

# JUNEAU VISITOR CIRCULATOR STUDY



## Technical Memorandum 3 Service Alternatives



September 22, 2023



# Juneau Visitor Circulator Study

## *Technical Memorandum 3* *Service Alternatives*

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*September 22, 2023*

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## TABLE OF CONTENTS

CHAPTER	PAGE
1	Introduction ..... 1
	Introduction ..... 1
2	Service Alternatives Analysis..... 3
	Introduction ..... 3
	Downtown Circulator ..... 3
	Capital Transit Tripper Service ..... 20
	Expanded Capital Transit Service to Mendenhall Glacier ..... 22
	Conclusions ..... 25
3	Potential Funding Sources ..... 27
	Introduction ..... 27
	Potential Funding Sources ..... 27

## LIST OF TABLES

TABLE	PAGE
Table 1: Daily Cruise Capacity and Passengers by Day of Week.....	3
Table 2: Example Downtown Circulator Running Times.....	5
Table 3: Estimate of Daily Circulator Ridership on Design Day.....	8
Table 4: Analysis of Hourly Circulator Ridership and Peak Load .....	11
Table 5: Downtown Circulator Operating Costs .....	12
Table 6: Downtown Circulator Fare Revenue Analysis .....	14
Table 7: Circulator Bus Stop Improvement Costs .....	18
Table 8: Circulator Service – Capital Costs.....	19
Table 9: Example Tripper Bus Costs .....	22
Table 10: Route 8 Sample Afternoon Schedule Serving Mendenhall Glacier .....	24
Table 11: Estimated Incremental Operational Costs of Route 8 Service to Mendenhall Glacier .....	24
Table 12: Route 8 Extension to Mendenhall Glacier – Projected Passengers and Fare Revenue .....	25

## LIST OF FIGURES

FIGURE	PAGE
Figure 1: Short Route Option .....	4
Figure 2: Long Route Option .....	6
Figure 3: Cruise Ship Capacity in Juneau by Day - 2023 .....	7
Figure 4: Route 8 Extension to Mendenhall Bus Staging Area .....	23

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## **INTRODUCTION**

Juneau, Alaska has long been a major cruise ship destination for those seeking outdoor adventure, sightseeing, and wildlife viewing. The massive influx in tourism over time has led to an increase in traffic congestion and environmental pollution in and around Downtown Juneau. To address these concerns, the City and Borough of Juneau (CBJ) hired LSC Transportation Consultants in August 2022 to evaluate the possibility of a Juneau Circulator transportation service that would facilitate visitor travel within the area, thus alleviating crowd concentration and congestion near the downtown area.

### **Study Goals**

The goal of the Circulator Study is to determine what types of transportation services the CBJ should consider, which service would be most appropriate for the region, and how CBJ could fund and implement such a program. Key questions to be addressed in the upcoming study include the following:

- How can a circulator service best address the impacts of high visitor levels on the community?
- How can improved circulator services enhance the local economy by better serving visitors and helping to spread visitors to a broader range of establishments and activities?
- What destinations should be served, and what are the appropriate hours and days of service?
- What is the appropriate role of the public sector (Capital Transit) versus private transportation services? How best can a visitor circulator service coordinate with existing transit services?
- Given the realities of financial and driver availability limits, what is an *implementable* strategy for circulator services?

### **Study Process**

This Tech Memo is the third in a series of interim study products that provide the CBJ, stakeholders, and the public with opportunities to review the data and analysis. To date, the study has defined three potential general types of service which are discussed in this document:

- **Downtown Circulator:** A Downtown Circulator option would be a new transit route in the downtown area providing frequent service along a short circulator route.
- **Capital Transit Tripper Service:** This would consist of the operation of “tripper” buses provided by Capital Transit to expand capacity along existing routes (largely Routes 3 and 4) that experience visitor overcrowding at peak times resulting in Juneau residents not being able to board the bus.
- **Improved Capital Transit Service to Mendenhall Glacier:** This option would expand the current Capital Transit service Route 8 to Mendenhall Glacier (which presently requires a 1.5-mile one-way walk from the nearest stop).

This Tech Memo presents a detailed evaluation of each alternative's potential service, schedule, operational costs, possible schedules, fares, and fare revenue. It also includes a discussion of traffic conditions, capital requirements, potential institutional options, and potential funding sources. The reader is encouraged to review these materials and provide input regarding which of these options best meet the goals of this study.

## Chapter 2

# SERVICE ALTERNATIVES ANALYSIS

### INTRODUCTION

Building upon previous Tech Memos, the following chapter details each type of possible option beginning with publicly and privately operated downtown circulators, followed by the Capital Transit tripper service, and concluding with limited service to the Mendenhall Glacier. The following options are all expected to serve the passenger and tourist volumes experienced in Juneau during the peak summer season. For this reason, we have used the August average daily passenger capacity from 2022 combined with the arrivals and departures information presented earlier in the study. This information is summarized in Table 1 below and expanded upon later in this Tech Memo. The occupancy rate of passengers versus capacity varies from year to year; for planning purposes, we multiplied the maximum capacity for each ship by a factor of 0.90 to define the demand level of passengers.

**Table 1: Daily Cruise Capacity and Passengers by Day of Week**

*Average August Figures*

Day of the Week	Passenger Capacity	Expected Passenger Volumes
Sunday	11,356	10,220
Monday	13,042	11,738
Tuesday	16,492	14,843
Wednesday	19,604	17,644
Thursday	7,084	6,375
Friday	8,582	7,724
Saturday	5,931	5,338

