DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES
Alaska Marine Highway System
20-Year Fleet Modernization Plan: White Paper
February 25, 2022

Executive Summary:

The purpose of this effort is to identify possible actions the AMHS may take in light of current and future fiscal challenges and take into account the recommendations by the Reshaping Work Group. The actions and recommendations suggested in this paper are intended to create a marine highway system that serves Alaskans most efficiently and effectively using existing capital resources. This plan also recommends adjustments to capital assets to increase efficiency reliability, reduce redundancy, and provide affordable marine transportation service for individuals and our state.

DOT&PF/AMHS presents this plan to better leverage the system for the near, mid, and long-term future. This plan reduces the current fleet of 12 ships down to six ships in 20 years. The most crucial factors of this plan are adding crew quarters on the two new Alaska Class Ferries (ACFs) and building two new vessels to replace current vessels that are 50-60 years old. Under this plan, AMHS will be able to decrease State GF appropriations by $91.7M over the next five years, $283.2M over the next ten years, and $719.2 over the next 20 years as compared to the FY 2021 Authorized Budget. Additionally, the system's maintenance costs over the past ten years have been $439.4M. If the current fleet remains without replacement, maintenance costs are projected to exceed $741.0M over the next ten years and $1.7B over the next 20 years. By then, several vessels will be nearly 80 years old and will likely be deemed unsafe to operate. Incorporating the recommendations in this plan will increase farebox recovery rates and reduce AMHS's annual operating budget State General Fund needs to $35-50.0M per year. AMHS Operating Plans will be consistent and reliable while maintaining close to 240 weeks of service and over 4,000 port calls annually. Time is of the essence with this plan. The sooner the plan is implemented, the sooner cost savings can be realized.

Assumptions for this analysis:

1. AMHS central office staff has been moved into the current Marine Engineering building in Ward Cove. This creates annual savings to the state of $0.5M.
2. Fairweather and Chenega have been disposed of and sold for $5.6M.
3. The Malaspina will be disposed of. Selling or disposing of Malaspina will save $0.5M per year in layup costs.
4. Crew quarters would be added on both Alaska Class Ferries. Crew quarters make them new ships equivalent in function to the LeConte and Aurora. This will give AMHS much more flexibility in the operating schedule while increasing capacity and revenues and reducing operating costs. Hubbard is undergoing construction for crew quarters; Tazlina crew quarters have not been funded.
5. The Aurora will be retired and put into an unmanned layup until it can be disposed of. This will eliminate the need for Aurora's $25.0M engine repower federal project. The LeConte could be maintained as a "backup" vessel to cover mechanical failures or service gaps due to required annual vessel overhauls.

6. Kennicott and Columbia will continue to provide mainline service, and the Kennicott will continue cross-gulf. The Matanuska will be retired after the Columbia CPP project is complete; a new mainliner could eliminate the need to complete the potentially $30-40M Matanuska dead-end corridor repair.
7. The Tustumena will be replaced with a new vessel, the TRV. The RFP for a CMGC contract will be released in March 2022.
8. A new mainliner will replace the Columbia, and she will be disposed of after the new mainliner is built.
9. Cost of SOLAS compliance in new Tustumena Replacement Vessel construction and operation needs to be evaluated. It is currently being designed as "SOLA ready."
10. The federal project for the new Haines dock will no longer be needed.
11. Dock modifications will be needed in Chenega Bay, Pelican, Cordova, and possibly Tatitlek (if contracting isn't preferred) to accommodate the ACFs.
12. A new dock at Cascade Point will be built.
13. Service to Tatitlek will be outsourced (unless dock modifications are completed). Other ports will also be evaluated for efficiencies achieved by outsourcing.
14. The proceeds from selling the Malaspina, Fairweather, Chenega, LeConte, Aurora, Columbia, and Matanuska will be put into the Vessel Replacement Fund and will be used to build a new vessel. This will reduce the amount of funds the State will need to provide for the "State Match" portion of the new construction.
15. Passenger services on the vessels will be outsourced.
16. A vessel replacement schedule will be implemented to replace vessels every 30-35 years. This will reduce ongoing maintenance costs and allow those vessels to be sold and all proceeds used to cover the state match portion of the replacement vessel built with federal funding.

