



# Klondike Gold Rush National Historical Park *Dyea Area Transportation Feasibility Study*

FINAL REPORT



Dyea Flats, Klondike Gold Rush National Historical Park

Source: Volpe Center photographs

PMIS No. 219320A  
April 22, 2019



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| <b>REPORT DOCUMENTATION PAGE</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |                                                            | Form Approved<br>OMB No. 0704-0188                        |                                                  |
| Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |                                                            |                                                           |                                                  |
| 1. AGENCY USE ONLY (Leave blank)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             | 2. REPORT DATE<br>April 22, 2019                           |                                                           | 3. REPORT TYPE AND DATES COVERED<br>Final Report |
| 4. TITLE AND SUBTITLE<br>Klondike Gold Rush National Historical Park, Dyea Area Transportation Feasibility Study                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |                                                            | 5a. FUNDING NUMBERS<br>HW9GA2/SD703<br>HW9GA2/SD704       |                                                  |
| 6. AUTHOR(S)<br>Erica Simmons, Eric Burkman, Margo Dawes, Scott Lian, Emma Vinnella-Brusher                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                             |                                                            | 5b. CONTRACT NUMBER                                       |                                                  |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)<br>U.S. Department of Transportation<br>John A. Volpe National Transportation Systems Center<br>Transportation Planning Division<br>55 Broadway<br>Cambridge, MA 02142-1093                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             |                                                            | 8. PERFORMING ORGANIZATION REPORT<br>DOT-VNTSC-FHWA-19-19 |                                                  |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)<br>Roxanne Bash<br>Federal Highway Administration<br>Western Federal Lands Highway Division<br>610 East Fifth Street<br>Vancouver, WA 98661                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |                                                            | 10. SPONSORING/MONITORING<br>AGENCY REPORT NUMBER         |                                                  |
| 11. SUPPLEMENTARY NOTES                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                             |                                                            |                                                           |                                                  |
| 12a. DISTRIBUTION/AVAILABILITY STATEMENT<br>Public distribution/availability                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             |                                                            | 12b. DISTRIBUTION CODE                                    |                                                  |
| 13. ABSTRACT<br>The purpose of the Dyea Area transportation feasibility study for Klondike Gold Rush National Historical Park (KLGO) is to understand current conditions for transit access between Skagway and Dyea and to evaluate where there is demand or opportunities to enhance access to the Dyea unit of KLGO from Skagway, Alaska. This study is not a plan and will not result in a decision or project without further planning and community engagement. However, this study will provide KLGO and the National Park Service (NPS) Alaska Region (AKR) with information and analysis to better understand the current state of transportation access to Dyea and the feasibility of potential enhanced access.<br>NPS and KLGO are not considering an NPS-owned or operated transit system between Skagway and Dyea, and are instead considering a range of business models to support partnerships with local transportation providers.<br>The specific goals of this study are to understand current conditions and demand for transit service between Skagway and Dyea; consider the long-term sustainability of service; and consider visitation and transportation trends and anticipate future needs. |                                                             |                                                            |                                                           |                                                  |
| 14. SUBJECT TERMS<br>National Park Service, transportation feasibility, transit system, motorized vehicle, shuttle, alternatives analysis, transit business models                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             |                                                            | 15. NUMBER OF PAGES<br>59                                 |                                                  |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |                                                            | 16. PRICE CODE                                            |                                                  |
| 17. SECURITY CLASSIFICATION<br>OF REPORT<br>Unclassified                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 18. SECURITY CLASSIFICATION<br>OF THIS PAGE<br>Unclassified | 19. SECURITY CLASSIFICATION<br>OF ABSTRACT<br>Unclassified | 20. LIMITATION OF ABSTRACT<br>Unlimited                   |                                                  |

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)

Prescribed by ANSI Std. Z39-18

298-102

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## Report notes

This report was prepared by the U.S. Department of Transportation John A. Volpe National Transportation Systems Center, in Cambridge, Massachusetts. The project team was led by Erica Simmons, of the Transportation Planning Division, and included Eric Burkman and Rachel Galton of the Transportation Planning Division and Margo Dawes, Scott Lian, and Emma Vinella-Brusher of the Energy Analysis and Sustainability Division.

This effort was undertaken in fulfillment of PMIS 219320A, *Dyea Area Transportation Feasibility Study at Klondike Gold Rush National Historical Park*. The project statement of work was included in the August 2015 Interagency Agreement between the Federal Highway Administration Western Federal Lands Highway Division and the Volpe Center (Agreement HW9GA2).

## Acknowledgments

The authors wish to thank the numerous organizations and individuals, who graciously provided their time, knowledge and guidance in the development of this report, including:

*Klondike Gold Rush National Historical Park*

Mike Tranel, Superintendent  
Albert Faria, Acting Superintendent  
Jason Verhaeghe, Chief of Interpretation and Education  
Tim Steidel, Chief Ranger  
Vickie McMillian, Chief of Budget and Administration  
Core Hale, Acting Chief of Maintenance  
Ben Hayes, Chief of Interpretation and Education  
Annie Matsov, Chief of Resources

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Tim Bourcy  
Betsy Duncan-Clark  
Tyler Geist  
Orion Hansen  
Kathy Hosford  
John McDermott  
Cris Siegel

## Definitions

The following terms are used in this report:

|                 |                                                           |
|-----------------|-----------------------------------------------------------|
| ABA             | Architectural Barriers Act                                |
| ADA             | Americans with Disabilities Act                           |
| ADOT&PF         | Alaska Department of Transportation and Public Facilities |
| AKR             | Alaska Region                                             |
| CO <sub>2</sub> | Carbon Dioxide                                            |
| CUA             | Commercial Service                                        |
| DCP             | Development Concept Plan                                  |
| EIS             | Environmental Impact Statement                            |
| FHWA            | Federal Highway Administration                            |
| FLAP            | Federal Lands Access Program                              |
| FTA             | Federal Transit Administration                            |
| GMP             | General Management Plan                                   |
| GSA             | General Services Administration                           |
| IDIQ            | Indefinite Delivery/Indefinite Quantity                   |
| KLGO            | Klondike Gold Rush National Historical Park               |
| MOA             | Memoranda of Agreement                                    |
| MOU             | Memoranda of Understanding                                |
| MPG             | Miles per Gallon                                          |
| NPS             | National Park Service                                     |
| SMART           | Skagway Municipal and Regional Transit                    |
| TNC             | Transportation Network Company                            |
| USDOT           | U.S. Department of Transportation                         |
| WFL             | Western Federal Lands Highway Division                    |

## Executive Summary

The purpose of the Dyea Area transportation feasibility study for Klondike Gold Rush National Historical Park (KLGO) is to understand current conditions for transit access between Skagway and Dyea and to evaluate where there is demand or opportunities to enhance access to the Dyea unit of KLGO from Skagway, Alaska. This study is not a plan and will not result in a decision or project without further planning and community engagement. However, this study will provide KLGO and the National Park Service (NPS) Alaska Region (AKR) with information and analysis to better understand the current state of transportation access to Dyea and the feasibility of potential enhanced access.

NPS and KLGO are not considering an NPS-owned or operated transit system between Skagway and Dyea, and are instead considering a range of business models to support partnerships with local transportation providers.

The specific goals of this study are to:

- Understand current conditions and demand for transit service between Skagway and Dyea;
- Consider the long-term sustainability of service; and
- Consider visitation and transportation trends and anticipate future needs.

This report is a result of the study, which is a partnership between KLGO, NPS AKR, the Federal Highway Administration (FHWA)'s Western Federal Lands Highway Division (WFL), and the U.S. Department of Transportation's Volpe National Transportation Systems Center (Volpe).

## *Study Organization*

This study has four main components:

1. **Existing Conditions:** This section summarizes existing conditions affecting transit service between Skagway and Dyea, based on review of available documents, NPS data, stakeholder engagement, and a site visit to Skagway and Dyea that took place July 31 to August 4, 2017.
2. **Program Statement for Potential Transit Service to Dyea:** This section discusses the park's goals for a transit service and potential characteristics of service.
3. **Business Model Alternatives:** This section describes a range of potential alternative business models to support transit access between Skagway and Dyea and analyzes their implications and feasibility.
4. **Vehicle Recommendations:** This section analyzes technical requirements and constraints on transit vehicle types and the cost implications.

## *Summary of Findings and Recommendations*

The primary findings and recommendations from this report are summarized below:

### **Existing Conditions and Transit Program Statement**

- **Visitation:**
  - o Because of its accessibility to cruise ship tourism, KLGO is currently the most-visited national park in Alaska, with approximately 900,000 – 1,000,000 visitors per year in recent years, mainly between the months of May and September. Approximately 85% of KLGO visitors arrive by cruise ship, while the other 15% are independent travelers. In addition to recreational visitors, KLGO receives between 5,000 and 7,500 overnight visitors on an annual basis from tent and backcountry campers.
  - o Recent cruise ship visitation trends and proposed dock expansions in Skagway may lead to increasing visitation in the future, but KLGO has also experienced decreases in

visitation, such as in the years after the 2008 recession. Therefore, KLGO should consider how transit service options would perform in different future visitation scenarios.

- **Existing Transportation Options between Skagway and Dyea:**
  - The primary form of access to Dyea from Skagway for KLGO visitors is through a shuttle service called Dyea-Chilkoot Trail Transport, which holds the only Commercial Use Authorization (CUA) for transportation service between Skagway and Dyea. This service is demand-responsive but posts available trips every hour, leaving from the KLGO Visitor Center and accessing multiple sites in Dyea (e.g., Chilkoot Trailhead, Slide Cemetery, and Dyea town site). The fares in August 2017 were \$30 per adult and \$10 per child.
  - Other transportation options to Dyea include package tours, rental cars, bicycle rentals (including electric bicycles), and scooter/motorcycle rentals.
- **Dyea Site Considerations:**
  - The Dyea area is much less developed than Skagway and has fewer visitor amenities. For example, there is no food for sale or publically available potable water at the Dyea town site, and cell phone coverage in Dyea is limited. The less developed nature of Dyea may make some visitors nervous about visiting Dyea without the company of a tour operator or NPS staff. The lack of cell phone coverage is also an important consideration for transit users who need to schedule a return trip to Skagway.
  - KLGO has completed recent visitor improvements at Dyea, including new accessible trails, interpretive displays, and an expanded parking area, which may attract additional visitors in the future.
  - The narrow, winding, and unpaved nature of Dyea Road provides a limitation to the recommended vehicle size for a transit service to Dyea. It also may be intimidating for visitors, especially those who do not have experience driving in Alaska.
- **Strengths and Weaknesses of Existing Transportation Services:** The current CUA transit service provides a reliable option for accessing Dyea, and because it is demand-responsive it can provide access for a wide range of the day (early morning to late night). However, there are few potential weaknesses:
  - The cost of the service is cost-prohibitive for many casual visitors.
  - Some visitors may be deterred by the need to call and schedule a trip to Dyea.
  - There is some risk to continuity of service if the operator chooses to change or close their business.
- **Transit System Goals:** KLGO has the following goals for transit service between Skagway and Dyea:
  - **Visitor Experience:** Provide a safe, reliable, convenient, and enjoyable transit service at an affordable cost.
  - **System Sustainability:** Plan for the long-term sustainability of transit service by considering long-term costs, financial sustainability, and contingency planning to adjust to future changes in transit service or demand.
  - **Accessibility:** Ensure access for visitors with disabilities.
  - **Economic Development:** Support business opportunities for private businesses to provide transit service to Dyea.

## Transit Business Model Recommendations

The project team analyzed three alternative business models for providing transit service to Dyea:

1. No change or minor improvements to existing service (e.g., ADA accommodations)
2. Fixed schedule service (with four different potential service schedules ranging from 1-hour to 2-hour headways)
3. Transit-only seats on private transportation (for example, a private tour operator offering unsold seats at a discount to transit passengers)

The strengths and weaknesses of these business models are summarized below:

**Table 1: Summary of Strengths and Weaknesses for all Business Model Alternatives**

| Alternative                                              | Strengths                                                                      | Weaknesses                                                                                                                      |
|----------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>1: No change or minor changes to existing service</b> | Lowest cost for providers<br>Demand-responsive service<br>System continuity    | Less affordable for customers<br>Need for greater business continuity<br>Lack of ADA access (addressed with minor improvements) |
| <b>2: Fixed Route, Fixed Schedule Transit Service</b>    | Reliable visitor experience<br>More affordable for customers<br>ADA-accessible | Higher service costs for provider<br>Risk of competition with existing service<br>May not meet range of visitor needs           |
| <b>3: Transit-Only Seats on Premium Tour</b>             | Visitor tour experience<br>Lower service costs for NPS                         | Does not extend reliable access<br>Competition with existing service<br>Potential for “free rider problem”                      |

Of these three models, the project team finds only two models to be potentially viable and meeting the park’s transit goals:

1. **Alternative 1 with improvements:** This would be the lowest and lowest risk option for KLGO and the existing transit service. Under this alternative, the existing CUA would continue to provide demand-responsive service to Dyea. However, the park should work with the CUA holder to make ADA accessibility improvements.
2. **Alternative 2 with a 1.5-hour headway:** This option would meet the park’s needs most efficiently, with the most transit service from a single in-service vehicle.

In the short term, continuing with Alternative 1 would provide continuity with current service while providing for some improvements to accommodate passenger needs. There is a danger that developing a new, fixed-route service could compete with the current business model, leading to a reduction in hours of available transit; therefore, it is important that if the park does choose to pursue Alternative 2 that it work closely with the existing CUA transit provider and carefully consider potential impacts to the existing service.

KLGO staff should pursue the following next steps:

1. **Review this report with stakeholders in Skagway and Dyea, including existing transit providers.** This is a crucial next step to verify assumptions, gain their feedback, and gauge the range of potential changes to transit service that the community and transit providers would support.
2. **Develop a plan for transit service to Dyea.** The KLGO may choose to maintain the existing service or to transition to a fixed-schedule, fixed-route service. If the park chooses the former, staff should work with the existing CUA holder to meet all concerns and develop a plan for any minor improvements. If the park chooses to pursue Alternative 2, then the park would need to develop a more detailed plan for implementation, including identifying potential partners and the preferred agreement structure to deliver the service.

**Note:** It is possible that the park may decide to maintain the existing business model at present but to consider transitioning to a fixed-schedule, fixed-route service in the future under specific contingencies, such as the retirement of the existing CUA holder or an increase in demand for transit due to increased cruise ship visitation.

3. **Develop a monitoring strategy.** Regardless of whether the KLGO pursues Alternative 1 or 2, the park should develop a monitoring plan to track future transit demand and evaluate the effectiveness of the transit service in meeting the park's needs while remaining financially sustainable. This may include reporting requirements for the transit provider on passenger boardings, as well as annual or semi-annual discussions with the transit provider on what is working and where there are challenges.

As part of its monitoring strategy, the KLGO may want to establish performance measures to evaluate the success of the service. These would depend on the availability of data but could include:

- Passenger boardings (daily and by season)
- Dyea interpretive tour attendance (daily and by season)
- ADA-accessibility (whether vehicles are accessible)
- Vehicle miles traveled per year (for the purposes of evaluating maintenance needs and the sustainability of the system and to anticipate operational cost changes if fuel prices change)
- Average vehicle age (for the purposes of anticipating fleet replacement needs)

### **Vehicle Recommendations**

Depending on which business model and service concept KLGO and its partners select, the transit provider may not choose to purchase a new vehicle at this time to provide service to Dyea. However, the project team analyzed potential vehicle options to inform vehicle selection decisions, either due to altered transit service or at the time of necessary vehicle replacement due to wear and tear. Based on the nature of Dyea road and the anticipated passenger demand for transit to Dyea, the project team recommends using a van-based shuttle platform, such as a Goshen Coach Pacer II or a Midway Pinnacle. These buses typically hold 12-14 passengers, including two wheelchair spots and range from \$60,000 to \$90,000 in purchase price. Because of their relatively small size, they are more appropriately sized for Dyea road. The diesel models range in fuel efficiency from 14 to 19 miles per gallon.

