

## Keystone Citizen Advisory Group Washington State Ferries

Meeting No. 4  
Thursday, September 30, 2004  
Coupeville Recreation Hall, Coupeville, WA



Washington State  
Department of Transportation




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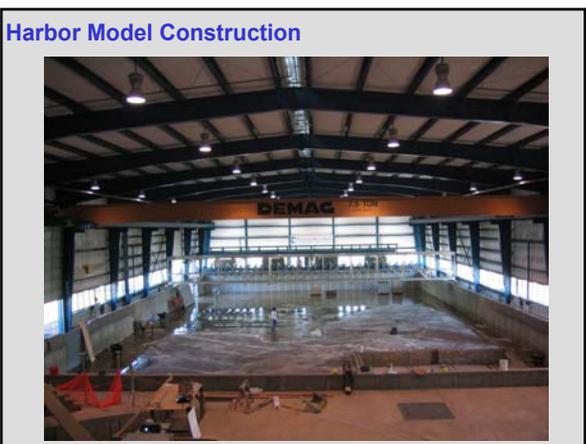
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VESSEL OPTIONS	HARBOR OPTIONS					
	1. Existing Conditions	2. Existing Slip with Jetty Extension	3. Harbor Mouth Slip East State Park Terminal	4. In Harbor Slip- State Park Terminal	5. West State Park Slip and Terminal	6. Existing Slip with Line Dolphins
Maintain Steel Electrics (59 cars)	SE-1	SE-2	SE-3	SE-4	SE-5	SE-6
New/ Existing Issaquah 130 Class (133 cars)		130-2	130-3	130-4	130-5	130-6
Evergreen State or Sealth (Issaquah 100 Class - 87/90 cars)		100-2	100-3	100-4	100-5	100-6
"Keystone Special" (Same Footprint as SEs with New Propulsion System 88 cars)	KS-1	KS-2	KS-3	KS-4	KS-5	KS-6
"Out-of-the-Box" - 100 Special (100 cars)	NP-1	NP-2	NP-3	NP-4	NP-5	NP-6




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### Harbor Model Construction



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### Harbor Model Construction



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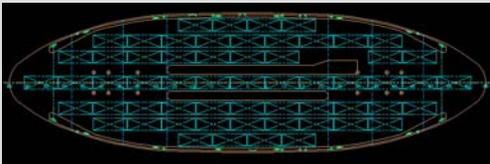
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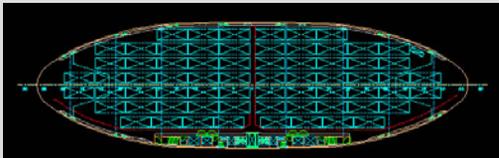
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### Vessels Update

#### Keystone Special Capacity



Existing Steel Electric - 59 Car Capacity



Keystone Special - 68 Car Capacity

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## Out-of-Box Vessel Update

### New Propulsion Systems



Ferry propelled by azimuthing propellers

Azimuthing Z-Drive



Ferry propelled by four cycloidal propellers



Cycloidal propeller

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## Environmental Considerations

### Questions posed by WSF/CAG

- What are the impacts to habitat and aquatic resources?
- What are the impacts to cultural and historical resources?
- What are the impacts to the state park and recreational users?

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## Environmental Considerations



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## Ridership

### Questions posed by WSF/CAG

- What is the service plan for the route over the next 20 years?
- What type of vehicle ridership needs to be considered?
- What are the characteristics of travelers (I.e. commercial, commuter, tourists)?
- How is ridership affected by whether Whidbey NAS remains open?

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## Ridership

### Assumptions

- Ferry ridership forecasts are based on a model that incorporates local and regional population and employment projections and travel behavior.
- Any assumptions about Whidbey NAS (whether it is open or closed) are contained in the regional population and employment projections used by WSF for forecasting.
- Analysis assumes an Issaquah 130 vessel by 2010.

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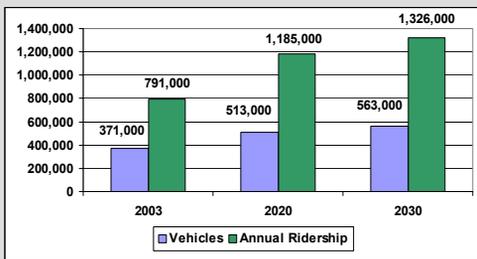
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## Ridership

### Baseline Keystone-PT Annual Ridership Forecasts (both directions)



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## Throughput

### Question posed by WSF/CAG

- What are the throughput considerations for potential vessel types?