*Source: Cruise Arrivals and Departures, August 2022*

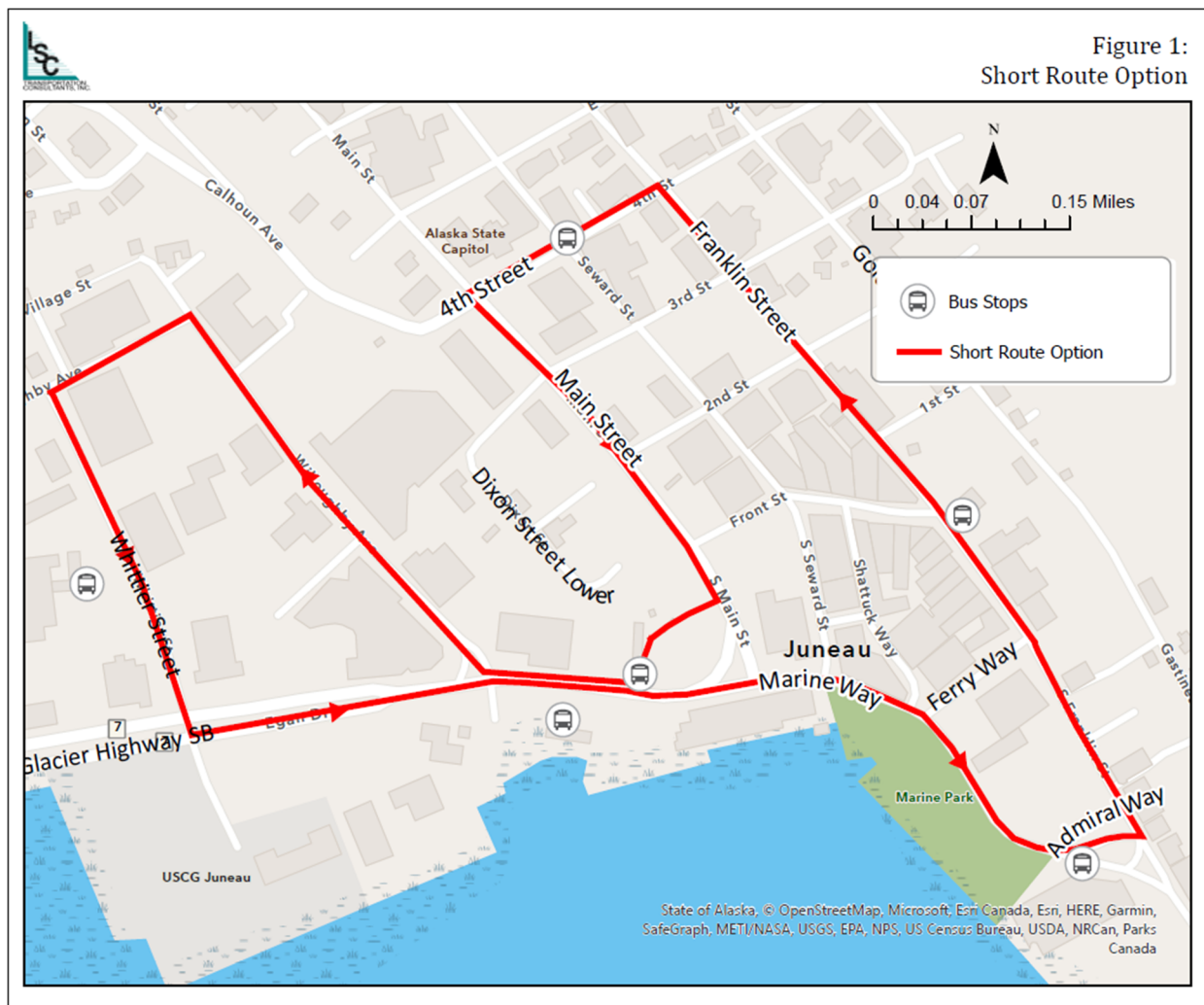
### DOWNTOWN CIRCULATOR

The general concept of a downtown circulator is to provide a short, simple, high-frequency transit service connecting the dock areas with nearby visitor-oriented activities. The goals for this service would be to better distribute visitors around the area to expand visitor spending, reduce pedestrian congestion in the areas immediately around the docks, and enhance the visitor experience while in Juneau by improving access to other cultural and historic sites. While it would focus on serving visitors, it would also help residents and downtown workers to move around the area without adding to traffic and parking problems. As discussed below, two route options were evaluated.

## Short Route Option

The Short Route Option is shown in Figure 1. As shown, it circulates in a counter-clockwise direction running east along Egan Drive, north along South Franklin Street, turning left along 4<sup>th</sup> Street, and heading south on Main Street towards the Downtown Transit Center (DTC). From the DTC, the service runs west turning north along Willoughby Avenue before turning left on Whittier Street. After stopping at the Alaska State Museum, the service turns back onto Egan Drive and begins the route again. Major stops include the Downtown Transit Center, the Alaska State Capital, and the Alaska State Museum. Note that the route does not extend south along Franklin Street beyond Marine Way to avoid adding to the congestion in this area and getting excessively delayed.

As shown in Table 2, this route would require an estimated 15 minutes to operate (including passenger loading and unloading time). Given this short time and considering the difficulties of keeping to a defined schedule, it would not operate on a defined schedule but would rather simply operate continual loops. On average, four round trips would be completed each hour.

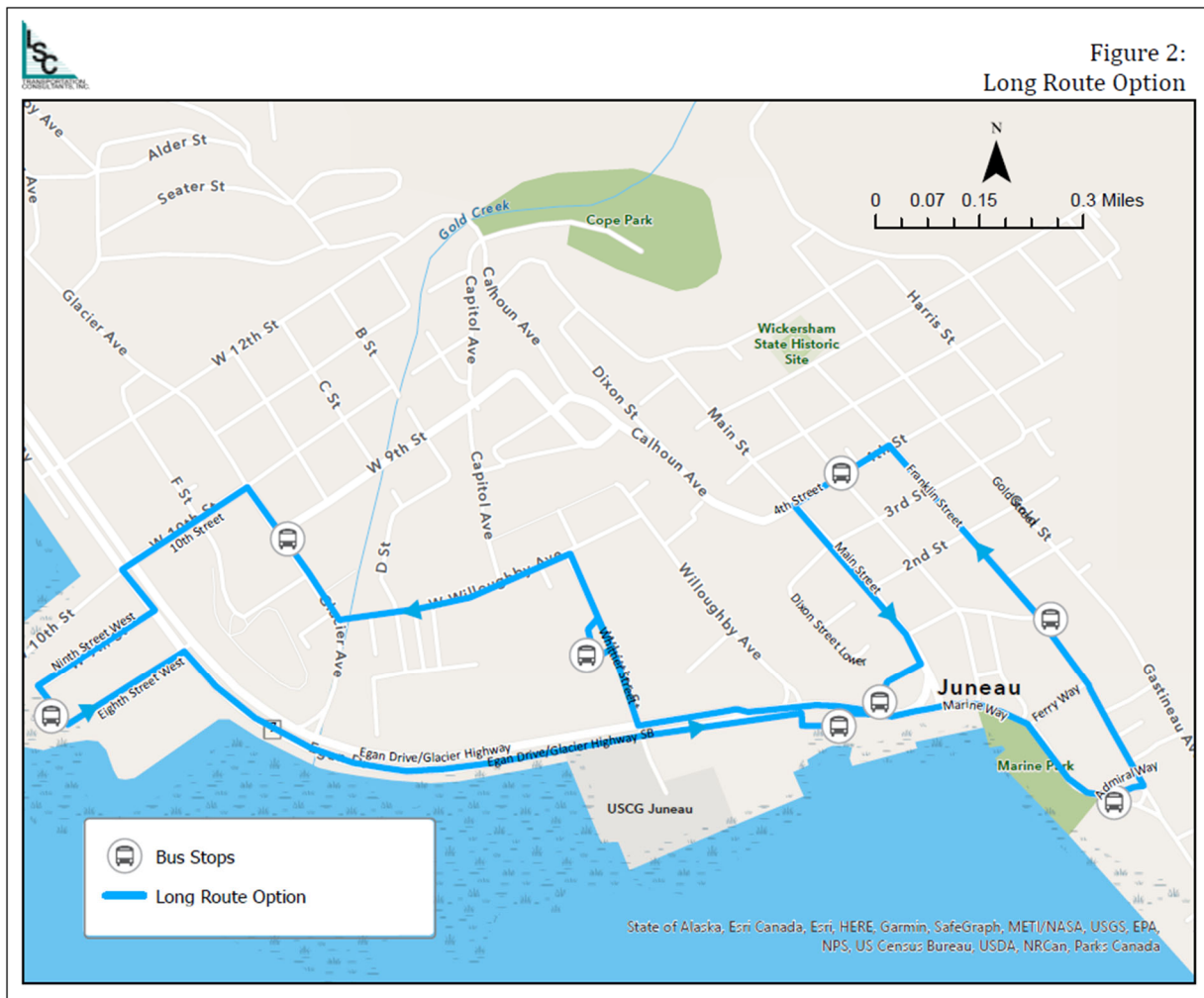


**Table 2: Example Downtown Circulator Running Times**

Stop	Miles From Start	Total Minutes
<b>Short Route Option</b>		
Downtown Transit Center		0
Alaska State Museum	0.4	2
Egan & Willoughby (76 Egan)	0.6	5
Library/Marine Parking Garage	0.9	9
Front & Franklin	1.0	11
Seward & 4th	1.3	13
Downtown Transit Center	1.5	15
<i>Cycles per Hour</i>		<i>4.0</i>
<b>Long Route Option</b>		
Downtown Transit Center		0
Alaska State Museum	0.3	2
9th & Glacier (Federal Building)	0.7	4
Overstreet Park	1.0	7
Egan & Willoughby (76 Egan)	1.7	10
Library/Marine Parking Garage	1.9	14
Front & Franklin	2.1	16
Seward & 4th	2.3	18
Downtown Transit Center	2.5	20
<i>Cycles per Hour</i>		<i>3.0</i>

### Long Route Option

The longer Downtown Circulator is shown in Figure 2. Similar to the shorter route option, the route circulates in a counter-clockwise direction running east along Egan Drive, north along South Franklin Street, turning left along 4<sup>th</sup> Street, and heading south on Main Street towards the downtown transit center. From the transit center, the service runs west turning north along Whittier Street to stop at the Alaska State Museum. From there the service continues north along Whittier Street, turns left on Willoughby Avenue before continuing onto Glacier Avenue. The route then turns onto 10<sup>th</sup> Street, traveling onward to Overstreet Park before returning along Egan Drive to begin the route again. Major stops include the Downtown Transit Center, the Alaska State Capital, the Alaska State Museum, and Overstreet Park. This route requires 20 minutes per loop to operate, including loading and unloading time. It would operate continually.

