



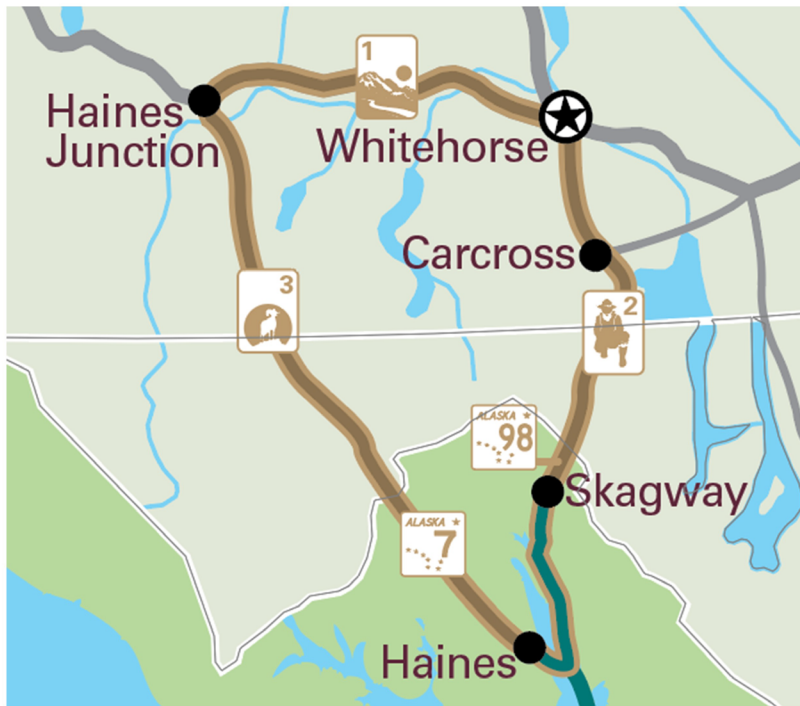
SKAGWAY'S ELECTRIC FERRY PILOT PROJECT

Presented by:

Andrew Cremata, Mayor of Skagway

Southeast Conference, September 2021

SKAGWAY, ALASKA



GOLDEN CIRCLE ROUTE

- **Strategic location – Gateway to the Yukon**
- **One of the top visitor destinations in Alaska**
- **Independent travel is poised to skyrocket**
- **Golden Circle and independent travel require consistent, daily service**
- **Our independent visitor industry reduces our dependence on cruise ships**

FERRY SERVICE IS ESSENTIAL TO THE WELLBEING OF OUR COMMUNITY



- **Ferries connect us to our neighboring communities, give residents access to health care, education opportunities, and student sports, and support our year-round economy.**
- **Ongoing state budget struggles create uncertainty about the future of AMHS.**
- **Skagway residents want more control over their transportation future.**

SKAGWAY CAN SUPPORT ELECTRIC FERRY SERVICE:



- **Abundance of hydroelectric power in the Skagway Valley**
- **High traffic and demand on North Lynn Canal routes**
- **Relatively shorter route distances**
- **Lack of tidal restriction**
- **Ten years of studies that support the concept of an independent ferry authority**

