

City of Des Moines, WA 2022 Ferry Demonstration Project

Final Report



Prepared for

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Attachments

Attachment 1: 2022 Operations Plan

Attachment 2: 2022 Budget / Actual

Attachment 3: Ferry Rider Survey

1. Project Overview

1.1 Ferry Demonstration Project

During the Summer/Fall of 2022, the City of Des Moines engaged in a passenger ferry demonstration project between Des Moines and Seattle (“2022 Ferry Demonstration Project”). The objective was to introduce the public and other stakeholders to the opportunities and benefits of a possible permanent ferry service and to verify certain estimates and assumptions.

Prior to 2022 Ferry Demonstration Project, the City of Des Moines completed a Ferry Demand Study Report¹ and a Ferry Demonstration Project Scoping and Reconnaissance Report.² These prior activities indicated there was demand for the service and operations where feasible.

Thus, the 2022 Ferry Demonstration Project was a logical step to confirm prior conclusions and to develop critical empirical data from operations.

1.2 Summary of Service

The 2022 Ferry Demonstration Project operated from August 10, 2022 through October 9, 2022 and provided 4 roundtrips per day, 5 days per week (Wednesday – Sunday), between Des Moines Marina and Bell Harbor Marina in Seattle.

Schedule

Departure times are listed below.

Table i) - Schedule

Depart Des Moines	Depart Seattle
10:00 am	11:00 am
12:00 pm	1:00 pm
2:00 pm	3:00 pm
4:00 pm	5:00 pm

Transit Time

The transit time between the Des Moines ferry loading dock (terminal) and the Seattle landing was ~ 35 minutes, with actual transit times impacted by ferry operating speeds and other factors (weather, vessel traffic, wildlife, etc....) encountered along the route.

¹ City of Des Moines Passenger Ferry Demand Report - Deadrich RPM, July 29, 2020

² City of Des Moines Ferry Demonstration Project Scoping and Reconnaissance Report – Maritime Consulting Partners, October 31, 2021

Vessel

A 60-passenger³ aluminum catamaran ferry was provided and operated by a maritime contractor for the duration of the project.⁴

Terminals

The ferry vessel homeported at the Des Moines Marina on the guest moorage float at the north side of the marina, and landed on the Seattle waterfront at the Bell Harbor Marina guest dock - a facility owned and operated by the Port of Seattle.

Terminal services in Des Moines were provided by the City's Harbor Master Department. These services included assisting with the ticket reservation system, queuing passengers, inspecting and clearing docks of hazards, meeting passengers, checking them in, and generally coordinating shoreside activities in Des Moines.

Terminal services in Seattle were provided by the ferry vessel crew and Port of Seattle personnel.

Operations and Project Management

Operations and overall project management was provided by Maritime Consulting Partners, the firm that conducted the aforementioned Reconnaissance Study and wrote the 2022 Ferry Demonstration Project Operations Plan.

2022 Ferry Demonstration Project Operations Plan

Before the 2022 Ferry Demonstration Project commenced, Maritime Consulting Partners completed an Operations Plan that described the details of how ferry service would be implemented and maintained during the demonstration period.

The Operations Plan, in its final form, is included in this report as Attachment 1.

2 Project Findings

This section summarizes key findings of 2022 Ferry Demonstration Project.

Data was collected from the ticketing and reservation system,⁵ as well as surveys issued to ferry riders.⁶

³ The Chilkat Express is U.S. Coast Guard certified to carry 63 passengers, but for this project the passenger limit was set at 60.

⁴ Puget Sound Express

⁵ Fare Harbor

⁶ Survey Monkey (issued 10/17/22)

2.1 Rider Utilization (aka Demand)

- Rider utilization is a key indicator of the potential viability for a long-term or permanent ferry service.
- Vessel embarkation data indicates the total number of passengers that boarded the ferry during the demonstration project was 14,858. Given 45 days of service, this is an average of 330 passengers per day, or 41 passengers per one-way trip.
- The total possible passengers that could be carried during the demonstration period was 21,600. Accordingly, the overall utilization of the service was 69% of total capacity. This measure (of utilization vs capacity) is commonly referred to as the service “Load Factor.”
- Projections developed prior to operations (during the reconnaissance and planning phase) estimated total utilization to be 3,600 - a Load Factor of 17%, based on the industry averages from around the country.

⇒ **KEY FINDING – 14,858 passengers were carried (a Load Factor of 69%) and actual ferry service utilization exceeded expectations (by 400%).**

2.2 Demand Momentum

Vessel embarkation data indicates the first week of service had the highest utilization with 1,897 passengers carried. High utilization was predicted for that week and was attributed to the novelty of the service and that first week of service being free of charge.