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## Throughput

### 2030 Keystone-PT Vehicle Throughput Capacity (both directions)

	Season	Weeks	Sailings	Frequency (minutes)	Annual Capacity	Capacity Increase
Baseline (2003)	hi	22	30	45-90	520,380	
	low	30	20	90		
Maintain Steel Electrics	hi	22	40	45	833,700	160%
	low	30	30	45-90		
New / Existing 130 Class	hi	22	20	90	946,400	182%
	low	30	20	90		
Evergreen State / Sealth	hi	22	30	45-90	882,000	169%
	low	30	20	90		
Keystone Special	hi	22	40	45	847,280	163%
	low	30	30	45-90		
"Out-of-the-Box" - 100 Special	hi	22	30	45-90	882,000	169%
	low	30	20	90		

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## Costs and Impacts

### Questions Posed by WSF/CAG

- What impact does keeping the Steel Electrics in service have on the rest of the WSF system?
- What are the operational costs of existing vessels (by route) and the system-wide impacts?
- What are the system-wide impacts of new vessels?
- If new vessels are smaller, how can they be used elsewhere?
- How will new vessels be interchangeable between routes (if only two vessels exist when one goes down, there is only one left)?
- What are the preservation and maintenance costs per year?
- What are the operational costs of existing vessels?
- What is the revenue potential of existing vessels?

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## Costs and Impacts

### System-Wide

- Keeping the Steel Electrics in service results in:
  - Continued lack of flexibility
  - Excessive preservation/renovation costs
- New (small) vessels (on the route) means loss of:
  - Opportunity for useful, interchangeable vessel
  - Service (frequency and capacity) on another route in case of fill-in with smaller vessel
  - Efficiencies from labor and parts commonality

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## Costs and Impacts

### System-Wide

- Utility of new (small) vessels elsewhere in the system:
  - Pt Defiance-Tahlequah
  - Inter-island boat in the San Juan Islands
  - Is limited by small vessel speed and characteristics
- Route reliability with new small vessels:
  - Requires third vessel for back-up or risk of service interruptions on the Keystone-Pt Townsend route

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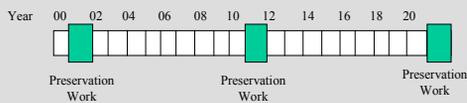
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## Costs and Impacts

### Life Cycle Analysis Helps Assess Preservation Needs

- Vessels and terminals are made up of systems and structures.
- Each system and structure has a
  - Life cycle
  - Date work was last done
  - Remaining useful life
  - Date work is next due
  - Standard cost



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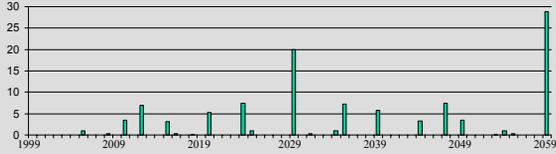
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## Costs and Impacts

Example of Projecting Preservation Costs Using Life Cycle Cost Analysis

*Projected Preservation Costs for the M.V. Wenatchee  
FYs 1999-2059, Millions of Dollars of 1997 Purchasing Power*




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## Costs and Impacts

Cost Summary

	1. Existing Conditions	2. Existing Slip With Jetty Extension	3. Harbor Mouth Slip East State Park	4. In Harbor Slip State Park Terminal	5. West State Park Slip and Terminal	6. Existing Slip With Line Dolphins
Maintain Steel Electric	\$731	\$773	\$774	\$767	\$768	\$774
New / Existing 130 Class		\$533	\$536	\$531	\$530	\$534
Evergreen State / Sealath		\$580	\$577	\$572	\$571	\$581
Keystone Special	\$578	\$620	\$621	\$614	\$615	\$621
"Out-of-the-Box" 100 Special	\$541	\$565	\$584	\$559	\$578	\$584

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## Meeting Schedule

Next CAG Meetings will be held:

**CAG Meeting #5:**  
Wednesday, October 13<sup>th</sup>, Pope Marine Building, Port Townsend  
5:00 to 8:00 PM

**CAG Meeting #6:**  
Thursday, October 28<sup>th</sup>, Coupeville Rec Hall, Coupeville  
5:30 to 8:45 PM

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