Guemes Island Ferry Technical Advisory Group (TAG)
March 9, 2025 Meeting

Anacortes Public Library

5:30-7:30 PM

Draft Summary Notes

Attendees

In-Person

TAG Members

Allen Bush, Paul Bieker, Becca Fong, Sandy McKean, Tom Fouts, Jonah Petrick

Skagit County Staff

Rachel Rowe, Ferry Operations Division Manager, Marie Lambert, Public Works Assistant Director/Controller

Other Attendees

Hilary Wilkinson, Maul Foster & Alongi, Facilitator

Online:

TAG Members

Ryan Monahan, Corey Joyce

Other Attendees

Claire Moerder, Maul Foster & Alongi

TAG Members Not Present

Adam Paull

Welcome and Introductions

Recap of Meeting #4 and Tonight's Agenda

Hilary Wilkinson called the meeting to order and asked TAG members to accept the final summary notes from Meeting #3 and #4 after circulating printed copies (including the edits from

Sandy McKean to the summary notes from Meeting #3 which were not incorporated before Meeting #4).

- There were no edits or comments to either meeting summary. **TAG members approved both sets of meeting notes.**

Hilary Wilkinson noted that two sets of input were submitted after the deadline and needed to be incorporated, so she recommended a 5-minute break to enable the core team to make needed adjustments.

Hilary Wilkinson introduced tonight's agenda after circulating printed copies. She reminded TAG members of this meeting's objectives:

1. Review outcomes and status of action items from Meeting #4 and progress-to-date on TAG workplan.
2. Review and discuss outcomes of evaluation matrix analysis.
3. Discuss next steps for development of Advisory Report.

Hilary Wilkinson reminded TAG members of where we are with the workplan, noting that we're approximately one month behind on having an outline started for the Advisory Report. Both Hilary and Sandy McKean shared that they still feel good about the TAG completing their work and having the report (due August 31, 2026) and a presentation to the Board (due in July) ready before the deadlines.

TAG Operations

Evaluation Matrix Results and Discussion

Hilary Wilkinson called the group back together after incorporating additional input and double checking the results and calculations in the evaluation matrix. She acknowledged that results of this exercise would be a starting point for TAG discussion and reminded TAG members that the matrix was a tool, albeit an imperfect one, to help them make a recommendation. She thanked Becca Fong for collating results and handed it off to her to share her process.

Becca Fong explained her approach to compiling the input. She began by taking the summary tab from everyone's copy of the matrix and rolling it up into a full-group average. Eight out of nine TAG members submitted completed evaluation matrixes. She noted she would send all her process documents with all TAG members after the meeting. After sharing the summary scores onscreen, Becca noted that the spread in average scores was not very big.

Outcomes of Evaluation Matrix

The following table shows the outcomes of the evaluation matrix based on TAG member input. Based on this input[1], the six options were ranked as follows (total scores included):

1. Diesel Mechanical (preserve current ferry) (149.7)
2. Diesel Hybrid Series (130.75)
3. Diesel Electric (123.85)
4. Whatcom County/Lummi Design (100.25)
5. Diesel Hybrid Parallel (91.85)
6. Plug In Hybrid (84.95)

However, after an extensive discussion (see highlights below), **six of the eight TAG members present agreed that the Diesel Hybrid Series was the preferred option**. See details on this discussion below.

	1	2	3	4	5	6
TAG member	**Plug In Hybrid**	**Diesel Hybrid Parallel**	**Diesel Hybrid Series**	**Diesel Electric**	**Diesel Mechanical**	**Whatcom/Lummi Design**
Bush	3.15	3.7	3.85	13.9	12.7	3.3
Fong	13.7	18.9	19.25	13.6	19.4	16.3
Fouts	24.3	4.4	23	3.2	7	11.8
Joyce	4	5	9	14	26	8
McKean	10.1	14.2	23	20.65	17.25	12.7
Monahan	20.8	22.35	23.75	23.6	20.75	20.75
Paull	4	5	9	17	26	9
Petrick	4.9	18.3	19.9	17.9	20.6	18.4
FINAL - TOTAL	**84.95**	**91.85**	**130.75**	**123.85**	**149.7**	**100.25**
FINAL - AVG	**10.62**	**11.48**	**16.34**	**15.48**	**18.71**	**12.53**

Highest
Second Highest
Third Highest

[1] Note: corrections were made after the meeting for incorrect entries for one TAG member.