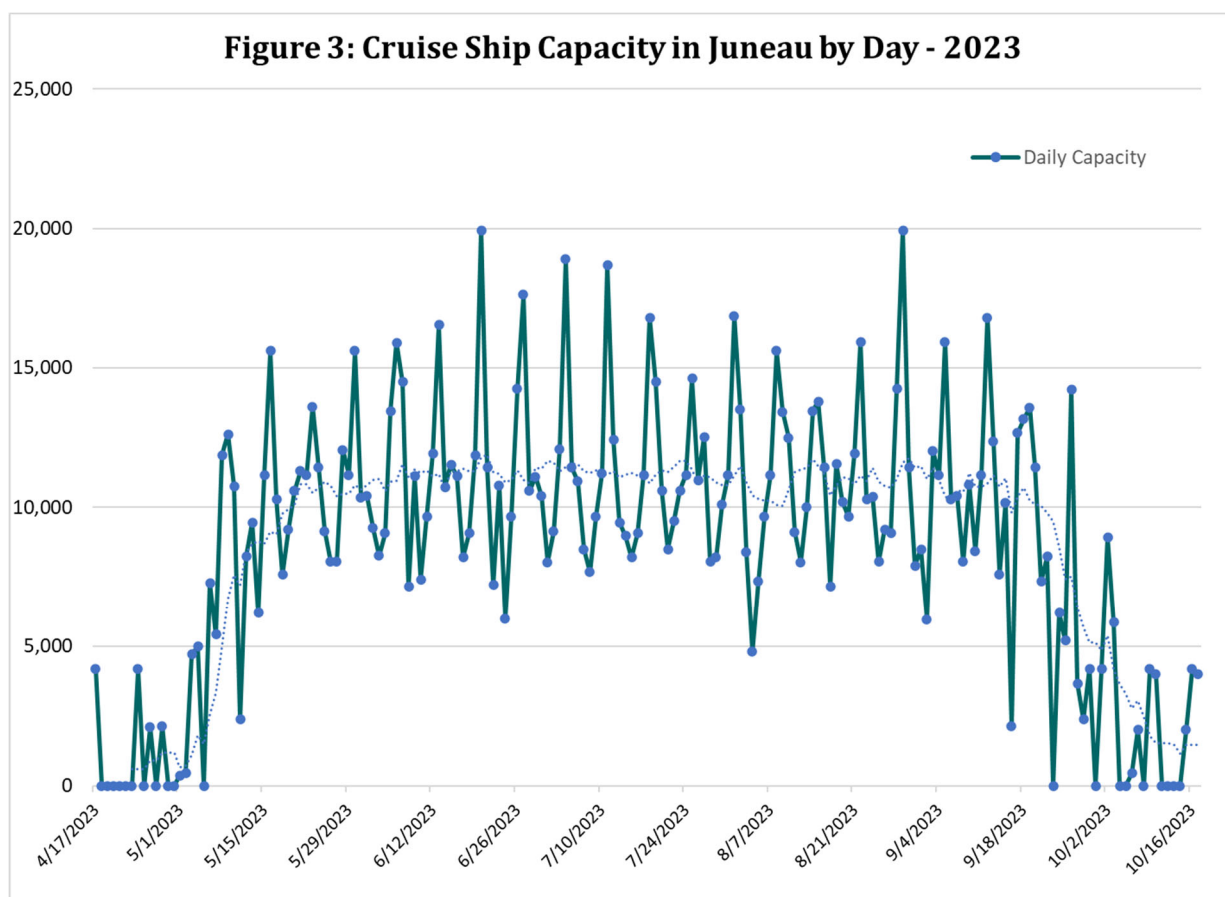


## Other Route Options Considered

During the course of our analysis, we also considered a route that ran north of downtown along Calhoun Avenue. This option proved to be too narrow for frequent transit service, with limited sight distance. As it also did not serve very many additional visitor attractions, it was removed from further analysis.

## Season of Service

As a basis for evaluating the length of the operating season, the total cruise ship capacity in Juneau was plotted for the 2023 cruising season. Figure 3 shows how the daily total cruise ship capacity by day varies dramatically from day to day, but the busy season generally extends from mid-May through mid-September. Based on this, two scenarios were evaluated for the length of the season: a shorter season from May 15 to September 20 (129 days) and a longer season from May 1 to October 3 (156 days). Service would be operated seven days a week.



### Projected Passenger Trips on a Busy Day

Potential daily ridership on a circulator service was estimated for a “design day” defined as the fifth busiest day of the 2023 cruising season. This design level results in a system capacity that is adequate for the large proportion of days, while avoiding additional costs that would only potentially be needed a few days per year. It considered total passenger activity and assessed how various groups of passengers with differing schedules of activities while in Juneau would use a circulator service. As shown in Table 3, the analysis procedure consisted of the following steps:

- Figure 3 shows the anticipated cruise ship capacity for 2023 by day. The fifth highest value was 17,600.
- A 90 percent occupancy factor was applied to identify 15,840 cruise ship passengers visiting Juneau on the design day.
- It is reported that a small proportion of passengers choose to not leave the ship. Assuming a five percent proportion, the number of passengers debarking totals 15,000.

**Table 3: Estimate of Daily Circulator Ridership on Design Day**

Daily Ship Capacity - 5th Highest Day	17,600				
Estimated Occupancy	90%				
Daily Passengers	15,840				
Percent Not Leaving the Ship	5%				
Daily Ship Passengers on the Dock	15,000				
Percent by Length of Stay	≥ 8 Hours			< 8 Hours	
	93%			7%	
	14,000			1,000	
Percent With Prebooked Excursion	Yes	No			
	60%	40%			
	8,400	5,600			
Percent Without Prebooked Excursion Making Same Day Excursion	Yes	No			
	75%	25%			
	4,200	1,400			
Percent Making an Excursion Returning to Ship	75%	75%			
Percent Making a Second Excursion	25%	25%			
	2,100	1,400			
					Total
<i>Total Potential Circulator Ridership</i>	<i>2,100</i>	<i>1,400</i>	<i>1,400</i>	<i>60</i>	<i>4,960</i>

**Shorter Route**

Percent Choosing to Use Circulator	15%	15%	20%	20%	TOTAL
Persons Using Circulator	315	210	280	10	815
One-Way Passenger-Trips per Person	1.5	1.5	1.5	1.5	
Daily One-Way Circulator Passenger-Trips	470	320	420	20	1,230

**Longer Route**

Percent Choosing to Use Circulator	20%	20%	25%	25%	TOTAL
Persons Using Circulator	420	280	350	20	1,070
One-Way Passenger-Trips per Person	1.75	1.75	1.75	1.75	
Daily One-Way Circulator Passenger-Trips	740	490	610	40	1,880

