90% Review

City of Des Moines, WA

Ferry Demonstration Project
Scoping and Reconnaissance Report

Prepared for

The City of Des Moines, WA
21630 11th Avenue S, Suite A
Des Moines, WA 98189

Prepared by

Maritime Consulting Partners, LLC
7869 NE Day Rd W, Suite 206
Bainbridge Island, WA 98110

MARITIME CONSULTING PARTNERS

August 31, 2021

Table of Contents

1 Scope and Objectives

The City of Des Moines (the City) is embarking on the redevelopment of its marina and surrounding area.[1] As part of this larger project, the City is considering the merits of establishing a passenger-only ferry service (ferry service) between the Des Moines Marina and the Seattle central waterfront.

In July 2020, the City received the results of a ferry demand study that demonstrated strong community support for regular ferry service.[2] As a result of these positive findings the City is now exploring a summer-long ferry demonstration project as a way to more fully understand the long-term viability of regular ferry service.

- ***The purpose of this Scoping and Reconnaissance Report is to determine if a Des Moines ferry demonstration project is practical and warranted and what the associated costs might be.***

This report provides an objective review of the fundamental requirements of a successful demonstration project. The Study Team collected data and information concerning the prospective demonstration project to determine first and foremost if there are any operational or logistical impediments that would prevent the implementation of the project.

To collect the aforementioned data, the Study Team investigated key aspects of operational feasibility: shoreside infrastructure, vessels, the marine route, regulatory requirements, possible schedules, and operating costs.

- ***The Study Team concluded there are no impediments to a Des Moines ferry demonstration project that can't be resolved through standard approaches.***

The Study Team found the City could logically progress to the next stage in the development process for introducing a ferry demonstration project. Accordingly, the next steps would include the development of a detailed operating plan and budget, and/or a Request for Proposals (RFP).

[1] (http://www.desmoinesmarina.com/marina-master-plan-updates.html

[2] Diedrich RPM

2 Route Assessment

2.1 Route Overview

From: Des Moines
To: Downtown Seattle
Total Distance: 15.95 nm

Figure 1: Route – Des Moines to Downtown Seattle

Figure 2: Route Legs and Distances

DEPART FROM	ARRIVE AT	DIST (nm)
Des Moines Marina		0.15
	Des Moines Pier (G"1"	
Des Moines Pier (G"1"		11.5
	Alki Point Abeam	
Alki Point Abeam		2.25
	Duwamish Head Light	
Duwamish Head Light		1.95
	DT Seattle	
DT Seattle		0.1
	TBD - Dock	
		16

Figure 3: Route Entering the North End of Des Moines Marina

Figure 4: Seattle Waterfront

2.2 Route Description

The route from Des Moines to downtown Seattle begins at the City of Des Moines Marina, exiting the north breakwater (see Figure 3) and proceeding north in East Passage. At approximately 11.5 nm with Alki Point directly abeam to starboard, the route alters course to enter Elliott Bay and clear Duwamish Head Light. Once clear of Duwamish Head Light, the route alters course again to arrive at a dock (TBD) in downtown Seattle (see Figure 4).

2.3 Route Profile

The following route profile identifies the route legs, their distances and approximate run-times at appropriate speeds.

Figure 5: Estimated Transit Time at 22.0 knot service speed[3]

LEG	WP	DEPART FROM	ARRIVE AT	DIST (nm)	SPD (kts)	TIME (hrs)	TIME (mins)
N1	A	Des Moines Marina		0.15	2.0	0.075	4.5
			Des Moines Pier (G"1"				
N2	B	Des Moines Pier (G"1"		11.5	22.0	0.523	31.4
			Alki Point Abeam				
N3	C	Alki Point Abeam		2.25	22.0	0.102	6.1
			Duwamish Head Light				
N4	D	Duwamish Head Light		1.95	20.0	0.098	5.9
			DT Seattle				
N5	E	DT Seattle		0.1	6.0	0.017	1.0
			TBD - Dock				
				16		0.814	48.9
						Total Dwell Time	0.0
						Total Time	**48.9**

[3] Service Speed is a vessel's speed under normal environmental conditions and sea states, in a fully-loaded condition and main propulsion engines at 85-90% of their maximum continuous power rating.