What was not predicted, was that ridership would remain high throughout the entire demonstration project period. Ridership data indicates interest in, and utilization of, the demonstration ferry service had a high level of momentum. Meaning demand for the service remained high (as opposed to quickly dropping off) during the project period. This indicates utilization (demand) could remain high and even increase given a longer duration project.

The lowest rider utilization period occurred during week #6 with 1,549 passengers carried. The second highest utilization period occurred during week #7 with 1,689 passengers carried.

⇒ **KEY FINDING – Demand for ferry service remained high throughout the project Period, and in fact utilization increased during the last third of the pilot period.**

Table ii) – Ferry Ridership

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Total Checked In
Adult	1339	699	650	645	535	607	626	603	567	6271
Bike	30	22	20	10	5	20	15	15	3	140
Child	250	145	197	168	129	92	95	102	164	1342
Sr/Mil	308	842	765	786	911	850	968	908	907	7245
Total Passengers	1897	1686	1612	1599	1575	1549	1689	1613	1638	14858

2.3 Collected Revenue

Fare revenue tracked ridership closely except for Week #1, when passenger travel was free of charge.

Total net fare revenue collected during the 2022 Ferry Demonstration Project was \$89,346. This is the net amount collected after any sales or transaction fees.

Projections developed during the reconnaissance and planning phase estimated total collected revenue would be approximately \$36,000.

⇒ **KEY FINDING – \$89,346 of fare revenue was collected during the demonstration project and exceeded expectations (by 250%).**

Table iii) – Ferry Fare Revenue

	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	Wk 7	Wk 8	Wk 9	Total
Adult	\$0.00	\$7,415.17	\$6,717.28	\$6,482.90	\$5,485.90	\$6,743.20	\$6,443.76	\$6,401.20	\$6,061.90	\$51,751.31
Bike	\$0.00	\$54.00	\$44.00	\$20.00	\$10.00	\$41.80	\$30.00	\$32.00	\$6.00	\$237.80
Child	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Sr/Mil	\$0.00	\$4,606.51	\$4,157.41	\$4,157.97	\$4,831.32	\$4,537.69	\$5,134.94	\$4,893.19	\$5,037.53	\$37,356.56
Total	\$0.00	\$12,075.68	\$10,918.69	\$10,660.87	\$10,327.22	\$11,322.69	\$11,608.70	\$11,326.39	\$11,105.43	\$89,345.67

2.4 Reason for Travel

Survey data indicates the majority of passengers (93%) traveled for leisure/recreational reasons. Followed next by event travel (2%) and business travel (2%). This reflects the impact the schedule had on the type of use that was realized on the ferry.

In the case of the ferry demonstration project, the schedule was not designed to address use by commuters. Rather, the schedule was established to provide optimal service given operational constraints. For example, the first departure from Des Moines was scheduled at 10 am, which is generally considered to fall on the fringe of traditional commute patterns. Likewise, the last departure from Seattle was scheduled at 5 pm, a time that does not provide for much of a work day (given the ferry's arrival times in Seattle). This condensed schedule was necessary due to constraints around the difficulty of finding maritime crew, unique to the summer of 2022.

Post-pandemic, it's generally recognized the way people commute is changing. Nonetheless, it can be stated that the ferry demonstration project sailing times were not established in a manner that effectively provided for use by daily business commuters (both in terms of the day of week and time of day when sailings were scheduled).

⇒ **KEY FINDING – Leisure travel (site-seeing, events, and other) was the main type of use for the ferry service.**

2.5 How Arrived at the Ferry

Survey data indicates the majority of passengers (76%) arrived at the ferry using a vehicle and parking on site. This was followed next by walking (14%) and public transportation (7%).

While this finding is predictable (passenger vehicle was the predominate way riders arrived at the ferry), it indicates an opportunity to establish better links with other modes of travel if future ferry projects activities are planned.

⇒ **KEY FINDING – The vast majority of ferry passengers arrived at the Des Moines ferry in a passenger vehicle.**

2.6 Age of Traveler

Survey data indicates the majority of passengers were 65 years and older (55%). This coincides with data that indicates the main reason for travel was leisure/recreation.

When viewed across the spectrum, demand correlated with age groupings as follows: age 0-34 5%, age 34-64 41%, age 65+ 55%.

⇒ **KEY FINDING – Though age distribution was fairly evenly distributed among adult age groups, the ferry was utilized most by users age 65 and older.**

2.7 Origin of Riders

Using zip code data from the reservation system, 95% of riders were from Washington State.⁷ From this zip code data, the majority of ferry riders came from around the Puget Sound region, the highest number originating from the City of Des Moines (31%). The next highest number of riders came from Burien/Normandy Park (8%), followed by Federal Way (5%).

