

# Draft Scope Vessel Phase II Study

## Legislative Direction

Joint Transportation Committee to make recommendations regarding the most efficient timing and sizing of future vessel acquisitions beyond those currently authorized by the legislation (section 205 (1)(c)(i)).<sup>1</sup>

## Proposed Scope

### 1. Vessel Life Assumption

The *Auto-Passenger Vessel Preservation and Replacement Study*, January 2008 noted that the Ferries Division (“Ferries”) of the Washington State Department of Transportation (WSDOT) plans for a 60-year vessel life. Since completing the *Vessel Preservation and Replacement* study questions have arisen as to whether, in light of changing technologies and fuel prices, it is a good business decision for Ferries to plan for such a long vessel life. The question is whether it is more cost-effective for Ferries to plan for a 45-year or 30-year vessel life and not incur the preservation costs needed to keep a vessel in active service for 60 years.

The *Washington State Ferries Financing Study* January 2007 included a review of previous studies related to vessel preservation and life cycle planning that will be referenced in this review: *Report on the Management of Vessel Refurbishment Programs*, Legislative Transportation Committee, 1991 (Booz Allen & Hamilton Inc. and M. Rosenblatt & Son, Inc.); and *Department of Transportation Ferry System Performance Audit Report 98-6*, Oct. 6, 1998 Booz-Allen & Hamilton, Inc. for Joint Legislative Audit and Review Committee (JLARC).

This review will include:

- a. **Considerations in Vessel Life Planning:** Elements to be considered when determining the optimal life for a vessel will be reviewed. Vessel life planning assumptions and considerations by commercial, military and other ferry planners will be considered.
- b. **Cost-Benefit Planned Vessel Life:** A determination of the capital acquisition, capital preservation and operating cost implications of 30-year, 45-year and 60-year vessel life assumptions.
- c. **Recommendations on Vessel Life Assumptions:** Recommendations on the optimal vessel life to assume in future fleet planning.

### 2. Out of Service Time – Relief & Standby Vessels Required

As discussed in the *Auto-Passenger Vessel Preservation and Replacement Study*, January 2008, a key driver of fleet size is out of service time. Ferries’ planning assumes an average out of service time per vessel of six to eight weeks per year. Improving fleet

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<sup>1</sup> The legislation refers to the authorization of new 144-car vessels.

efficiency by reducing out of service time will reduce the number of vessels needed to provide a given level of service. Specific issues to be addressed include:

- a. **Dry Dock Space** - How can Ferries gain greater control and flexibility in scheduling dry dock time? The study will include:
  - i. **Review of dry dock space and competition in Puget Sound and Washington State.** This phase of the study will provide information on the business environment within which Ferries competes for available dry dock space.
  - ii. **Options to Improve Dry Dock Availability for Ferries:** Options to be reviewed include: 1) partnerships with existing shipyards that might increase the availability of drydock space for Ferries; 2) use of the graving yard being constructed by the Washington State Department of Transportation at Grays Harbor; and 3) contracting alternatives.
- b. **Vessel Preservation/Dockside** – How can Ferries reduce time spent in dockside repairs such as painting and other preservation activities? The study will include:
  - i. **Review of existing preservation contracts (dockside and dry dock).** This phase of the study will review contracts currently entered into by Ferries with shipyards for dockside and dry dock service. Dockside preservation time at Eagle Harbor will also be reviewed.
  - ii. **Recommended contract modifications.** This would include a cost-benefit analysis of whether paying yards overtime or other charges to reduce out of service time would be a cost-effective approach to fleet management.
- c. **Repairs Underway** – The *Auto-Passenger Vessel Preservation and Replacement Study* recommended that Ferries consider undertaking more preservation work while the vessels are underway or tied up for the evening. WSDOT agreed with the recommendation noting certain caveats. This study will examine by route and by type of vessel what work can be done while the vessel is underway or docked to reduce out of service time.
- d. **Standards for Out of Service Time:** The report will provide recommendations on planned out of service time for fleet planning based on implementation of recommendations to reduce out of service time. Consideration will be given to both operating and capital expenses.
- e. **Relief and Standby Vessel Requirements:** The report will include recommendations on the number and type of vessels required for relief and standby purposes based on the revised out of service times and allowance for emergency replacements.

### 3. Deployment and Scheduling

A key component of fleet planning is the deployment assumptions. This review will examine Ferries proposed deployment plan and provide a framework for on-going legislative review of deployment assumptions. Areas to be addressed include:

- a. **Fleet Utilization:** Fleet planning has been constrained by assumptions about the cost benefits of extending service outside the eight hour minimum shift required in Ferries' labor agreements. If these and other assumptions are lifted, the level of service that could be provided with the existing fleet would be increased. This review will look by route at the assumptions that affect fleet deployment and provide a cost benefit analysis of these assumptions.
- b. **Schedule:** Service and schedule reductions have been made in response to the loss of MVET funding. This review will assess the costs and benefits of re-instating these service cuts with the existing fleet.
- c. **Extra Runs:** Due to the eight hour rule discussed above, Ferries has not added runs during peak periods. This review will assess the feasibility, costs and benefits of adding additional runs during peak periods given the eight hour rule requirements.
- d. **Ferry Fleet Planning Simulation:** There are computer models available to support ferry fleet planning. The consultants will review any simulation models used by Ferries, comment on their effectiveness and make recommendations on acquiring a simulation model for future fleet planning.

### 4. Vessel Sizing

The review of vessel sizing will be conducted in coordination with Ferries' service planning. The revised ridership forecasts, vehicle level of service standard and operational and pricing strategies will provide a basis for determining the number and size of vessels.

This review will provide a summary of reasonable vessel options to meet Ferries future needs. Considerations will include:

- a. **Fleet Analysis** – What is needed to meet projected fleet needs in terms of capacity and scheduling?
- b. **Criteria for Vessel Assignment** – Ferries has used the cost of operations divided by the total auto capacity as a key measure in comparing vessel options. The consultants will review what other measures could be used to inform fleet planning and provide recommended measures.
- c. **Design Features** – Variables to a standard ferry design will be reviewed. For example, many ferry operators, having seasonal or route based changes to the auto / truck mix, have installed flip up, or hoist-able, auto decks to give them the flexibility to achieve the maximum return from their fixed asset no matter where, or when, it is used. Similarly, shorter

144 auto capacity vessels would be possible (as short as a little over 300 feet) with movable auto decks. Shorter vessels would be less costly to build and would, with the proper proportions, require less power to operate.

- i. **Proportions** - The efficiency of a vessel's hull form is related to the ratio of the length of the vessel to its width, or beam. The relationship is the length to beam (L/B) ratio, higher ratios are more efficient. In light of rising fuel prices, vessels should be longer and narrower to be more fuel efficient.
- ii. **Systems** – The study will review key systems including rudder, fuel tank, Hi Fog Fire Protection System, and others.