- A passenger's potential use of a circulator service depends on their overall length of stay in Juneau, as those with a longer length of stay (defined as 8 hours or more) have a greater opportunity to use the circulator as a "second excursion" over the course of their stay (considering the time needed to disembark the boat, the required time to be back on the boat before sailing and the typical length of time for an excursion). Total passengers were therefore split into those with a longer stay versus a shorter stay. A review of cruise ship arrival and departure times indicates that over the 2023 season, 93 percent of ships are in Juneau for 8 hours or more, and 7 percent for less than 8 hours.
- For those passengers with a longer stay, it is estimated (based on discussions and observations) that 60 percent arrive in Juneau with an excursion already pre-booked. Of the remaining 40 percent, it is estimated that 75 percent arrange an excursion once they are on the dock. In total, 90 percent of these passengers with longer stays take an excursion, while 10 percent choose to not take an excursion.
- Of those taking an excursion, it is estimated that 75 percent return to the ship either directly from the excursion or after a visit to the immediate downtown shops and restaurants near the docks, while 25 percent are interested in taking a "secondary excursion" further afield and are thus potential circulator riders. Applying this factor to those passengers with a longer stay taking an excursion, a total of 3,500 potential circulator riders consists of passengers with a longer stay taking an excursion.
- The 10 percent of longer-stay passengers not taking an excursion (1,400 passengers) also are potential circulator riders.
- For those 1,000 passengers per day with a relatively short stay in Juneau, anecdotal information indicates that 75 percent arrive with a pre-booked excursion and an additional 75 percent of the remainder book an excursion on the dock. This yields 60 additional passengers that are potential circulator passengers. In total, 4,960 passengers were potential circulator passengers over the course of the design day.
- Given this level of potential ridership, a key factor is the proportion of passengers that choose to use the circulator service. One source of guidance is provided in the *Transportation Planning Process for Transit in Federal Land Management Areas* (US DOT Federal Transit Administration, April 2008). This indicates a typical transit use rate of 20 percent among recreational travelers. Based on discussions with local staff and tour operators as well as LSC's observations, this is a reasonable base figure, given a \$ 5-day pass fare level. This is applied to the longer route option for those passengers using the circulator as a secondary excursion (with relatively short available time). For those not making another excursion (and therefore having additional available time) a higher proportion of 25 percent is assumed. The shorter route is expected to be less popular, in particular given the high level of awareness of Overstreet Park. A 15 percent factor is applied for those who make another excursion and 20 percent for those who do not make another excursion.
- Applying these factors, a total of 815 persons are forecast to use the shorter circulator option over the design day, and 1,070 are forecast to use the longer circulator option.
- Some passengers will choose to use the circulator for one one-way trip, either choosing to walk back from their destination or simply riding the service without stopping. For the shorter

option, if 50 percent choose to walk back, the number of boardings per pass purchasers per day would be 1.5. Given the longer walk distance, a higher 1.75 passenger-trips per person is used for the longer route option.

- Applying these factors, total design day ridership is estimated to be 1,230 for the shorter route option and 1,880 for the longer route option.

### **Hourly Ridership and Vehicle Requirements**

It is important to estimate hourly ridership to assess the required vehicle capacity and the need for additional vehicles in operation. Table 4 provides an analysis of hourly circulator ridership by hour of day for both the short and long routes. The pattern of ship arrivals and departures by hour was drawn from Table 2 of Technical Memorandum One. Adjusted for one hour to exit the boat and the need to be back onboard one hour before sailing yields the overall passenger capacity off of the ships at any one time. This is then used to identify the proportion of circulator riders not taking other excursions in any one hour. For those using the circulator as a “secondary” trip (also taking another excursion), it is estimated that 90 percent take their primary excursion first (and therefore would tend to use the circulator later in the day) and the remaining 10 percent have a later primary excursion and thus would use the circular earlier in the day. This yields the variation in ridership by the hour for these secondary circulator riders.

The resulting ridership by hour reaches a peak of 148 for the shorter route option and 226 for the longer route option, both at 4:00 PM. Ridership is relatively high from 2:00 PM through 8:00 PM, and relatively low in the morning hours and 9:00 PM.

The passenger loads are estimated by applying two factors. First, the number of cycles per hour is considered. As shown in Table 2, above, the shorter route option has a cycle length of 15 minutes, indicating that 4 cycles can be operated each hour, while the longer route option requires 20 minutes thus operating 3 cycles per hour. Secondly, not all passengers will be onboard at any one point around the route. Based on the distribution of trip generators and the variation in demand by hour, a maximum of 80 percent of ridership is assumed to be onboard at any one point. For the shorter route option, a maximum passenger load of 30 is estimated, indicating that a bus with a 30-passenger capacity would be sufficient. For the more popular longer route, a peak passenger load of 60 is estimated, indicating that two 30-passenger capacity vehicles would be needed. As shown in the bottom of Table 4, yielding a maximum passenger load of 30 passenger-trips on the longer route requires 2 vehicles in operation between 2 PM and 9 PM.

### **Operational Costs**

To explore variations in service based on season length and daily hours of service, several scenarios were evaluated. It should be noted that a majority (78 percent) of Capital Transit’s funding comes from the General Fund. With this in mind, the following scenarios were considered in the circulator analysis:

- Considering the daily variation in ship capacity (shown in Figure 3, above), a short season was defined (the 129 days between May 15 and September 20) as well as a long season (the 156 days from May 1 to October 3).
- Considering the hourly variation in circulator passenger demand, a short span of service (11 AM to 9 AM) and a long span of service (9 AM to 9 PM) were defined.

**Table 4: Analysis of Hourly Circulator Ridership and Peak Load**

	Total	6 AM	7 AM	8 AM	9 AM	10 AM	11 AM	NOON	1 PM	2 PM	3 PM	4 PM	5 PM	6 PM	7 PM	8 PM	9 PM	10 PM	
<b>SHORTER ROUTE</b>																			
<b>Primary Circulator Riders (Do Not Take Other Tour)</b>																			
Average Capacity Arriving in Port	2,767	4,564	610	740	406	248	629	2,429	0	700	0	0	0	0	0	0	0	0	
Average Capacity Departing Port	0	0	0	0	0	0	0	1,110	332	1,377	0	1,758	851	115	732	3,723	2,933		
Capacity Arriving on the Dock			2,767	4,564	610	740	406	248	629	2,429	0	700	0	0	0	0	0		
Capacity Departing Back to the Ship							1,110	332	1,377	0	1,758	851	115	732	3,723	2,933	700		
Total Capacity on the Dock	0	0	2,767	7,332	7,942	8,682	7,978	7,894	7,146	9,574	7,816	7,666	7,551	6,819	3,096	163	0		
% Capacity on the Dock	0%	0%	3%	8%	9%	9%	9%	9%	8%	10%	8%	8%	8%	7%	3%	0%	0%		
Percent by Hour			3%	8%	9%	9%	9%	9%	8%	10%	8%	8%	8%	7%	3%	0%			
Total Primary Circulator Riders	440		13	35	38	41	38	38	34	46	37	36	36	32	15	1			
<b>Secondary Circulator Riders (Do Take Other Tour)</b>																			
Capacity Arriving on the Dock								2,767	4,564	610	740	406	248	629	2,429	0	700		
Capacity Departing Back to the Ship								1,110	332	1,377	0	1,758	851	115	732	3,723	2,933		
Total Capacity on the Dock								1,657	5,890	5,123	5,863	4,511	3,908	4,422	6,118	2,396	163		
% Capacity on the Dock								4%	15%	13%	15%	11%	10%	11%	15%	6%	0%		
Total Secondary Riders	790																		
-- Take Circulator Trip Second	711		0	0	0	0	0	29	105	91	104	80	69	78	109	43	3	Ridership By Span	
-- Take Circulator Trip First	79		2	6	7	7	7	7	6	8	7	7	6	6	3	0		Short	Long
<b>Total Riders</b>	1,230		16	41	45	49	45	74	145	145	148	123	112	117	126	43		1,126	1,212
Buses in Operation			1	1	1	1	1	1	1	1	1	1	1	1	1	1			
Cycles per Hour	4		4	4	4	4	4	4	4	4	4	4	4	4	4	4			
% at Peak Location	80%																		
<b>Peak Load</b>			3	8	9	10	9	15	29	29	30	25	22	23	25	9			
<b>LONGER ROUTE</b>																			
<b>Total Riders</b>	1,880		24	63	68	75	68	113	221	221	226	188	171	179	193	66		1,721	1,852
Buses in Operation			1	1	1	1	1	1	2	2	2	2	2	2	2	1			
Cycles per Hour	3		3	3	3	3	3	3	6	6	6	6	6	6	6	3			
% at Peak Location	80%																		
<b>Peak Load</b>			6	17	18	20	18	30	29	29	30	25	23	24	26	18			

Table 5 summarizes costs by both the Short and Long Route Options and for the various combinations of season and span options. The total season hours and miles were calculated. It was determined that the second bus required at peak times under the longer route option is only needed on days with a cruise ship capacity of 9,000 or more (99 days over the shorter season and 104 days over the longer season). Using the cost factors discussed in Technical Memorandum One, the consideration of fully allocated costs is recommended for the implementation of a circulator route to move forward.

