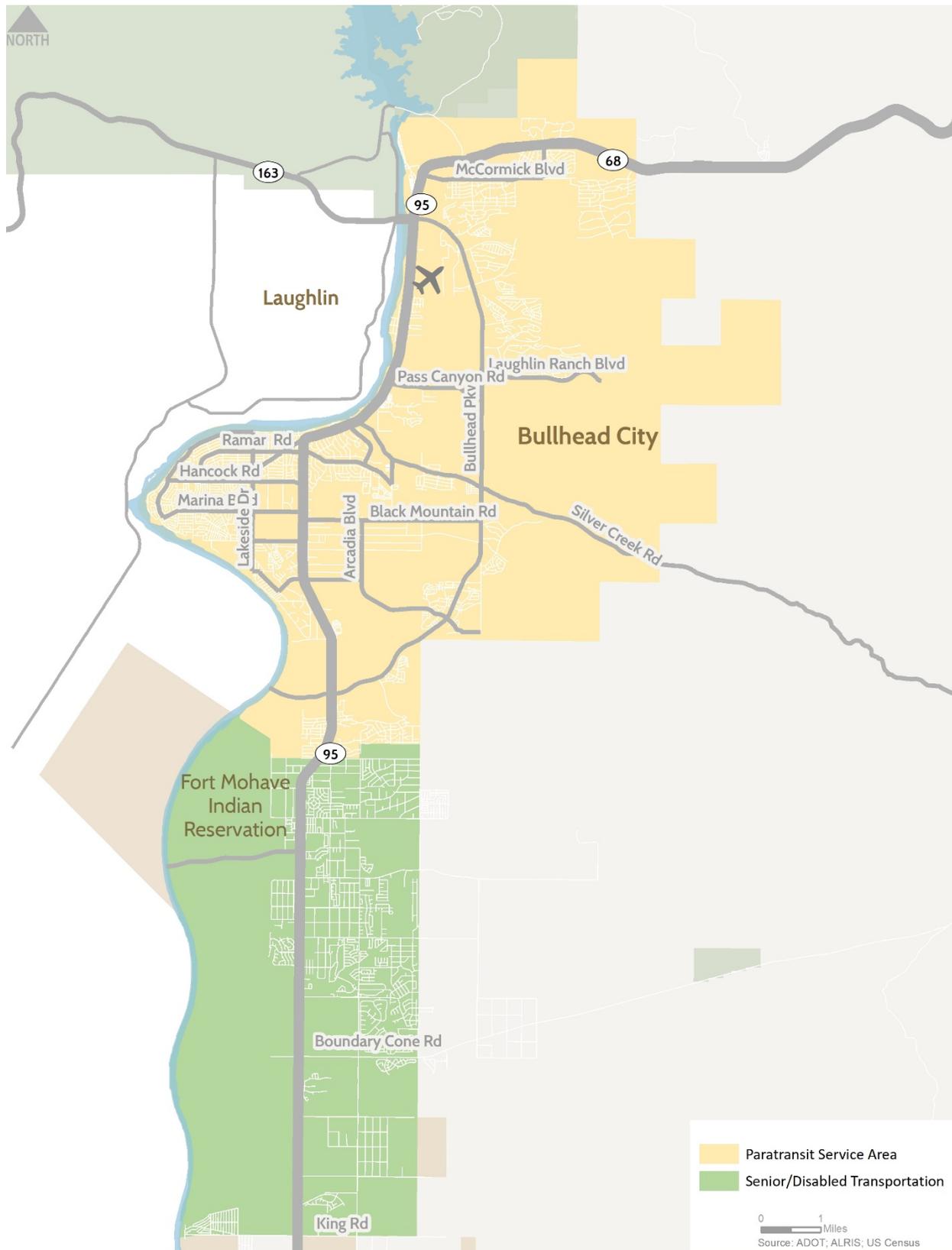


*Data from BATS

As compared to the fixed route service both Demand Response and Senior/Disabled Transit have less milage, service hours, and ridership. Demand Response and Senior/Disabled Transit is a door-to-door service rather fixed route service which serves larger populations and destinations. Rides per hour greatly different between Demand Response, Senior/Disabled Transit, and the fixed route services. Demand response averages about 3 rides per hour as compared to the Green Line, which has the lowest ridership amongst the fixed routes, which averages 6 rides per hour. Both Demand Response and Senior/Disabled Transit provide essential services to those who are unable to access the fixed route system. This provides an opportunity to look at improvement or new type of demand response service that is more efficient and sustainable.