### **Recommended Next Steps**

KLGO staff should pursue the following next steps:

4. **Review this report with stakeholders in Skagway and Dyea, including existing transit providers.** This is a crucial next step to verify assumptions, gain their feedback, and gauge the range of potential changes to transit service that the community and transit providers would support.
5. **Develop a plan for transit service to Dyea.** The KLGO may choose to maintain the existing service or to transition to a fixed-schedule, fixed-route service. If the park chooses the former, staff should work with the existing CUA holder to meet all concerns and develop a plan for any minor improvements. If the park chooses to pursue Alternative 2, then the park would need to develop a more detailed plan for implementation, including identifying potential partners and the preferred agreement structure to deliver the service.

**Note:** It is possible that the park may decide to maintain the existing business model at present but to consider transitioning to a fixed-schedule, fixed-route service in the future under specific contingencies, such as the retirement of the existing CUA holder or an increase in demand for transit due to increased cruise ship visitation. Many of the findings in this study will be relevant in the future – such as route characteristics – but some will need to be updated or verified, such as available vehicle technologies and costs and fuel costs.

6. **Develop a monitoring strategy.** Regardless of whether the KLGO pursues Alternative 1 or 2, the park should develop a monitoring plan to track future transit demand and evaluate the effectiveness of the transit service in meeting the park's needs while remaining financially sustainable. This may include reporting requirements for the transit provider on passenger boardings, as well as annual or semi-annual discussions with the transit provider on what is working and where there are challenges.

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- Vehicle miles traveled per year (for the purposes of evaluating maintenance needs and the sustainability of the system and to anticipate operational cost changes if fuel prices change)
- Average vehicle age (for the purposes of anticipating fleet replacement needs)

# Introduction

## *Purpose of this Study*

The purpose of this transportation feasibility study for Klondike Gold Rush National Historical Park (KLGO) is to understand current conditions for transit access between Skagway and Dyea and to evaluate where there is demand or opportunities to enhance access to the Dyea unit of KLGO from Skagway, Alaska. This study is not a plan and will not result in a decision or project without further planning and community engagement. However, this study will provide KLGO and the National Park Service (NPS) Alaska Region (AKR) with information and analysis to better understand the current state of transportation access to Dyea and the feasibility of potential enhanced access.

NPS and KLGO are not considering an NPS-owned or operated transit system between Skagway and Dyea, and are instead considering a range of business models to support partnerships with local transportation providers.

The specific goals of this study are to:

- Understand current conditions and demand for transit service between Skagway and Dyea;
- Consider the long-term sustainability of service; and
- Consider visitation and transportation trends and anticipate future needs.

This report is a result of the study, which is a partnership between KLGO, NPS AKR, the Federal Highway Administration (FHWA)'s Western Federal Lands Highway Division (WFL), and the U.S. Department of Transportation's Volpe National Transportation Systems Center (Volpe).

This study has four main components:

5. **Existing Conditions:** This section summarizes existing conditions affecting transit service between Skagway and Dyea, based on review of available documents, NPS data, stakeholder engagement, and a site visit to Skagway and Dyea that took place July 31 to August 4, 2017.
6. **Program Statement for Potential Transit Service to Dyea:** This section discusses the park's goals for a transit service and potential characteristics of service.
7. **Business Model Alternatives:** This section describes a range of potential alternative business models to support transit access between Skagway and Dyea and analyzes their implications and feasibility.
8. **Vehicle Recommendations:** This section analyzes technical requirements and constraints on transit vehicle types and the cost implications.

## *Relationship to KLGO Plans and Policies*

Klondike Gold Rush National Historical Park (KLGO) was established by an authorization from Congress on June 30, 1976. It comprises four units, one in Seattle, WA, and three in Alaska: Skagway, Dyea and Chilkoot Trail, and White Pass. KLGO commemorates the gold rush of 1898 by preserving the associated "historic structures, trails, artifacts and landscapes and stories" (National Park Service, 2009).

In 1996, in response to expected increases in visitor use and interest due to the growing popularity of Alaska as a travel destination and the upcoming Klondike Gold Rush Centennial, the National Park Service (NPS) released a General Management Plan, Development Concept Plan, and Environmental Impact Statement (GMP/DCP/EIS). This joint document proposed an action alternative that included improving access to the Dyea area and developing new parking, picnic, interpretive, and trail opportunities at the Dyea area (National Park Service, 1996). The proposed alternative was expected to increase park visitation in the Dyea area by enhancing visitor enjoyment through the expansion of

interpretive programs and facilities; it was also expected to result in economic benefits for the local economy through increased tourism. The GMP/DCP/EIS was amended in 2014 by the Dyea Area Plan and Environmental Assessment, which selected an action alternative to “improve visitor experience and park operations and protect cultural and natural resources in Dyea” over a no action alternative (National Park Service, 2014).

The actions outlined in the Dyea Area Plan and Environmental Assessment and referenced in the GMP/DCP/EIS and later implemented, included infrastructure and facility improvements to the access road, picnic areas, trails, and trailhead (including the addition or rehabilitation of parking and public restroom facilities, but no potable water facilities); improvements to interpretive elements such as exhibits, an entrance kiosk, and a trail that overlays the original street grid of the Dyea Core Historic Townsite; and continued pursuit of “opportunities for alternative transportation to Dyea from Skagway” (National Park Service, 2014). A Commercial Services Plan was included in the GMP/DCP/EIS and amended in the Dyea Area Plan for the Dyea area and first two miles of the Chilkoot Trail. This plan manages commercial activities in two categories—guided tours and transportation—for the purpose of maintaining a high quality visitor experience for both guided and non-guided visitors and to “protect the cultural and natural resources and values in the area” (National Park Service, 2014). The Commercial Services Plan authorizes auto/bus tours with or without a hiking/walking component, bicycle tours, horseback tours, and hike/float tours.

Together, the Foundation Statement, GMP/DCP/EIS, and the Dyea Area Plan and Environmental Assessment guide the National Park Service in the management of KLGO and the protection of its cultural and natural resources and values. Following the recent implementation of planned improvements to the Dyea and Chilkoot Trail Unit – including new hiking trails and interpretive services at the Dyea townsite and improvements to the NPS road accessing the Dyea townsite and slide cemetery – NPS seeks to make Dyea accessible to visitors without increasing vehicle traffic and visitor congestion. The purpose of this Feasibility Study is to evaluate potential options for increasing or expanding transportation service to Dyea from Skagway and the associated impacts on both the park units and the local economy.

## *Methodology*

The project team developed this report through four main components:

- **Literature Review:** Review of existing documents and data sources, such as park management documents, visitation data, and marketing materials from existing transportation and tour providers.
- **Site Visit and Interviews:** A site visit conducted from July 31 to August 4, 2017. During this site visit, NPS, KLGO, FHWA, and Volpe staff observed existing site conditions and visitor use at the Skagway, Dyea and Chilkoot Trail units of KLGO. The project team also discussed the study with several stakeholders and members of the Skagway and Dyea communities, as described in more detail in the Summary of Public Feedback below.
- **Business Model Alternatives Analysis:** To analyze and compare transit service concepts, the project team used a [bus life-cycle cost model](#) (Volpe Center, 2016) to estimate bus purchase, maintenance, and operations costs for a range of potential transit service concepts. The project team also considered potential business models for the range of service concepts to evaluate which business models and service concepts best meet the park’s transit goals.
- **Vehicle Recommendations:** The project team developed a range of potential transit vehicle types based on the nature of the existing service, site observations (e.g., roadway and parking area constraints), and estimated capacity needs. The project team then analyzed a range of potential vehicles within the recommended vehicle type, considering criteria such as initial purchase price, fuel mileage, and local availability of maintenance and parts.

## Overview of Location, Geography, Landscape

### Geography

Skagway and Dyea are located in the northeastern corner of Alaska's Interior Passage, approximately 90 miles north-northwest of Juneau, and 13 miles southwest of the border with British Columbia, Canada. Both Skagway and Dyea are positioned at the end of the Lynn Canal and are surrounded on all other sides by mountains.

### Development History

The Klondike Gold Rush began in 1897, when tens of thousands of gold-seekers rushed to the Klondike region of the Yukon Territory in Canada, settling in Dyea and Skagway as they prepared for the next leg of their journey. Hopeful gold-seekers were required to have one ton of goods in order to cross the Canadian border and venture further into the Klondike. These individuals made multiple arduous trips up the Chilkoot or White Pass Trails with the help of guides and pack animals, but other enterprising individuals found a different kind of gold rush – starting businesses in Skagway and Dyea to sell goods and services to the gold-seekers.

In the initial years of the gold rush, the population boom in Dyea was more significant than the boom in Skagway. Dyea was positioned at the head of the Chilkoot Trail, which was more popular among gold-seekers than Skagway's White Pass Trail. However, Dyea's location on tidal flats made shipping difficult. The town embarked on building a massive, two-mile long wharf in order to reach deeper water and the shipping opportunities that came with it.

However, in 1898 the Yukon Route and White Pass Railroad connected to Skagway. The greatly improved access afforded by the railroad allowed for easier movement of goods and people into the Klondike. Skagway, with excellent water access – and hence connections to the rest of the Northwest – had gained a significant competitive advantage. Dyea was no longer the preferred gateway, as goods and people could arrive in Skagway by water, then ride the train further into the Klondike. Development shifted from Dyea to Skagway, and Dyea's two-mile long wharf would never be completed.

Dyea's population eventually dwindled as Skagway's grew significantly. Today, Dyea is incorporated into the Borough of Skagway, with a much smaller population than the Municipality of Skagway.



Figure 1: Map of KLGO (Source: NPS)



**Figure 2: Winter camp on Dyea Flats during the Gold Rush (Source: NPS)**

### **Present-day Skagway and Dyea**

Skagway today is home to about 1,057 year-round residents\*, most of whom work in tourism or tourism-adjacent industry. The population is estimated to double in the summer to support businesses servicing a significantly higher number of tourists who arrive via cruise ship. The town welcomes temporary and international workers to meet tourism industry demands during the high season.

Skagway is significantly more developed than Dyea, which hosts a number of wilderness excursions and tourist-focused activities. The actual Dyea townsite is maintained as a historical site by NPS and is uninhabited. Stakeholders indicated that Dyea is where residents of Skagway go to disengage from the hectic tourism and crowded streets of Skagway.

### **Access**

Skagway is accessible via the Klondike Highway, the Alaska Marine Highway System (ferry service), cruise ships, or seaplane. The Yukon Route and White Pass Railway also serves Skagway, but is currently used for mainly for sightseeing excursions or transportation for Chilkoot Trail hikers to return to Skagway. The vast majority of recreational visitors to Skagway arrive via cruise ship.

Due to its location on tidal flats, Dyea is much less accessible by water than Skagway. Access to Dyea is almost exclusively via the Dyea Road, a narrow and winding gravel facility bordered by mountains and water. Driving from Skagway to Dyea takes about 30 minutes, but can become very dangerous or impossible in adverse weather conditions, and the road is susceptible to mudslides and rockslides. Dyea

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\* United States Census estimate, 2015.

Road does connect to the Klondike Highway, but for the majority of visitors the best way to access Dyea is by driving from Skagway after arriving via seaplane or ferry.

### **Economy**

The primary economic driver in Skagway and Dyea is tourism, and the vast majority of tourists arrive by cruise ship. Skagway can accommodate up to four cruise ships at one time and is currently developing plans to upgrade one of the docks to accommodate even larger ships. On busy days, over 10,000 tourists arrive in Skagway by cruise ship.

In addition to tourism, economic activity also includes hunting and fishing. However, these activities are also tourism-drivers, particularly for independent travelers. Dyea especially benefits from these types of visitors, because it is home to both an NPS-maintained campground and a municipal campground. Because Canadian visitors can easily drive to Dyea via the Klondike Highway, Canadian holiday weekends are some of the peak visitation times for the Dyea campgrounds.



**Figure 3: Cruise ships in Skagway, Alaska (Source: Volpe Center)**

## Existing Conditions

### *Use and Visitation*

Because of its accessibility to cruise ship tourism, KLGO is currently the most-visited national park in Alaska. Annual recreational visitation was 912,351 in 2016, down somewhat from 919,661 in 2015 and 1,085,202 in 2014, the highest recreational visitation recorded. Visitation rose steadily from roughly 650,000 in 1997, reaching 975,000 in 2007 before dropping below 800,000 in the wake of the 2008 recession. Prior to 1997, annual recreational visitation had been in the 400,000-500,000 range since 1993, and under 200,000 before that (see Figure 4 below). In addition to recreational visitors, KLGO receives between 5,000 and 7,500 overnight visitors on an annual basis from tent and backcountry campers.

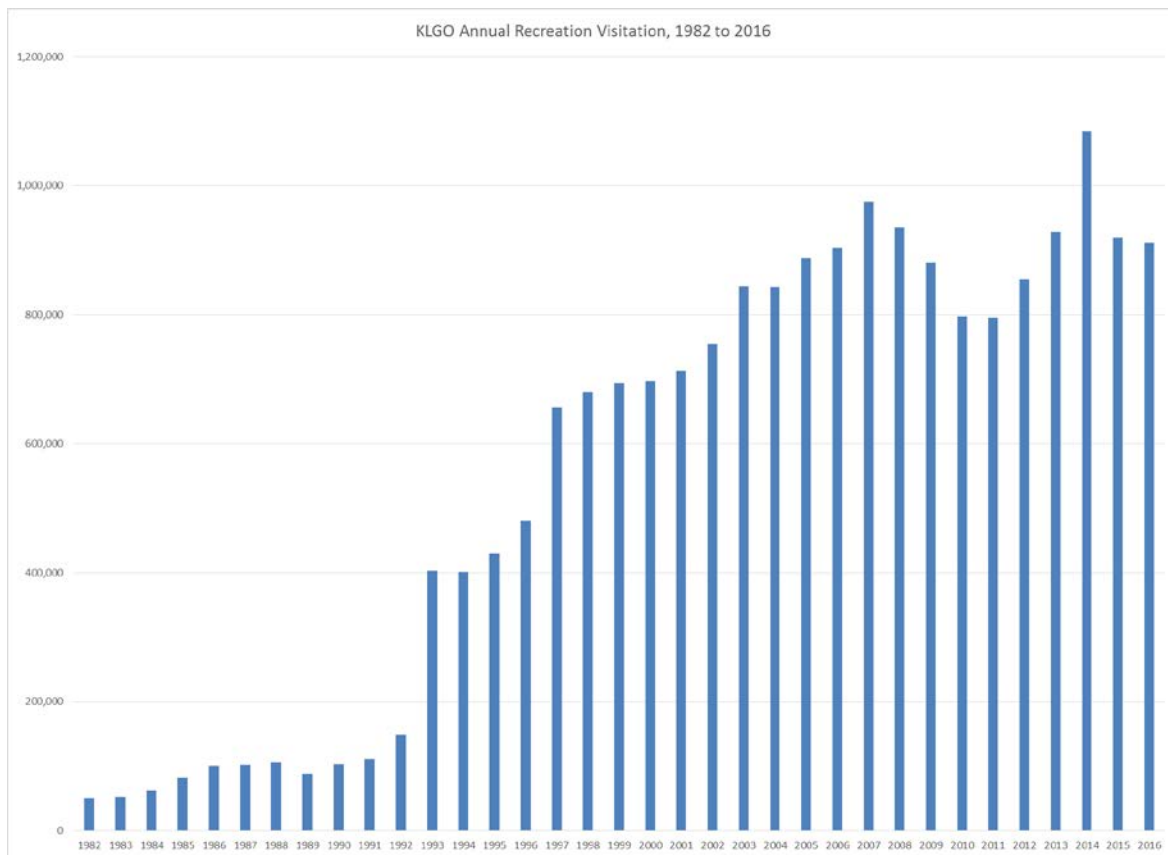


**Figure 4: KLGO Annual Recreation Visitation, 1982 to 2016 (Source: NPS)**

The peak visitation season occurs from May through September, with very few visitors outside of that time frame. Peak visitation weekends correspond to holidays, including Canadian holidays, as travelers will visit from British Columbia. From June through August, total monthly visitation tops 200,000 (see Figure 5 below).

