



WSF FINANCING STUDY PHASE II

AUTO-PASSENGER VESSEL PRESERVATION AND REPLACEMENT

**Joint Transportation Committee
January 10, 2008**

Cedar River Group
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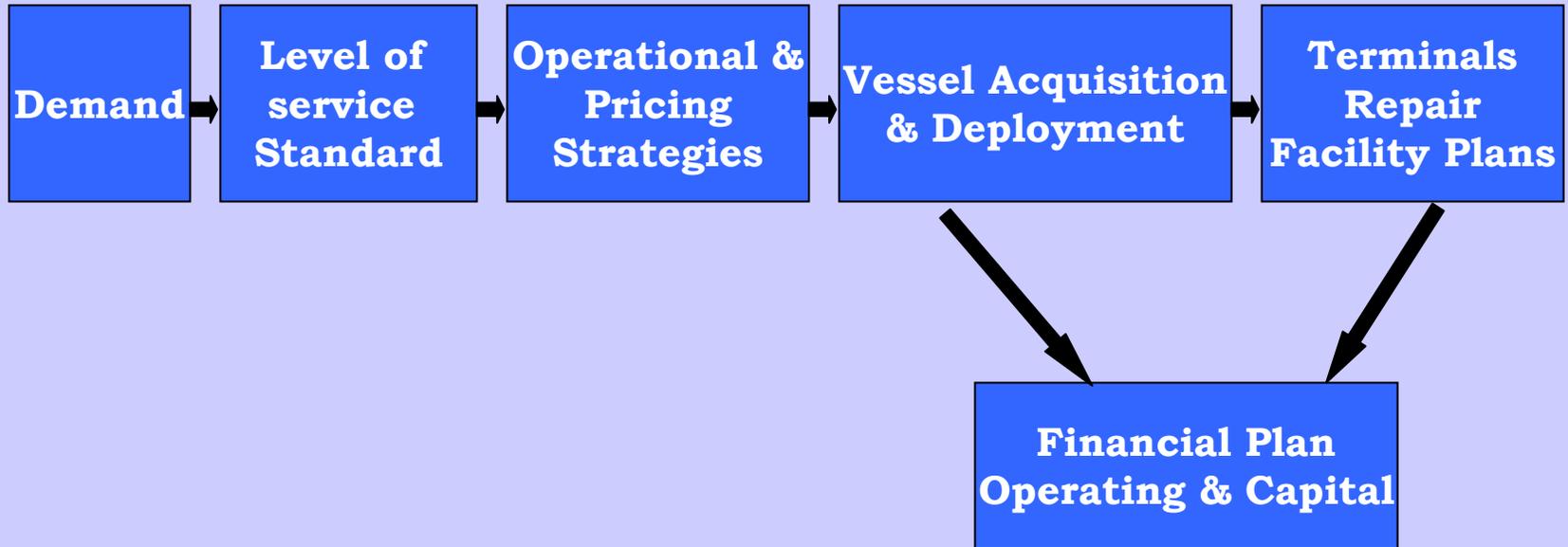
Legislative Direction: Budget Provisos

- Review vessel preservation costs
- Make recommendations regarding the most efficient timing and sizing of future vessel acquisitions beyond the currently authorized four new 144-car vessels

ESHB 2358

- WSF required reviews of demand, vehicle level-of-service standards, and operating & pricing strategies underway
- Recommendations based on existing operations & ridership
- Additional vessel sizing and acquisition reviews in 2008
- Address core questions raised by this study:
 - What fleet size is needed to meet projected service requirements?
 - How can the fleet be most efficiently deployed with minimum out of service time?
 - What is the logical sequencing of additional vessel replacement and additions to fleet capacity?

Ferry Finance Model



Fleet

24 Auto-Passenger Ferries

21 are active (16 assigned to a route/5 on maintenance relief at least part of year/ 1 on all year maintenance)

3 are inactive (de-crewed/no preservation funding)

Fleet Classes: 6 classes & 2 miscellaneous vessels

4	Steel Electric Class	1927
1	Misc. Rhododendron	1947
3	Evergreen State Class	1950s
4	Super Class	1967
1	Misc. Hiyu	1967
2	Jumbo Mark I Class	1972
6	Issaquah Class	1980s
3	Jumbo Mark II Class	1990s