Figure 33: Existing Demand Response and Senior/Disabled Transit





Existing Transit Facility Evaluation

Along with evaluating the existing services, existing transit facilities were also evaluated. The survey looked at the system bus stops and developed a bus stop inventory database to evaluate the transit facilities for this plan.

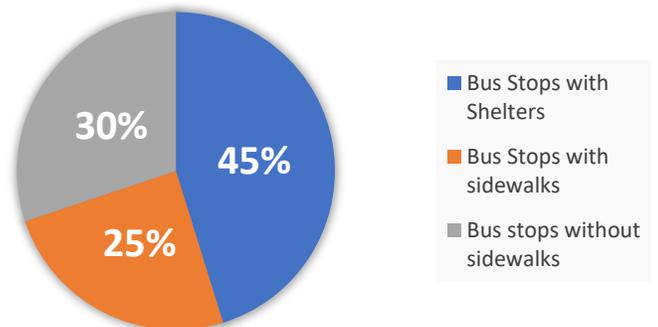
The database provides the following information for each stop location: stop name, a photograph of the bus stop, a list of rider amenities such as benches and shelters, accessibility characteristics such as adjacent sidewalk connectivity, recommended wheelchair facilities, and other unusual conditions such as slopes or unusual ramp conditions.

The BATS has a total of 71 bus stops, three of which provide transfer opportunities. These stops include The Hub, Palma Way, and Walmart.

From a general perspective there are three primary bus stop types:

- Stops with shelters, benches, and other rider amenities
- Stops without shelters with sidewalk access
- Stops without shelters without sidewalk access.

Figure 34: Bus Stop Infrastructure



The Hub

Each of the four routes initiate and end service at the Hub transit center located on the south side of Riverview Mall on Lewis Drive, just south of Big Lots. A shelter with bench and trash receptacle is provided for each route. Shelters and curb loading areas are matched with the route color. A fifth white shelter is available for a future regional transit route. When the new transit administration building and transit center is constructed in the government complex near Marina Drive and Alona’s/Hoppas, the Hub will be relocated to that location.





Red Line Facilities

Twelve (12) of the seventeen Red Line bus stops have shelters with rider amenities including benches and trash receptacles. Two (2) stops have no shelter and sidewalk access. Three (3) stops have no shelter or sidewalk access.

Three stop locations on the Red Line were identified for routing, efficiency, safety, or passenger improvements. These stops include:

Red Stop 4 (Safeway) – Located in the southwest corner of the Safeway parking lot, this stop is difficult for both pedestrians and buses to access, despite being one of the system’s most popular stops. The stop is adjacent to a drainage channel to the west and south of the shelter requiring pedestrians on the sidewalk of SR-95 to walk around the channel to access the station



Bus access is also inefficient. To reach the stop, buses must make a left turn from SR-95 onto Plata Drive, turn right into the parking lot, take another immediate right to access the bus stop. Leaving is difficult, requiring the bus to take two immediate left turns, travel through the parking lot, take two left turns to arrive at Plata Drive, where it then takes a left turn onto SR-95 to continue the route. In total eight turns and two traffic signals are required to navigate to access and egress from the stop.

Red Stop 10 (Boat Dock) – This unique stop serves connections to the boat dock and ferry service to Don Laughlin’s Riverside Resort Hotel and Casino. Despite the generous lighted shelter and benches, the facility is within a confined space with real and perceived safety concerns. Pedestrian access in and around the shelter is limited and confined by the adjacent retaining walls.



Red Stop 15 (Wells Fargo) – Located in the northeast corner of the Safeway shopping center behind the Wells Fargo bank in a crowded corner of the parking lot, this stop requires travel through a busy shopping center and the access drive behind the Safeway, which is shared with large freight vehicles serving the shopping center.



Due to the popular nature of the activity center and lack of adequate waiting space, this stop would be well served by an accessible stop with a shelter and bench.



Orange Line Facilities

Eight (8) of the fourteen Orange Line bus stops have shelters with rider amenities including benches and trash receptacles. Two (2) stops have no shelter and sidewalk access. Four (4) stops have no shelter or sidewalk access.