Highlights of Discussion

Funding and Financial Constraints: Discussion centered on the availability of funding for the proposed alternatives to the current Glosten design, and the deadlines associated with federal, state, and local funding sources. Members also discussed the tradeoff in building a new boat now, when funds *are* available vs. waiting till technology has progressed and not knowing whether funds will be available in the future.

- Members also discussed how higher-maintenance options would impact fares the most, including the maintenance/upgrade costs of maintaining the current vessel, particularly given there are fewer grant programs to fund such upgrades than there are to build and maintain hybrid and electric propulsion systems.
- Fuel costs were noted as another factor, since they would only continue to go up.
- Concerns were also raised about the availability of funding to build a new vessel vs. maintaining the old one, since the former is more of an unknown than the latter.

Propulsion Technology and System Complexity: Members compared diesel electric, diesel hybrid, and plug-in hybrid systems, highlighting the operational and maintenance complexities, rapid technological advancements, and the trade-offs between emissions reductions and system reliability.

- For instance, diesel-electric systems can make complicated maneuvers more difficult, which are necessary for this route, although they have reliably served WSF routes for decades and continue to phase out diesel-mechanical propulsion systems all over the world. These engines are also more reliable because they can more easily be maintained vs. frequently replaced, as is the case with diesel-mechanical propulsion systems.
- That said, because there are so many connections between the power and propeller in hybrid configurations, that equals more complexity which could reduce reliability. The electrical integrators necessary for hybrid systems allow for rapid changes in thrust and more efficient reductions in emissions, but they can also break.
- On the other hand, because of how quickly technology is changing, in another decade the vessel propulsion landscape could be very different, making this an expensive and uncertain time. Because plug-in hybrid models are built in a modular way, they can be easier to upgrade later, as the technology available becomes more advanced. Engines don't last 40 years, so what configuration is more amenable to likely future propulsion systems?

Battery Technology and Charging: The group explored lithium-ion battery capabilities, charging speeds, and the potential for overnight charging. The discussion addressed how batteries buffer power and the implications for vessel operations.

- Newer off-the-shelf shoreside charging methods have become available since the Glosten study was completed, and the costs for this type of infrastructure have come way down. A $100K charging system could charge the ferry for a one-way trip without a significant investment in shoreside infrastructure. Between the quick-turn charges between runs, the lunch break, and overnight, batteries could be sufficiently charge to significantly reduce reliance on diesel. **Ryan Monahan agreed to share information** on these new charging systems with the TAG.
- In the existing Glosten design there are enough lithium-ion batteries that could keep the charge around 80% without dipping too much during the day, with limited charging time between sailings.

Vessel Longevity and Maintenance: There was significant focus on the current vessel's lifespan, structural integrity, and maintenance strategies. Members debated proactive versus reactive maintenance, modernization costs, and the risk associated with legacy equipment failures.

- Members shared that electrolysis is a common issue plaguing new-build vessel hull integrity, noting that new vessels are often built with thinner steel than what used to be used, to meet system weight requirements.
- The current vessel is expected to last another 9-14 years, based on estimates in 2019. It was “overbuilt” and could last 60 years (20 years past the Pacific Northwest standard of 40 years). However, waiting till the last second to upgrade could result in enormous costs.
- In addition, the costs of maintaining a legacy vessel can be very high, given how many components need to be upgraded. This can be done in a phased approach, like for the Coho, but it comes with additional risk of older components breaking down. How much of this risk is acceptable? Keeping the vessel in compliance with Coast Guard regulations could require an all-in-one-go components upgrade, which would take the vessel out of operation for an extended period and be very costly.
- In addition to maintenance costs, scheduling availability of specialists for more niche components or propulsion systems is a factor.