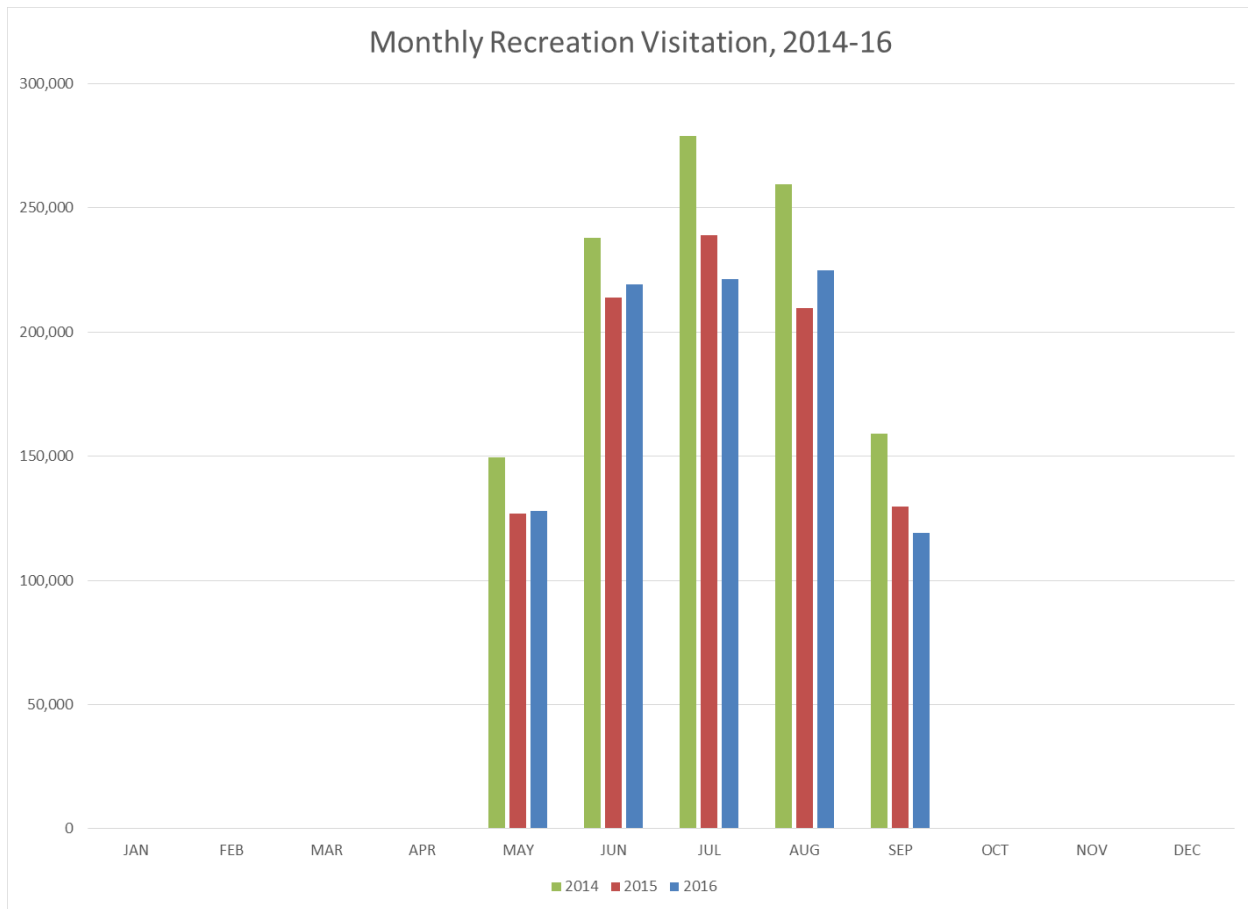


**Figure 5: KLGO Monthly Recreation Visitation, 2014 to 2016 (Source: NPS)**

Approximately 85% of visitors to KLGO arrive in Skagway via cruise ship (National Park Service, 2016). The three deepwater docks in Skagway can support up to four cruise ships at once and may soon undergo an expansion to accommodate larger ships (Files, 2017). On a “four-ship day,” Skagway can receive more than 10,000 tourists and ship crew, many of whom use the stop to go on a pre-packaged excursion or to visit the historic downtown area. Pre-packaged excursions are sold onboard the cruise ships and include train rides through White Pass, ziplining, hiking, kayaking and rafting, and tours of Skagway and the surrounding areas by car, bus, motorboat, helicopter, dogsled, historic streetcar, off-road buggy, and horseback. Visitors can also rent bicycles, electric scooters, and motorcycles for guided or independent tours. Traditionally, cruise ship passenger demographic data skewed toward older populations, though cruise companies have made a push toward marketing to families in recent years. The prevalence of these populations underscores the need for accessible transportation and activity options as well as awareness of the costs associated with a multi-person excursion.

The remaining 15% of annual visitors are independent travelers who arrive by ferry, highway, or air. This group includes Chilkoot Trail through-hikers and backcountry campers who are required to reserve permits between Memorial Day and Labor Day. Combined, cruise ship visitors and independent travelers have access to numerous recreational activities in addition to visiting the recently improved Dyea and Chilkoot Trail Unit of KLGO.

## *Existing Transportation Options in Skagway and Dyea*

Numerous transportation options operate in and around Skagway, including a variety of vehicles used for tours. Skagway Municipal and Regional Transit (SMART) offers the singular public transportation option, with a bus route that covers the cruise ship docks, downtown, and the entrance to Klondike Highway and Dyea Road. Fares are \$2.00 one-way or \$5.00 for a day pass, and operating hours are from 7:00 AM until 9:00 PM between May 1 and October 1.

Visitors and residents can also choose from a range of private/commercial transportation services, including motorcoach, shuttle, taxi, rental car, bicycle rentals (including electric-assist fat-tire bicycles), scooter rentals, and motorcycle rentals. Some of these modes are available for travelers to rent and independently operate (e.g., cars, bicycles, scooters, and motorcycles), though most are combined with guided group tours.

The primary form of access to Dyea from Skagway outside of pre-packaged excursions and guided tours is through a shuttle service called Dyea-Chilkoot Trail Transport, which holds the only Commercial Use Authorization (CUA) for transportation service between the Skagway and Dyea KLGO units. To obtain a CUA, the shuttle provider agreed to publish its schedule and fare,\* and it agreed to use a designated stop for service originating in the Skagway Historic District chosen by the NPS and the Municipality and Borough of Skagway. This CUA is available for other operators, but currently only one operator has applied. The shuttle operates on-demand or by reservation between 3:30 AM and 9:00 PM, and fares are \$30 per adult and \$10 per child.†

## *Site Conditions at Skagway and Dyea*

### **Skagway Site**

Within Skagway, visitors can enjoy a variety of NPS and non-NPS services and tours. Even visitors who are generally uncomfortable with outdoors destinations would feel comfortable in town, because it is developed with restaurants, stores, and a variety of services. The historic district is busy with pedestrians and vehicular traffic, and cellular service is available throughout town.

Broadway, the main tourist thoroughfare in Skagway, has a historic look and feel, and is accessible for visitors of varying ability. NPS manages the historic district, and many of the buildings within the district are owned and maintained by NPS, though some buildings are leased to private businesses.

NPS offers walking tours of the historic district starting at the Visitor Center, where there is also a variety of other information. The NPS Visitor Center is easily accessible for tourists walking to the historic area from the cruise ship docks. NPS buildings with self-guided interpretation are spread throughout the historic district, among private businesses that offer various services to tourists and locals alike.

The overall developed feel of Skagway is comfortable for tourists arriving from various destinations, because there is little isolation and access to services is plentiful and easy.

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\* The current schedule and fare are published online here: <https://www.facebook.com/Trumooreservices>

† See 2017 schedule: [https://scontent-ort2-2.xx.fbcdn.net/v/t31.0-8/17880221\\_1940154659548489\\_2056047819851431878\\_o.jpg?oh=c5b2a0a5cee570a17aef30f624b4a6&oe=5B201818](https://scontent-ort2-2.xx.fbcdn.net/v/t31.0-8/17880221_1940154659548489_2056047819851431878_o.jpg?oh=c5b2a0a5cee570a17aef30f624b4a6&oe=5B201818)



**Figure 6: Broadway Street in Skagway, viewed from the KLGO Visitor Center**

### **Dyea Site**

The Dyea townsite, which is managed and maintained by KLGO, is a much less developed destination than Skagway, with fewer visitor amenities. This contrast is historically appropriate, since Dyea became a ghost town as Skagway became the primary town in the area.

KLGO offers daily tours of the Dyea townsite, where the park recently completed new interpretive trails that meet the Architectural Barriers Act (ABA) standards for accessible trails. Visitors who do not attend the ranger-led tours of Dyea can take their own self-guided tours of the site. The park also enhanced the site's interpretive amenities, using the new trails to highlight the street grid that existed in Dyea's heyday and including interpretive signage to help visitors imagine the bustling town that existed on the site.

Beyond the new interpretive amenities, the Dyea townsite has limited visitor amenities, which may provide challenges for some visitors. There is a vault toilet, but there is no publically available potable water on site. At the time of the August 2017 site visit, there was no cellular service available at the Dyea townsite. Many out-of-state visitors to Alaska feel out of touch in areas without cell phone coverage, and this presents a logistical challenge for visitors if their plans change and they need a ride back to Skagway. Many out of state visitors also feel uncomfortable traveling in areas with bears and may not want to visit Dyea without a ranger-led tour. KLGO should consider all of these limitations when assessing current or future demand for independent visits to Dyea.

Visitors to Skagway who wish to visit the Dyea townsite can use the Dyea-Chilkoot Trail Transport service to access the site. The owner-operator of the service tries to prepare Dyea visitors for the remoteness of the site by asking specifically about their plans to return to Skagway, in addition to ensuring they have adequate food and water and are aware of wildlife risks. Multiple Dyea residents have mentioned picking up panicked visitors along the Dyea Road who were not aware of the remoteness of Dyea and were looking to return to Skagway for a cruise ship departure.



**Figure 7: KLGO Interpretive Tour of the Historic Dyea Town Site**

### **Dyea Road**

The sole access to Dyea is by Dyea Road. Although Alaska Department of Transportation and Public Facilities recently completed improvements to Dyea Road, it is still an unpaved road that is narrow and has short sight lines in some places, and many drivers find it challenging.

Dyea Road is narrow and winding, generally with room for one vehicle to pass at a time. The road is equipped with pull-offs to allow vehicles to pass safely in opposite directions. Some parts of the road are narrowed due to curves in the roadway or unanticipated rockslides. During inclement weather, the road can become impassible.

The road is shared among light duty vehicles, medium duty passenger vehicles carrying visitors to tours and excursions in Dyea, small motorbikes, bicycles, horses, and pedestrians. The multimodal nature and design constraints of the road limit the vehicle size that can be safely accommodated for transportation service between Skagway and Dyea.

The Taiya River Bridge has reached the end of its useful life, but capital responsibility is unclear. All traffic between Skagway and Dyea must cross this bridge, the sole river crossing and a key link between the two towns.



**Figure 8: A road sign on Dyea Road warns travelers to use caution.**

### *Strengths and Weaknesses of Existing Transportation Services*

The primary takeaway from an assessment of transportation options between Skagway and Dyea is that visitors to the area have at least one reliable option in the CUA held by Dyea-Chilkoot Trail Transport. There are a variety of other potential transportation options available, but there are limitations. Taxi options are offered by shuttle and tour companies, and ride-hailing companies like Uber and Lyft do not currently operate in the area.\* Rental car companies in Skagway have limited inventory and can be prohibitively expensive for visitors, and carsharing companies also do not operate in the area. Further, many transportation options available are a component of guided tours and serve only specific destinations within the Municipality and Borough.

While the CUA offers regular and predictable service, its fares (\$30 per adult and \$10 per child) may be prohibitively high in some cases, especially for large parties. In addition, some visitors may be deterred by the lack of a fixed schedule and the need to call and schedule a ride to Dyea. There is also some risk in relying on a single operator to provide long-term, sustainable service between the KLGO units, as any

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\* Both Uber and Lyft were authorized to operate in June 2017 by Alaska State Legislature House Bill 132, which made Alaska the 50<sup>th</sup> state to formally allow the companies to provide service (Brooks, 2017). Both companies include Skagway in their service area (Uber includes it in the Juneau service area and Lyft includes it in the Greater Alaska service area), but at the time of the 2017 site visit there did not appear to be any drivers signed up through either company in the Skagway area. This may change in future seasons, so KLGO should monitor whether ride-hailing services become a popular way to access Dyea.

disruption in service would reduce visitors' ability to access Dyea. The existing CUA may also be insufficient to meet future demand, should interest in the Dyea unit increase compared to levels seen in the last several years (e.g., should a completed cruise ship dock expansion result in larger crowds on peak visitation days).

Another weakness of current service is that the current CUA holder does not have capacity for wheelchair passengers, so there is no accessible transit access despite the ABA-accessible trails that KLGO has completed at the Dyea townsite.

### *Summary of Public Feedback*

During the site visit that took place July 31 – August 4, 2017, the project team of NPS and U.S. Department of Transportation (USDOT) staff conducted a site visit and series of meetings with community members during the week of July 31, 2017. This is a summary of notes from multiple stakeholder meetings that took place in Skagway, Alaska, and Dyea, Alaska, throughout the week of July 31, 2017. These comments reflect what the project team heard from community members throughout the site visit. The project team has not verified the accuracy of these statements but provides them as a summary of public input in this initial project phase.

These comments were gathered from various meetings with community members, including:

- NPS Klondike Gold Rush National Historical Park Public Meeting (August 1, 2017)
- Skagway Borough Assembly Meeting (August 3, 2017)
- Dyea Community Advisory Board Meeting (August 4, 2017)

The project team gathered additional input from individual interviews and conversations with community members in Skagway and Dyea, including NPS staff, business owners, transportation operators, tour operators, and others.

### **Current Transportation Service**

- Multiple community members expressed some need to provide affordable transportation access to Dyea and to consider how to make the service sustainable in the future if individual operators are no longer available because of retirement or other reasons.
- Some business owners feel that affordable transportation between Dyea and Skagway will not make money and will have to be subsidized, but other business owners expressed concern that a subsidized shuttle would compete with existing businesses.
- Another suggestion that the project team heard from a local business owner was to combine a Skagway and Dyea walking tour package with a transportation shuttle, which may help an operator make the shuttle work financially. Under this model, the park could offer interpretive services on the shuttle, similar to how park rangers provide interpretation on cruise ships passing through Glacier Bay National Park.

### **Dyea Area Considerations**

- After the park's recent improvements to the Dyea historic townsite and trails, several community members expressed an expectation that demand for visitation to Dyea will increase. However, some residents cautioned that the park should be sensitive about not over-promoting visitation to Dyea, because residents value it as a quiet, less-developed alternative to Skagway. As one resident put it, people in Skagway are protective of their quiet spaces.

- Some residents also expressed concern about increasing day hiking access to the Chilkoot Trail. Currently, day hike / float operators stagger their tours so that they do not run into each other on the one-way hike up the trail. However, large numbers of people hiking up and back down as a day hike would make the trail feel much more crowded and could exceed the trail's recreational carrying capacity.
- Several residents expressed concerns that the park should consider the lack of amenities for visitors in Dyea before expanding any transit service.
- Some business owners suggested that staffing tourism-related businesses in Dyea can be difficult because of the number of seasonal workers without cars, limited housing availability, and lack of reliable transportation services. These seasonal workers could potentially benefit from expanded, affordable transit service.

### **Dyea Road Uses**

- Alaska Department of Transportation and Public Facilities (ADOT&PF) owns and maintains the road from Skagway to Dyea. They recently completed improvements to the road, but it is still narrow and has limited sight distance for encountering vehicles coming from the opposite direction. As a result, it is important that bus operators on the road are well trained, and the road itself provides a limit on the size of transit vehicle that would be appropriate.
  - o Some community members indicated that, although the road was recently improved, people are still nervous when driving it.
  - o Some community members recognized that transit could help reduce demand on the roadway and could have safety improvements by ensuring that drivers are well trained. Others questioned how many additional visitors would take transit to the site as opposed to driving on their own.
- Some community members expressed that improvements to the Dyea road and the Taiya River Bridge are necessary for transit over the long term.