Three stop locations on the Orange Line were identified for routing, efficiency, safety or passenger improvements. These stops include:

Orange Stop 4 (Lakeside/Chaparral) – This stop lacks an accessible path connecting to the adjacent pedestrian and bicycle path, which is approximately 4 feet above the grade of the bus stop. A likely solution is to add an additional bus stop approximately 800 feet to the north, where slopes between the street level and the pedestrian path would not present a barrier.



Orange Stop 7 (Walmart) – This popular bus stop lacks an accessible path connecting to the sidewalk west of the shelter. Pedestrians and transit riders using mobility devices are required to travel through the vehicular travel lane. The stop would benefit from a larger or second shelter with additional seating. This shelter also lacks a 36” clear space for a wheelchair. This stop also serves the Green Line.



Orange Stop 11 (Mohave Crossroads North) – This stop is inconveniently located a long distance from destinations in the northern portion of the shopping center. The sidewalk at the bus stop terminates at the shopping mall, leaving no accessible path to shopping destinations.





Blue Line Facilities

Six (6) of the twenty-seven Blue Line bus stops have shelters with rider amenities including benches and trash receptacles. Eight (8) stops have no shelter and sidewalk access. Thirteen (13) stops have no shelter or sidewalk access.

One stop location on the Blue Line was identified for routing, efficiency, safety or passenger improvements. This stop is:

Blue Stop 24 (Trane Rd./Hancock Rd.) – Based upon transit ridership and public services (library, public health and justice court) that are adjacent to the site, this is an ideal location to add a bus shelter and passenger amenities.



Green Line Facilities

Seven (7) of the sixteen Green Line bus stops have shelters with rider amenities including benches and trash receptacles. Six (6) stops have no shelter and sidewalk access. Two (2) stops have no shelter or sidewalk access.

Two stop locations on the Green Line were identified for routing, efficiency, safety or passenger improvements. These stops are:

Green Stop 13 (Trane Rd./Hancock Rd.) – Based upon the several medical facilities served by this stop, it is an ideal location to add a bus shelter and passenger amenities for customers who may need shade and a seat due to medical conditions.



Green Stop 16 (Walmart) – This popular bus stop lacks an accessible path connecting to the sidewalk west of the shelter. Pedestrians and transit riders using mobility devices are required to travel through the vehicular travel lane. The stop would benefit from a larger or second shelter with additional seating. This shelter also lacks a 36” clear space for a wheelchair. This stop also serves the Orange Line.





Fleet Evaluation

This section outlines the assessment of Bullhead City’s revenue and non-revenue fleets. Properly maintained and replaced vehicles are important in providing high quality transit service, as they reduce the likelihood of vehicle breakdowns, decrease disruptions to service, and increase safety.

Revenue Fleet

Current Fleet

Bullhead City currently owns nine Arboc Cutaway buses and regularly operates six of them, with two buses in reserve and one bus awaiting Arizona Department of Transportation (ADOT) approval for imminent disposal. These fleet vehicles are used for both fixed-route and paratransit service and are delineated in **Table 19**. Currently, Bullhead City’s spare ratio is about 0.25, which is higher than industry standards (typically 0.20). The average age of the active fleet is 5.5 years of use. Of the active fleet, 3 vehicles are in excellent condition, 2 in good, and 1 in fair condition. Four vehicles are significantly above 200,000 miles, two vehicles are nearing their expected useful life (EUL) and are slated for replacement in 2022, and a third vehicle will be replaced in 2024.

Table 19: Current Revenue Fleet

Vehicle Identification Number (VIN)	Purchase Year	Anticipated Replacement Year	Fuel Type	Make/ Model	Mileage	Condition	Status
1GB9G5AG4A1103627	2010	2020	Gas	Arboc Chev	260,095	Poor	Replacement
1GB6G5BG0C1195288	2012	2022	Gas	Arboc Chev	253,257	Fair	Inactive
1GB6G5BG1C1195526	2012	2022	Gas	Arboc Chev	243,176	Fair	Active
1GB6G5BG2E1163607	2014	2024	Gas	Arboc Chev	351,588	Fair	Inactive
1GB6G5BG9F1228406	2015	2025	Gas	Arboc Chev	182,396	Good	Active
1GB6G5BG7F1229120	2015	2025	Gas	Arboc Chev	192,202	Good	Active
1HA6GUBG1HN002602	2017	2027	Gas	Arboc Chev	133,737	Excellent	Active
1HA6GUBG6HN011411	2018	2028	Gas	Arboc Chev	72,959	Excellent	Active
1HA6GUB70MN002066	2021	2031	Gas	Arboc Chev	8,098	Excellent	Active