Table 5: Downtown Circulator Operating Costs									
Assuming Capital Transit Unit Costs									
Season Option	Short: May 15 to Sept 20				Long: May 1 to October 3				
Route Length Option	Shorter Route Option		Longer Route Option		Shorter Route Option		Longer Route Option		
Daily Span Option	11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM	
Bus 1 Hours per Day	10	12	10	12	10	12	10	12	
Bus 1 Days per Year	129	129	129	129	156	156	156	156	
Bus 2 Hours per Day	0	0	7	7	0	0	7	7	
Bus 2 Days per Year	0	0	99	99	0	0	104	104	
Bus 1 Daily Vehicle-Miles	59	71	75	90	59	71	75	90	
Bus 2 Daily Vehicle-Miles	--	--	53	53	--	--	53	53	
Annual Vehicle-Hours	1,290	1,548	1,983	2,241	1,560	1,872	2,288	2,600	
Annual Vehicle-Miles	7,637	9,164	14,873	16,808	9,235	11,082	17,160	19,500	
Fully Allocated Operating Costs	\$229,200	\$274,900	\$359,800	\$406,700	\$277,100	\$332,500	\$415,200	\$471,900	
Allocated Overhead Cost per Hour	\$68.51								
Note: Fixed costs allocated by vehicle-hours.									

Fully allocated costs include the marginal costs (the direct costs associated with service such as driver salaries and fuel) and also include a “fair share” of the many fixed costs (which do not vary depending on service levels) needed to operate a transit service, such as administrative salaries/benefits, dispatcher salaries/benefits, facility costs, accounting/legal staff, etcetera). Given that the majority of Capital Transit funding comes from local General Funds, including allocated overhead costs is important to avoid the need for General Funds to support any new visitor-related service. These costs are allocated based on an additional cost per vehicle-hour of service of \$68.51. Fully allocated costs range from a low of \$229,200 per year up to \$471,900 per year.

## Fare Analysis

To assess seasonal fare revenue, it is first necessary to estimate total seasonal ridership, in terms of both total boardings and total individuals purchasing passes. As shown in Table 6, the daily ship capacity data were evaluated to identify a factor of 0.63 reflecting the average capacity over the 5<sup>th</sup> highest (design day) capacity. This is applied to the design day ridership (during the assumed span of service) and multiplied by the days per season to yield the total seasonal ridership (1-way passenger-trips).

This is estimated to range from 91,100 for the most limited option up to 181,200 for the most extensive option. These figures can then be divided by the average boardings per individual to yield the total annual individual ridership, which ranges from 60,700 to 120,800. With the allocated total operating costs of the service in consideration, it is recommended that this circulator service be offered to passengers for a daily pass cost of \$5.00 (with free boarding for children aged 5 and younger). This would allow free reboarding

over the course of a day<sup>1</sup>. At a pass cost of \$5 per individual, total fare revenue ranges from \$303,500 up to \$604,000.

### **Operating Cost/Fare Revenue Balance**

Unusual for public transit services, the passenger fare revenues shown in Table 6 exceed the operating cost estimates shown in Table 5, yielding a net positive operating balance as shown at the bottom of Table 6. If allocated fixed costs are included, this positive balance on a fully allocated basis ranges from \$74,300 up to \$132,100. Note that the operating costs do not include marketing or capital costs, as discussed below.

### **Institutional implementation Options**

There are two institutional options to be considered in the implementation of this service. These options are discussed in detail below.

#### ***Direct Capital Transit Operation***

The discussion above assumes that Capital Transit (CBJ) staff directly provides a circulator service, at existing Capital Transit costs. Directly operating service is one option, with both advantages and disadvantages:

##### **Advantages**

- Allows the service to be more easily monitored and modified.
- Can ensure a higher quality of service.

##### **Disadvantages**

- CBJ may have more difficulty staffing a seasonal service, given personnel rules and limited driver pool.
- Capital Transit does not have the physical capacity at the operations center to house additional vehicles.

#### ***Contracted Operation***

Another option, particularly for a new seasonal program, would be to contract for service. CBJ would develop and release a Request For Proposal (RFP) that would be the basis of a competitive bidding process. This RFP would need to include the following:

- A clear description of the scope of services (hours, number of vehicles, etc.).
- Minimum specifications for vehicles (including a backup vehicle).
- Performance measures, including service quality, minimum driver requirements (drug and alcohol testing, ADA training, driver licensing, and experience).
- Reporting requirements.

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<sup>1</sup> One option would be to also offer a season pass for a significant discount, such as \$20 per season. This would allow Juneau residents (particularly those living in the downtown area) to use the circulator at a nominal price per trip while still generating the same fare revenue by cruise passengers.

- Insurance requirements.
- Requirements to brand the vehicle.
- Requirements regarding fare handling.
- Payment basis (typically a fixed cost per month plus an additional cost per vehicle-hour of service)
- A clear description of the selection process

**Table 6: Downtown Circulator Fare Revenue Analysis**

Season Option	Route Length Option	Daily Span Option	Short: May 15 to Sept 20				Long: May 1 to October 3			
			Shorter Route Option		Longer Route Option		Shorter Route Option		Longer Route Option	
			11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM	11AM-9PM	9AM-9PM
Design Day Ridership			1,126	1,212	1,721	1,852	1,126	1,212	1,721	1,852
Average Cruise Visitors in Service Season			11,039	11,039	11,039	11,039	10,123	10,123	10,123	10,123
Design Day Cruise Visitors			17,600	17,600	17,600	17,600	17,600	17,600	17,600	17,600
Ratio of Avg/5th Highest			0.63	0.63	0.63	0.63	0.63	0.63	0.63	0.63
Average Daily Ridership Over Service Season			706	760	1,079	1,162	706	760	1,079	1,162
Number of Days in Season			129	129	129	129	156	156	156	156
Total Annual Ridership (1-Way Psgr-Trips)			91,100	98,000	139,200	149,800	110,200	118,500	168,400	181,200
Total Annual Individual Riders			60,700	65,300	92,800	99,900	73,500	79,000	112,300	120,800
Base Fare - Day Pass		\$ 5.00								
	Fare Revenue		\$303,500	\$326,500	\$464,000	\$499,500	\$367,500	\$395,000	\$561,500	\$604,000
<b>Assuming Fully Allocated Costs</b>										
Fully Allocated Operating Costs			\$229,200	\$274,900	\$359,800	\$406,700	\$277,100	\$332,500	\$415,200	\$471,900
<b>Total Operating Net Balance</b>			<b>\$74,300</b>	<b>\$51,600</b>	<b>\$104,200</b>	<b>\$92,800</b>	<b>\$90,400</b>	<b>\$62,500</b>	<b>\$146,300</b>	<b>\$132,100</b>

Through this RFP process, an operator would be selected. CBJ staff would still be responsible for reviewing reports, contract conformity and payment, marketing, ticketing, and addressing any public or passenger complaints. Fares would be the property of CBJ (rather than the operator).