72% of riders on vessels that are 40 years old or newer

Active fleet auto capacity: 2,672

Vessel Condition

Life Cycle Cost Model (LCCM) Rating: Active Vessels

- All, except Hyak, at or near performance goal through 2021-23

Steel Condition

- Not measured in LCCM
- Audio-gauging
- WSF audio-gauges 10 years after major renovation/construction
- After first 10 years, audio gauge every 5 years
- WSF needs intensive program – 60 year service life goal

Steel Electrics & Rhododendron - Built 1920s and 1940s

- Steel Electric steel deterioration – pulled from service Nov.
- Rhododendron in service – has concrete similar to Steel Electric

Evergreen State Class Vessels - Built 1950s

- Two in good shape
- Evergreen State – inactive normally – needs new control system

Vessel Condition

Super Class Vessels – Built 1960s

- Hyak – not rebuilt with others – 40 years old – may merit rebuild

Jumbo Mark I Class Vessels – Built 1970s

- Good condition

Issaquah Class Vessels – Built 1980s

- Re-build dates addition of a 2nd car deck – except Sealth

Jumbo Mark II – Built 1990s

- Excellent Condition

Hiyu

- Inactive – but in good condition
- Smallest at 32 cars

Out of Service Time

WSF System Planning: Assumes 6 to 8 weeks per vessel per year

Six Year Period for Planned Preservation Only

- Average two boats per day out of service (active fleet)
- Average out of service days in the summer – 117 per year
- Does not include additional out of service days at Eagle Harbor
- Does not include emergency repairs

Why Important

- *Affects fleet size – # of vessels needed for a given service level*
- Customer inconvenience
- Revenue – particularly in summer out of service periods

Recommendations

1. **Three Active Steel Electrics and Rhododendron**

Replacement top priority in WSF capital program

Consider expedited procurement process – especially for Keystone

2. **Consider Rebuild of the Hyak to Achieve 60 Year Service Life**

Currently planned for retirement with 3rd new 144-car vessel @ 45 years

3. **Reduce Planned Out of Service Time**

Shipyard contracts

Preservation work while underway (cruise line approach)

4. **Maintenance & Preservation**

Institute a bilge & void maintenance program

Institute a visual inspection/audio gauging program on older vessels

Institute an integrated coating (painting) program

Consider standardized cabin maintenance materials

Provide preservation funding for inactive vessels or retire

Vessel Replacement

- Projected retirement dates should be the driver for the vessel preservation & maintenance program
- WSF must replace 18 of its 21 active vessels in 36 years – 77% of existing capacity

WSF Vessel Replacement Planning

- Assume 60 year service life
- Rebuild at 30 years (45-75 systems) except Issaquah class
- Actual experience – older vessels delayed

Steel Electric near 60 when rebuilt/Rhododendron 44

Four New 144-car Vessels Deployment Plan (Oct. 2007)

- 1st vessel – retires 1 active Steel Electric
- 2nd vessel – retires Rhododendron
- 3rd vessel – retires inactive Evergreen State
- 4th vessel – retires Hyak /Elwha inactive state except summer
- Add 12% auto capacity summer/7% rest of year

Vessel Replacement Need

- 18 vessels of 21 active– 36 years – 77% of existing capacity
 - Immediate – 4 (3 Steel Electric, Rhododendron)
 - 2022-28 – 2 Evergreen State (capacity 87 vehicles)
 - 2025-33 – 4 Super (capacity 144 vehicles)
 - 2031-37 – 2 Jumbo Mark I (capacity 188 vehicles)
 - 2037-44 – 6 Issaquah (capacity 202 vehicles)

WSF Vessel Replacement Planning – 10 Years

- New 144 car procurement – 2002 session

Relationship of Vessel, Terminal and Shoreside Improvements

- Inter-related
- Keystone-Port Townsend

Recommendations

1. Develop Consistent and Legislatively Reviewed Vessel Rebuild/Replacement Plan

- Projected retirement dates
- Projected rebuild dates
- Explanation of significant deviations
- Summary of vessel condition
- Tie to requested vessel preservation budget
- Treat the replacement as a baseline – what needs to be done and when to maintain existing capacity
- Show full timelines for replacement
- Business decisions on vessel sizing
- Prioritize vessels that replace existing capacity in-kind over increases in capacity if both cannot be financed

Recommendations

2. Provide the Legislature with a Report on the Vessel Deployment Plan that Maximizes the Utilization of Existing Vessels

- Planned seasonal deployment & service by route
- Planned maintenance and out of service schedule