Utilizing BATS service data as reported to the Federal Transit Administration’s (FTA) National Transit Database (NTD) between 2017 – 2019, this section highlights key fleet metrics, including hours per vehicle, miles per vehicle, and cost per vehicle. **Figure 31** and **Figure 32** demonstrate the average hours each vehicle travels annually and the average miles each vehicle is in service annually for all services. Which both indicate a steady upward trend between 2017 – 2018 and a sudden increase in 2019. This trend likely indicates that several fleet vehicles were retired in 2019, decreasing the fleet size. **Figure 33**



illustrates the average operating cost per vehicle, which has increased in recent years as the fleet was reduced.

Figure 35: Average Hours per Vehicle

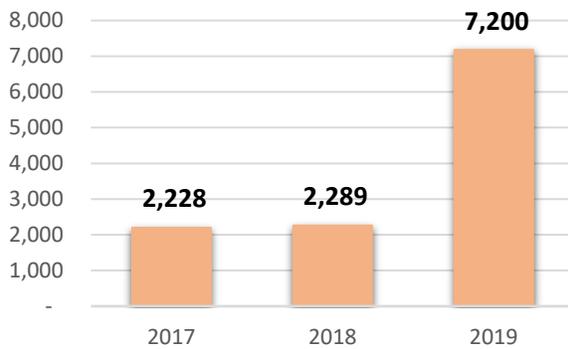


Figure 36: Average Miles per Vehicle

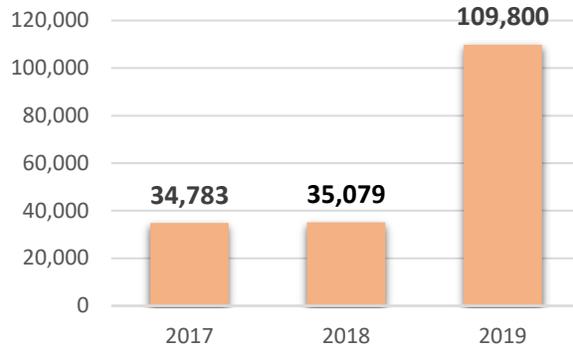


Figure 37: Average Cost per Vehicle



Fleet Size, Replacement & Flue Types

Bullhead City currently has a fleet of gasoline propulsion buses and operates approximately 215,000 vehicle revenue miles per year. With EUL’s of 200,000 miles, Bullhead is anticipated to need a replacement vehicle every 1.25 years on average. For fleet size, typically, a 20 percent spare ratio is recommended. The fleet size will be considered in developing a capital management plan. Additionally, as Bullhead City explores the creation of a new transit center, incorporating electric vehicle charging could be a cost-saving feature in the short and long term.

Non-Revenue Fleet

In addition to the transit vehicles that are the core of Bullhead City’s transit service, BATS currently owns ten non-revenue vehicles, including six Dodge Vans and four EZGo golf carts. Five of the vans are used for driver transportation and operations supervision, and one van is waiting ADOT approval for imminent disposal. The four golf carts are used to move people and materials between the administration office, fleet storage location, and employee drop-off locations. Bullhead City will not retain the golf carts following relocation to the new facility. The average age of non-revenue fleet vehicles is 7.7. With an EUL of 8 years, two vans need replacement, and one is nearing the end of its useful life.





Staffing Overview

This section reviews the current staff of Bullhead City’s transit service. Staffing is a key consideration, especially in the short term plan, in determining the resources available to maintain and implement transit service modifications and improvements. Additionally, current Bullhead City staffing is compared to regional peer agencies to understand staffing needs based on services provided.

Staff Composition

Table 20 delineates the current Bullhead City transit staff by title, category, and compensation. In addition, BATS staff receive additional benefits as part of their compensation. **Figure 34** shows the additional benefits staff receives.