Route Legs N1 and N5 represent the departure and approach legs at each end. The speeds identified are averages that take into account maneuvering and slow speed zones.

2.4 Route Assessment

The following criteria are used to assess the viability of the route and identify risk factors and issues requiring mitigation for safe operation. This information can be utilized to inform the vessel specifications and operating parameters.

2.4.1 Vessel Traffic

a. Commercial Traffic

There is considerable commercial vessel traffic to be encountered on this route year-round. The route runs parallel with the primary north and southbound shipping lanes between the Ports of Tacoma and Seattle that commonly sees deep draft vessels (container, bulk, and tanker), tug and barges as well as fishing and other workboats. Along the northern section of the route (from Brace Point north) a vessel will encounter several crossing ferry routes (Vashon – Fauntleroy, Vashon – Seattle, Southworth – Seattle, Bremerton – Seattle, Bainbridge – Seattle, Kingston – Seattle, West Seattle – Seattle) as well as tug and barges, workboats and deep drafts transiting in and out of Elliott Bay.

b. Recreational Traffic

Puget Sound is very active with recreational traffic of virtually every kind throughout the year, but particularly during the late spring and summer months. Recreational traffic varies from large motor yachts and sailing vessels to small recreational fishing boats and low-profile human-powered craft such as stand-up paddleboards and kayaks. Along the Des Moines to Seattle route all of the above recreational vessels can be expected close in to shore as well as further out, in crossing, head-on and overtaking scenarios. The Des Moines Marina and Elliott Bay both represent popular destinations and departure points for recreational craft and will introduce higher concentrations of traffic.

2.4.2 Aids to Navigation

The route is well marked with both federally maintained and private Aids to Navigation (ATON) from Des Moines to Seattle. In addition, the entire route is covered by the Vessel Traffic Service (Seattle Traffic) that actively tracks and communicates with all commercial traffic (recreational traffic may passively participate).

2.4.3 Navigation Restrictions

Navigation restrictions come in many forms: confined waters, shallow depths, vertical clearances, obstructions and speed and wake restrictions. On the Des Moines to Seattle route the greatest restrictions to navigation are focused at the Des Moines Marina where a vessel will encounter both shallow depths at low tide and confined maneuvering. Along the route, there are no obstructions or vertical clearance limits. There are also no specific speed or wake restrictions but operators must at all times be aware of the effect of their wake, particularly along the eastern shore of East Passage where private boats are commonly moored.

2.4.4 Route Complexity

As far as ferry routes are concerned, the Des Moines to Seattle route is of minimal complexity. While routes inclusive of multiple stops, legs, or routes with challenging navigation can be additionally complex and burdensome to the crew, the Des Moines to Seattle route presents very low risk in this regard.

2.4.5 Weather and Sea State

Focusing primarily on April through September as the season for the pilot project, the following weather and sea state conditions can be expected:

a. Winds

Prevailing winds in the region during the spring and summer months shift between south to southwest and north to northeast.

b. Seas

Corresponding wind swell and seas will develop. Although strong winds in the summer are rare, sustained moderate breezes may develop 2-3 foot seas along the route due to the considerable north to south fetch and possible opposing tidal currents.

c. Currents

Currents in the area are tidal in nature, with the ebb flowing northerly and the flood flowing southerly. A majority of the route is generally on the north – south axis and can either benefit from or fight these currents. Typical maximum currents in East Passage are no greater than 1.5 knots.

d. Fog

The mean number of days per month that experience fog in the region is 8 days during the summer, increasing to 16 days in September. The fog usually occurs in the early mornings and burns off as the day goes on, but can be thick and greatly reduce visibility.

Weather in the fall and winter months introduces stronger winds and corresponding sea states, more frequent restricted visibility from fog, rain and shorter daylight hours. More extreme weather incidents can also occur in the form of winter storms with high winds and building wind waves.

2.4.6 Debris

Debris in the water can pose a risk to the safe navigation of the vessel and its ability to reliably provide service in the short and long term. Debris varies by location; amounts, types of debris, size and seasonality are all factors affecting the navigation of a vessel. In Puget Sound debris is fairly common and can range from small sticks (that can get lodged in waterjets) to large deadheads (that can cause damage to the vessel hull and machinery or serious injury).