3. Relate Increases in Vessel Capacity to Ridership Forecast, Level of Service Standard, Operational Changes & Terminal Design Standards

- Required by ESHB 2358

4. Consider Alternatives to New Vessel Construction to Increase Capacity

- Analyze changes in service (i.e. restoration of cuts)
- Vessel modifications (2nd car deck Sealth)
- Out of country acquisition – Sydney route not subject to Jones Act

Recommendations

5. Prioritize and Commit Vessel Replacement Funding

- Critical element in WSF financing

6. Use Route Based Planning

- Lessons learned from Port Townsend-Keystone

7. Gauge Community Reaction to Vessel Capacity Changes

8. Route Based Capital Budgets

- Call attention to important linkages rather than a list of terminals separated from a list of vessels

Capital Financing: 2005-07 Biennium

Total Capital Expenditures - \$182.9 million

Terminals – 56%

Vessel - 41%

Emergency - 3% (96% on vessels)

Vessels - \$75.8 million

Preservation – 43%

New – 32%

Systemwide – 25%

Existing Vessels

70 percent – Elwha, Hyak, Walla Walla & the Sealth

Systemwide Projects

\$18.6 million - \$11.0 million on vessel specific improvements

Emergency Repair

\$4.8 million on vessels - \$2.1 million for Elwha

New Vessels

\$24.3 million/total \$30.2 million 2003 to 6/30/07 (\$19.9 million on machinery)

Capital Financing: 2005-07 Biennium

Difference from 2006 Legislative Plan

Preservation:	21% less
Systemwide:	17% more
Emergency:	20% more
New:	35% less

Staff and Design Capital Costs

Staff charges: \$10.6 million – 13% of all capital costs

Outside design: \$ 3.8 million - 5% of all capital costs

Combined:

18% of total capital

27% systemwide projects

16% new vessel projects

15% preservation projects

10% emergency repairs

To be further reviewed in study of administrative costs

Capital Financing: 2007-09 Biennium/16-Year Plan

16-Year Plan - \$2.2 billion

Terminals – 55%

Vessels – 43%

Emergency – 3%

16-Year Plan – \$969 million vessels

Preservation – 63%

New – 32%

Systemwide – 5%

Vessel Preservation

2007-09 - \$49 million 2007-23 - \$608 million

- Inactive vessels: No preservation funds budgeted
- Steel Electrics & Rhododendron: Assumed to retire/no funds past FY 09-11
- For 17 vessels assumed to be active throughout the plan – average preservation funds of \$4.5 million/biennium
- LCCM used in budget used old retirement dates
- Non life cycle costs – 6% of 07-09 preservation budget

Systemwide Projects

- 18 projects/7 only in 2007-09 biennium
- Average per biennium \$5.7 million for on-going projects

New Vessels

- Four new 144-car vessels
- No funding to replace:
 - 2 Steel Electric replacement (Keystone)- Immediate
 - 2 Evergreen State Retire 2022-28
 - 1 Super Class Retire 2025-30
- No funding for replacement planning & design:
 - 2 Super Class Retire 2027-33
 - 2 Jumbo Mark I Retire 2031-37

Emergency Repair

- FY 07-09 inadequate/41% expended in first quarter

Recommendations

1. Implement ESHB 2358

- Definition of capital: Review to ensure only capital expenditures in capital budget
- Improvement vs. preservation – Separately identify improvements
- Systemwide and administrative cost allocation
- LCCM and asset management program

2. Vessel Preservation Funding

- Tie vessel preservation funding to vessel replacement plan
- Prioritize vessel preservation over vessel improvement funding
- Consider increasing preservation funding
 - Provide for inactive vessels or retire
 - Provide for Steel Electric/Rhododendron preservation (as determined)
 - \$4.5 million for 17 ships – inadequate
- Do not reduce preservation funding to pay for replacement
 - Can reduce funding once construction underway