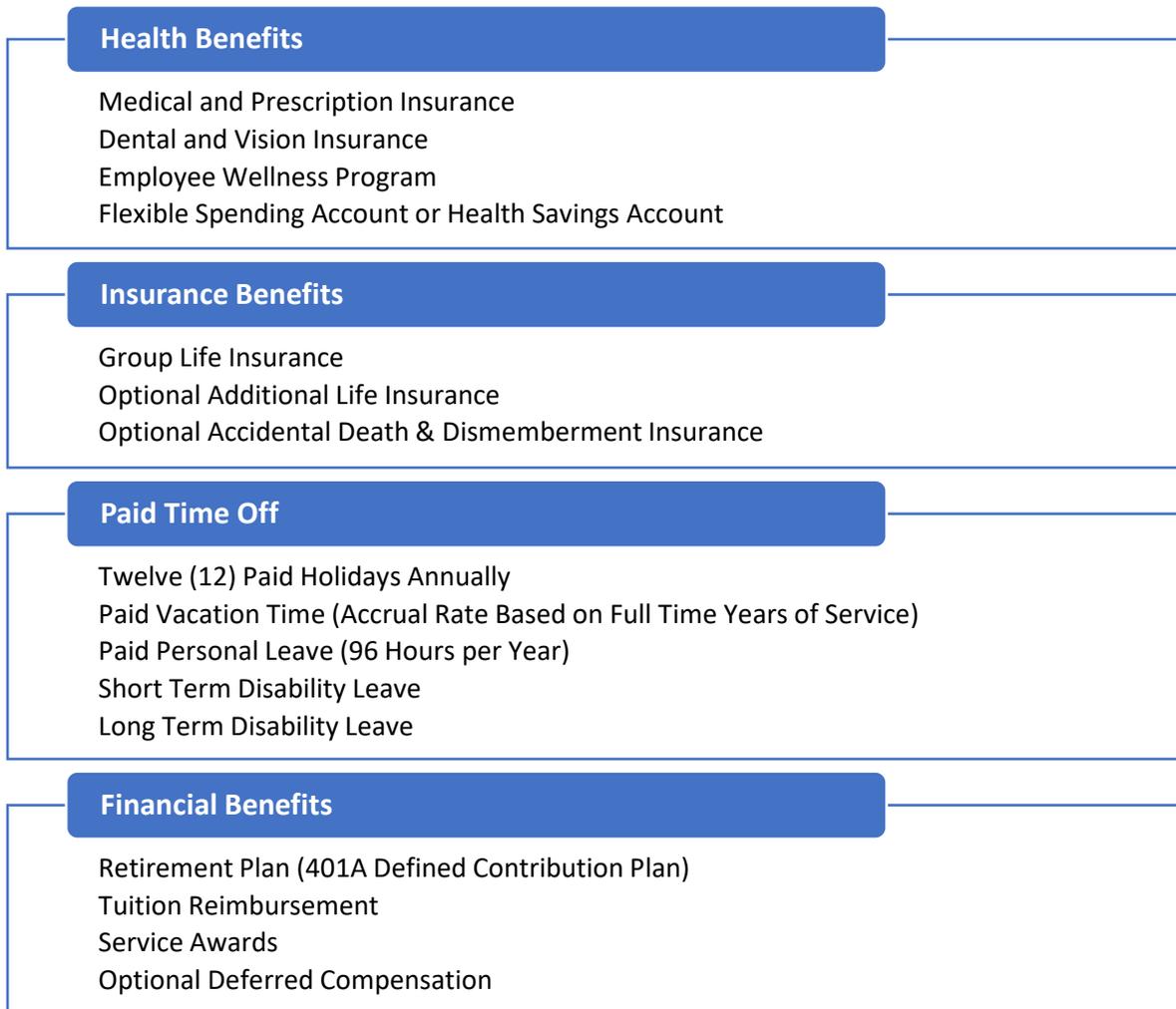
Table 20: Bullhead City Transit Staff, Wages, & Total Cost