### **Suggestions for Transportation Solutions**

Community members offered these considerations for transportation service between Skagway and Dyea:

- Tours are sold on cruise ships, and some of them are for bus tours with narration and interpretation. A Skagway/Dyea “contrast tour” to discuss how the railroad shifted development from Dyea to Skagway could sell some premium seats at tour prices. Then those profits could be used to subsidize low-fare, “transportation-only” seats reserved for that purpose.
- The NPS could consider doing a more regional study of transportation needs for parks accessed by cruise ships.
- Providing a subsidy for a transportation service would be unfair competition with other tour operators who do not receive a subsidy.
- There could be a water option, such as canoes, kayaks, or ferries. However, there would be a need for additional infrastructure such as docks and wharves.
- Key stops for a transportation service could be the Chilkoot Trailhead, the Dyea townsite, the Slide Cemetery, and the Patterson-McDermott Cabin (once it's restored and relocated to the north end of the Taiya River Bridge).
- Transit solutions should interface with the cruise ship and ferry schedules and should allow for pre-booking instead of only relying on casual riders.

- The system could be sponsored, similar to LL Bean’s sponsorship of the shuttles at Acadia National Park.

## Program Statement for Potential Transit Service to Dyea

### *Transit System Goals and Objectives*

#### **Purposes of Transit**

In a national park context, there are several potential benefits a transit system can provide for a park and visitors, including:

- Expanding access to difficult to reach or otherwise inaccessible locations;
- Support for one-way trips, such as backpacking shuttles;
- Enhancing visitor experience by offering interpretive services;
- Providing transportation options to accommodate large numbers of users in short periods of time (for example, crowds disembarking from cruise ships or ferries);
- Protecting resources and preserving the Dyea townsite cultural landscape by reducing the need for increased roadway or parking capacity; and
- Reducing vehicle or parking congestion at high-visitation sites with limited transportation infrastructure.

In the case of KLGO, all of these potential benefits apply. In addition to meeting visitor access needs, transit is a tool for reducing the number of cars driving to and parking at Dyea, which is critical to achieving the park’s long-term management plans at Dyea.

#### **Transit System Goals**

KLGO has the following goals for transit service between Skagway and Dyea:

- **Visitor Experience:** Provide a safe, reliable, convenient, and enjoyable transit service at an affordable cost.
- **System Sustainability:** Plan for the long-term sustainability of transit service by considering long-term costs, financial sustainability, and contingency planning to adjust to future changes in transit service or demand.
- **Accessibility:** Ensure access for visitors with disabilities.
- **Economic Development:** Support business opportunities for private businesses to provide transit service to Dyea.

#### **Potential Demand for Transit**

Given that about 85% of annual visitation consists of cruise ship passengers, this population represents a substantial portion of potential users of a new or expanded transportation service between Skagway and Dyea. Other potential users include the roughly 15% of visitors who are independent travelers, including Chilkoot Trail through-hikers and other casual visitors. Non-visitors such as permanent or seasonal residents of Skagway or Dyea, especially seasonal employees in Dyea, may also be potential users of such a service but are not expected to be the primary users.

The current CUA provider for transportation between Skagway and Dyea, Dyea-Chilkoot Trail Transport, primarily transports backpackers to and from the Chilkoot Trailhead, though some casual visitors do use the service to access the Dyea townsite. The provider indicated that demand is currently being met using one 12-passenger van equipped with a bicycle trailer. The service operates on an hourly schedule, and is demand-driven.

Potential demand for transit service could increase with recent improvements to the Dyea townsite. Demand for hiker transportation to and from the Chilkoot Trailhead will likely remain steady, but the current transportation operator indicated that hikers have been reserving transportation earlier in the year. Increases in demand would likely require other changes, such as promotion of the service on tour ships, or additional programming in Dyea.

### **Universe of Potential Providers**

Existing transportation providers in Skagway could feasibly expand their service offerings to provide additional transport between Skagway and Dyea, either through expanded fleets, upgraded vehicles, expanded service areas, or new schedules and/or fare structures. In addition to existing local providers such as SMART, regional transportation providers such as those in Haines—a small community about 16 miles south of Skagway that is more accessible than other small communities in southeast Alaska—could also feasibly provide transportation service between Skagway and Dyea.

With the enterprising nature of many Skagway business owners, a likely provider for service between Skagway and Dyea would be an existing business, such as the current CUA holder. Due to the large amount of businesses and services that exist for tourists in Skagway, there is likely capacity in the private sector to operate an additional transportation service between Skagway and Dyea. A main concern for private industry is profitability, which would be a challenge for Skagway-Dyea service. Furthermore, some capital investment is likely necessary due to the unique vehicle needs arising from design constraints on Dyea Road.

### **Characteristics of Potential Service**

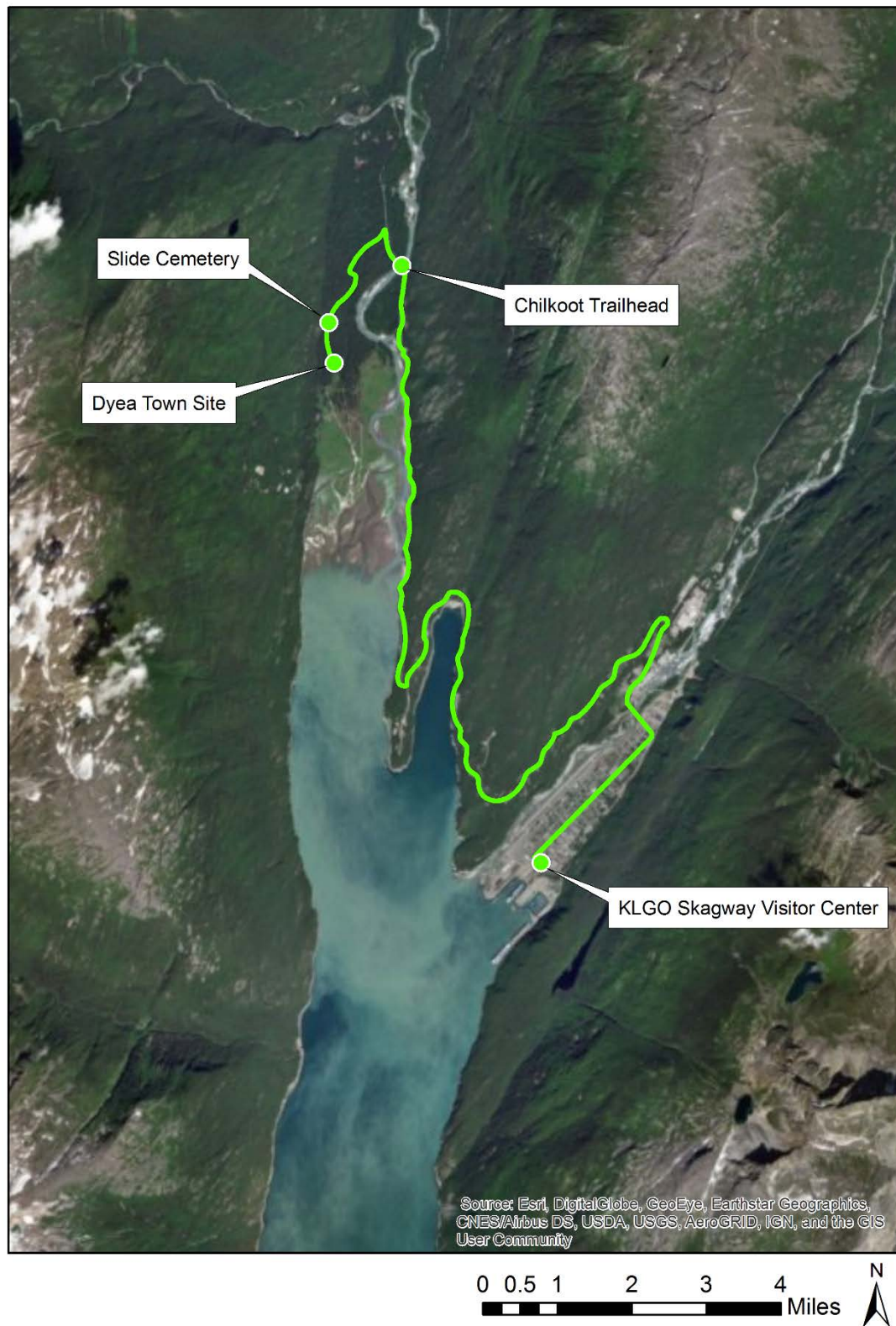
#### *Existing Service Route*

At the time of publication, an existing CUA shuttle service provides one-way and roundtrip service between Skagway, the Chilkoot Trailhead, and Dyea, with specific stops depending on the needs of the passenger.

#### *Potential Service Route*

Routing of a new transportation service between Skagway and Dyea would likely begin at the NPS Visitor Center in Skagway, traveling on Dyea Road to the Dyea townsite. The distance of a one-way trip is approximately 10 miles. Stops would likely include the NPS Visitor Center, the Chilkoot Trailhead, the Slide Cemetery (dropping off at the roadway leading to the cemetery), and the Dyea townsite (see Figure 9). An additional stop at the NPS campground or Dyea campground could also be included.

Figure 9: Potential Service Route between Skagway and Dyea



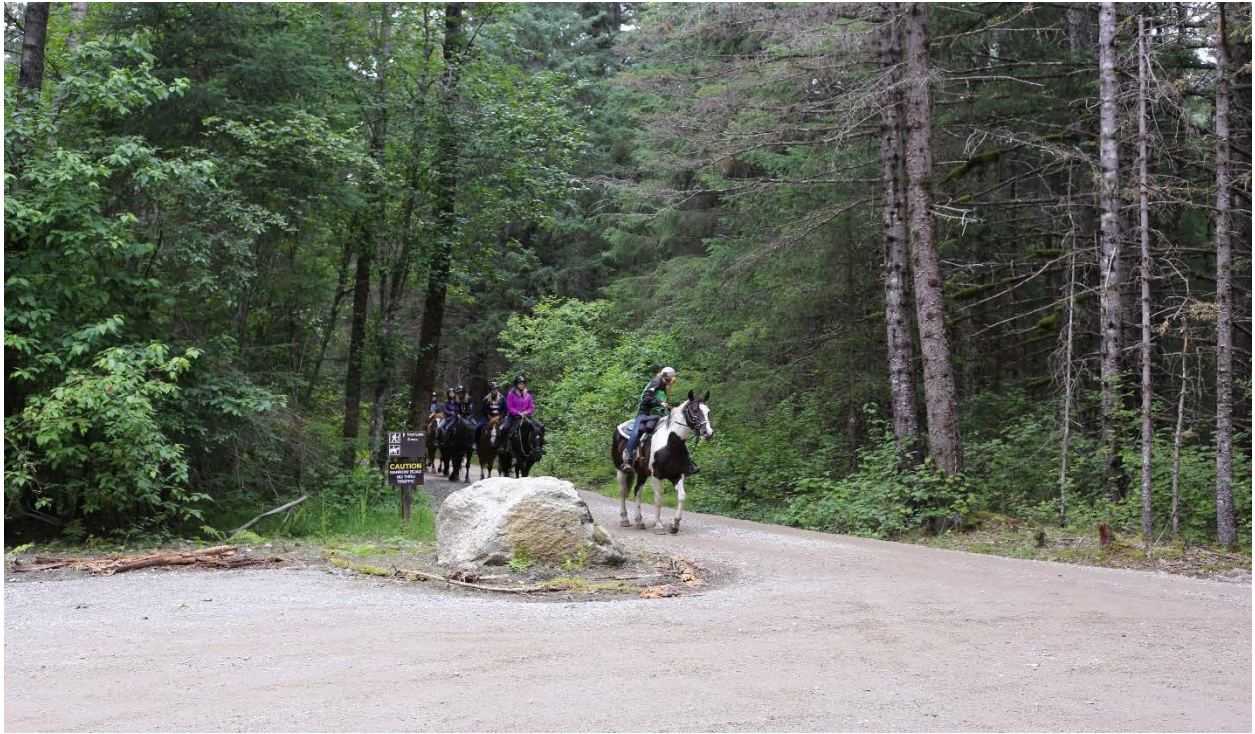


**Figure 10: Slide Cemetery Parking Lot and Road**



**Figure 11: Dyea Town Site Parking Lot**

### *Existing Service Schedule*

Service provided by the existing CUA holder is offered by phone reservation and follows an approximate schedule posted on the provider's website. In 2017, service was offered between 8:00 AM and 4:00 PM, though service could be arranged outside those hours as available.

### *Potential Service Schedules*

The service schedule provides ample recovery time of 20 minutes per one-way trip because of the unique constraints presented by Dyea Road. While the majority of trips will not require such a significant amount of time for recovery, building additional time into the service schedule allows for higher reliability, especially during inclement weather or periods of higher traffic on Dyea Road.

All of the trip schedules below account for driving time between stops, a 2- to 3-minute dwell time at each stop, and a layover/recovery period at each terminus. This layover/recovery period allows for the driver to take a restroom stop, each lunch, and/or make up lost time due to trip delays.

See Table 2 for a tentative schedule template, including timing between stops and trip recovery time.

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**Table 2: Example Trip and Stop Timing**

#### **Outbound to Dyea**

| <b>Stop</b>                 | <b>Time</b>   |
|-----------------------------|---------------|
| Visitor's Center            | at X:00       |
| Chilkoot Trailhead Outbound | at X:20       |
| Slide Cemetery Outbound     | at X:30       |
| Dyea Townsite               | at X:40       |
| Layover/Recovery            | duration 0:20 |
| Full Outbound Trip          | duration 1:00 |

#### **Inbound to Skagway**

| <b>Stop</b>                | <b>Time</b>   |
|----------------------------|---------------|
| Dyea Townsite              | at X:00       |
| Slide Cemetery Inbound     | at X:10       |
| Chilkoot Trailhead Inbound | at X:20       |
| Visitor's Center           | at X:40       |
| Layover/Recovery           | duration 0:20 |
| Full Inbound Trip          | duration 1:00 |

Source: Project Team

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In addition to the existing service, four alternate service concepts consider length of headway, length of stay in Dyea, and distinct needs of hikers and Dyea visitors. The tables below show details of each service concept, and Table 7 provides a summary of service characteristics and requirements for all concepts considered.

### Service Concept 1: Full Route with 2-Hour Headway (One Vehicle)

Table 3 details a service concept with one vehicle operating the full route from Skagway to Dyea on a two-hour headway, requiring 10 daily service hours. The first departure from the Visitor Center in Skagway is at 9:00 AM, and the last departure is at 3:00 PM. The first departure from the Dyea townsite is at 10:00 AM, and the last departure is at 5:30 PM. There are four daily trips from Skagway to Dyea, but five daily return trips from Dyea to Skagway. This is to ensure that there is ample capacity on the last vehicle from Dyea to Skagway so no visitors miss the last return trip.

In this service concept, a transit-reliant Dyea visitor would have to leave Dyea after 20 minutes (for example, arriving at 11:40 AM and leaving at noon), or wait until the following departure two hours later (for example, arriving at 11:40 AM and leaving at 2:00 PM). A visit of 20 minutes to Dyea is likely too short for most visitors, whereas a visit of 2 hours and 20 minutes is likely too long. However, the 2-hour headway allows for departure times from both the Visitor's Center and the Dyea townsite to fall on the hour, producing what is known as a "memory headway," or a service schedule that potential riders can easily recall without consulting a written schedule.\*

**Table 3: Example Service Timetable – Full Route with 2-Hour Headway (One Vehicle)**

| Stop                    | Departure Time | Departure Time | Departure Time | Departure Time | Departure Time   |
|-------------------------|----------------|----------------|----------------|----------------|------------------|
| Vehicle Pull-out        | 8:30a          |                |                |                |                  |
| Depart Visitor's Center | 9:00a          | 11:00a         | 1:00p          | 3:00p          | 4:45p (deadhead) |
| Arrive Dyea Townsite    | 9:40a          | 11:40a         | 1:40p          | 3:40p          | 5:15p            |
| Depart Dyea Townsite    | 10:00a         | 12:00p         | 2:00p          | 4:00p          | 5:30p            |
| Arrive Visitor's Center | 10:40a         | 12:40p         | 2:40p          | 4:40p          | 6:10p            |
| Vehicle Pull-in         |                |                |                |                | 6:30p            |

Source: Project Team

### Service Concept 2: Full Route with 1.5-Hour Headway (One Vehicle)

Table 4 details a service concept with one vehicle operating the full route from Skagway to Dyea on a 1.5-hour headway. The first and last departure times are similar to those in the first service concept (9:00 AM and 5:45 PM). However, in this service concept, the departure times do not enable a memory headway, but occur every 1.5 hours with the exception of the third leg, which is shifted back by 30 minutes to accommodate a driver lunch break. This service concept requires just over 10 daily service hours (10 hours and 10 minutes), making it comparable in cost to Service Concept 1.