Recommendations

3. Emergency Funding

- Do not use for planned maintenance & inspections of inactive vessels

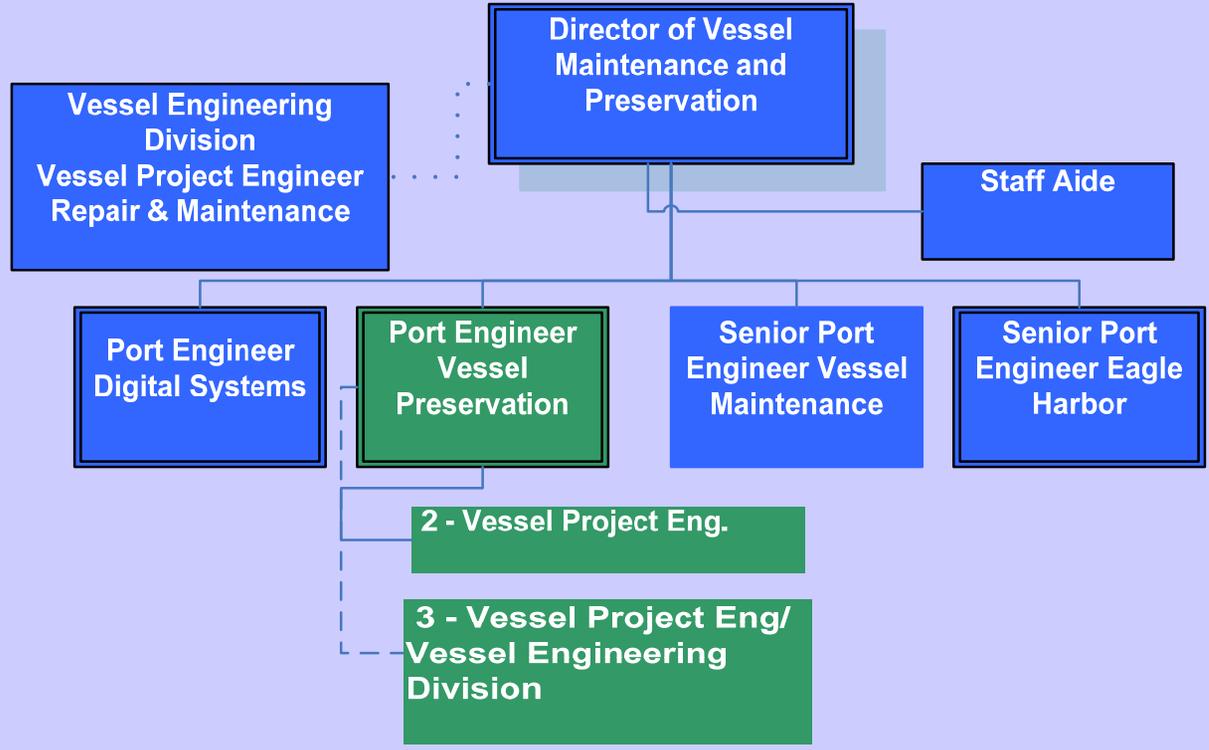
4. Increase Vessel Replacement Funding

- Fund replacement of 5 vessels not retired by new program
- Fund design & procurement for 4 others nearing retirement at end of 2007-23 plan