#### Advantages

- A contractor may be able to staff the program more expeditiously.
- Allows the service to be modified or terminated without impacting CBJ staff.
- May result in a lower cost.
- Significantly, vehicles can be stored and maintained without impacting the capacity of the Capital Transit operations center.

#### Disadvantages

- Addressing operational complaints can be more complicated by the contractual relationship.
- Vehicle quality may be more uncertain.
- Requires an RFP process and ongoing CBJ administration.

Transit programs often use contracting for the initial years of a new demonstration program, transitioning to in-house service once the service plan and staffing requirements have been clearly defined through

experience. One strategy is to undertake an RFP process and have the public transit entity effectively submit a bid. This can provide detailed information on which to base the decision to contract, and if so, the appropriate contractor. Note that under this option the CBJ would still incur costs for the administrative and monitoring process, which are not included in the operating costs presented above.

### **Vehicle Requirements and Costs**

As presented in Table 4 (above), one vehicle would be operated on the shorter route alternative, and two vehicles on the longer route alternative. A backup vehicle would also be needed to cover the time during which vehicles are out of service for repairs. Optimally, all vehicles would be branded with a unique wrap (as part of the marketing strategy).

Considering the expected passenger loads and the constrained streets in the downtown area, the optimal vehicle would be 30 feet to 35 feet in length, accommodating approximately 30 seated passengers. It would need to be wheelchair accessible. While a trolley replica bus would be viable, it is not a necessity.

Vehicle costs vary widely depending on the manufacturer and propulsion. A medium diesel bus currently runs on the order of \$800,000, while battery electric buses are approximately \$200,000 to \$250,000 more at around \$1 million a vehicle.

If circulator service is contracted, vehicles could be provided through the contractor. If the service is provided by Capital Transit, additional vehicles would be needed. This could be through a lease in the short term until funds can be assembled for purchase. In either scenario, the vehicles would need to be stored off-site from Capital Transit's maintenance yard.

### **Fuel Type**

The vehicles would optimally use zero-emission Battery Electric Bus (BEB) technology, for both the air emission benefits as well as the reduced noise impact on downtown streets. The daily vehicle mileage shown in Table 5 is well within the daily operational range of BEB vehicles (even considering the additional energy requirements of climbing up to 4<sup>th</sup> Street) without the need for route charging or switching out vehicles mid-day. In the short term (over the next two to three years), however, BEB propulsion is not a viable option given the time required for grant application and installation of charging equipment as well as the lack of the necessary space at the Capital Transit operations center for the vehicles and equipment. Moreover, the first few years of operation will likely lead to adjustments in the operating plan that could change the vehicle needs of the service. It is recommended that CBJ initially implement this service using diesel buses (preferably with more recent and lower emission engines) and also start pursuing grants for purchase of two to three BEB vehicles as well as charging equipment.

### **Circulator Stops and Recommended Improvements**

Stop improvements would depend on the route length option chosen. Except for one stop (Egan & Willoughby), all stops are already in place. These bus stop improvements are further discussed below.

### ***Shorter Route Option Stops***

The Downtown Transit Center is already an established transit stop at the heart of Downtown Juneau. To create a stronger presence of the circulator service, clear signage would be posted to indicate it as a part of the service.



The *Alaska State Museum* stop already includes a larger overhang and seating area. It would only require signage indicating its inclusion in the service.



The stop located at *Egan & Willoughby (76 Egan)* would require signage as well as a shelter and pad as it is not currently a bus stop. There is an area near the east end of the current driveway (as shown) that could accommodate a shelter. This would require an agreement with the current owners.



The *Library/Marine Parking Garage* is an established Capital Transit stop. It includes shelter and benches. To create an obvious stop along the circulator this location would also require signage.



The stop at *Front Street & Franklin Avenue* would require both signage and benches. It will also need enforcement of a bus-only no parking zone.



Similar to the Front and Franklin the stop at *Seward Street & 4<sup>th</sup>* would require both signage and benches.



### ***Additional Stops on Longer Route Option***

The *9th & Glacier (Federal Building)* stops already have an impressive shelter with benches. The only improvement needed is signage.



As Overstreet Park is also an existing stop with a good shelter and benches, the only improvements needed are signage.



The costs of these improvements would total to be between \$64,000 to \$70,000 depending on whether the short or long route is implemented, as shown in Table 7. A total capital cost table for each route that includes vehicle costs as well are presented in Table 8. As shown, costs for the shorter route would be approximately \$2.1 million while the longer route would cost closer to \$3.2 million. This is merely an estimate based on current costs of construction and material as well as the desire to purchase battery electric vehicles over diesel.

## **Traffic Assessment**

Traffic operations associated with the circulator route can be considered in two ways: the traffic operational ability for the buses to operate, and the impact on overall traffic operations. Regarding the first consideration, the two circulator route options were designed to avoid difficult traffic movements. As discussed above, options that use any of the narrow streets with sharp intersection angles in the upper portions of downtown (such as Calhoun Avenue) were dismissed as infeasible. Left turn movements onto particularly busy streets (such as Egan Drive, with 11,000 vehicles per day) would only be made at signalized locations: at Whittier Street on the shorter option and West 10<sup>th</sup> Street on the longer option. The necessity of using a signalized intersection for left turns onto Egan Drive is one reason that the western portion of the longer route option operates in the counterclockwise direction, as there is no ability to use a signal to egress the Overstreet Park area. Given these considerations and the fact that existing Capital Transit buses operate adequately around the Marine Way / Franklin Street / 4<sup>th</sup> Street / Seward Street loop, it is concluded that traffic conditions will not unduly delay bus operations.

**Table 7: Circulator Bus Stop Improvement Costs**

Stop	Recommended Improvements			Notes
	Signage	Benches	Shelter & Pad	
Shorter Route Option				
Downtown Transit Center	R	*	*	
Alaska State Museum	R	*	*	
Egan & Willoughby (76 Egan)	R	*	R	
Library/Marine Parking Garage	R	*	*	
Front & Franklin	R	R	*	Increased enforcement of No Parking in Bus Bay needed. Benches will require minor grading and paving. (\$5,000)
Seward & 4th	R	R	*	Benches on existing Sidewalk. (\$1,000)
Longer Route Option (Additional Stops)				
9th & Glacier (Federal Building)	R	*	*	
Overstreet Park	R	*	*	
Total Units - Short Route	6	2	1	
Total Units - Long Route	8	2	1	
Unit Cost	\$3,000	See Notes	\$40,000	Total
Total Cost - Short Route	\$18,000	\$6,000	\$40,000	\$64,000
Total Cost - Long Route	\$24,000	\$6,000	\$40,000	\$70,000

Regarding the impact of bus operations on general traffic conditions, the service would only add up to 4 vehicles per hour, which would constitute a small proportional increase. As an example, Marine Way carries approximately 3,400 vehicles per day per AKDOT data, which indicates approximately 340 vehicles in the peak hour. 4 additional buses per hour is equal to just over a 1 percent increase in total traffic activity in the peak hour. Another consideration is whether buses stopping in traffic lanes at bus stops would unduly impede traffic.

Table 8: Circulator Service - Capital Costs			
Item	Unit	Unit Cost	Total
<b>Shorter Route</b>			
Signage	6	\$3,000	\$18,000
Benches	2	<i>See Table 7</i>	\$6,000
Shelter & Pad	1	\$40,000	\$40,000
Buses	2	\$1,050,000	\$2,100,000
		<b>Total</b>	<b>\$2,164,000</b>
<b>Longer Route</b>			
Signage	8	\$3,000	\$24,000
Benches	2	<i>See Table 7</i>	\$6,000
Shelter & Pad	1	\$40,000	\$40,000
Buses	3	\$1,050,000	\$3,150,000
		<b>Total</b>	<b>\$3,220,000</b>

All of the bus stops would allow the bus to pull out of the traffic lane (assuming adequate enforcement of no parking regulations), except for the 4<sup>th</sup> Street stop. 4<sup>th</sup> Street in this location carries 1,200 vehicles per day. With 10 percent in the peak hour and over the two directions, this is equal to an average of 60 vehicles per hour per direction or 1 vehicle per minute per direction in the peak hour. While individual drivers or two will be delayed during bus boarding on 4<sup>th</sup> Street, this would overall only be a minor inconvenience. In sum, either circulator option could be operated without any substantial traffic impacts.