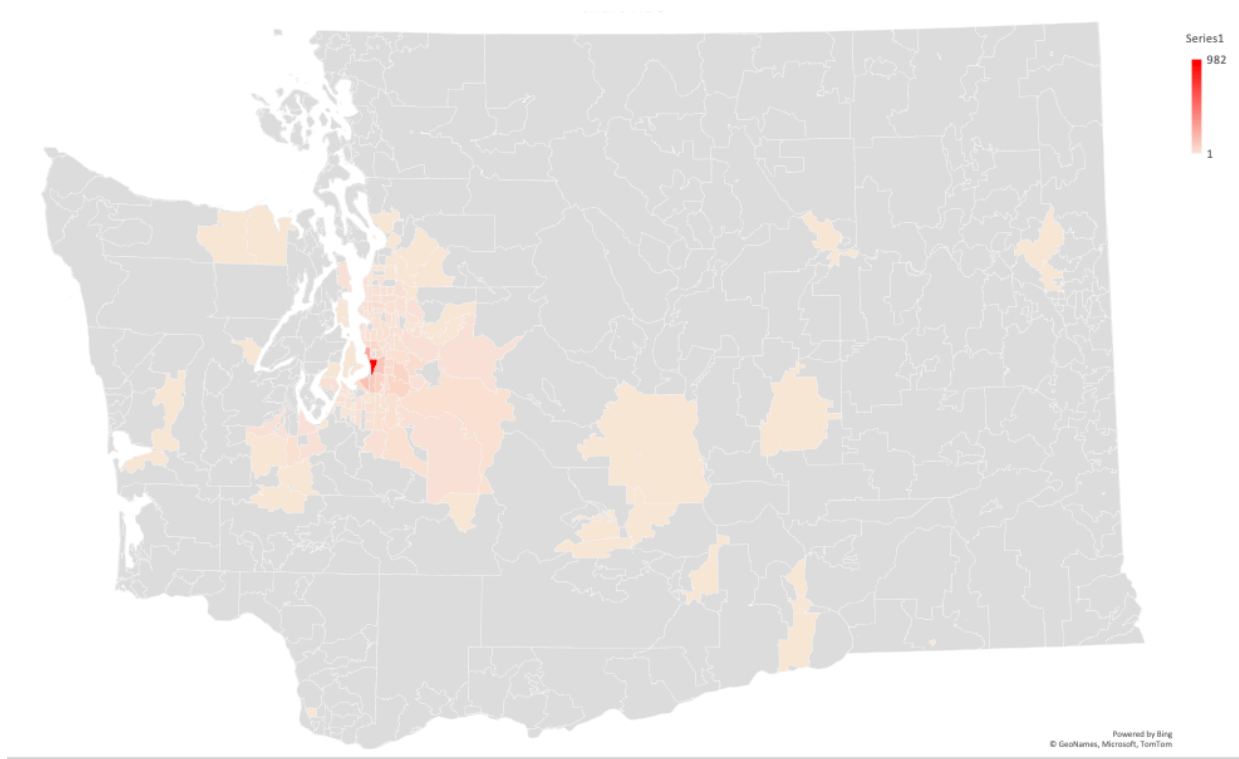
Table iv) – Top 5 Washington State Zip codes

Top 5 Zip Codes		
98198	Des Moines	982
98166	Burien/Normandy Park	264
98023	Federal Way West	144
98032	Kent	117
98003	Federal Way East	110

Other riders came from around Washington State. The following graphic shows the zip code areas where Washington state riders originated from.

⁷ Zip code data was not captured for all ferry riders in the reservation system. 3,177 zip code data points were collected.

Graphic a) – Washington State Zip codes where ferry demonstration riders originated from



The remaining riders were from out of state (5%). Reservation data does not indicate why these people were in Seattle, but it's likely these visitors chose to utilize the passenger ferry spontaneously - meaning they did not come to Seattle with the intent of riding a ferry to/from Des Moines. This indicates the upside potential for out of state visitors to use a ferry to visit Des Moines, making a trip they might not have previously planned.

⇒ **KEY FINDING – Ferry passengers came from around the region with most originating from Des Moines.**

2.8 Ferry Fares

Based on research conducted during the aforementioned Demand Study, demonstration ferry fares for adults were established at \$10 per person, for each direction of travel (\$20 roundtrip).

89% of respondents to the project survey identified ferry fares as “Just Right” while 7% believed they were too high and 4% felt fares were too low.

⇒ **KEY FINDING – The vast majority of passengers said the \$10 (one-way) rate was just right.**

2.9 Year-round Ferry Service

68% of respondents to the project survey indicated they would prefer year-round service to seasonal service.

⇒ **KEY FINDING – The vast majority of passengers would prefer year-round ferry service.**

2.10 Satisfaction with Service

88% of respondents to the project survey indicated they were very satisfied with their overall experience with the ferry demonstration project.