With a 1.5-hour headway, visitors would need to stay at the Dyea townsite for 1 hour and 40 minutes or longer. The travel time between Skagway and Dyea is also reduced from 40 minutes each way to 35 minutes, leaving less room for potential delays. Along with the lack of a memory headway, these factors constitute the primary tradeoffs of this service concept relative to others.

\* There is an exception for the final departure time from the Dyea townsite, which would occur at 5:30 PM rather than 6:00 PM due to the driver not needing to make any stops on the way to Dyea for the last leg.

**Table 4: Example Service Timetable – Full Route with 1.5-Hour Headway (One Vehicle)**

| Stop                    | Dep. Time | Dep. Time | Dep. Time | Dep. Time | Dep. Time | Dep. Time        |
|-------------------------|-----------|-----------|-----------|-----------|-----------|------------------|
| Vehicle Pull-out        | 8:30a     |           |           |           |           |                  |
| Depart Visitor's Center | 9:00a     | 10:30a    | 12:30p    | 2:00p     | 3:30p     | 5:00p (deadhead) |
| Arrive Dyea Town Site   | 9:35a     | 11:05a    | 1:05p     | 2:35p     | 4:05p     | 5:35p            |
| Depart Dyea Town Site   | 9:45a     | 11:15a    | 1:15p     | 2:45p     | 4:15p     | 5:45p            |
| Arrive Visitor's Center | 10:20a    | 11:50a    | 1:50p     | 3:20p     | 4:50p     | 6:20p            |
| Vehicle Pull-in         |           |           |           |           |           | 6:40p            |

Source: Project Team

**Service Concept 3: Full Route with 1-Hour Headway (Two Vehicles)**

Table 5 details a service concept with two vehicles operating the full route from Skagway to Dyea on a one-hour headway. The first and last departures are the same as service concept 1 (detailed in Table 3), but the headways are more frequent, requiring the use of an additional vehicle and driver. Consequently, this service concept would require 18 daily service hours (as opposed to 10 in the first service concept).

With two vehicles and more daily service hours, this service concept is more expensive than Service Concept 2. However, the shorter headway alleviates the issue of Dyea visitors choosing between a very short visit and a very long one. With the 1-hour headway, visitors would choose between a 20-minute stay, a 1 hour and 20 minute stay, and a 2 hour and 20 minute stay (or longer). This service concept also enables a memory headway for visitors' convenience.\*

**Table 5: Example Service Timetable – Full Route with 1-Hour Headway (Two Vehicles)**

| Vehicle                 | 1      | 2      | 1      | 2      | 1     | 2     | 1     | 2     | 1                |
|-------------------------|--------|--------|--------|--------|-------|-------|-------|-------|------------------|
| Vehicle Pull-out        | 8:30a  | 9:30a  |        |        |       |       |       |       |                  |
| Depart Visitor's Center | 9:00a  | 10:00a | 11:00a | 12:00p | 1:00p | 2:00p | 3:00p | 4:00p | 5:45 (dead-head) |
| Arrive Dyea Townsite    | 9:40a  | 10:40a | 11:40a | 12:40p | 1:40p | 2:40p | 3:40p | 4:40p | 5:15p            |
| Depart Dyea Townsite    | 10:00a | 11:00a | 12:00p | 1:00p  | 2:00p | 3:00p | 4:00p | 5:00p | 5:30p            |
| Arrive Visitor's Center | 10:40a | 11:40a | 12:40p | 1:40p  | 2:40p | 3:40p | 4:40p | 5:40p | 6:10p            |
| Vehicle Pull-in         |        |        |        |        |       |       |       | 6:00p | 6:30p            |

Source: Project Team

\* There is an exception for the final departure time from the Dyea townsite, which would occur at 5:30 PM rather than 6:00 PM due to the driver not needing to make any stops on the way to Dyea for the last leg.

#### Service Concept 4: Short Turn with Hiker Service (Early Service to Chilkoot Trailhead)

Table 6 details a service concept with a short turn at the Chilkoot Trailhead. The first departure from Skagway is at 7:00 AM for trail-bound passengers, with service to Dyea starting with the 11:00 AM trip. Note that Dyea-bound trips also serve the trailhead.

Under service concept 4, one bus begins at 6:30 AM with service from Skagway to the Chilkoot Trailhead and back, with full service to Dyea beginning at 11:00 AM. As is the case with service concept 3, this concept also uses 60-minute headways both for the early-morning hiker service and for the late-morning Dyea service. Despite the earlier hours of service to accommodate hikers, the service concept results in only a small increase in service hours required over the two-vehicle, full-route service concept because it relies on two vehicles for fewer hours in the service day. This service concept requires 18.5 daily service hours.

**Table 6: Example Service Timetable – Short Turn with Hiker Service (Early Service to Chilkoot Trailhead)**

| Vehicle                   | 1     | 1     | 1     | 1      |
|---------------------------|-------|-------|-------|--------|
| Vehicle Pull-out          | 6:30a |       |       |        |
| Depart Visitor's Center   | 7:00a | 8:00a | 9:00a | 10:00a |
| Arrive Chilkoot Trailhead | 7:25a | 8:25a | 9:25a | 10:25a |
| Depart Chilkoot Trailhead | 7:30a | 8:30a | 9:30a | 10:30a |
| Arrive Visitor's Center   | 7:55a | 8:55a | 9:55a | 10:55a |

| Vehicle                 | 1      | 2      | 1     | 2     | 1     | 2     | 1           |
|-------------------------|--------|--------|-------|-------|-------|-------|-------------|
| Vehicle Pull-out        |        | 11:30a |       |       |       |       |             |
| Depart Visitor's Center | 11:00a | 12:00p | 1:00p | 2:00p | 3:00p | 4:00p | (dead-head) |
| Arrive Dyea Townsite    | 11:40a | 12:40p | 1:40p | 2:40p | 3:40p | 4:40p | 5:15p       |
| Depart Dyea Townsite    | 12:00p | 1:00p  | 2:00p | 3:00p | 4:00p | 5:00p | 5:30p       |
| Arrive Visitor's Center | 12:40p | 1:40p  | 2:40p | 3:40p | 4:40p | 5:40p | 6:10p       |
| Vehicle Pull-in         |        |        |       |       |       | 6:00p | 6:30p       |

Source: Project Team

Table 7 summarizes characteristics of each service concept detailed above. The first service concept, with one vehicle operating the full route on a two-hour headway, would require 10 daily service hours. The second, with two vehicles operating the full route on a one-hour headway, would require 18 daily service hours. The third, with one vehicle operating the full route on a 1.5-hour headway, would require 10.16 daily service hours. The fourth, with early morning service to the Chilkoot Trailhead and Dyea-bound service beginning at 11:00 AM, would require 18.5 daily service hours.

**Table 7: Summary of Service Concepts**

| Service Concept                                        | Hours of Service                                                                                                                                                                                                 | Headway        | Vehicles Required | Daily Service Hours |
|--------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|---------------------|
| 1: Full Route,<br>2-Hour Headway                       | Skagway (to Dyea):<br>9:00 AM to 3:00 PM<br>Dyea (to Skagway):<br>10:00 AM to 5:30 PM                                                                                                                            | 120<br>minutes | 1                 | 10.0                |
| 2: Full Route,<br>1.5-Hour Headway                     | Skagway (to Dyea):<br>9:00 AM to 3:30 PM<br>Dyea (to Skagway):<br>9:45 AM to 5:45 PM                                                                                                                             | 90<br>minutes  | 1                 | 10.16               |
| 3: Full Route,<br>1-Hour Headway                       | Skagway (to Dyea):<br>9:00 AM to 4:00 PM<br>Dyea (to Skagway):<br>10:00 AM to 5:30 PM                                                                                                                            | 60<br>minutes  | 2                 | 18.0                |
| 4: Short Turn<br>with Hiker Service,<br>1-Hour Headway | Skagway (to Chilkoot Trailhead):<br>7:00 AM to 10:00 AM<br>Chilkoot Trailhead (to Skagway):<br>7:30 AM to 10:30 AM<br><br>Skagway (to Dyea):<br>11:00 AM to 4:00 PM<br>Dyea (to Skagway):<br>12:00 PM to 5:30 PM | 60<br>minutes  | 2                 | 18.5                |

Source: Project Team

**Vehicle and Route Characteristics**

Dyea Road is capacity-limited due to its gravel surface and narrow width. The roadway does not always allow two vehicles travelling in opposite directions to pass each other freely. As such, the roadway design includes pull-offs for safe passing. Any transit vehicle operating on Dyea Road must be accommodated by these pull-offs, or the service will not be able to operate safely.

Because of these limitations, the likely best option for a transit-type vehicle would be a van-based shuttle bus, which has an easily accessible passenger compartment built on a light-duty vehicle frame. Commonly used for these types of vehicles are Mercedes Sprinter vans and Ford or GM passenger vans and trucks, though many manufacturers offer similar products. See the Vehicle Recommendations Section for more information on vehicle types and costs.

## Business Model Alternatives

In this section, three alternatives for shuttle service between Skagway and Dyea are evaluated for their feasibility, their costs to NPS and to existing NPS partners, and the extent to which they meet KLGO's transit service goals outlined in the Program Statement above. The first alternative assumes no change to the existing provision of transportation service between Skagway and Dyea, or minor improvements only to improve vehicle accessibility and service resiliency. The second alternative considers four fixed-route, fixed-schedule transit service concepts (described above in the Program Statement under *Characteristics of Potential Service*). The third alternative considers a model in which a private tour operator would offer transit-only seats on a vehicle otherwise carrying tour customers, using the price of the premium tickets to offset the lower price of the transit-only tickets. See Table 7 below for a summary of each alternative.

Each alternative could be implemented using a variety of business models. In general, NPS transit systems can be delivered through four categories of business models: **commercial services** (concessions contracts, CUAs, special use permits), **partnerships** (cooperative agreements, interagency agreements, memoranda of understanding [MOUs] and memoranda of agreement [MOAs], general agreements, challenge cost shares), **service contracts** (fixed price, cost reimbursable, incentive, indefinite delivery/indefinite quantity [IDIQ], time and materials), and **owned/operated** (not included in this analysis). KLGO is not considering an NPS-owned or -operated business model for transit service to Dyea, because the park does not want to compete with the private sector in Skagway and Dyea. As a result, this analysis considers only commercial services, partnerships, and service contracts.

**Table 8: Summary of Alternatives**

| Alternative                                                                      | Description                                                                                | Potential Business Model                             |
|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------------------------------------------|
| 1) No change or minor improvements to existing service                           | Existing service and schedule (posted schedule, operates on-demand as needed)              | Commercial Service (CUA)                             |
|                                                                                  | Minor improvements for accessibility and resiliency                                        | Commercial Service (CUA)                             |
| 2) Fixed schedule service (four service concepts presented in program statement) | Fixed route, 2-hour headway                                                                | Service Contract, Partnership, or Commercial Service |
|                                                                                  | Fixed route, 1.5-hour headway                                                              | Service Contract, Partnership, or Commercial Service |
|                                                                                  | Fixed route, 1-hour headway                                                                | Service Contract, Partnership, or Commercial Service |
|                                                                                  | Morning service to Chilkoot Trailhead, afternoon service to Dyea, 1-hour headway           | Service Contract or Commercial Service               |
| 3) Transit-only seats on private transportation                                  | Private tours with interpretation offer extra seats at discount to transit-only passengers | Partnership or Commercial Service                    |

Source: Project Team

## Methodology

The alternatives below are compared using a life-cycle cost analysis. The analysis is based on a model that estimates purchase and operational costs of running a bus service over the seven-year life cycle of a full-

sized passenger van.\* Constant inputs to the model include vehicle type, vehicle purchase price, driver hourly wage, annual service days, fuel economy, and maintenance costs per mile, among others (see Table 9 below). The project team developed assumptions for these model inputs based on similar services and, where available, local data. Variable inputs to the model (i.e., inputs that are changed for each alternative) include round trip mileage, round trip travel time, number of vehicles in operation, total daily trips for all vehicles (see Table 10 below).

**Table 9: Summary of Constant Inputs**

| Category                                  | Input                      | Value                                          |
|-------------------------------------------|----------------------------|------------------------------------------------|
| Vehicle, Service, Driver, and Environment | Vehicle type               | Full-size passenger van                        |
|                                           | Vehicle price              | \$81,000 (see Vehicle Recommendations section) |
|                                           | Driver hourly wage         | \$30                                           |
|                                           | Road conditions            | Poor                                           |
|                                           | Inflation rate             | 3.5%                                           |
| Basic Schedule                            | Annual service days        | 153 (May 1 – Sept. 30)                         |
| Operations and Maintenance                | Maintenance costs per mile | \$1.40                                         |
|                                           | Fuel economy               | 20 mpg                                         |
|                                           | Fuel cost per gallon       | \$3.25                                         |

Source: Project Team

**Table 10: Summary of Variable Inputs**

| Description |                                    | Average Roundtrip Travel Time | Number of Vehicles | Total Daily Roundtrips  |
|-------------|------------------------------------|-------------------------------|--------------------|-------------------------|
| 1           | No Change                          | 60 minutes                    | 1                  | 4-8 (demand-responsive) |
|             | Minor Improvements                 | 60 minutes                    | 1-2                | 4-8 (demand-responsive) |
| 2           | Service Concept 1                  | 120 minutes                   | 1                  | 5                       |
|             | Service Concept 2                  | 90 minutes                    | 1                  | 6                       |
|             | Service Concept 3                  | 60 minutes                    | 2                  | 9                       |
|             | Service Concept 4                  | 60 minutes                    | 2                  | 11                      |
| 3           | Transit-Only Seats on Premium Tour | 120-180 minutes               | 1                  | 1-4                     |

Source: Project Team

## Potential Funding Programs

There are some Federal funding programs administered by the Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) that may be available to provide funding to support a transit system between Skagway and Dyea. Because of KLGO's rural location, these funding sources are those most applicable to rural federal lands contexts: the Federal Lands Access Program (FLAP) administered by FHWA and the FTA Formula Grants for Rural Areas (5311).

Funding eligibility would be impacted by the business models explored below. For example:

\* This model can be found and downloaded at <https://www.volpe.dot.gov/transportation-planning/public-lands/department-interior-bus-and-ferry-lifecycle-cost-modeling>.

- These grant programs require grant recipients to be state or local public agencies (although they may select a non-profit or rural transit provider as a subrecipient). This would require the KLGO to enter into a partnership with a state or local agency to provide the transit service.
- The FTA Formula Grants for Rural Areas program goals are focused on public transportation for a wide range of access needs. For a transit service to be competitive for this program, it would have to provide meaningful transit access for community members, not just recreational access to KLGO sites.

### **Federal Lands Access Program (FLAP)**

The Federal Lands Access Program (FLAP) provides funds for projects to improve Federal Lands Access Transportation Facilities that provide access to, are adjacent to, or are located within federal lands. This can include public roads, bridges, trails, or transit systems that are owned and/or maintained by the state, county, town, township, tribal, municipal, or local government. Funds may be used for the costs of transportation planning, research, engineering, preventative maintenance, rehabilitation, restoration, construction, and reconstruction of transportation facilities.

FLAP funds are awarded through Calls for Projects in each state. In Alaska, the Project Decision Committee that makes final funding decisions is composed of representatives from the FHWA's Western Federal Lands Division Office, ADOT&PF, and the Alaska Municipal League. In Alaska, FLAP funds approximately \$8 million per year. FLAP projects require a non-Federal match of approximately 10%, which can be paid for with local agency funds or with NPS Federal Lands Transportation Program funds.

Applicable activities include the operation and maintenance of transit facilities that operate within, adjacent to, or provide access to federal lands. Although there have not been any FLAP projects to date that support transit in Alaska, there have been successful transit projects in other states, including the Columbia River Gorge Express in Oregon (operated by the Oregon DOT) and the Gorge Translink in Washington (operated by Skamania County Transit Services in Washington).