2.5 Speed Table

Vessel speed is a critical characteristic that affects the competitiveness of the route, customer satisfaction, operating costs, risk, and reliability. A general rule of thumb is that you don't want to go any faster than you need to. The following speed table is designed to illustrate the total transit times (including maneuvering and slowdowns) achieved at various speeds.

Figure 6: Transit Times at Various Service Speeds

DEPART FROM	ARRIVE AT	DIST (nm)	SPD (kts)	TIME (mins)
Des Moines	Seattle	15.95	18	58
Des Moines	Seattle	15.95	20	53
Des Moines	Seattle	15.95	22	49
Des Moines	Seattle	15.95	25	44
Des Moines	Seattle	15.95	30	38

2.6 Impacts/Summary

This assessment indicates, on the whole, the route between Des Moines and Seattle is fairly straightforward. There are standard risk factors that can be mitigated through available technology and operational procedures.

- Commercial traffic – While the VTS provides an excellent management resource for commercial traffic along the route, the complexity of various types of commercial traffic and potential scenarios of crossing, head-on and overtaking present an identifiable risk to a ferry. This risk can be mitigated through standard best practices of using a well-appointed vessel with a simple yet effective navigation suite, a well-trained crew, good all-round visibility from the wheelhouse and high maneuverability characteristics.

- Recreational traffic – VTS will not provide as much assistance with most recreational traffic and fewer assumptions about vessel intentions can be made. This will require a diligent, well-trained crew with the capacity to add lookouts when deemed necessary, particularly in restricted visibility such as fog.

- Restricted visibility – Since the prospective ferry demonstration is proposed for the spring and summer months the majority of restricted visibility events will be limited. During the longer days of summer, the schedule can avoid nighttime operations and limit early morning departures as incidents of fog increase in September.

- Debris – Debris is always present in various forms in Puget Sound; the risk of short and long-term effects of debris strikes can be mitigated but not completely eliminated. Mitigation strategies include the avoidance of vessels with foils (or other underwater appendages that could be damaged) and propulsion systems that are vulnerable to debris strikes and require extended repair times, and adherence to operating procedures that stress diligent watchkeeping and effective crew training.

3 Regulatory Research

3.1 Overview

The operation of merchant vessels is specialized and complex, governed by comprehensive rules and conventions developed by national and international authorities. Companies operating commercial vessels are heavily scrutinized by various agencies.

There is no requirement for companies to be licensed or certified to operate passenger vessels in domestic trade in the U.S. On the other hand, the vessels themselves and the personnel operating them are inspected and licensed.

For example, U.S. Coast Guard certified vessels undergo initial and periodic inspections and surveys to verify their seaworthiness and compliance with applicable requirements.

Likewise, operating personnel must accumulate specific experience, demonstrate proficiency and attain various licenses and certificates based on their rating in the crew and the size of vessel and route of service.

3.2 Applicable Laws

3.2.1 Federal

In the United States, "laws" pertaining to shipping are found primarily in the U.S. Code (USC). Laws applicable to a domestic ferry system can be found in the following areas:

- Title 14 – Coast Guard
- Title 15 – Commerce and Trade
- Title 29 – Labor
- Title 33 – Navigation and Navigable Waters
- Title 42 – Public Health and Welfare
- Title 46 – Shipping
- Title 49 - Transportation

Laws are commonly translated into regulations that are created and enforced by government agencies. In the U.S., domestic shipping falls under the jurisdiction of the U.S. Coast Guard.

The official "rules" for domestic shipping are contained primarily in the U.S. Code of Federal Regulations (CFRs). The CFRs are expansive, and apply to all manner of regulations being enforced by various U.S. agencies. In the case of domestic shipping, the applicable CFRs include:

- CFR 29 – Labor
- CFR 33 – Navigation and Navigable Waters
- CFR 40 – Protection of the Environment
- CFR 46 – Shipping

While the U.S. Coast Guard is the primary regulator of domestic shipping, including ferry vessels, other entities at times also claim jurisdiction. These federal entities include:

- The Environmental Protection Agency
- The Department of Labor (Occupational Safety & Health Administration)

3.2.2 State

In the State of Washington, laws relating to the operation of commercial ferries (RCW 81.84.070) require a "certificate of public convenience and necessity" be issued to certain

ferry operations.[4] These certificates represent permission by the State for the operator to trade on the State's protected routes and for the State to maintain a level of oversight over rates and service. The Washington Utilities and Transportation Commission (WUTC) issues these certificates and monitors services.