North Lynn Canal Ferry Service Analysis

Prepared for:
Municipality of Skagway



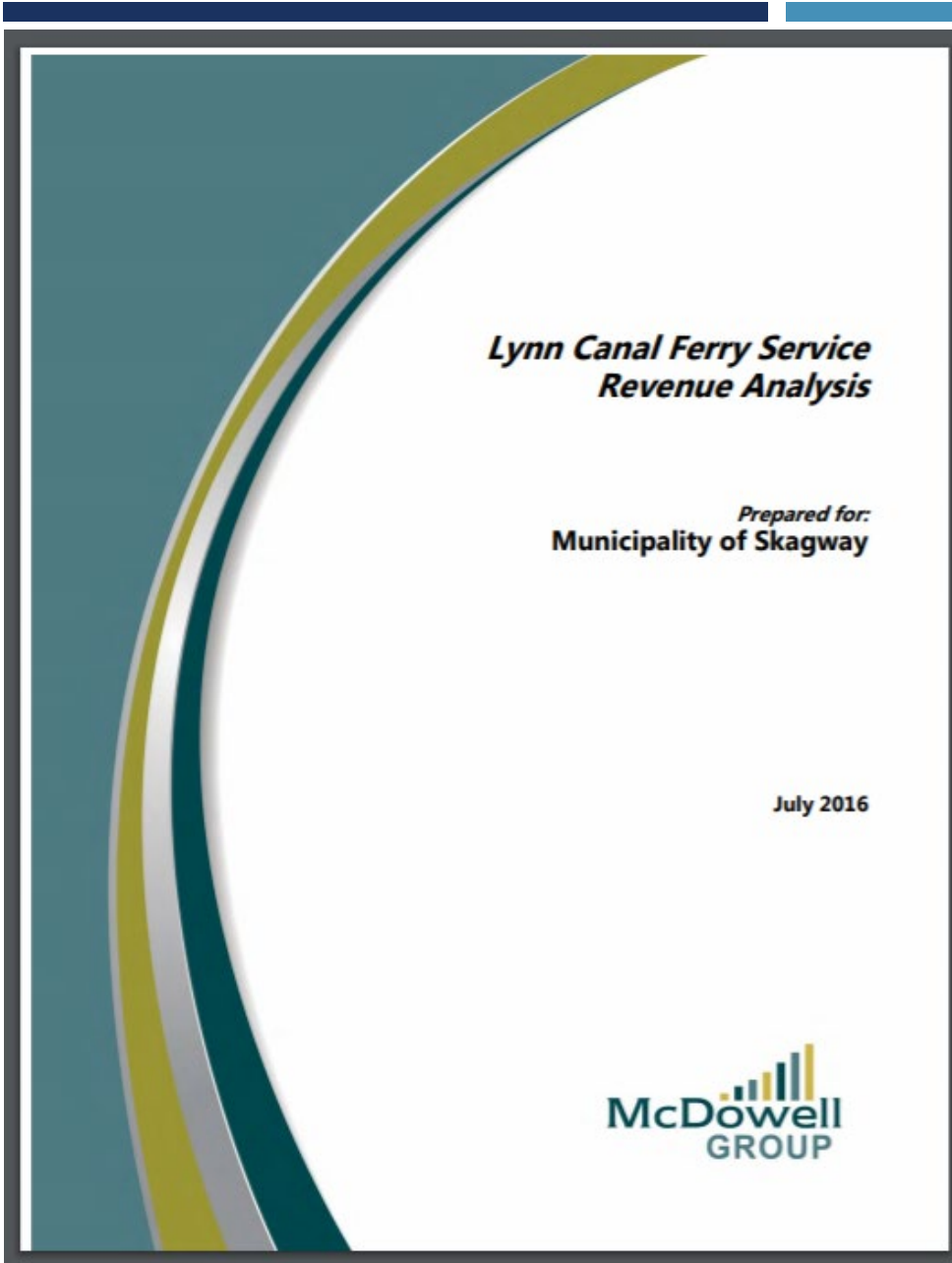
Research-Based Consulting
Juneau
Anchorage

June 2014

2014 McDowell Group

Key Finding:

- Haines and Skagway are two of the highest-volume ports in terms of passengers, vehicles, freight, and revenue



2016 McDowell Group

Key Finding:

- Traffic and revenue analysis of Lynn Canal ferry service demonstrates that the smaller, more efficient Alaska Class Ferries would provide significant savings compared to utilizing a mainline vessel on the same route.

**Lynn Canal Ferry Service:
Exploring a Locally Controlled System**

PREPARED FOR:
Municipality of Skagway

October 31, 2019



2019 McDowell Group

Key Findings:

- Of the governance models considered, a ferry authority is preferred for North Lynn Canal.
- The demand and strong revenue potential of the Lynn Canal route create a model favorable to high cost recovery.



8/12/2020

LYNN CANAL FERRY SERVICE

Vessel Comparison Report for
Dayboats on Lynn Canal Routes

Prepared for: Municipality of Skagway • Skagway, AK

Ref: 20035-001-070-0 Rev. C August 12, 2020



2020 Elliott Bay Design Group

Purpose:

Analysis of existing vessels to determine suitability for ferry service in Lynn Canal.