Financial Analysis:

1. Adding crew quarters to the ACFs will cost approximately $32.0M. This could be accomplished using federal funding). This funding is already programmed in the STIP over the next two years.
2. The total cash outflows (operating and capital, including new build costs) of this plan over the next ten years is projected to be $1,179.8M; 20 years is projected to be $2,162.8M. The total cash outflows (operating and capital) of continuing with the current fleet, and not building new vessels, is projected to be $1,328.0M; 20 years is projected to be $3,275.0M. The total 10-year operating and capital cost savings to the State of modernizing the fleet is $148.2M; 20 years is $1,112.2M.
3. Replacing the Matanuska would eliminate the need for a required $36.5M federal project within the next five years to fix the dead-end corridors on the Matanuska.
4. Retiring the Malaspina, Fairweather, LeConte, Aurora, Columbia, and Matanuska will reduce annual overhaul expenditures by $7.0M. This will be offset slightly with the cost of overhauling the new ACFs each year; however, the new ACFs should only need annual work done to meet COI requirements for $0.6M. The net savings in GF capital funds will be $6.4M.
5. The Malaspina, Fairweather (sold), Chenega (sold), LeConte (if not kept as a "backup" vessel), Aurora, Columbia, and Matanuska will be disposed of or sold. A portion of federal funding that was used for projects on these vessels may need to be repaid; however, if FHWA and FTA allow

AMHS to follow the same process as when the Taku was sold, the sales proceeds from these vessels will all be put into the Vessel Replacement Fund and put toward building a new vessel for AMHS. These funds could be used for the state match portion of the new vessel. This will save the state a projected $28.0M in GF appropriations.

6. The reduction of the Columbia's crew to the level equivalent of the Malaspina during the 26-week summer season will reduce annual operating costs of approximately $2.4M per annum.
7. Operating one of the ACFs in Lynn Canal and the Northern Panhandle during the summer instead of an ACF plus the LeConte will save the State an additional $4.2M. When the Cascade Point project is complete, they can operate on the shorter Lynn Canal route from Cascade Point while also running longer routes to Angoon and Hoonah. Without crew quarters, an ACF will not make the round-trip from Cascade Point to these ports in a 12-hour day.
8. The Haines dock modifications will no longer be needed to accommodate the ACF bow doors for $25.0M.
9. The new dock at Cascade Point will cost a projected $27.0M.
10. Operating the second ACF in Prince William Sound instead of the Aurora would save the state $1.0M annually.
11. With crew quarters on the ACFs, the vessel operating hours per day could be increased, decreasing the need for hurried port calls in Haines and Skagway. With more time available in the schedule, the ACFs could utilize the current Haines and Skagway docks and add a port call in Haines on each round trip in Lynn Canal. This would increase capacity and revenues in Lynn Canal.
12. Since the Aurora will be retired, the repower project on the Aurora will not be needed. This will save $25.0M in federal funding.
13. The necessary dock modifications to accommodate the ACFs in Chenega Bay, Pelican, Cordova, and possibly Tatitlek will cost approximately $20.0M of federal funds.
14. Outsourcing Passenger Services (dining and cabins), similar to what was done by Washington State Ferries (WSF), will result in further GF savings to the state. In FY2018, wages and benefits for onboard passenger services were $17.5M. The cost of food and other items sold was $2.6M. Laundry services cost $0.9M per year, for a total passenger services cost of $21.0M. Revenues generated by passenger services were $8.7M. The net loss of $12.3M would be eliminated and save the State $12.3M in GF funding. AMHS management has had discussions with Washington State Ferries on this concept and could continue these discussions to develop a transition plan.
15. Replacing a vessel every 30-35 years would not cost the additional state funds, as a vessel would be sold to cover the cost of the state match for a new vessel. However, annual operating and capital cost savings would be realized due to having a consistently modern fleet of vessels that would not need expensive annual overhauls and maintenance.

New Construction:

1. The new Tustumena Replacement Vessel (TRV) will replace the existing Tustumena. Construction could begin in 2023, with a completion date in 2027-2028. This vessel will also provide cross-gulf service and run some SE routes if needed.
2. The next vessels to be retired will be the Columbia and Matanuska. This new mainliner vessel could begin in 2024, with a completion date in 2028-2029. The proceeds from the sales of the

Malaspina, Fairweather, Chenega, Aurora, Columbia, and Matanuska will be put into the Vessel Replacement Fund and used to offset the cost to the State for building the new vessel. The new mainliner to replace the Columbia and Matanuska will primarily be built with federal funds and increase the system's operating efficiency. No docks will need to be reconfigured to accommodate this new vessel.

3. The Kennicott will be replaced and retired in another 10-15 years. This vessel is currently 23 years old, but finding replacement parts and equipment is already difficult. Construction on a new vessel to replace the Kennicott could begin in 2030, with a completion date of 2034 using federal funds. This vessel will further reduce operating costs for the system while increasing revenues due to a higher carrying capacity than the Kennicott. No docks will need to be reconfigured to accommodate this new vessel.

The design for the Columbia, Matanuska, and Kennicott replacement vessels will be based on the current Tustumena Replacement Vessel (TRV) design. Modifications will need to be made to the TRV design to accommodate the needs in Southeast Alaska and cross-gulf routes, but using the TRV design will save $10.0M in design costs for each vessel for total design savings of $30.0M. Using the TRV design for these three new vessels will also increase fleet standardization for AMHS, which will increase efficiency, flexibility, and reliability within the Operating Plans. Building new vessels will also decrease annual overhaul costs that continue to increase due to aging vessels and rising steel prices.