⇒ **KEY FINDING – The vast majority of ferry demonstration riders were very satisfied with the overall experience.**

2.11 The Right Boat

For numerous reasons, the ferry that was utilized for the demonstration project was a very good choice. This particular vessel was the right blend of size, speed, passenger capacity, and onboard comfort.⁸

From the project survey, 85% of passengers were very satisfied with the vessel.

2.12 Farebox Recovery

Fare box recovery is a measure of how much of a transportation system’s operating costs are recovered from the fares collected.⁹ Operating costs do not include the cost of items like planning and capital assets.

The 2022 Ferry Demonstration Project operating costs were \$220,402 and are listed below.

Table v) – Ferry Operating Costs

Operating Item	Amount
Management	\$47,840
Vessel Crew, Insurance, Supplies, Maintenance, Other	\$74,000
Vessel Fuel	\$83,532
Vessel Moorage (in Seattle)	\$15,030
TOTAL OPERATING COSTS	\$220,402

⁸ The ferry is fully described in the Operations Plan – Attachment 1.

⁹ Operating Costs do not include things like planning, mobilization, capital assets, marketing and communications.

Net fare revenue collected during the project was \$89,546. Therefore, fare box recovery is 41%.

⇒ **KEY FINDING – Fare box recovery was 41%, better than the industry average farebox recovery of about 30% for ferries, and substantially better than the average farebox recovery of roughly 19% for bus transit.**

3 Recommendations Going Forward

The 2020 Des Moines Ferry pilot utilization and farebox recovery would place it at the upper end of the successful range in ferry services around the country.

Based on the high rate of utilization, healthy farebox recovery and positive response from the community, it is recommended that the City of Des Moines proceed with expanded service in 2023.

If the City of Des Moines decides to move forward, the following recommendations can be considered.

3.01 Define Objectives for Expanded Service

- Determine if commuters can be encouraged to use the service
- Establish links with other transportation modes and carriers
- Create a rider incentive program
- Develop partnerships with retail businesses adjacent to both terminals to drive customers to local businesses.

3.02 Extend the Demonstration Period

Given the high level of public acceptance, if another demonstration project is activated it is recommended it run for a longer period. Here are some possible scenarios based on six-month periods.

Scenario 1	April 1, 2023 – September 30, 2023	6 months
Scenario 2	April 15, 2023 – October 15, 2023	6 months
Scenario 3	May 1, 2023 – October 31, 2023	6 months

3.03 Extend the Operating Schedule to Include Traditional Commute Times

Given the high level of public acceptance, if another demonstration project is activated, it is recommended the schedule be expanded to include times that are commonly considered commute periods. An example of a modified schedule is outlined below.

Days of the Week	From Des Moines	From Seattle
Monday - Friday	First sailing at 8:00 am	Last sailing at 6:00 pm
Saturday – Sunday	First sailing at 10:00 am	Last sailing at 7:00 pm

3.04 Develop Shoreside Service Connections

Survey data indicates most passengers arrived at the ferry using their own vehicle. If the City decides to execute another demonstration project it’s recommended a passenger shuttle be considered in Des Moines. This shuttle service would help bring Des Moines area residents to the ferry, as well as transport passenger that boarded in Seattle to various destinations and attractions in Des Moines.

Other possible shoreside connections could include arranging a carshare at the Des Moines Marina and/or having bike share services available.

3.05 Start Planning for 2023 as Soon as Possible

If the City decides to proceed with a ferry demonstration project in 2023, it’s recommended that planning activities commence as soon as possible.

The first step would be to define the 2023 project goals and then update the 2022 Ferry Operations Plan.

From there, activities would commence to convert this report into a service plan that includes a detailed timeline that will serve as a foundation for vessel procurement, hiring qualified personnel, and service implementation strategies.

3.06 Secure a Vessel for 2023

If the City decides to proceed with a ferry demonstration project in 2023, it’s recommended that it start working to secure a vessel as soon as possible.

The vessel used during the 2022 demonstration project proved to be ideal. Accordingly, this would be the logical vessel to try and secure for future service.

3.07 Improve ADA Accommodations

It is recommended that additional emphasis be made on providing ramps and boarding systems that minimize barriers for users with disabilities.

Also, consider how additional seating areas on the vessel can be dedicated to passengers with mobility restrictions and/or disabilities.

3.08 Provide Customer Service Representatives at Both Terminals

If the City of Des Moines decides to operate a subsequent ferry demonstration project, it's recommended that customer service representatives be present at both terminals (Des Moines and Seattle) during ferry operating hours.

Customer service representatives can answer questions in person, by phone, email, chat, or social media and help manage booking and reservations. These persons can also manage passenger check-in and boarding activities, and provide other safety and security functions.

3.09 Consider other Terminal Locations in Seattle

The Bell Harbor Marina was well suited for the service, and would work well for future service, but other terminal owners have indicated an interest in hosting future ferry service and those alternative terminal locations should also be considered.