Because this program's focus is on improving access to Federal lands, a shuttle between Skagway and Dyea would fit well within the program's goals. The NPS is not eligible to receive FLAP funds directly but could support an application from a local government partner, such as the state of Alaska or the municipality and borough of Skagway, for funds to support a transit service to Dyea. FLAP projects are intended to be single project awards, rather than long-term operations support, and projects are most competitive if they demonstrate that they can be realistically completed within a short timeframe. As such, a proposal would be more likely to receive FLAP funding for short-term costs, such as vehicle purchase and start-up costs associated with a one- to two-year pilot, rather than long-term maintenance and operations costs.

More information about FLAP can be found at the [FHWA FLAP website](#) and an [NPS factsheet](#) on FLAP for parks.

### **FTA Formula Grants for Rural Areas (5311)**

The [FTA Formula Grants for Rural Areas](#) program provides capital, planning, and operating assistance to states to support public transportation in rural areas with populations of less than 50,000, where many residents often rely on public transit to reach their destinations. 5311 funds are apportioned to State DOTs and tribal governments. Subrecipients may include local government authorities, nonprofit organizations, and operators of public transportation or intercity bus service. This program also provides technical assistance to rural areas through the [Rural Transit Assistance Program](#).

5311 funds can fund capital projects (such as bus purchase), with a maximum Federal share of 80%. 5311 funds can fund operating expenses with a maximum Federal share of 50%. In fiscal year 2018, Alaska received \$98,756 in 5311 funds.\*

The FTA has defined the goals of the 5311 program to:

- Enhance the access of people in non-urbanized areas to health care, shopping, education, employment, public services, and recreation.
- Assist in the maintenance, development, improvement, and use of public transportation systems in rural and small urban areas.
- Encourage and facilitate the most efficient use of all rural transportation funds used to provide passenger transportation in non-urbanized areas through the coordination of programs and services.
- Assist the development and support of intercity bus transportation.
- Provide for the participation of private transportation providers to the extent feasible.

Because of the public transportation focus of 5311 funds, these funds are most applicable to transit systems that provide general rural transit services, rather than systems that solely provide recreational access to park sites.

### *Alternative 1: No Change or Minor Improvements Only*

This alternative describes the existing transportation service offered between Skagway and Dyea by a holder of a commercial use authorization (CUA), and it presents the results of either no action by NPS or minor changes only (e.g., requirement of wheelchair-accessible vehicle).

#### **Existing Service**

Service between Skagway and Dyea is typically offered between 8:00 a.m. and 4:00 p.m. and operates on an as-needed basis. A schedule is posted online and suggests approximate departure times from Skagway, though rides are scheduled in advance and variations from the posted schedule are sometimes possible upon request.

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**Table 11: Summary of Existing Service Scenario**

| Route        | Headway                      | Total Daily Roundtrips  | Number of Vehicles | Cost Estimates over a Seven Year Period |
|--------------|------------------------------|-------------------------|--------------------|-----------------------------------------|
| Skagway-Dyea | 1 hour (on-demand as needed) | 4-8 (demand-responsive) | 1                  | \$672,000†                              |

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\* <https://www.transit.dot.gov/funding/apportionments/table-9-fy-2018-section-5311-and-section-5340-rural-area-formula>

† This estimate is based on the purchase cost of a GMC passenger van (\$30,000), an hourly operational cost (including driver time, maintenance, and fuel) of \$75, eight daily service hours, and 153 annual service days. This estimate may not represent the costs incurred by the current CUA holder, but it represents the approximate expected costs of offering a similar service with a paid driver.

The primary benefit associated with the no-change alternative is that the existing service provided appears to be well-regarded and sufficient for transporting visitors to Dyea and the Chilkoot Trailhead. In addition, there are some efficiency benefits: because the service is demand-responsive, the service does not waste operating costs on empty trips, and the service can run at a wider range of hours based on rider schedules. The limitations include short-term reliability concerns associated with only employing one vehicle and one driver, the limited accessibility of the current vehicle (a large passenger van with a high step) for passengers with limited mobility, and the current cost of service (\$30 roundtrip per passenger). The need to schedule a trip in advance may also be a barrier for visiting Dyea for casual travelers. As there is currently only one CUA offering basic transportation service between Skagway and Dyea, long-term continuity of service constitutes the primary risk associated with the no-change alternative.

The cost of providing the existing service is estimated to total approximately \$672,000 over a seven-year period.

### Minor Improvements

In this variation, NPS would additionally require the use of a wheelchair-accessible vehicle. NPS may also consider requiring a CUA holder to demonstrate the ability to continue service in the event of mechanical or personnel issues (e.g., demonstrate ownership of or access to a second vehicle and availability of at least two licensed drivers on staff).

**Table 12: Summary Table of Minor Improvements Variation**

| Route        | Headway                      | Total Daily Roundtrips  | Number of Vehicles | Cost Estimates over a Seven Year Period   |
|--------------|------------------------------|-------------------------|--------------------|-------------------------------------------|
| Skagway-Dyea | 1 hour (on-demand as needed) | 4-8 (demand-responsive) | 1-2                | Up to \$989,000 depending on improvements |

These changes from the baseline service would be intended to increase accessibility for limited-mobility visitors and to improve resilience to unanticipated service delays or outages. This alternative would also likely be of low or no cost to NPS and may be feasible within the existing business model.

Though this variation might improve accessibility, it would not otherwise enhance the level of service offered between Skagway and Dyea, nor would it necessarily make the service more affordable or accessible for casual visitors. As with the no-change variation, the operational risks would be incurred primarily by the CUA holder, but NPS still incurs the risk of insufficient service between Skagway and Dyea, as well as the long-term continuity of service risk that is associated with only having one CUA.

The associated costs for the CUA holder or applicant may include the following:

- Upgrading an existing vehicle with a wheelchair lift: \$2,500-10,000
- Purchasing a new wheelchair-accessible passenger van: \$25,000-50,000
- Hiring an additional driver: \$30/hour, or \$36,720/year if driving full-time (not including any benefits)

Over the course of a seven-year life-cycle, the operational costs of a service with minor improvements may be similar to those of the existing service. There may be additional costs associated with upgrading a vehicle, purchasing a new vehicle, or paying a new driver, but the service would not differ substantially and should therefore have similar operational costs.

To realize these minor improvements, the existing CUA for transportation service between Skagway and Dyea could be updated through the next renewal process, which occurs every two years. NPS could additionally or alternatively authorize a new CUA that fulfills these requirements. If needed, NPS could potentially apply for a grant or assist a CUA applicant in applying for a grant to cover the cost of a new vehicle acquisition.

## *Alternative 2: Fixed Route, Fixed Schedule Service*

In this alternative, NPS would work with an external transit partner to offer enhanced service between Skagway and Dyea. This alternative describes a fixed-route, fixed-schedule service, which would operate with one or two accessible vehicles and offer 60-, 90-, or 120-minute headways. The four service concepts presented in the Program Statement for Potential Transit Service to Dyea are compared here.

These service concepts share several benefits, limitations, and risks, as well as financing and implementation mechanisms. Regardless of the route and schedule variations, each service concept would offer regular and reliable service to Dyea. Combined with the ability of casual visitors to catch a shuttle without making a reservation, this may attract additional visitors to the Dyea unit. Depending on the fare structure, these service concepts may also improve the affordability of transportation between Skagway and Dyea for more price-sensitive visitors.

A key limitation associated with each service concept is that fixed schedules present the potential for deadhead trips (trips with no passengers on board). The fixed schedule ensures that a passenger waiting at any stop can reliably expect a shuttle to arrive on a posted schedule, but it is likely that some trips may not carry any passengers, which may be seen as a waste of resources. Further, there is a risk of disrupting the existing reservation-based service or of giving the appearance of presenting unfair competition. NPS would need to carefully manage the introduction of a fixed-route, fixed-schedule service to ensure that it fills a specific transportation gap without threatening a local business.

There are multiple business models available that could fulfill the desired service parameters, including but not necessarily limited to: **commercial services** (concessions contracts, CUAs, special use permits), **partnerships** (cooperative agreements, interagency agreements, MOUs/MOAs, general agreements, challenge cost shares), and **service contracts** (fixed price, cost reimbursable, incentive, IDIQ, time and materials). If NPS chooses to encourage the creation of a new commercial service—for example, a CUA—it could also consider applying for a grant or assisting a CUA applicant in applying for a grant to help cover the cost of vehicle acquisition. Through a multi-party partnership, NPS may also be able to facilitate a premium tour operator in underwriting or separately operating a transit service, using revenues from the premium tour packages to offset the lower revenues associated with transit-only service.

### **Service Concept 1: 2-Hour Headway**

This service concept uses one vehicle to provide service between Skagway and Dyea with a 2-hour headway. It includes 5 daily roundtrips and requires a total of 10 daily service hours (8:30 AM – 6:30 PM).

**Table 13: Summary Table for Service Concept 1 with 2-Hour Headways**

| Route        | Headway | Total Daily Roundtrips | Number of Vehicles | Cost Estimates over a Seven Year Period |
|--------------|---------|------------------------|--------------------|-----------------------------------------|
| Skagway-Dyea | 2 hours | 5                      | 1                  | \$624,051                               |

The primary benefits of this service concept are its memory headway (departs from Skagway and Dyea every other hour on the hour) and its low cost relative to the other service concepts with shorter

headways. The primary limitation of this service concept is also its long headway, which may not be convenient for visitors and may make it difficult for the transit provider to recover sufficient fares.

The cost of vehicle purchase and operation is estimated to total \$624,051 over a seven-year period.

#### **Service Concept 2: 1.5-Hour Headway**

This service concept uses one vehicle to provide service between Skagway and Dyea with a 1.5-hour headway. It includes 6 daily roundtrips and requires a total of 10 hours and 10 minutes of daily service (8:30 AM – 6:40 PM).

**Table 14: Summary Table of Service Concept 2 with 1.5-Hour Headways**

| Route        | Headway   | Total Daily Roundtrips | Number of Vehicles | Cost Estimates over a Seven Year Period |
|--------------|-----------|------------------------|--------------------|-----------------------------------------|
| Skagway-Dyea | 1.5 hours | 6                      | 1                  | \$625,539                               |

With a 1.5-hour headway, this service concept is more convenient for visitors than service concept 1, which offers a 2-hour headway. And with one vehicle and just over 10 daily service hours, it is less resource-intensive than service concepts 3 and 4, each of which require two vehicles and at least 18 daily service hours. The primary limitation of this service concept is that it does not offer visitors a memory headway as do the other service concepts.

The cost of vehicle purchase and operation is estimated to total \$625,539 over a seven-year period.

#### **Service Concept 3: 1-Hour Headway**

This service concept uses two vehicles to provide service between Skagway and Dyea with a 1-hour headway. It includes 9 daily roundtrips and requires a total of 18 daily service hours (vehicle 1 in operation 8:30 AM – 6:30 PM, vehicle 2 in operation 9:30 AM – 6:00 PM).

**Table 15: Summary Table of Service Concept 3 with 1-Hour Headways**

| Route        | Headway | Total Daily Roundtrips | Number of Vehicles | Cost Estimates over a Seven Year Period |
|--------------|---------|------------------------|--------------------|-----------------------------------------|
| Skagway-Dyea | 1 hour  | 9                      | 2                  | \$1,139,492                             |

The primary benefit of this service is its 1-hour memory headway. This frequent service allows visitors to choose between a 20-minute stay in Dyea, a 1 hour and 20-minute stay, a 2 hour and 20-minute stay, or longer. The primary limitation of this service is its resource intensity.

The cost of vehicle purchase and operation is estimated to total \$1,139,492 over a seven-year period.

#### **Service Concept 4: Morning Service to Chilkoot Trailhead, Afternoon Service to Dyea**

This service concept uses two vehicles to provide a morning hiker service to the Chilkoot Trailhead only, and afternoon service to Dyea, including regular stops at the Chilkoot Trailhead. Service is offered with a 1-hour headway, includes 11 daily roundtrips (4 to the Chilkoot Trailhead and 7 to Dyea), and requires 18.5 daily service hours (vehicle 1 in operation 6:30 AM – 6:30 PM, vehicle 2 in operation 11:30 AM – 6:00 PM).

**Table 16: Summary Table of Service Concept 4: Morning Service to Chilkoot Trailhead and Afternoon Service to Dyea**

| Route                                                                        | Headway | Total Daily Roundtrips | Number of Vehicles | Cost Estimates over a Seven Year Period |
|------------------------------------------------------------------------------|---------|------------------------|--------------------|-----------------------------------------|
| Skagway-Chilkoot Trailhead (7:00am-10:30am)<br>Skagway-Dyea (11:00am-5:30pm) | 1 hour  | 11                     | 2                  | \$1,302,408                             |

By only offering service to Dyea in the afternoon, this service concept can begin operation earlier in the day to accommodate hiker schedules without a substantial increase in daily service hours over the comparable service concept 3. Like service concept 3, this concept offers visitors the convenience of frequent service and a memory headway, but requires more resources than service concepts 1 and 2.

The cost of vehicle purchase and operation is estimated to total \$1,302,408 over a seven-year period.\*

### *Alternative 3: Transit-Only Seats on Interpretive Tour*

In this alternative, a private tour company would market NPS ranger-led tours of Dyea to cruise ship visitors and transit seats to individuals interested in visiting Dyea without the guided tour. The private company would pay for an NPS ranger to provide interpretation on the tour.† In exchange for the opportunity to market the tour as ranger-led, the private company would agree to offer any empty seats to transit passengers who are not paying for the interpretive tour package. The company would sell the premium seats in each tour at a rate of their choosing (e.g., \$80 per person\*) through cruise ship excursion offerings and onshore at the Visitors' Center, and it would sell the transit-only seats at a more affordable rate (e.g., \$10 per person), also onshore at the Visitors' Center.

This alternative could constitute a new commercial service or CUA, or it could constitute a new partnership between NPS and a private tour/transportation company, which could be established through an agreement such as an MOU or MOA. There may also be an opportunity for a collection or association of local businesses to contribute to a fund supporting subsidized transit-only seats on a private tour excursion.

It is unclear whether a tour would be offered more than once per day and how many vehicles would be employed. Given that this alternative assumes the primary business is offering private interpretive tours rather than transportation, it is estimated that total daily roundtrips would not exceed four. For simplicity, it is assumed that only one vehicle would be in use.

\* This cost estimate is based on 4 daily roundtrips of 17.6 miles between Skagway and the Chilkoot Trailhead and 7 daily roundtrips of 20 miles between Skagway and Dyea (roughly equivalent to 10.5 daily roundtrips of 20 miles).

† A precedent for this approach is the onboard cruise ship interpretation offered by an NPS ranger at Glacier Bay National Park.

\* One company, for example, offers a 3-hour tour of Dyea that costs \$397 for up to 5 people, or roughly \$80 per person.

**Table 17: Summary Table for Alternative 3**

| Route        | Headway  | Total Daily Roundtrips | Number of Vehicles | Cost Estimates over a Seven Year Period |
|--------------|----------|------------------------|--------------------|-----------------------------------------|
| Skagway-Dyea | 2+ hours | 1-4                    | 1                  | Between \$226,859 and \$886,522         |

The primary benefits of this unique alternative are found in the potential expansion of affordable transportation options for casual visitors to Dyea, potentially with limited or no financial outlay from NPS. This business model also has the benefit for tour passengers that the transit and interpretation are integrated together, so there is no challenge of ensuring that the transit schedule and tour schedule are compatible. However, this alternative is likely not reliable enough to offer the primary or sole transportation between Skagway and Dyea, especially if the provision of transit-only seats depends on the tour operator having empty seats on their vehicle(s). Further, seats offered by private tour operators may be at infrequent or inconvenient times for transit passengers. The operator may, for example, only offer one tour per day. As such, this alternative should be seen as supplemental rather than as a standalone or replacement service.

A further limitation of this alternative is that transit-only passengers would not provide as much revenue for the operator as individuals purchasing premium tour packages, meaning it may be challenging to find a transportation provider interested in partnering with NPS to offer this service without a financial incentive.