### **Marketing Campaign and Costs**

Both short and long-route Downtown Circulator options would require a strong marketing effort. A marketing campaign could be organized internally or outsourced to a marketing agency through an RFP. A successful marketing campaign would focus on target audiences, through several strategies as described in additional detail below.

### ***Goals and Objectives***

The major goals and objectives that should be accomplished through a Downtown Circulator marketing campaign should include:

- **Raising Awareness/Education:** Creating awareness and improving local knowledge of the Downtown Circulator.

- **Increasing On-Shore Activities:** Cultivating a diverse selection of on-shore activities for cruise ship passengers.
- **Increasing Tourist Presence throughout Downtown:** Encouraging visitors to venture deeper into Downtown and further north than the immediate Franklin and Egan Street corridor.
- **Building Relationships with the Downtown Business Association:** Coordinating collaborative partnerships amongst business owners in the downtown area.

## ***Overview of Marketing Strategies***

The marketing campaign could feature the following strategies:

- **Target Audiences:** Marketing materials, radio ads, and/or TV commercials should target the audience and general messaging for such marketing materials and commercials.
- **Brand Identity:** The service would want to stand alone and be fully branded with a distinct name, logo, and color scheme. It may require its own website or at least a distinct page within an existing website.
- **Community Gatekeepers:** Building on the list of stakeholders and community members identified during this study, a list of key gatekeepers should be identified, as well as appropriate means and timing for contacting them about the circulator service. These gatekeepers include downtown business owners and employees, cruise ship liaisons, government agencies, and other major tourism community leaders. Their role would be to distribute marketing materials to raise awareness about the service within the community as well as amongst tourists.
- **Marketing Materials:** Several mediums of marketing materials should be developed for outreach. The following materials could be provided in English as well as other languages for distribution through the near community and cruise ship coordinators.
  - Press releases to the local Chamber of Commerce and City and Borough of Juneau.
  - Printed flyers, visitor guides, etcetera
  - News Media Print and Web Ads.
  - Social media platforms and posts such as Facebook, Instagram, and Twitter.
- **Website Updates:** All related websites should be updated with clear information regarding the new service. This could include Travel Juneau, Capital Transit, Juneau.org, etc.
- **Suggestions for Promotional Events:** A few pop-up promotional events could introduce the service to potential passengers.

## **CAPITAL TRANSIT TRIPPER SERVICE**

One impact of the growth in cruise ship activity is the sporadic overloading of Capital Transit buses by cruise ship passengers, largely as they travel to and from Mendenhall Glacier. This is increasingly resulting in local resident passengers being left at the curb as buses reach their passenger capacity. During the summer of 2023, Capital Transit staff is collecting data that includes when buses reached capacity and at which bus stops they were unable to serve local passengers as a result. It should be noted that at the time of this data collection, permits held by private tour companies to visit the Glacier had run out, causing

more tourists to seek alternative ways to visit Mendenhall. While data is still currently being collected, below provides a summary of the data collected thus far for the period between May 8<sup>th</sup> and July 20<sup>th</sup>:

- A total of 384 passengers have been left behind at bus stops so far during the summer season of 2023, 7 of which were passengers using a wheelchair.
- Passengers were left behind on a total of 20 days (27 percent of all days), consisting of 5 days in May, 7 days in July, and 15 days (out of 20) in July.
- These overcrowded runs are occurring on Routes 3 and 4, except for 3 instances on Route 8 Express.
- 44 percent of passengers, or 168 passengers, of those being left at stops due to over-capacity occurred on Wednesdays. This was followed by 21 percent (82 passengers) being left behind on a Monday. It should be noted that Wednesday is also the busiest average day for cruise ship activity.
- 51 percent of passengers (or 194 passengers) being left at bus stops due to over-capacity occurred between noon and 4 PM. This was followed by 35 percent (133 passengers) of these observed cases occurring between 8 AM and noon.
- In no particular order, the most common locations where passengers are being left on the curb are at SEARHC, Western Auto, Downtown Transit Center, the Federal Building, and Floyd Dryden Middle School. Between 20 and 29 passengers have been left behind at all of these locations.

Given the sporadic pattern of capacity problems, it is not effective to address this issue by increasing the scheduled frequency of service. Rather, transit systems facing this type of issue typically operate “tripper service,” consisting of additional buses dispatched as needed. These additional bus runs are not shown on the schedule.

Under this alternative, Capital Transit would schedule drivers to be available on standby (either in the downtown area or at the operations center, depending on specific times of day and use patterns) for specific days and times along Routes 3 and 4. The drivers would be dispatched as route drivers report overcrowding is occurring. Buses being assisted by a tripper bus would need clear signage showing that an additional bus is coming.

### **Operational Costs**

While additional data will need to be gathered during the peak summer of 2023 to better define when overcrowding is occurring and how it relates to total cruise ship capacity in port, it is useful to review potential costs associated with running the Tripper Service. As shown in Table 9, estimates were calculated for 4 to 8 hours per day and for 30 to 90 days per season, assuming that half of the runs during the standby tripper periods would be operated (generating vehicle-miles). The total allocated operating cost ranges from \$23,800 to \$143,000 depending on the days of operation per season and the hours per day the service is being provided.

**Table 9: Example Tripper Bus Costs**

Days per Year Hours per Day	30			60			90		
	4	6	8	4	6	8	4	6	8
Annual Vehicle-Hours	120	180	240	240	360	480	360	540	720
Annual Vehicle-Miles	1,740	2,610	3,480	3,480	5,220	6,960	5,220	7,830	10,440
Total Allocated Operating Costs	\$23,800	\$35,700	\$47,600	\$47,600	\$71,600	\$95,400	\$71,600	\$107,300	\$143,000

## EXPANDED CAPITAL TRANSIT SERVICE TO MENDENHALL GLACIER

The current Capital Transit services provide a low level of public access to Mendenhall Glacier. The closest stop (Mendenhall Valley Road/Dredge Lake Road) is served by three routes (3, 4, and 8) that together serve the stop up to 35 times per day. Travel time to and from downtown is approximately 45 minutes and a fare of \$2 (\$1 for youth) is required per one-way trip. This fare is only 10 percent of the costs of a private sector tour. While frequent, relatively inexpensive, and reasonably quick, accessing the glacier through public transit currently requires a 1.5-mile walk in each direction along a multipurpose paved trail. As a result (in large part from the overall need to walk 3 miles round trip), cruise passenger use of public transit is currently moderate. Even so, it can result in overcrowding on the buses as discussed above.

Improving public transit access to Mendenhall Glacier is a challenging public policy question, focusing on the role of the public and private sectors. On one hand, providing better public access to a popular public lands attraction is a benefit to the public at large. However, the private sector tour operators are in large part doing an effective job providing access (at a market rate price) to the glacier. Greatly enhancing public transit access, such as by providing direct access to the visitor center parking lot at the current fares, would also greatly increase cruise passenger demand on Capital Transit. As a result, (1) visitors would effectively use all existing capacity on the key routes at peak times thereby markedly reducing mobility among Juneau residents or (2) Capital Transit would need to greatly expand capacity between downtown and the Glacier, effectively replacing the existing private fleets with a publicly subsidized option. Due to these impacts, it is clear that a comprehensive expansion of public transit is not feasible and is therefore not considered further.

### Limited Expansion of Capital Transit Service to Mendenhall Glacier

One option was evaluated that would provide a limited improvement to Capital Transit service to Mendenhall Glacier that would improve public access without greatly impacting the current balance between private and public services. Specifically, this would consist of extending the existing Route 8<sup>2</sup> afternoon five runs per day (Monday to Friday only) to the staging area approximately 0.3 miles south of the Glacier Spur Road Parking Lot during the peak season. This extension is shown in Figure 4.