Inter-Island Ferry Authority (IFA) MV Prince of Wales



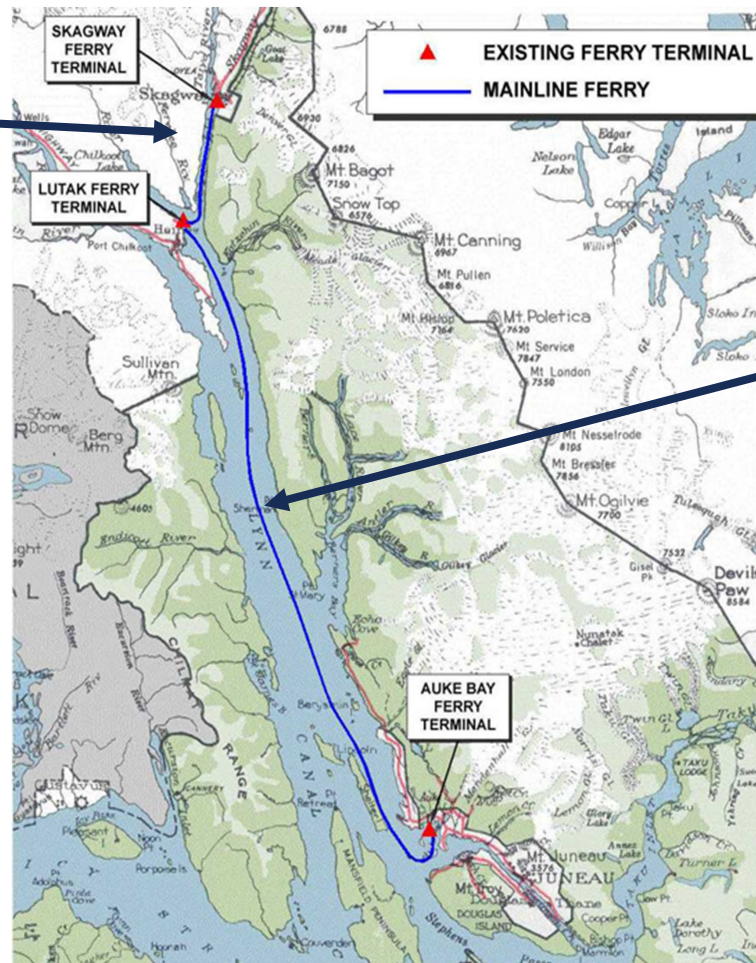
Fast Vehicle Ferry Fairweather



Alaska Class Ferry

EVALUATING TWO SKAGWAY ROUTES:

Skagway to Haines
14.5 Miles



Skagway to Auke Bay
90 Miles

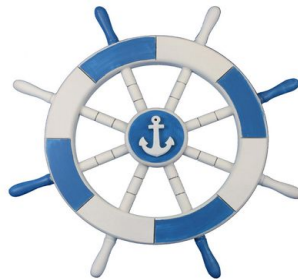
DIFFERENT ROUTES REQUIRE DIFFERENT VESSELS:

Skagway – Haines Route

- 14.5 Miles
- Ideal for an all-electric vessel
- Supports summer independent visitor industry (Golden Circle Route)
- Connects to existing AMHS service between Haines and Juneau, and Skagway and Juneau

Skagway – Auke Bay Route

- 90 Miles
- Ideal for hybrid vessel
- Enables Skagway residents and visitors to travel to and from Juneau without dependence on AMHS
- Requires enhanced seakeeping



CONCEPT: 15-VEHICLE *ALL-ELECTRIC* SHUTTLE FERRY

■ ATTRIBUTES

- Ideal for Skagway – Haines route
- Low construction cost (\$8.5 million)
- Under 100 gross tons equals low crewing costs (captain and two deckhands)
- Good fare box recovery
- Scalable to demand (satisfies historical demand with two to three trips per day)
- Enables Alaska Class Ferries to operate between Auke Bay and Haines, and Auke Bay and Skagway without addition of crew quarters (within the 12-hour rule)