Direct inquiries with WUTC indicate the City of Des Moines is exempt from WUTC rules for this demonstration project. On the other hand, if a private operator were to run this service as the service provider, WUTC approval and a certificate would be required. Obtaining a certificate of public convenience and necessity can be cumbersome.

However, the City of Des Moines can function as the service provide and contract the actual ferry operations out to a private operator and still avoid WUTC oversight.

- ***Therefore, if the City decides to proceed with this project it is recommended the City act as the service provider.***

Laws relating to the operation of the Washington State's ferries and toll bridges are contained in RCW 47.60. Of relevance to this project is the "10 Mile Rule" which prohibits private ferries from operating within 10 miles (when considering both ends of the ferry route) from a State operated ferry route. The WUTC is empowered to grant waivers to the "10 Mile Rule" when it determines such waiver is in the public best interest.

In the end, this is a moot point since the proposed Des Moines ferry demonstration route does not conflict with the "10 Mile Rule" and the proposed service is not envisioned to be operated as a private ferry service.

Additionally, the Department of Ecology and Department of Labor and Industries can have jurisdiction over various maritime activities in Washington.

3.3 Regulatory Summary

- ***The U.S. Coast Guard would be the primary agency with regulatory and inspection jurisdiction over a prospective Des Moines ferry demonstration project. Obtaining U.S. Coast Guard approval is considered a routine undertaking.***

4 Vessel(s), Terminals, and Logistics

4.1 Vessels

Passenger vessel design is a balance of opposing factors. One must start with a clear

[4] WUTC does not issue certificates to other government entities, such as the City of Des Moines, which are exempt.

understanding of the operational mission and then balance factors such as capacity, speed, sea-keeping, and regulatory requirements to develop a complete package that is safe, reliable, and efficient.
Since the requirements of the Des Moines route during the spring and summer are relatively consistent a suitable type or class of vessel for the demonstration project is not difficult to identify. However, sustained year-round service during the winter months makes the selection of a permanent vessel more complicated. Identifying a vessel suitable for year-round operations should be the object of more detailed analysis.

4.1.1 Demonstration Project Vessel

For the prospective ferry demonstration project, key considerations for vessel identification included the following aspects.

a. Service Speed

The vessel needs to be able to run the route consistently at a speed that results in a transit time acceptable to potential rides. In this case, the study team established transit times had to be less than one hour (dock to dock) with time for loading and unloading. This resulted in a minimum service speed of 22 nautical miles per hour.

b. Capacity

The required capacity of a vessel is driven by the anticipated demand for the service. In simple terms, one can expect to pay more for a vessel as its capacity increases. In this case, it is unknown what the actual demand for a demonstration service would be. On one hand, on a warm and sunny weekend there could be well over 100 passengers. On the other hand, on a cloudy midweek afternoon, there could be less than 20. Therefore, the study team chose to consider capacity in terms of regulatory thresholds and identified 46 CFR Subchapter T (150 or less passengers) as the most feasible.

c. Length

The factors that go into determining the ideal vessel length and beam for a given route can be complicated and involve the "balancing" of factors discussed in Section 4.1 above. In the simplest terms, the bigger the vessel, the more capacity and better seakeeping it will have. Generally, a bigger vessel requires more horsepower, fuel, and overall cost. In this case, a key factor is the dock and maneuvering space available at the Des Moines Marina and Seattle central waterfront. The availability of dock space limits the vessel's overall length to less than 85'. However, a more practical size is likely less than 80'. Given the prevailing weather and speed requirements the lower end for overall length is considered to be no less than 50'. Generally speaking a smaller vessel will have diminished seakeeping, passenger capacity, and speed.

d. Hull Design

To achieve the best combination of speed, capacity, seakeeping, length, and efficiency, it is recommended the demonstration vessel be an aluminum catamaran (twin hull) vessel. When compared to a similar sized monohull, catamaran ferries commonly have better payload, better speed to horsepower efficiency, and good seakeeping.

e. Propulsion

Based on the speed requirement (~ 22 knots) and for operational simplicity and reliability, propellers are preferred to waterjets.

f. Passenger Features

The vessel needs to provide consideration for passengers with disabilities and include basic amenities such as washrooms and a concession stand.