State General Fund Summary:

This fully implemented recapitalization plan will reduce AMHS' annual GF need by $27.2M per annum ($20.8M operating expenditure reduction and a $6.4M reduction in capital expenditures) compared to the FY 2021 Authorized Budget. The GF savings of $27.2M per year will continue into the future. Please note that this amount does not consider any additional savings that could be realized through renegotiations of Collective Bargaining Agreements. The State will also save an additional $28.0M (due to the sale of the Malaspina, Fairweather, Chenega, LeConte (if not retained), Aurora, Columbia, and Matanuska) in "State Match" funds needed to build a new vessel.

Reducing expenditures and increased revenues will increase AMHS's operating cost recovery percentage while increasing flexibility reliability and reducing service gaps. The risks to this plan, like any plan, are mechanical failures and more prolonged than expected overhaul periods, however, replacing aging vessels with new vessels will mitigate much of this risk.

Federal Fund Summary:

The need for federal funding will be reduced except federal funding for new vessel construction. Under this plan, the Aurora repower project, the Matanuska dead-end corridor project, and the Haines dock project will not be needed. The total savings of the elimination/reduction of these projects will save $86.5M in federal funds. The additional dock modifications in various ports to accommodate the ACFs will cost approximately $20.0M (without Tatitlek), crew quarters on the ACFs will cost $32.0M, and the Cascade Point dock will cost $27.0M. The net result is a savings of $7.5M in federal funding. This funding

could be re-appropriated for other projects within the Department or be put towards constructing a new replacement vessel.

Overall, when this plan is fully implemented, the State will save $27.2M annually in General Funds and a total of $7.5M in federal funds. Once the crew quarters are added to both vessels, there will be limited service gaps to any Alaskan ports throughout the year. Additional operating cost savings will be realized in the future as newer, standard vessels, which are more efficient and less costly to operate and maintain, are built and operated. Operating Plans will be consistent and reliable while maintaining close to 240 weeks of service and over 4,000 port calls annually. Time is of the essence for this plan. To realize the full benefits, it needs to be implemented expeditiously.

Please note: This is a long-range plan and may take several years to implement, pending approval.

Additional Revenue and Cost Considerations:

1. DOT&PF/AMHS has now leveled all tariffs system-wide and implemented dynamic pricing. This will further increase revenues. Port surcharges have also been added for ports that charge AMHS for services per port call. Additional revenue enhancements to be considered are charging "pet" fees system-wide, increasing the unaccompanied vehicle fee, and reducing discounts for senior citizens and youth groups. Despite the increased revenue, the continued use of Dynamic Pricing is under evaluation.
2. A decision that could be made independently of this plan is to keep the LeConte in operational condition as a "spare" vessel. The financial impact of this is as follows:
    - To keep the LeConte operational, her annual COI and overhaul work/inspections would still need to be performed at the cost of approximately $1.0M per annum. If the decision was made to use this vessel to cover the gaps in service caused by the annual ACF overhauls, another $1.2M of General Funds will be needed in the operating budget.

Reshaping Work Group Recommendations:

1. **Forward fund two or more years –**Forward funding allows a schedule to be put out well in advance and increases revenues and reliability of the system. This is currently being done.
2. **Approaches to reduce costs but continue ferry services include eliminating vessels, downsizing the fleet, reducing operating days, increasing system flexibility, reducing service frequency –** This plan does all these things recommended by the Work Group. Annual operating budget GF needs will be reduced from $54.0M Authorized in FY2021 to $35.3M by FY2026. GF capital needs will also be reduced from $15.0M to $8.0M per year while increasing flexibility and reliability at the same time.
3. **Promptly sell for scrap or give away the Fairweather, Chenega, and Malaspina –** These vessels will be scrapped or sold under this plan, along with the LeConte (potentially) Aurora, Matanuska, Tustumena, and Columbia over a five to ten year period. Proceeds from the sales of these vessels could offset the costs of building the new vessels.

4. **Cascade Point terminal –** The Work Group report recommended a terminal be built at Cascade Point, stating that ACF crew quarters would not be needed with this terminal. However, if AMHS were to reduce its UGF need to roughly $35.0M, the budget would not provide enough funding to operate one vessel solely in Lynn Canal. This one vessel would also need to cover SE Alaska's villages, which would require longer runs and crew quarters on the ACFs. One ACF would also need to cover PWS, which would be much more expensive to operate if there were no crew quarters on the ACF covering that region.
5. **Lower GF fund needs by $18.0M-$22.0M over the next 3-4 years –** This plan would reduce operating GF needs by $20.8M and GF capital needs by $6.4M in the next five years, for a total annual GF reduction of $27.2M as compared to the FY2021 Authorized Budget.