■ CONSIDERATIONS

- Designed for summer-only operation
- Limited to use on only one route
- Roll-on / roll-off design not compatible with existing dock infrastructure
- Skagway remains dependent upon Alaska Marine Highway System to connect with Juneau



Alaska's first ferry, the MV Chilkat

15-VEHICLE ELECTRIC FERRY

ELLIOTT BAY DESIGN GROUP



VESSEL DESCRIPTION: This 120' monohull vessel is intended to provide vehicle and passenger transportation between Skagway and Haines. The vessel is intended to be all-electric. The vessel will utilize a lithium-ion battery bank charged by shore power. The estimated contract design cost is \$400 - \$500 thousand, with construction cost approximately \$7 - \$8 million, not including any shoreside infrastructure changes for charging.

PRINCIPLE DIMENSIONS:

Length (O.A.):	120'-0"
Beam (Max):	40'-0"
Draft (DWL):	7'-0"
Depth:	13'-0"
Lightship:	345 LT
Hull Type:	Monohull, drive-through deck arrangement

PERFORMANCE CHARACTERISTICS:

Design Speed:	10 kt
Certification:	USCG Subchapter T
Route:	Skagway to Haines
Route Length:	14.5 miles
Design Sea Conditions:	Approximately 25 kts and 6 ft seas
Passenger Capacity:	100
Vehicle Capacity:	15 (Alaska Standard Vehicle – 20 ft)
CO2 Savings:	1.1 mt / trip

PROPULSION MACHINERY:

Propulsion Motors:	(2) 700 kW, Permanent Magnet
Battery Bank Capacity:	2.7 MWh
Battery Bank Weight:	NMC
Expected Battery Life:	7.5 yr (approx. 2,700 cycles)
Propellers:	(2) 4-bladed, fixed pitch
Rudders:	(2) Balanced

SHORE POWER REQUIREMENTS:

Shore Power Available:	2 MW
Approx. Charge Time:	1 hr
Round Trip Energy:	1770 kWh

NOTES:

- All charging performed at Skagway between round trips
- The hull and superstructure to be of welded steel construction utilizing a longitudinally stiffened deck
- CO2 savings based on a comparison to the efficiency of a representative diesel mechanical system and assuming all shore power for the electric version comes from renewable sources.

CONCEPT: LYNN CANAL *HYBRID-ELECTRIC* FERRY

■ ATTRIBUTES

- Seaworthy in challenging winter conditions between Skagway and Juneau
- Hypothetically, could be designed under 100 gross tons
- Able to sail two routes (Skagway – Juneau and Skagway – Haines)
- Able to function as an all-electric shuttle between Skagway and Haines
- More compatible with existing dock infrastructure
- Skagway gains transportation independence between Skagway and Juneau
- Enables Alaska Class Ferries to operate between Auke Bay – Haines without addition of crew quarters (12-hour rule)

■ CONSIDERATIONS

- Higher construction cost than the shuttle
- Higher operating costs than the shuttle
- Less information on historical traffic and demand on Skagway – Juneau route



OUR PLANNING GOALS



- Solicit expert advice on vessel design that best meets the needs of our community
- State-of-the-art electric technology for vessel and shoreside infrastructure
- Made in America / Built in Alaska
- Realistic projections of fare box recovery and future required subsidy
- Robust community participation and buy-in
- Enhanced regional solutions through joint planning with neighboring communities and state agencies

NOW IS THE TIME:

Our proposal dovetails with major policy initiatives on national state, and local levels:

President Joe Biden and **Senator Lisa Murkowski** have made alternative energy solutions top priorities of their administrations.

Governor Dunleavy's Work Group on Reshaping the Alaska Marine Highway included the following findings and recommendations in their final report:

- Partner with community groups, local, and tribal authorities for them to take over local ferry operations ...
- Business or community interests may make it appealing to offer service. In assessing offers consider a small state subsidy if lower than the cost of the state ferry service it replaces. The Inter-Island Ferry Authority (IFA) model could provide a workable template.

Skagway has undertaken a major port redevelopment planning process with the following objectives:

- Cleaner, more energy efficient port
- Local control of waterfront resources
- Partnership with state of Alaska and cruise lines for development of ferry/cruise infrastructure.