Job Title	Category	Number of Staff	Hours per Week	Wage per Hour (\$)	Total Cost (\$)	Benefits
Human Services Director	Administration	1	5	\$61.53	\$307.65	✓
Transit Manager	Administration	1	40	\$34.13	\$1,365.20	✓
Office Specialist	Administration	1	40	\$18.75	\$750.00	✓
Operations Supervisor	Operations	1	40	\$22.11	\$884.40	✓
Full Time Transit Driver (A)	Operations	1	200	\$17.21	\$3,442.00	✓
Full Time Transit Driver (B)	Operations	1	80	\$16.35	\$1,308.00	✓
Part Time Transit Driver	Operations	1	230	\$15.53	\$3,571.90	✓
Full Time Dispatcher	Operations	1	20	\$16.82	\$336.40	✓
Part Time Dispatcher	Operations	1	21	\$14.07	\$295.47	✓
					Weekly Total	\$ 12,261.02
					Annual Total	\$ 637,573.04

*Bullhead City Transit 5311 Application 2020



Figure 38: Staff Benefits



Peer Agency Comparison

This section reviews the annual service operations and staff composition of peer agencies across Arizona and the Southwestern United States. The purpose of the peer agency comparison is to look at how BATS compares to other similar transit systems and help support recommendations that will be included in the short and long term plan. Annual service operations for both fixed route services and demand response evaluated data from 2019. Due to COVID-19 annual numbers from 2019 provide a more accurate comparison as compared to more recent years. Annual service operation data includes ridership, mileage, service hours, operating expenses, cost per mile, cost per hour, cost per trip, riders per hour, and number of riders per mile. This evaluation also includes population and total service area. According to NTD data in 2019, Kingman Area Regional Transit did not report any demand response service, however, KART offers a deviated service that serves ¾ of a mile from their fixed route service.



Table 21: Peer Agency Annual Service Operations for Fixed Route Services

Metric	Bullhead Area Transit (AZ)	Kingman Area Regional Transit (AZ)	Douglas Transit (AZ)	Cottonwood (AZ)	Roswell Transit (NM)
Population	40,252	29,726	16,307	11,959	47,941
Service Area	60 miles	50 miles	23 miles	50 miles	~20 miles
Ridership	147,350	116,113	48,498	144,045	156,516
Mileage	216,172	186,808	210,321	299,436	348,423
Service Hours	14,536	14,352	11,171	15,234	28,665
Operation Expenses	\$699,369	\$866,088	\$622,938	\$1,503,287	\$1,256,069
Farebox Revenues	\$147,026	\$192,632	\$32,702	\$165,844	\$92,562
Cost per Mile	\$3.24	\$4.64	\$2.96	\$5.02	\$3.61
Cost per Hour	\$48.11	\$60.35	\$55.76	\$98.68	\$43.82
Cost per Trip	\$4.75	\$7.46	\$12.84	\$10.44	\$8.03
Riders per Hour	10.1	8.1	4.3	9.5	5.5
Number of Rides per Mile	0.68	0.6	0.2	0.5	0.4

*Population data from 2019 American Community Survey
 *Service area data from KART, Douglas Transit, and Roswell Transit
 *Annual Service Operation data from NTD 2019

Table 22: Peer Agency Annual Service Operations for Demand Response Service

Metric	Bullhead Area Transit (AZ)	Douglas Transit (AZ)	Cottonwood (AZ)	Roswell Transit (NM)
Population	40,252	16,307	11,959	47,941
Service Area	92 sq miles	16 sq miles	20 sq miles	30 sq miles
Ridership	10,735	10,105	20,895	5,217
Mileage	89,067	19,473	121,040	34,703
Service Hours	4,949	1,677	9,315	2,609
Operation Expenses	\$238,514	\$67,456	\$180,296	\$66,371
Farebox Revenues	\$10,711	\$0	\$16,984	\$4,242
Cost per Mile	\$2.68	\$3.46	\$1.49	\$1.91
Cost per Hour	\$48.19	\$40.22	\$19.36	\$25.44
Cost per Trip	\$22.22	\$6.68	\$8.63	\$12.72
Riders per Hour	2.2	6	2.2	2
Number of Rides per Mile	0.12	0.5	0.2	0.2

*Population data from 2019 American Community Survey
 *Service area data from KART, Douglas Transit, and Roswell Transit
 *Annual Service Operation data from NTD 2019



Staffing is a key consideration in determining resource allocation and service modifications. **Table 23** delineates Bullhead City peer agencies by staff category, title, and number. Actual number of staff may vary over time, as this data is sourced from FTA 5311 Applications. Across all staff types, BATS operates with a similar number of staff in comparison with peer agencies and their services. When comparing the full-time equivalent (FTE) of staff (assuming part-time each serve as 0.5 FTE).