Regulatory Considerations: The need to comply with Coast Guard regulations, especially regarding battery technology and hybrid systems, was emphasized, noting that regulatory guidance is still evolving.

- Notably, how much flexibility there is for vessels to idle/power down while docked is in question, particularly for passenger vessels.

Decision-Making Framework: The group discussed whether to include available funding in ranking propulsion options, and the potential for phased recommendations, including future-proofing designs to accommodate technological advancements (i.e., a hybrid battery configuration that could later be made all-electric).

Gut Check on Ranking of Propulsion System after Discussion

Hilary Wilkinson asked to check in with TAG members to share any new thoughts on their preferred choice based on the outcomes of the discussion. She called on each TAG member individually.

TAG Member	Preferred Top Choice	Notes
Joyce	**Diesel Mechanical**	Statistics show the vessel has only lost 10% of its lifespan; there's nothing showing it won't last another 30 years.
Fouts	**Diesel Hybrid Series**	Original choice was plug-in hybrid.
McKean	**Diesel Hybrid Series**	Original choice was diesel hybrid series.
Bieker	**Diesel Hybrid Series** OR Diesel Mechanical & **wait for All-Electric**	Future proofing a diesel hybrid series now would leverage existing funding without setting us up for failure in the future. However, waiting another 10 years could mean better, more tested options would be available, so it's neck and neck with preserving the current ferry. If available funding were not a consideration, he would keep the existing ferry and wait.
Monahan	**Diesel Hybrid Series** OR Diesel Mechanical & **wait for All-Electric**	Agreed with Bieker and noted his evaluation matrix totals were very close to each other.
Bush	**Diesel Electric** OR Diesel Mechanical & **wait for All-Electric**	Buying and replacing batteries and maintaining all the connections between diesel and electric can cost a lot. In ten years, an all-electric boat will be more realistic and that was the recommendation of the builder. He's not on board with a phased recommendation of diesel hybrid series because of the complexity and reliability issues, since the Guemes is their only ferry—there are no backup vessels.
Petrick	**Diesel Mechanical**	An all-electric ferry could cost way more than a diesel ferry to operate in 10 years—given the electric rate increases of 30-40% recently announced by PSE. That said maintaining the existing ferry and waiting for the technology to solidify is a plus. On the other hand, a hybrid system would be smart from an operational perspective, since funding is in place and it allows flexibility to use diesel if the batteries become an issue.

TAG Member	Preferred Top Choice	Notes
Fong	**Diesel Mechanical** OR **Diesel Hybrid Series**	Maintaining the current vessel is her first choice because it's a known quantity and all the others are too speculative. She would prefer to wait till there is more information (and proven operating hours) to refer to. That said, if we had to spend the available funding now to avoid losing it, diesel hybrid series would make sense. Funding is a key consideration.

Hilary Wilkinson summarized that the outstanding discussion is whether $30M is still available for the diesel hybrid series, and how soon does it need to be spent? Not all TAG members were on board to recommend the diesel hybrid series propulsion system. There were questions surrounding when the County could move forward with asking those questions of the funders.

Hilary Wilkinson moved to adjourn the meeting given they were at time and folks needed to catch a ferry. The core team will circulate detailed notes soon and will ask TAG members to carefully read those and continue to consider their ranking. There may need to be a majority vote to move forward with a recommendation if consensus cannot be reached.

Next Steps

- Six of eight TAG members are in favor of recommending the Diesel Hybrid Series as the preferred option; two prefer to maintain the current ferry (Diesel Mechanical); however, the meeting ended before this could be confirmed as the TAG's recommendation. Confirming this selection will be the priority at Meeting #6.
- A draft outline for the Advisory Report will be drafted by Sandy prior to the next TAG meeting and will be finalized at the meeting.

Action Items

Skagit County will

- Distribute the meeting summary and Zoom link for the next TAG meeting.

TAG members will

- Send Rachel Rowe any contacts they'd like to invite to future meetings.
- Ryan Monohan will share details on the new, off-the-shelf charging arms available.

Sandy will

- Draft an outline for the Advisory Report

MFA will

- Draft summary notes.