MEMO

Date: May 31, 2018

To: Whatcom County Public Works and Lummi Island Ferry Advisory Committee (LIFAC)

From: KPFF Marine Transit Group

Subject: Public Input on Lummi Island Ferry LOS Analysis

As part of the Level of Services (LOS) initiative, LIFAC and the KPFF team conducted public outreach and community engagement activities related to the Lummi Island Ferry System Replacement project. These activities included LIFAC monthly meetings, public meetings, community surveys and public input received on the technical memos. The goals of the public outreach activities were to discuss findings and outcomes of the LOS Analysis with the community and to seek public input on the project and on LIFAC's recommendations to Whatcom County Council. This memo outlines the activities conducted throughout the LOS analysis by LIFAC and the KPFF team.

LIFAC MONTHLY MEETINGS

LIFAC is a volunteer committee comprised of both Lummi Island residents as well as representatives that do not reside on Lummi Island. Each month LIFAC holds committee meetings that include an open comment session. Throughout the LOS analysis, LIFAC has heard and discussed public input on the LOS analysis.

PUBLIC MEETINGS

There were three public meetings held during the LOS analysis. Each meeting is summarized below and identified by the date of the meeting.

November 16, 2017

Protect Lummi Island Ferry (PLIC) and LIFAC hosted the first public meeting held on November 16, 2017, with the KPFF team in attendance. The goal of this meeting was to provide an overview of the LOS Analysis and Ferry System Improvement Project and receive feedback on the community's top priorities for improvement. The project fact sheet was distributed to attendees (see Attachment A). The format of the meeting was a roundtable discussion where people discussed ideas and provided feedback on three questions:

1. What are things you enjoy or see as strengths of the current ferry system? Are there things you'd like to see stay the same?
2. What king of changes do you think might improve the current ferry system?
3. Overall, what are the main issues (approximately 5-7) you hope will be addressed by the ferry system improvements? (Please rank with the highest priority first.)

Group and individual responses are included in Attachment B. Based on the feedback received from respondents, the following top six issues were the most frequently mentioned:

- Lack of ADA accessibility.
- The lack of parking at Gooseberry Point during dry dock and lack of a vehicle ferry as a back-up.
- Keeping fares low and maintaining the service frequency.
- Having reliable assets including a reliable ferry and terminal infrastructure.
- Improving fare collection.
- Improving Gooseberry Point ferry terminal amenities.

March 14, 2018

The KPFF team hosted another public meeting on March 14, 2018, to discuss LOS and comparing LOS experienced today with projected ridership into the future and different vessel capacities. The presentation posters are included in Attachment C. The meeting included a question and answer session after the presentation.

May 22, 2018

The KPFF team hosted the another public meeting on May 22, 2018, to review the LOS analysis, discuss vessel and terminal options as well as rough order of magnitude costs and funding mechanisms. The presentation is included in Attachment D. The meeting included a question and answer session after the presentation.

LIFAC SURVEYS

There were two surveys conducted throughout the LOS analysis by LIFAC. The first survey was conducted in February 2018 that asked respondents about their ferry usage and their current experience. The summary of responses can be found in Attachment E. Key highlights from the survey include:

- Over half the respondents mentioned they have a lot of discretion for when they travel and many respondents stated their travel time is fixed.
- When asked about the maximum time you are willing to wait, over half of the respondents (57%) were willing to wait up to 30 minutes and about 30% of respondents mentioned 40 minutes.
- The majority of respondents also indicated that they would be willing to waiting longer during peak periods in the year like summer and on the occasion that special event are held.
- Nearly half the respondents indicated they experienced wait times of at least 40 minutes in the summer months and in the winter, over 26% of respondents said they did not experience wait times over 40 minutes.

- Over 64% of respondents said they would use a live camera feed to monitor the ferry queue to avoid busy periods.

The second survey followed the May 22, 2018, public meeting that included questions aimed to gauge community interest on the various alternatives for vessel capacity, terminal improvements and funding options. The questionnaire and survey responses are included in Attachment F. Key findings from the survey include:

- TBD

TECHNICAL MEMO INPUT

The draft technical memos associated with the LOS analysis were delivered to LIFAC and published online for comment. The comments and questions on the draft memos were included in a comment log and addressed by the consultant team. This comment log with consultant team responses can be found in Attachment G.