Table 23: Peer Agency Staff Comparison

Category	Title	Bullhead Area Transit (AZ)	Kingman Area Regional Transit (AZ)	Douglas Transit (AZ)	Cottonwood (AZ)	Roswell Transit (NM)
Administration	Director/Manager	2	1	2	1	2
	Administration	1	1	1	1	1
Operations	Supervisor	1	1	1	3	2
	Dispatcher	1	1	1	1	-
	Driver	7	2	15	7	17
	Driver	5	7	2	1	-
Maintenance	Contract	Contract	Contract	1	Contract	Contract
	Other	5	-	-	-	1
Total		25	13	14	23	23
Total FTE		21	9.5	13.5	22	23
Annual Service Miles (2019)		305,239	186,808	229,794	420,476	383,126
Annual Service Hours (2019)		19,485	14,352	12,848	24,549	31,274
Annual Service Miles (2020)		289,452	174,612	209,778	468,342	293,294
Annual Service Hours (2020)		19,064	13,298	13,823	26,738	24,096

*Transit Providers for Staffing; NTD for annual service miles and hours

The peer agency review demonstrates that Roswell Transit has the most similar characteristics to BATS. Roswell has similar mileage, operating cost, and staffing. BATS, however, does have a higher cost per mile, trip, and hour as compared to Roswell. Peer agencies in Arizona, Kingman, and Douglas, are smaller transit systems, compared to BATS, in terms of service area, mileage, costs, and staffing. Key takeaways from the peer agency comparison are the costs, especially cost per hour and trip, between BATS and Roswell. The short and long term plan will evaluate potential cost reductions and improvements in efficiency to provide a more sustainable transit system.

Compensation Comparison

Table 24 shows compensation information for equivalent or similar roles at several comparable transit agencies. As shown, BATS compensation for transit system managers/directors, office specialists, and operations supervisors is lower than several of its peers. The salary for full-time drivers is comparable, though BATS leans toward the lower end of the ranges. In addition, Roswell provided more information about benefits for employees working 30 or more hours a week. These employees receive health insurance, dental, vision, group life insurance (option to add supplemental life, family life), and disability. Salaries follow a 2% step increase up to 20 steps and COLA increases (1.3% in July 2021).



Table 24: Staff Compensation Comparison

Job Title	Bullhead Area Transit (AZ)	Kingman Area Regional Transit (AZ)	Douglas Transit (AZ)	Cottonwood (AZ)	Roswell Transit (NM)
Transit Manager	\$55,723 - \$82,701	\$57,444 - \$79,756			\$58,622 - \$85,402
Administrative Assistant	\$28,953 - \$43,014	N/A	\$29,110 - \$43,012		\$36,688 - \$56,347
Operations Supervisor	\$45,988	\$40,824 - \$57,444			\$45,323 - \$74,339
Full Time Driver	\$ 34,008 - \$35,796	\$31,987 - \$45,374	\$29,110-\$43,012	\$36,296 - \$38,480	\$29,401 - \$42,832

Note: job title varies among different transit agencies and may have several different types of staff members for certain categories

**Data collected from agency websites*

Key Takeaways

The key takeaways from this plan will help guide the recommendations in Working Paper 4 and 5. The key takeaways from this system and service evaluation highlight the areas that stood out amongst the data including fixed route services, demand response services, transit facilities, and the peer agency review.

For fixed route services the key characteristics that stood out was differences in mileage and ridership between routes. In addition, on-time performance and number of transfer points were also relatively low for reach fixed route. Demand response services had the highest cost amongst all the transit services provided by BATS.

The bus stop inventory showed that about all most half of all bus stops had shelters. Although routes with the most shelters was the Red Line, while Blue Line and Green has the fewest amenities at most of the bus stops. Lastly, the peer review showed that Roswell, NM had the most similar characteristics in terms of ridership, mileage, number of employees, and salaries. However, Roswell had lower costs for certain types of services.

Compensation of key positions in Bullhead City is lower than peer cities. This can lead to staff shortages, higher turnover rates, and inequity with other positions in the municipality. It is suggested to address these issues in the forthcoming short and long range financial element of this plan.