4.1.2 Targeted Characteristics for Demonstration Vessel

Speed	22-25 knots	Regular operating
Capacity	49-150 passengers	46 CFR Subchapter T
Length	60-80 feet	
Beam	22-28 feet	
Hull	Aluminum catamaran	
Propulsion	Diesel, twin propeller	
Passenger features	ADA considerations, washrooms, concession stand, areas for viewing.	

4.1.3 Vessel Cost and Availability

As of the date of this report, there are no vessels that fit the targeted characteristics available for sale on the U.S. West Coast.

- ***The cost of new construction for a vessel meeting the targeted characteristics is estimated to be $4.5M - $5M and would take 9-12 months to construct from the date of order.***

It is not practical to consider purchasing a ferry vessel for a demonstration project. Therefore, the real issue is identifying a vessel that meets the targeted characteristics that can be chartered (leased) for the duration of the project. In general, a short-term bareboat charter (vessel only with no crew or operating costs) on an annualized basis will

run between 18% - 22% of the fair market value of the vessel. Charters are typically priced in monthly increments.

- ***The bareboat charter cost for a vessel meeting the targeted characteristics is estimated to be $41.5K - $83K per month.***

The Study Team could not identify any ferry vessels immediately available for charter in the Puget Sound region. However, conditions for vessels are constantly changing. It is also possible to expand the vessel search area to include the West, Gulf, and East coasts.

A number of vessel charter leads were identified by the Study Team and can be more fully pursued if the City decides to move forward to the next stage of project development.

4.2 Terminals and Docks

Identifying suitable terminals and docks is often the greatest challenge for a new ferry service. Commonly, the terminals and docks are owned by landowners, developers, or local municipalities and are accessed under a lease or landing agreement.

As the critical interface between the vessels and shoreside, docks must be adequately designed and constructed to accommodate vessel mooring forces and safely transfer passengers to and from the shore terminals and queuing areas.

The study team considered various factors during its investigation of suitable terminals and docks for the prospective demonstration project. Factors considered included:

- Water depth
- Exposure (to weather, waves, currents, wakes)
- Dimensions and construction
- Dock hardware and fendering
- Lighting and utilities
- Accessibility (for individuals with mobility impairment or disabilities)
- General safety
- Proximity to transit and user amenities
- Ownership and use agreements

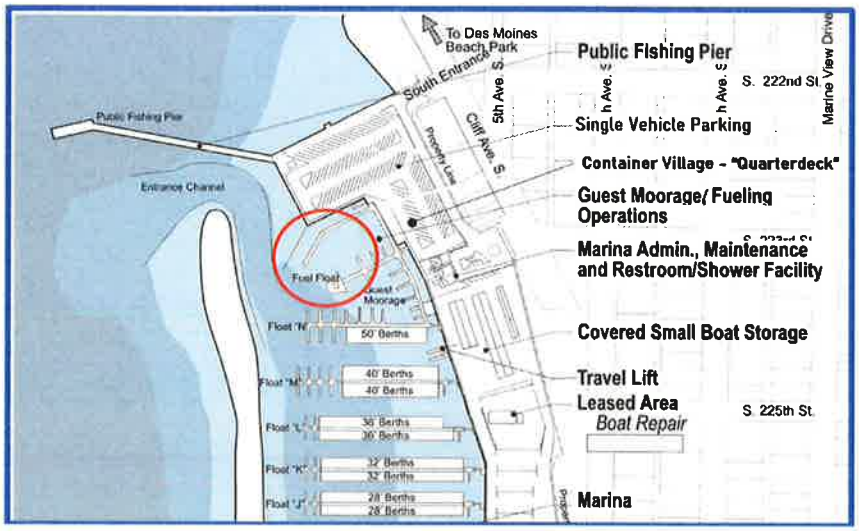
4.2.1 Des Moines Ferry Landing

For the prospective ferry demonstration project the terminal location in Des Moines is well suited. The City of Des Moines controls its marina and a suitable ferry landing could be established at the western end of the north guest dock (across from the fuel float).