Attachment A

November 16, 2017 – Project Fact Sheet

Attachment B

November 16, 2017 – Group and Individual Responses to Questions

Attachment C

March 14, 2018 – Posters

Attachment D

May 22, 2018 – Presentation

Attachment E

February 2018 – LIFAC Survey

Attachment F

May and June 2018 – LIFAC Survey

Attachment G

Technical Memo Review – Comment and Response Log

Name	Date	Comment		Response
LIFAC				
Charles Bailey	2/9/2018	Dear Cassandra- I commented on a previous draft of the Existing Conditions memo and Nancy has reinforced one of those comments. I will therefore just comment on the preliminary results of the population projection model. —The write up does not take into account two factors which strongly influenced the dip in ridership from 2007 to 2013 or so: During this time ferry fares were sharply increased on the one hand and the national economy tanked on the other. Some people are of the view that higher fares led some daily commuters to move from a residence on the Island (especially if rented) and move to the mainland. Construction of new houses also dramatically slowed. You could examine trends in new housing starts and real estate turnover on the Island to get a better handle on these factors. Finally, you might consider moving the starting year of the modeling, now 2004, back a number of years. Admittedly, there is quite a lot of volatility in trends of population, housing and therefore ferry use decade by decade (see the LI Sub-Area Plan, for example), so finding a defensible starting point may be a challenge. —You might also want to look at maximum build out projections for the Island as another way of putting an upper bound on future population. As you know, the minimum lot size in the Rural Residential- Island category was raised to 5 acres in 2009 in response to concerns about groundwater availabilities. This led to a projected build out of 2,220 units at 93% utilization of water. See scenario #2 in Table 7 (p. 62) of the LI Sub-Area Plan. In translating this into population please remember that the median age is increasing and the average household size is decreasing. —It also seems important for your projections to distinguish between full-time and seasonal residents. The 2010 census showed 479 occupied residences and 425 seasonal residences. It might be useful to consider the possibly differential grow in these two categories.		We revised the report to include 2004 data as a comparison. Unfortunately, the data was not available to develop a model to determine the population dynamics and response to fares. However, fare elasticity was calculated using historic fare changes from 2004 to 2017 and ridership trends. We did consider maximum build out and there are no capacity issues that would impact our projections. Unfortunately, we do not have the data based on historic ridership to distinguish these riders and cannot reliably estimate how seasonal vs full time residents drive the ridership numbers. We do have models by fare type, which are driven by different population measures. This provides some different growth into the future - but we can't confidently say there will be n% of seasonal users.
Mike Skehan	2/8/2018	My initial thoughts on the ridership model results is one of disappointment with the key findings failing to recognize the obvious Yes, ridership fell quite a bit over the last 10 years, but fares increased dramatically during that period causing many commuters to flee the island, giving way for the aging retirement community we now have. The conclusion on page 15 of the report predicts our vehicle counts will be near 140,000 annual crossings in the year 2040, just 13 years after a new vessel goes into service. Our population will have increased about 40% over 1990 levels. The estimate of 140,000 annual vehicles fails to mention our existing ferry carried more traffic in the years 1999, 2000, and 2001, before fares were doubled in 2007 and doubled again in 2011. Base fare for pedestrians in 2000 was just a dollar, and 3 dollars for a vehicle ($0.92 & $2.72 infl. adj). We now have pedestrian base fares 7 times higher, and vehicle base fares over 3 times as much. The report concludes these higher fares will remain in effect, negating any relief of a newer boat with far less maintenance (hopefully). The report correctly relies on current conditions of demographics to project out what our island will likely look like in 2040, but relying solely on this to decide what traffic will be ignores what has actually happened in the past. A higher estimate extending out to the useful life of a new vessel in 2070's could also be justified. Lastly, the report spends lots of time with breaking down traffic by month, day and even hourly in 2040, but all those graphs are derived from a single flawed assumption of the future mimicking the last 10 years, and failing to account for what actually happened 40 years prior to that. I would like to hear individual thoughts from LIFAC members, Public Works and the Consultants on this. Do you agree with my findings or tend to agree with Steer Davis Gleave's findings on future demand for vehicle crossings? This one number is critical in determining how large or small a vessel should be recommended to the Council.		The scope of this forecast was to utilize data (historic ridership and fares) from 2007-2017 to build a ridership forecasting model.
Scott Aspman	2/9/2018	I think our current process is fine, but as you said, needs more 'straight thinking'. I can't disagree that estimates of future LOS requirements are important. But outside of the context of operating costs and our ability to fund a major capital investment, we'll debate them for years. I had hoped this study would have been helpful to decide what LOS we should recommend. But it fails pretty sadly on that. It doesn't even address the 'two boat wait' discussion. It answers one wrong question—fare elasticity—and fails to come to any supportable conclusion on population growth. Fare elasticity estimates will be useful when it comes time to decide pedestrian vs. driver fares. But we're not setting fares now. Projected population figures that don't adequately account for the unique circumstances of the island are less than helpful. We need a number that is not just a SWAG here, and also takes into account the fact that our decisions will impact that population growth. There are some 'decision milestones' that need to be clearly identified in our project plan if we expect to complete this recommendation on time. Copied Cassandra on this e-mail. Hope that's ok. The 'decision milestones' are the guidance (and discipline) I'm looking for from KPFF.		The scope of the ridership forecast was not to evaluate LOS, but to forecast ridership demand based on historic data from 2007 through 2017.
Mike Skehan	2/10/2018	I'm still left wondering 'HOW' any LOS that uses boat wait times is going to be measured, How often it will be measured, By Whom, How much that will cost to gather and compile, then, What actions that will trigger when the standard is not met. (eg: 2 boat waits), which is likely where the survey will settle in for the majority) KPFF and SDG have enough granular data on hand to see where we would fall if the State and Guemes LOS is adopted or modified with different percentages of 'Full Boats' during the 3 months of the year they are measured. WSF's use a two tier approach to those routes that fail the LOS. First they look to TDM (Transportation Demand Management) actions that would lower that number, then if that fails to correct it, look towards providing more capacity on the route (bigger boat, more runs, etc) Has anyone figured out how you plan to measure boat waits? Much less all the logistics of using it. Pursers know when the boat is full leaving the GB dock. A simple check mark on the Count Sheet would log that on the GB to Lummi run. DONE!		Proposed performance measures include measuring vehicles carried on each sailing and vehicles left behind in the queue on each sailing.
Rhayma Blake	3/6/2018	Cassandra asked for input on the draft of the ridership forecast tonight. I would ask that they more specifically define "the LIFAC" on page 13. Are they referring to the work Chuck Antholt did, or Mike Skehan? And on what date? I'm sure someone will ask.		Revised