Finally, this alternative presents a potential free-rider problem. Though the premium tour and transit-only tickets will be marketed separately, nothing prevents a transit-only passenger from following the guided tour at Dyea. Potential mitigations for this challenge include assuming transit-only passengers will honor the intended use of the ticket they have purchased, assuming the private tour operator can adequately control the marketing of premium tour packages and maintain the transit-only ticket as a resource for locals and independent travelers not seeking guided tours of Dyea, and suggesting that the private tour operator offer the tour of Dyea as one component of a multi-stop tour, which would allow greater control of access to the tour.\*

The cost of vehicle purchase and operation is estimated to total between \$226,859 and \$886,522 over a seven-year period.†

As with the other alternatives, the service operator could recover the cost of operation through passenger fares. The difference with this alternative is that passengers may pay different fares.

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\* In this latter mitigation, the tour vehicle may still need to return to Dyea to pick up any transit-only passengers on its return trip to Skagway.

† The lower bound of the estimate is based on one daily roundtrip with a two-hour headway (\$189,610) and two hours per day of paid interpretation at a rate of \$17.39 per hour (\$37,249). The upper bound of the estimate is based on four daily roundtrips with a three-hour headway (\$658,271) and 12 hours per day of paid interpretation at a rate of \$17.76 per hour (\$228,251). (The hourly cost of interpretation ranges from \$17.39 to \$17.76.)

**Table 18: Estimated Revenue Depending on the Share of Premium and Transit-Only Passengers**

| Fares per passenger                     |              |         |                                                  |       |
|-----------------------------------------|--------------|---------|--------------------------------------------------|-------|
| Premium                                 | \$80.00      |         |                                                  |       |
| Transit-Only                            | \$10.00      |         |                                                  |       |
| Seat Distribution in a 16-Passenger Van |              | Revenue | Difference if Transit-Only Seats were Otherwise: |       |
| Premium                                 | Transit-Only | Total   | Sold at Premium                                  | Empty |
| 6                                       | 10           | \$580   | -\$700                                           | \$100 |
| 7                                       | 9            | \$650   | -\$630                                           | \$90  |
| 8                                       | 8            | \$720   | -\$560                                           | \$80  |
| 9                                       | 7            | \$790   | -\$490                                           | \$70  |
| 10                                      | 6            | \$860   | -\$420                                           | \$60  |
| 11                                      | 5            | \$930   | -\$350                                           | \$50  |
| 12                                      | 4            | \$1,000 | -\$280                                           | \$40  |
| 13                                      | 3            | \$1,070 | -\$210                                           | \$30  |
| 14                                      | 2            | \$1,140 | -\$140                                           | \$20  |
| 15                                      | 1            | \$1,210 | -\$70                                            | \$10  |
| 16                                      | 0            | \$1,280 | \$0                                              | \$0   |

## Other Alternatives Considered but not Further Addressed

There are several transit options or business model alternatives that this report does not address, because NPS has decided not to consider implementation at this time. These are described below, along with the reason they are not considered further.

### *NPS-owned/operated system*

NPS is not considered an NPS-owned or –operated transit system, for two reasons: NPS does not want to compete with private businesses in the community, and it does not want to take on the cost or liability of running a transit system itself.

### *Enhanced private transportation options*

This report does not consider subsidies for rental cars, taxis, or transportation network companies (TNCs) (such as Uber or Lyft). This approach would create an unfair subsidy competing with other private transit providers. There is also limited existing service in these categories; there are very few available rental cars in Skagway, and as of publication TNCs have not become prevalent in Skagway and Dyea. Furthermore, this option does not meet the park’s transportation goals of reducing vehicle and parking congestion or protecting park resources.

It is important to note, however, that TNCs such as Uber and Lyft may expand coverage to Skagway in the near future, altering local transportation options. It will be important for the park to monitor TNC coverage and use at KLGO and its impacts on visitor use and transit demand. As this sector grows, KLGO may need to develop strategies related to TNC use in the future.

### *Water transportation*

During public outreach for this project, some members of the Skagway community suggested water transportation access to Dyea, such as a ferry or kayak trail. Although water access gold seekers historically accessed Dyea via water, this option would be costly, and it is impractical given the morphology of Dyea flats.

### *Automated shuttle pilot deployment*

This study does not consider automated bus technology. At this time, such technology would be too costly, and the regulatory and design aspects of the system would be too complex. Dyea Road is also too challenging for current autonomous vehicle technology, and the liability for NPS would be too high.

### *Dedicated high-capacity bus or rail line*

A dedicated high-capacity bus or rail line would be too costly and would provide more capacity than required. Large buses are also infeasible on Dyea Road.

### *Stage one vehicle in Skagway and another in Dyea*

For the fixed route and schedule transit options in Alternative 2, the project team did not consider staging one vehicle in Dyea to start service there in the morning. Although this may have efficiency benefits in avoiding deadhead trips, there is not sufficient housing in Dyea, so a driver would likely still have to drive to and from Dyea every day.

## **Summary of Business Model Alternatives and Recommended Approach**

### *Evaluation of Alternatives Based on KLGO Transit Goals*

As discussed in the Program Statement for Potential Transit Service to Dyea above, the KLGO has the following transit system goals for a service between Skagway and Dyea:

- **Visitor Experience:** Provide a safe, reliable, convenient, and enjoyable transit service at an affordable cost.
- **System Sustainability:** Plan for the long-term sustainability of transit service by considering long-term costs, financial sustainability, and contingency planning to adjust to future changes in transit service or demand.
- **Accessibility:** Ensure access for visitors with disabilities.
- **Economic Development:** Support business opportunities for private businesses to provide transit service to Dyea.

In addition, the park hopes to achieve the following benefits from a transit system:

- Expanding access to the Dyea unit for casual visitors and Chilkoot Trail backpackers;
- Enhancing visitor experience by offering interpretive services;
- Protecting resources and preserving the Dyea townscape cultural landscape by reducing the need for increased roadway or parking capacity; and
- Reducing vehicle or parking congestion at high-visitation sites with limited transportation infrastructure.
- Continuing to provide opportunities for partnerships with local communities and businesses to deliver transit systems

Each of the three Business Model Alternatives discussed above have their benefits and limitations in meeting these goals, summarized below.

**Table 19: Summary of Costs for All Business Model Alternatives and their variations**

| Alternative |                                    | Total Costs (Vehicle Purchase and Operations)<br>Over Seven-Year Life Cycle |
|-------------|------------------------------------|-----------------------------------------------------------------------------|
| <b>1</b>    | No Change                          | \$672,000                                                                   |
|             | Minor Improvements                 | Up to \$989,000 depending on improvements                                   |
| <b>2</b>    | Service Concept 1                  | \$624,051                                                                   |
|             | Service Concept 2                  | \$625,539                                                                   |
|             | Service Concept 3                  | \$1,139,492                                                                 |
|             | Service Concept 4                  | \$1,302,408                                                                 |
| <b>3</b>    | Transit-Only Seats on Premium Tour | Between \$226,859 and \$886,522                                             |

**Table 20: Summary of Strengths and Weaknesses for all Business Model Alternatives**

| Alternative                                              | Strengths                                                                      | Weaknesses                                                                                                                      |
|----------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| <b>1: No change or minor changes to existing service</b> | Lowest cost for providers<br>Demand-responsive service<br>System continuity    | Less affordable for customers<br>Need for greater business continuity<br>Lack of ADA access (addressed with minor improvements) |
| <b>2: Fixed Route, Fixed Schedule Transit Service</b>    | Reliable visitor experience<br>More affordable for customers<br>ADA-accessible | Higher service costs for provider<br>Risk of competition with existing service<br>May not meet range of visitor needs           |
| <b>3: Transit-Only Seats on Premium Tour</b>             | Visitor tour experience<br>Lower service costs for NPS                         | Does not extend reliable access<br>Competition with existing service<br>Potential for “free rider problem”                      |

**Alternative 1: No Change or Minor Improvements to Existing Service***Benefits:*

- **Low cost:** The estimated life-cycle costs of this option are some of the lowest of all of the options, although the CUA holder will eventually need to recapitalize their vehicle(s), and would need to invest in Americans with Disabilities Act (ADA) upgrades under the minor improvements option.
- **Efficiency of service:** Because the service is demand-responsive, it provides efficient access for visitors at a wide range of hours, without running empty trips.
- **System continuity:** Because this system is currently in place, maintaining existing service will be the best way to ensure that there is no disruption of service.

*Limitations and Challenges:*

- **Affordability:** At \$30 per ticket, the service is more expensive than many casual visitors want to pay.
- **System sustainability:** Although the current service meets visitor access needs, KLGO should consider long-term sustainability of service if the current CUA operator discontinues service in the future.

- **Accessibility:** The current service does not have the equipment to support ADA access, despite the recent completion of an accessible trail at the Dyea townsite.

*Recommendation:*

If the park chooses to pursue Alternative 1, the project team recommends working with the CUA holder to implement minor improvements, such as ADA accessibility and a continuity plan to address driver illness or equipment malfunction.

## **Alternative 2: Fixed Route, Fixed Schedule Service**

*Benefits:*

- **Visitor Experience:** A fixed route, fixed schedule service would provide a seamless, reliable service. This is especially true for casual visitors, who may be more likely to take a fixed-schedule service that does not require scheduling a ride.
- **Affordability:** Depending on the funding model for this service, this business model may allow the service to offer a more affordable ticket price. (This may require a subsidized fare, whether from FTA or FLAP funding or NPS support for the service.)
- **Accessibility:** All of the service concepts under this business model would require the use of an ADA-accessible vehicle.

*Limitations:*

- **Cost of Service:** The seven-year life-cycle costs for this business model range from \$624,051 to \$1,302,408, depending on the operation schedule and the number of buses and drivers needed. This service would most likely require the acquisition of one or two buses, requiring a high start-up cost. Depending on how the service is structured (e.g., commercial service, partnership, or service contract), this alternative would incur substantial cost and risk for NPS and the transit service provider.
- **Continuity of Service:** A new fixed-schedule, fixed-route service may compete with or displace the existing service. The KLGO would have to be very careful working with the existing CUA holder and other local businesses to ensure that a new service does not unfairly compete with private business – potentially by working with the existing service provider and others in the local community to structure a new service with their input. There is also a danger that a new service would not serve the same range of needs as the existing service. For example, the existing CUA offers early-morning and late-night transportation to the Chilkoot Trailhead that is outside of the modeled service hours for a fixed-schedule service, so there is a danger that some visitors' needs would not be met by the new schedule.

*Recommendation:*

If the park chooses to pursue Alternative 2, Service Concept 2 – with one vehicle and 1.5-hour headways – is the option that would meet the park's needs most efficiently.

## **Alternative 3: Transit-Only Seats on Interpretive Tour**

*Benefits:*

- **Visitor Experience:** By integrating interpretation into the transit service, this option will provide an optimal experience for park visitors who want a transit service timed with a tour.
- **Low cost:** Because the service would be run by a private tour provider, this option would be very low cost for the NPS, and the cost to the provider would be a small portion of their overall

business operating costs. (In fact, this would be an opportunity for the operator to capitalize the full capacity of their vehicle.)

#### *Limitations and Challenges:*

- **Reliability and access:** This option would not provide guaranteed spots on vehicles unless there is excess capacity. Therefore, this does not expand reliable service to Dyea. It is also possible that the tour operator would have a limited number of tours per day, which could provide less access than the current CUA.
- **Continuity of Service:** There is a danger that this business model would compete for passengers with the current CUA holder, while providing less comprehensive or reliable service. In this case, this could lead to an overall reduction in transit access to Dyea, which would be against the park's transit goals.

#### *Recommendation:*

Given the uncertainty involved in this alternative, and the potential to reduce overall transit access to Dyea, the project team does not recommend Alternative 3 at this time. If the park does pursue this alternative, it would need to have more detailed discussions with any potential provider to ensure that the service would adequately meet the park's goals.

### *Recommended Approach*

The two options that best meet the KLGO's goals the lowest possible expenses are Alternative 1 (Existing Service) with minor improvements or Alternative 2 (Fixed Route and Schedule) with Service Concept 2.

KLGO staff should pursue the following next steps:

1. **Review this report with stakeholders in Skagway and Dyea, including existing transit providers.** This is a crucial next step to verify assumptions, gain their feedback, and gauge the range of potential changes to transit service that the community and transit providers would support.
2. **Develop a plan for transit service to Dyea.** The KLGO may choose to maintain the existing service or to transition to a fixed-schedule, fixed-route service. If the park chooses the former, staff should work with the existing CUA holder to meet all concerns and develop a plan for any minor improvements. If the park chooses to pursue Alternative 2, then the park would need to develop a more detailed plan for implementation, including identifying potential partners and the preferred agreement structure to deliver the service.

**Note:** It is possible that the park may decide to maintain the existing business model at present but to consider transitioning to a fixed-schedule, fixed-route service in the future under specific contingencies, such as the retirement of the existing CUA holder or an increase in demand for transit due to increased cruise ship visitation.

3. **Develop a monitoring strategy.** Regardless of whether the KLGO pursues Alternative 1 or 2, the park should develop a monitoring plan to track future transit demand and evaluate the effectiveness of the transit service in meeting the park's needs while remaining financially sustainable. This may include reporting requirements for the transit provider on passenger boardings, as well as annual or semi-annual discussions with the transit provider on what is working and where there are challenges.

As part of its monitoring strategy, the KLGO may want to establish performance measures to evaluate the success of the service. These would depend on the availability of data but could include:

- Passenger boardings (daily or by season)
- Dyea interpretive tour attendance (daily or by season)
- ADA-accessibility (whether vehicles are accessible)
- Vehicle miles traveled per year (for the purposes of evaluating maintenance needs and the sustainability of the system and to anticipate operational cost changes if fuel prices change)
- Average vehicle age (for the purposes of anticipating fleet replacement needs)

## Vehicle Recommendations

This section reviews the constraints and requirements for vehicles providing transit access from Skagway to Dyea and reviews potential options for suitable vehicle platforms and models. Depending on which business model and service concept KLGO and its partners select, the transit provider may not choose to purchase a new vehicle at this time to provide service to Dyea. However, this section is meant to provide useful information to inform vehicle selection decisions, either due to altered transit service or at the time of necessary vehicle replacement due to wear and tear.

### *Constraints and Requirements*

Consideration for shuttle service is predicated by selection of suitable vehicles to carry out the service. Major considerations to selection of an appropriate vehicle are: How many people need to be moved per trip? And, what restrictions exist along the route itself that may impact the vehicle (e.g., height restrictions, tight turning areas, terrain and environment / weather during operations)?

The current CUA transportation provider uses a 12 passenger van, and reports that it satisfies current demand. However, the current vehicle is not equipped with a wheelchair lift system or securement location. The addition of a wheelchair lift and securement location would reduce the existing vehicle's current capacity. Passenger vans equipped to transport wheelchairs often have maximum passenger capacities of eight or nine seated passengers.

Dyea Road, which constitutes the bulk of the proposed route, is a narrow and winding dirt road that requires several vehicle pull-outs to facilitate two-way traffic. Larger vehicles may have difficulty navigating the narrow and winding route, and present further restrictions on traffic flow due to their greater size and in particular, their greater width and longer wheelbases. While a larger vehicle could potentially navigate the route successfully, it would do so with a reduced margin for safety and require more skill and attention on behalf of the driver.

Regardless of the vehicle platform chosen, it is recommended that smaller, narrow-bodied (less than 92") vehicles be pursued to ensure maximum clearance between itself and other vehicles and road users.

### *Suitable Vehicle Platforms*

The table below compares vehicle options that are compliant with the Americans with Disabilities Act (ADA)\* and suitable for transportation service along Dyea Road. Vehicles options for each of these options are available for purchase via the General Services Administration or through private vendors if purchased by a non-Federal entity.

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\* Transportation service providers providing access to, or transportation through Federal lands must utilize Americans with Disabilities Act (ADA) accessible vehicles, for all vehicles in operation.