In fact, the Des Moines facility drives what vessels could be used for the ferry demonstration project. Improvements to mooring cleats and the placement of a passenger loading ramp would be required, but these are considered standard improvements.

- ***With these improvements, the Des Moines facility adequately satisfies all factors identified above.***

Figure 7: Des Moines Marine proposed ferry landing area



4.2.2 Seattle Ferry Landing

Using the factors identified in Section 4.2 above, the Study Team considered potential docks from Pier 54 to Pier 70. In the end, four locations were identified as suitable landing locations.

- Pier 57 - (privately owned and controlled)
- Pier 62 - (publicly owned and controlled)
- Bell Harbor Marina - (publicly owned and controlled)
- Pier 69 - (publicly owned, subcontract through private operator)

Figure 8: Seattle Central Waterfront

It is outside the focus of this Scoping and Reconnaissance Report to pursue terminal or operating agreements. Nonetheless, it became apparent to the Study Team the landing site with the greatest potential for use for a prospective demonstration project is located at Pier 57. This facility is privately-owned (which reduces potential "red-tape"), and is located at the heart of the Seattle central waterfront. This site has a new landing dock, has numerous passenger amenities and attractions (Seattle Great Wheel, Wings Over Washington, the Carousel, restaurants), and presently serves as the homeport for Salish Sea Tours.[5]

- ***A number of suitable landings exist along the Seattle central waterfront and it is believed an acceptable use agreement can be established for the ferry demonstration project.***

4.3 Logistics

Logistics associated with the prospective demonstration project include: fuel, fresh water, sewage pump out, rubbish disposal, maintenance and repair, oily waste disposal, and night moorage.

Because of the facilities that already exist at the Des Moines Marina, all of these items can be addressed there. Further, these items can also be provided to varying degrees at the potential landing sites identified in Section 4.2.2 above.

[5] Salish Sea Tours utilizes aluminum catamaran vessels with characteristics that fall within the ranges targeted in this report. It is possible that these vessels could be utilized for the demonstration project, but further investigation outside of this report is required.

5 Fare Research and Strategy

The fares charged during the demonstration project are likely to be different than those that would be charged for a permanent operation. Arguably, part of the purpose of the demonstration project is to understand how rates influence demand.

To better understand the existing market, the Study Team considered passenger fares for other local services.

Figure 9: Summary of Local Passenger Fares

Entity	Route	Type of Service	Amount
Washington Department of Transportation (WSF)	Seattle to Bainbridge	Public Transits (passenger)	$9.05 (roundtrip)
Kitsap Transit (Kitsap Ferry)	Seattle to Bremerton	Public Transit (Passenger)	$12 (roundtrip) $2 east + $10 west
King County Metro (King County Water Taxi)	Seattle to West Seattle	Public Transit (Passenger)	$11.50 (roundtrip) $5.75 ea.
King County Metro (King County Water Taxi)	Seattle to Vashon	Public Transit (Passenger)	$13.50 (roundtrip) $6.75 ea.
Clipper Navigation (FRS)	Seattle to Friday Harbor (San Juan Island)	Private (WUTC regulated)	$131.60 (round trip)
Argosy Cruise Fast Ferry to Blake Island	Seattle to Blake Island	Private	$29 (roundtrip)
Salish Sea Tours	Excursion Seattle to Seattle no stops	Private	$30 tour

The Study Team also considered the work completed by Diedrich RPM as well as other ferry demonstration projects conducted in the past to identify a base fare that would be suitable for the prospective project.

- ***The Study Team proposes a base fare of $14-$22 (round trip) be considered for the prospective project.***

A 20% discount for children, seniors, and other possible categories should be considered, and infants should ride free.

Additional promotions (such as 2 for 1) could be activated during the demonstration project and utilized to ascertain the price sensitivity of demand.

Should the City elect to proceed to the next stage of development, this topic can be further refined.