<sup>2</sup> Routes 3 and 4 do not have sufficient available running time to accommodate this route extension.

This service would add about 2.5 miles and 5 minutes of running time to the existing Route 8. By providing afternoon service only, the goal of this limited service would be largely to retrieve visitors that this service would add about 2.5 miles and 5 minutes of running time to the existing Route 8. By providing afternoon service only, the goal of this limited service would be largely to retrieve visitors that had taken transit to Dredge Lake Road and walked to the Glacier, without making the public transit access to the glacier so attractive that it significantly impacts the private transportation firms and/or adds significantly to the impact that visitors are having on the Capital Transit capacity.

**Figure 4: Route 8 Extension to Mendenhall Bus Staging Area**



Table 10 presents an example schedule showing service times at the Mendenhall bus staging lots. As shown, the stop would be served every half hour from 3:08 PM to 5:08 PM. This does provide the opportunity for visitors to make a short afternoon trip to visit the glacier, perhaps after conducting another tour earlier in the day. While the driver break at the Valley Transit Center would be reduced from 18 minutes to 13 minutes, this is still a sufficient break.

## Operational Costs

For the first three runs, additional vehicle-miles would be generated but driver hours would not be increased. For the last two runs that go out of service at the Valley Transit Center (shown in blue in Table 10), the runs would need to be extended to the DTC, adding additional vehicle-hours as well as vehicle-miles. As shown in Table 11, this results in 31 additional vehicle-miles and 1.22 additional vehicle-hours per day. Over the course of a shorter season from May 15 to September 20, the total annual operating costs would equal \$25,300 on a total allocated basis. For a longer season from May 1<sup>st</sup> through October 3<sup>rd</sup>, the total allocated costs would equal \$30,500.

**Table 10: Route 8 Sample Afternoon Schedule Serving Mendenhall Glacier**

Downtown Transit Center	Federal Building	Glacier Hwy / Anka St	Fred Meyer	Dep. Valley Transit Center	Mendenhall Bus Staging Lot	Dredge Lake Road	Auke Bay	Arr: Valley Transit Center	Dep. Valley Transit Center	Fred Meyer	Glacier Hwy / Anka St	Downtown Transit Center
2:35 PM	2:38 PM	2:47 PM	2:52 PM	3:00 PM	3:08 PM	3:11 PM	3:18 PM	3:25 PM	3:38 PM	3:43 PM	3:46 PM	4:01 PM
3:05 PM	3:05 PM	3:05 PM	3:05 PM	3:05 PM	3:38 PM	3:41 PM	3:48 PM	3:55 PM	4:08 PM	4:13 PM	4:16 PM	4:31 PM
3:35 PM	3:35 PM	3:35 PM	3:35 PM	3:35 PM	4:08 PM	4:11 PM	4:18 PM	4:25 PM	4:38 PM	4:43 PM	4:46 PM	5:01 PM
4:05 PM	4:05 PM	4:05 PM	4:05 PM	4:05 PM	4:38 PM	4:41 PM	4:48 PM	4:55 PM	5:07 PM	5:12 PM	5:15 PM	5:30 PM
4:35 PM	4:35 PM	4:35 PM	4:35 PM	4:35 PM	5:08 PM	5:11 PM	5:18 PM	5:25 PM	5:37 PM	5:42 PM	5:45 PM	6:00 PM
New Partial Runs												

**Table 11: Estimated Incremental Operational Costs of Route 8 Service to Mendenhall Glacier**

	Length of Season	
	Short	Long
Number of Daily Runs	5	
Additional Daily Vehicle Miles	31	
Additional Daily Vehicle Hours	1.22	
Days in Season (Mon-Fri)	92	111
Annual Vehicle-Miles	2,852	3,441
Annual Vehicle-Hours	112	135
Annual Total Allocated Operating Cost	\$25,300	\$30,500

## Projected Passenger Trips

A reasonable estimate is that this service improvement would expand daily ridership by 50 passenger-trips per day (including more passengers making outbound trips on earlier runs). This would result in between 9,675 and 11,700 additional one-way passengers per year depending on seasonal length of service (Table 12).

**Table 12: Route 8 Extension to Mendenhall Glacier - Projected Passengers and Fare Revenue**

	Shorter Season	Longer Season
Total Estimated Daily Passengers	50	50
Total Estimated Annual Passengers Longer Season	4,600	5,550
Projected Fare Revenue	\$7,600	\$9,200
Projected Operating Subsidy -- Fully Allocated Basis	\$17,700	\$21,300

## Capital Requirements

This option would not require additional vehicles. However, a bus stop would need to be provided at the bus staging area, generally where the canopy is shown in the adjacent photo. Providing this stop and its specific design and location would need to be negotiated with the US Forest Service. A reasonable budget for stop improvements would be \$10,000.



## Implementation

The approval process for a public transit stop on Forest Service land is currently uncertain, including whether annual fees would be required. This would require further discussions with the Forest Service (including consideration regarding the overall Mendenhall Glacier Recreation Area Master Plan) prior to implementation.

## CONCLUSIONS

The discussion above describes the opportunities, advantages, disadvantages, and issues associated with transit options to address visitor mobility issues. Based on this analysis, the Consultant Team has the following recommendations:

- A **Trippler service** is needed at peak times to assist with the over-capacity scenarios Capital Transit is currently experiencing. This alternative should be implemented on a near-term basis. The full extent of the periods when drivers should be scheduled will depend on further data analysis.

- The **circulator service** is also recommended for implementation immediately, as it can provide a net benefit to the downtown economy while improving the visitor experience. The longer route option is the better of the two route options as it would serve the popular Overstreet Park, provides a better value for the cost of the fare, could serve future improvements to the Hoonah Totem projects, and does not require additional bus stop requirements over those of the shorter option. Contracting this service would be a logical first step of implementation. At least initially, contracted service would have fewer challenges to implement due to the advantages listed above. A monitoring program (including passenger surveys) would be beneficial to assess the service and define any appropriate modifications.
- **Limited improvement in Capital Transit service to Mendenhall Glacier** can be accomplished with only a relatively modest cost and without significantly impacting the private sector tour operators. It would be a logical step in balancing public access without greatly impacting either the public transit or private tour services. This, however, will require additional discussions with the Forest Service and is a longer-term recommendation.

## **INTRODUCTION**

This chapter presents an overview of potential funding sources that could be used to fund any of the above-discussed options. This information is presented at a high level, and additional analysis would be needed to determine political feasibility.

Note that this discussion excludes federal operating funding sources for expanded services. Juneau is not an urbanized area as defined for purposes of Federal Transit Administration grant programs, which limits federal operating funding. As the available funds are already fully utilized, funding the options considered in this study with federal funding would reduce funds available for other important existing transit services. Other sources would be needed, as discussed below.

## **POTENTIAL FUNDING SOURCES**

### **Marine Passenger Fee**

Juneau collects a \$5 per passenger fee on every arriving cruise ship passenger, and those funds can be used to fund projects that enhance the tourism experience and offset community impacts created by the cruise ship industry. Those funds could potentially be used to fund seasonal summertime service improvements such as a downtown circulator service provided that such service provides a direct benefit to cruise ship passengers or mitigates problems caused by the industry.

### **Taxes and Fees Imposed on Visitors**

Most local governments, not surprisingly, prefer to implement taxes and fees that are paid by visitors rather than their residents. Two common ways in which this is done are through hotel taxes and rental car fees, which are set at varying rates.

### **Fuel and Vehicle Taxes**

In Alaska, local governments can enact registration taxes based on vehicle value or age and the proceeds can be used for any purpose. Local governments can also enact fuel taxes, and while most are used for road purposes, they could also be used for transit purposes such as providing additional services.