5. Prioritize Vessel Funding over Terminal Improvement Funding

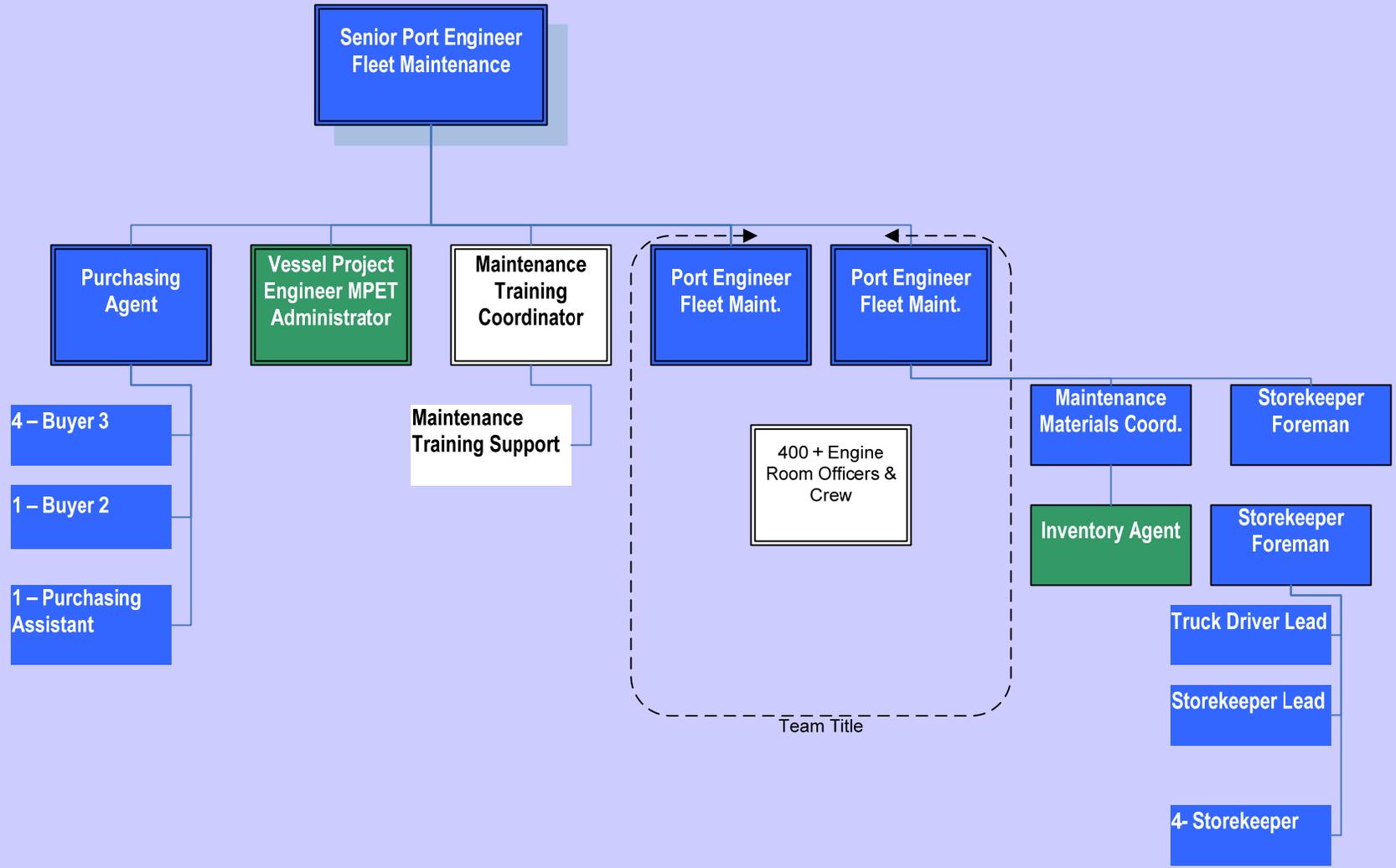
Maintenance & Repair Operating Finance

Maintenance & Preservation Division



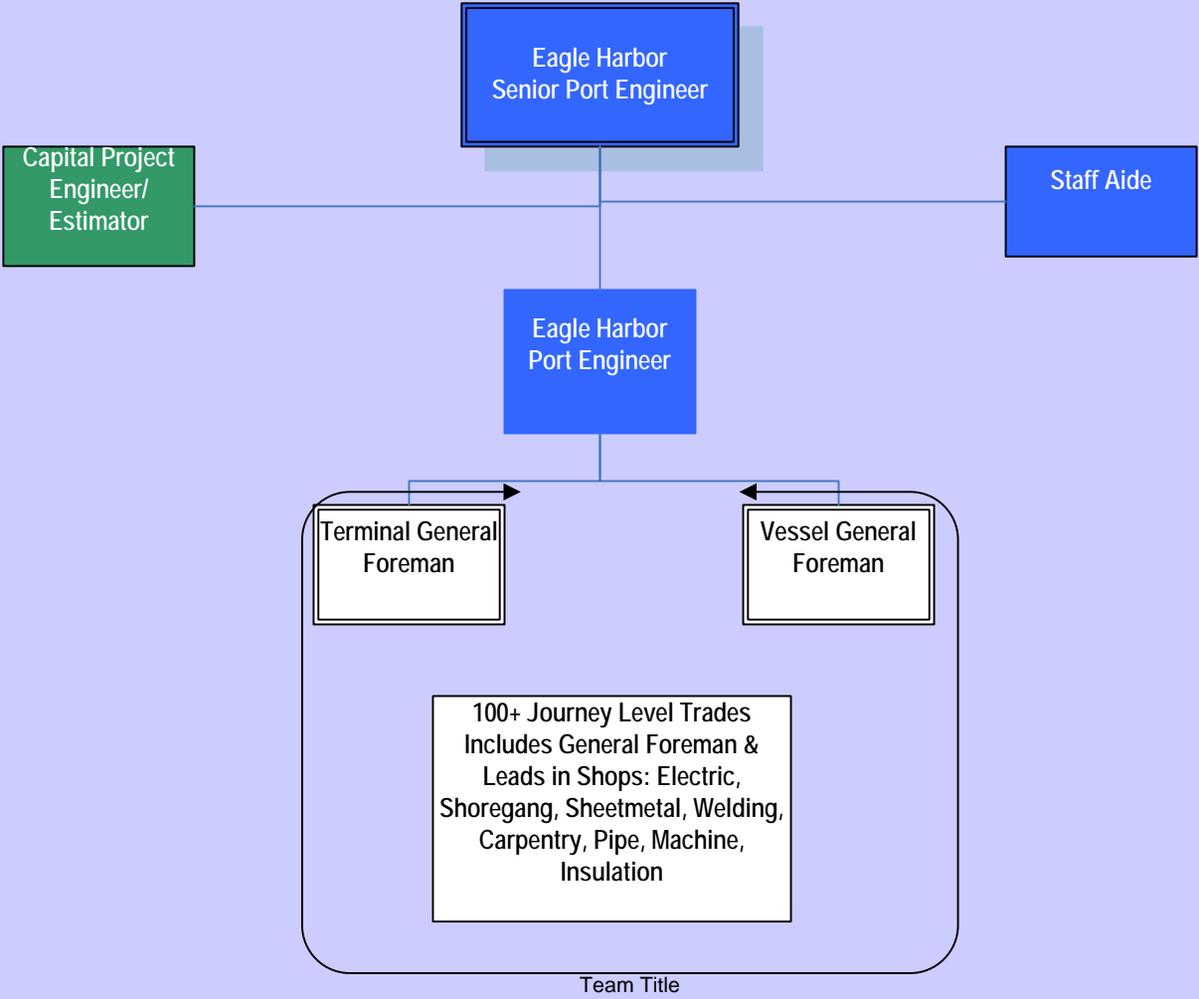
Blue = Operating Budget Green = Capital Budget

Fleet Maintenance Section



Blue & White = Operating Budget Green = Capital Budget

Eagle Harbor



Blue & White = Operating Budget Green = Capital Budget

Maintenance & Repair Budget Structure

X1 – Vessel Operations

- Vessel engineering when the vessel is in operation

X4 – Vessel Maintenance

- Eagle Harbor when working on vessels
- Lay up time for engineering room staff

X7 – Maintenance Management & Support

- 24 positions from Maintenance & Preservation
- 1 position in Vessel Engineering

Total Vessel Costs 2005-07 Biennium

\$283.4 million total vessel operating cost

Maintenance & Repair	38%
Fuel	29%
Deck Operations	33%

Maintenance & Repair Costs

- \$105.4 million
 - 74% labor
 - 19% outside repair costs
 - 4% supplies
 - 3% misc. including leases, utilities etc.

Maintenance & Repair Labor Costs

- \$77.8 million
 - \$75.1 million regular, overtime, penalty pay
 - \$ 2.7 million for travel, training, uniform & meals
- 17% of labor costs due to overtime, penalty pay & travel time pay
- \$1.8 million private auto mileage reimbursement
- \$.9 million on travel, training & staff uniforms

Outside Repair Costs

\$19.8 million

- 44% Drydock charges (in addition to capital)
Coast Guard required drydockings
- 29% Equipment purchases
- 14% Shipyard repairs
- 14% Misc. including inspection fees, towing, fuel, etc.

2007-09 Biennium

Maintenance & Repair Budget

- \$111.6 million – 6% higher than 2005-07 (labor adjustments)
- Repairs budget 14% lower than 2005-07 actual expenditures

Eagle Harbor 2005-07 Biennium

- Total vessel expense \$14.1 million
 - 96% maintenance & repairs operating budget
 - 4% capital
- Work on new installations - capital

Recommendations

1. Consider Internal Realignment to Increase Maintenance & Preservation Division Management

- Division has small number of managers
- State Auditor cited limited management staffing at Eagle Harbor
- Additional management staff may be needed to implement recommendations of this report

2. Reduce Planned Out of Service Drydocking Time

- Consistent with recommendation on capital out of service time

3. Consider State Auditor's Double Shift Recommendations

- April 2008 report due from WSF/WSDOT

4. Review 2007-09 Biennium Repair Budget

- 14% lower than 2005-07 not likely to be sustainable