**Table 21: Summary Characteristics of Potential Transit Vehicle Types**

| Type                   | Capacity                                     | Life                       | Cost                    | Fuel Economy *                                                  | Maneuverability                                                                                              | Access                                                             |
|------------------------|----------------------------------------------|----------------------------|-------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------|
| Passenger Van          | 6-8<br>Seated passengers<br>1 WC position    | 5 years /<br>100,000 miles | \$25,000-<br>\$50,000   | 15 mpg (gas)                                                    | Best<br><br>Narrow width <sup>†</sup> (less than 84"), short wheelbase (50-52' turning radius <sup>‡</sup> ) | Poor<br><br>Sliding door, wheelchair lift                          |
| Van-based Shuttle      | 12-14<br>Seated passengers<br>2 WC positions | 7 years /<br>200,000 miles | \$60,000 -<br>\$90,000  | 7 mpg (gas)<br><br>14 mpg (GM diesel)<br><br>19 mpg (MB diesel) | Good<br><br>Med. Width <sup>12</sup> (84-92" wide), short wheelbase (60-66' turning radius <sup>13</sup> )   | Good<br><br>Transit door, wheelchair lift, center aisle            |
| Light-Duty Shuttle Bus | 12-30<br>Seated passengers<br>2 WC positions | 7 years /<br>200,000 miles | \$70,000 -<br>\$200,000 | 8 mpg (diesel)                                                  | Poor<br><br>Full width <sup>12</sup> (95-97"), long wheelbase (56-60' turning radius <sup>13</sup> )         | Best<br><br>Transit door, wheelchair lift, full width center aisle |

### Passenger Vans

Passenger vans are a popular and economic solution for moving small groups of people, but they have two critical shortcomings:

- Difficult entry / access for passengers achieved through a sliding side door with no aisle to reach rear seats; and,
- Inadequate passenger capacity when equipped with wheelchair lift systems.<sup>§</sup>

These limitations are compounded for visitors traveling with bulky items, bags / backpacks, accessibility aides, or baby strollers. Bulky items are difficult to handle upon entry or exit via a sliding side door,

<sup>\*</sup> Fuel economy figures are taken from EPA estimates, and are combined ratings. City economy is expected to be lower, and highway economy expected to be higher.

<sup>†</sup> Exterior body width measured with mirrors folded. Total width may vary by vehicle type and mirror configuration.

<sup>‡</sup> Turning radius is "wall-to-wall," and accounts for overhangs and mirrors.

<sup>§</sup> Passenger vans, and van-based shuttles with onboard wheelchair lift systems have capacities reduced by 2-4 passengers, a result of the physical space occupied within the vehicle by the lift system and wheelchair securement system which occupies space made available by removing seats from a non-accessible version.

resulting in longer times for passenger loading and unloading at each stop. For limited services that do not expect large groups of passengers, passenger vans can provide basic transportation services at a modest cost. For a regular transportation service that aims to provide transportation to all visitors, passenger vans are not recommended.

### **Van-based Shuttle Bus**

Several secondary manufacturers offer vehicles built off van chassis that feature dual rear wheels on each side of a heavy-duty rear axle\* and include larger bus-style passenger compartments with capacities for 12 to 16 people. These manufacturers begin with an existing mass-produced platform (with drivetrains from domestic or foreign automotive manufacturers such as Ford, GM, or Mercedes); which are then outfitted with the body (including passenger door and windows), interior, seats and remaining equipment, and are made available for sale by the secondary manufacturer. Any local commercial bus dealership will have various models built by secondary manufacturers that will be fairly similar, shy of which platform and drivetrain is chosen.

Options include those built off a Ford chassis, such as the Goshen Coach Pacer II shown in Figure 12, which offers two sizes of gasoline engines. A GM platform is also available, featuring a V8 gasoline engine or diesel (Duramax) engine. All gasoline variants will typically return less than 10 miles per gallon (MPG), and the Duramax diesel option from GM is likely to return around 15 MPG. Both are available with 5-year, 60,000 mile powertrain warranties.



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**Figure 12: Goshen Coach Pacer II (Source: Goshen Coach)**

The Sprinter-based option shown in Figure 13 features a small displacement diesel engine, which achieves over 20 MPG while producing less than half the carbon dioxide (CO<sub>2</sub>) emissions as competing engines. This option is a clear stand-out in this class for its fuel economy and emissions performance, is the only option to offer automatic traction assist (as a no-cost option) and comes with the longest engine warranty in its class at 5-years, 100,000 miles, offering an additional 40,000 miles of coverage.

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\* Dual rear wheels and a heavy-duty rear axle result in increased weight ratings and durability.



**Figure 13: Midway Pinnacle (Source: GSA)**

Regardless of the base chassis employed, each of the vehicles available in this configuration enable a narrow body with a full-size transit-style door and a larger passenger compartment than a traditional passenger van, which provides for a center aisle for access to rearward seats. These options aid overall accessibility and expedite passenger loading and unloading. Passenger capacities offered range from 12-16 passengers, with the largest option available recommended, as the incremental cost for higher capacity versions yield more seats and flexibility within a similar footprint.

Equipped with typical options including a wheelchair lift system, the Mercedes diesel-powered Midway Pinnacle is estimated to cost \$81,000 each. The Ford and GM offerings with gasoline options are estimated to cost around \$65,000, and the GM version equipped with the optional Duramax diesel engine is estimated to cost roughly \$72,500.

### **Light Duty Shuttle Bus**

Similar to the van based shuttles discussed above, light-duty shuttle buses (often referred to as “cutaways”) are economical buses built on top of mass-produced “stripped chassis” work-trucks supplied by major automotive manufacturers such as Ford or GM. By sharing the same engine, cab, and frame for a plethora of vehicles ranging from utility and delivery trucks to buses and upscale limousines, secondary manufacturers are able to offer specialized vehicles at a reduced price due to them all sharing the same fundamental truck platform. Cutaway style shuttle buses can also be configured with shorter or longer passenger compartments to facilitate the desired passenger capacity. A significant drawback to a cutaway shuttle bus is the height of the truck chassis the bus is built on top of which prevents the passenger from sitting low to the ground. Since the passenger compartment must be built on top of the truck chassis frame, entry requires climbing steps to access the vehicle. Light-duty shuttle buses offer a wide array of possible sizes and configurations from 12 to 30 passengers or more, and range in price from \$50,000 to over \$200,000. Commercial bus dealers will have a wide range of available vehicles, engines and passenger capacities readily available. A typically configured 24 passenger cutaway style shuttle bus costs between \$85,000 and \$130,000 and are available with gasoline or diesel engines, depending on manufacturer.



**Figure 14: Champion Bus Defender (Source: GSA)**

### *Discussion*

Anticipated demand for the proposed service is difficult to estimate, however existing service is being carried out with a traditional passenger van. The primary shortcomings of traditional vans are limited capacity, and difficult entry and exit through a sliding passenger door. A van-based shuttle bus provides a more robust and flexible solution, as well as one with greater access for all users with entry and exit via a transit-style, full door opening, and satisfies ADA requirements for transit vehicles operating in Federal lands.

Larger vehicles may eventually be necessary should demand grow over time. If so, the primary factor to consider is ensuring safe passage along the narrow and difficult to navigate Dyea Road. Should larger vehicles be required for future service, narrow-bodied variants should be considered.

Purchasing note: if ordering through General Services Administration (GSA) AutoChoice, it is ***strongly recommended*** to use the “Additional Requirements – AREQ” option for a smooth transaction, and to ensure the purchaser’s needs are met including the facilitation of any custom equipment needs, floor plans, graphical treatments such as vinyl wrapping, etc.

### *Recommended Vehicle*

An ideal vehicle for service to Dyea combines the larger passenger compartment, transit door entry, and center aisle of a light-duty shuttle bus with the maneuverability of a passenger van. Filling this niche are van-based shuttle buses which offer transit-oriented features in a footprint slightly larger than a traditional passenger van. These features facilitate access to the vehicle for all users, via a wider, transit-style entry door and a center aisle to access rear seats. Wheelchair lift systems are also aided by the larger passenger compartment, with the systems located inside the vehicle, the additional space offered by the larger body mitigates capacity restrictions compared to traditional passenger vans when fitted with similar systems. Flip-out seats may be available to recoup any permanent seats lost to accommodate wheelchair securement.

In summary, a van-based shuttle offers maximum maneuverability and flexibility in the small bus segment and would be an ideal fit for future service between Skagway and Dyea. The three van-based shuttle bus options explored above are all recommended, and each will operate well, and operate safely, within the limitations posed along the service route.

The three options explored above include:

1. GM or Ford derived van-based shuttle with a gasoline engine,
2. GM derived van-based shuttle with Duramax diesel engine, and
3. Mercedes Sprinter-based shuttle with a small displacement diesel engine.

The three options above are not exhaustive, and similar vehicles may be available from a wide variety of sources. Of the vehicles presented above all are available via the GSA, and the Midway Pinnacle version built off a Sprinter platform is recommended due to its superior fuel economy and longer drivetrain warranty offering an additional 40,000 miles of coverage.

The Ford/GM gasoline option, GM diesel option and Mercedes diesel option were modeled to estimate fuel use if operating a fixed schedule service (as prescribed in Service Concept 2 outlined earlier in this report). The service concept calls for one vehicle, making six round trips per day, for 153 service days. The round trip mileage for this service is slightly less than the 20-mile round trip value used in the model, which is intended to account for pre- and post-service travel and occasional trips for maintenance or fueling. Fuel costs for both diesel and regular unleaded gasoline are provided and are current as of May 2018. Fuel costs are calculated out over 7, 10 and 15 years as the vehicles are expected to exceed their rated life given the limited service which does not operate throughout the year. The results are shown in Figure 8 below.

|                               |                  |                  |       |                   |             |                   |             |          |
|-------------------------------|------------------|------------------|-------|-------------------|-------------|-------------------|-------------|----------|
| Service Days:                 | 153              | Round Trips/Day: | 6     | Round Trip Miles: | 20          | Fuel Cost         | \$3.20      | Gasoline |
| Purchase Cost                 | Fuel Economy     |                  |       |                   |             | (per gallon):     | \$3.40      | Diesel   |
| \$65,000                      | Ford/GM Gas:     | 8                | mpg*  | Annual Fuel Cost: | \$7,344.00  |                   |             |          |
| \$72,500                      | GM Diesel:       | 14               | mpg*  | Annual Fuel Cost: | \$4,458.86  |                   |             |          |
| \$81,000                      | Sprinter Diesel: | 19               | mpg*  | Annual Fuel Cost: | \$3,285.47  |                   |             |          |
| *EPA combined mpg rating used |                  |                  |       |                   |             |                   |             |          |
| Fuel Savings Payback:         | Ford/GM Gas:     | -                | years | 7-year Fuel Costs | \$51,408.00 | 10-year Fuel Cost | \$73,440.00 |          |
|                               | GM Diesel:       | 2.6              | years | 7-year Fuel Costs | \$31,212.00 | 10-year Fuel Cost | \$44,588.57 |          |
|                               | Sprinter Diesel: | 3.9              | years | 7-year Fuel Costs | \$22,998.32 | 10-year Fuel Cost | \$32,854.74 |          |
| Total Purchase + Fuel Costs   |                  | 7-year           |       | 10-year           |             | 15-year           |             |          |
|                               | Ford/GM Gas:     | \$116,408.00     |       | \$138,440.00      |             | \$175,160.00      |             |          |
|                               | GM Diesel:       | \$103,712.00     |       | \$117,088.57      |             | \$139,382.86      |             |          |
|                               | Sprinter Diesel: | \$103,998.32     |       | \$113,854.74      |             | \$130,282.11      |             |          |

**Figure 15: Purchase and fuel cost comparison**

Under the modest service requirements outlined in Service Concept 2, the premium paid for purchasing vehicles with diesel-engines are paid back in less than 4 years with fuel savings over a gasoline version. Both diesel-options are roughly equivalent in total purchase plus fuel costs at the 7 year mark, and as more miles and service is provided the more fuel-efficient Sprinter-based diesel begins to accrue savings. Under these scenarios a replacement vehicle is expected to last longer than the 7-year rated lifespan that reflects an estimated life in year-round, transit-style service and continuous operations. A new vehicle, maintained well, would be expected to last between 10 and 15 years if providing service only half the year.

Whether purchasing one of the above options or another vehicle not included in this analysis, long-term transportation service benefit from choosing more fuel-efficient alternatives. In addition to financial savings, the more fuel-efficient vehicles also better meet park goals related to sustainability and energy efficiency.

## Conclusion and Next Steps

This report examined the existing transportation conditions between Skagway and Dyea and the potential feasibility of different transit business models to enhance transit access between these two KLGO units. The project team found that the most feasible options are either a) maintaining the existing CUA service but with accessibility improvements or b) establishing a fixed-route, fixed-schedule service with 1.5-hour headways. In considering these options, KLGO should consider how they help the park meet its transit goals:

- **Visitor Experience:** Provide a safe, reliable, convenient, and enjoyable transit service at an affordable cost.
- **System Sustainability:** Plan for the long-term sustainability of transit service by considering long-term costs, financial sustainability, and contingency planning to adjust to future changes in transit service or demand.
- **Accessibility:** Ensure access for visitors with disabilities.
- **Economic Development:** Support business opportunities for private businesses to provide transit service to Dyea.

In the short term, the most feasible approach is to maintain the existing service with minor improvements. However, if conditions change – either because of increased KLGO visitation, increased demand to visit Dyea, or changes to the existing CUA transit service – the park may consider working with a private or public partner to develop a fixed-route, fixed-schedule service. This would likely require securing funding through grants or partnerships to support a new service.

### *Using this Report for Future Decision Making*

The purpose of this report is to provide information to NPS AKR, KLGO, and Skagway community members about the feasibility of different transit business models and transit vehicle options. Because this report may be used in the future as transit conditions change, it is important to note what in this report is evergreen, and what may need to be updated in the future. Many parts of this reports – such as the physical characteristics of Dyea and the Dyea road, as well as potential route schedules – will likely remain unchanged in the future. However, other inputs and assumptions may need to be updated to reflect future conditions. These include:

- Available vehicle models and their purchase costs
- Fuel costs
- Driver hourly wages
- Available funding opportunities for rural and public lands transit systems

### *Recommended Next Steps*

The two options that best meet the KLGO's goals the lowest possible expenses are Alternative 1 (Existing Service) with minor improvements or Alternative 2 (Fixed Route and Schedule) with Service Concept 2.

KLGO staff should pursue the following next steps:

1. **Review this report with stakeholders in Skagway and Dyea, including existing transit providers.** This is a crucial next step to verify assumptions, gain their feedback, and gauge the range of potential changes to transit service that the community and transit providers would support.

2. **Develop a plan for transit service to Dyea.** The KLGO may choose to maintain the existing service or to transition to a fixed-schedule, fixed-route service. If the park chooses the former, staff should work with the existing CUA holder to meet all concerns and develop a plan for any minor improvements. If the park chooses to pursue Alternative 2, then the park would need to develop a more detailed plan for implementation, including identifying potential partners and the preferred agreement structure to deliver the service.

**Note:** It is possible that the park may decide to maintain the existing business model at present but to consider transitioning to a fixed-schedule, fixed-route service in the future under specific contingencies, such as the retirement of the existing CUA holder or an increase in demand for transit due to increased cruise ship visitation.

3. **Develop a monitoring strategy.** Regardless of whether the KLGO pursues Alternative 1 or 2, the park should develop a monitoring plan to track future transit demand and evaluate the effectiveness of the transit service in meeting the park's needs while remaining financially sustainable. This may include reporting requirements for the transit provider on passenger boardings, as well as annual or semi-annual discussions with the transit provider on what is working and where there are challenges.

As part of its monitoring strategy, the KLGO may want to establish performance measures to evaluate the success of the service. These would depend on the availability of data but could include:

- Passenger boardings (daily or by season)
- Dyea interpretive tour attendance (daily or by season)
- ADA-accessibility (whether vehicles are accessible)
- Vehicle miles traveled per year (for the purposes of evaluating maintenance needs and the sustainability of the system and to anticipate operational cost changes if fuel prices change)
- Average vehicle age (for the purposes of anticipating fleet replacement needs)

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As the nation’s principal conservation agency, the Department of the Interior has the responsibility for most of our nationally owned public lands and natural resources. This includes fostering sound use of our land and water resources; protecting our fish, wildlife, and biological diversity; preserving the environmental and cultural values of our parks and historic places; and providing for the enjoyment of life through outdoor recreation. The department assesses our energy and mineral resources and works to ensure that their development is in the best interests of all our people by encouraging stewardship and citizen participation in their care. The department also has a major responsibility for American Indian reservation communities and for people who live in island territories under U.S. administration.

PMIS No. 219320A / 22 April 2019