6 Budget Modeling

A concept budget was developed for the prospective demonstration project and a number of operating scenarios were considered. The key cost factors for the project are: vessel lease, fuel, crew, and operating schedule. Next is maintenance and repair, insurance, moorage and landing fees. Project and operations management, as well as administration costs need to also be considered.

6.1 Operating Costs

A 6-month ferry demonstration project is conceptually estimated to cost between $941,566 and $1,572,949 depending on the vessel, terminals, and operating schedule. The cost of diesel fuel at the time of the project will be a major factor in the final cost.

6.2 Planning

The Operating Costs (above) do not include non-operating project planning activities which are estimated to cost between $57,750 and $68,250.

6.3 Marketing and Communications

Marketing and communications implementation costs are not addressed in these estimates, but could easily run $50K - $75K.

6.4 Fare Box Recovery

The estimated costs above do not account for farebox recovery, sponsorship, or other revenue sources that could provide offset revenue.

Net farebox recovery is estimated to range between $102,102 and $291,720

6.5 Project Budget

A conclusive project budget cannot be finalized until more specific details of the project are established. These include:

- Vessel
- Operations strategy (based on the selection of an operator)
- Operating schedule (days per week, hours per day)
- Seattle dock location
- Cost of fuel
- Insurance requirements
- Marketing program costs
- City administrative costs
- Farebox recovery and other revenue source

7 Findings and Recommendations

7.1 Findings

At the conclusion of scoping and reconnaissance activities the Study Team can summarize its findings as follows:

Feasibility

There are no impediments to a Des Moines ferry demonstration project that can't be resolved through normal approaches.

Route

The route between the Des Moines Marina and Seattle central waterfront presents no extra ordinary hazards – particularly during the summer months.

Regulatory

The U.S. Coast Guard would be the primary agency with regulatory and inspection jurisdiction over the project.

A Washington Utilities and Transportation Commission (WUTC) certificate of public convenience and necessity is not required provided the City of Des Moines were to be the service provider.

Vessel

Vessels that meet the targeted characteristics for the prospective project are relatively common.[6] It will be necessary to secure a specific vessel before a demonstration project can proceed. The market availability of vessels is constantly changing, therefore this should be an area of focus if the City wishes to proceed to the next stage of project development.

Seattle Landing Site

A number of suitable landings exist along the Seattle central waterfront and it is believed an acceptable use agreement can be established for the ferry demonstration project. The site with the greatest potential is located at Pier 57.

7.2 Recommendations

Assuming the City wishes to investigate the merits of establishing a ferry service between the Des Moines Marina and the Seattle central waterfront, the Study Team recommends the City progress to the next stage in the development process.

Follow-on activities include:

- Engage in more detailed discussions with dock owners about dock use.
- Engage in more detailed discussions with vessel owners about bareboat charter and turn-key service agreements.
- Establish a strategy on how the service should be operated.
- Develop a detailed operating plan and budget based on the outcome of the preceding items.

[6] While not currently available for sale or lease, Great Western Attractions (the owners of Pier 57) have two passenger vessels that satisfy the targeted characteristics for a demonstration project ferry. While outside the scope of this report, preliminary reconnaissance indicates a willingness to explore charter.

Des Moines Scoping and Recon
Summary of Project Model - Phase 2
as of: 8/31/21

Operations Expenses	**Low**	**High**
Mobilization	$ 24,250.00	$ 24,250.00
Operations	$ 909,566.33	$ 1,491,538.55
Demobilization	$ 7,750.00	$ 7,750.00
Total Expenses	**$ 941,566.33**	**$ 1,523,538.55**
FareBox Recovery (net of commissions)	**$ 102,102.00**	**$ 291,720.00**
Operations Expenses in Excess of Revenues	**$ 839,464.33**	**$ 1,231,818.55**
Administration and Marketing Expenses		
Phase 2 Planning	$ 57,750.00	$ 68,250.00
City Administration	$ 50,000.00	$ 75,000.00
Marketing	$ 50,000.00	$ 75,000.00
Total Admin and Marketing Expenses	**$ 157,750.00**	**$ 218,250.00**
Total Expenses in Excess of Revenues	**$ 997,214.33**	**$ 1,450,068.55**