Name	Date	Comment		Response
Nancy Ging	5/4/2018	top of p. 3 "terminal off the Lummi Nation" I think should say something more like "terminal off of Lummi Nation property." We're not talking about moving off of Lummi Nation entirely. The fee simple land is still part of Lummi Nation, as I understand it.		Revised
Nancy Ging	5/1/2018	p. 7 Maybe I'm not understanding the chart here, but I don't see that it shows: "...the demand is near or exceeds capacity for a three hour period in the afternoon in January and exceeds capacity most of the day in August." I see August afternoons over capacity, but the morning looks well under capacity, doesn't it?		This statement is referencing the following figure (Figure 3) on page 8. You are correct that in Figure 2, only the afternoon 4-7 PM period exceeds capacity.
Nancy Ging	5/4/2018	p. 15 re: Measuring LOS--so it looks like you recommend continuing to collect the westbound traffic data in order to measure LOS? Is that correct? Also, do you have any suggestions on how to count the queue lengths?		To reduce the need for additional crew/staff, our recommendation would be to count the queue lengths using the video from the cameras. This will give a good approximation of how many cars are in the queue at certain milestones. The video feed can link to the captain and/or crew who can monitor and record the queue. This statement has been included in the memo.
Rhayma Blake	5/4/2018	Page 3 - 4th bullet point - change “waiting” to “wait” Page 8 - Please expand on the phrase “Capacity with additional Trip” in the legend for quicker comprehension. Page 10 - First line - Add “using the current hourly schedule” Page 15 - I expected a recommended tool for measuring LOS. Perhaps add a reference to “Monitoring LOS” below.		Revised

Name	Date	Comment		Response
Nancy Ging	4/10/2018	1. Why are propulsion options not part of the comparison on maintenance costs? Seems like that's pretty important to have 2. I thought somewhere (perhaps the existing conditions?) I saw a chart of historical operating costs. I'm still wanting to see that chart adjusted for inflation so we have a true picture of the rate of increased costs before we start comparing to new ones. 3. In the Vessel Alternatives Analysis, it says the hybrid bridge would "cost more", but I don't see how much more. Also seems kind of important to know that. 4. The drop in annual maintenance costs from the Whatcom Chief ($518,000) to a new 20-car ferry ($145,000) is dramatic to say the least. Are we comparing the end of life cost of the Chief to a beginning of life year for the new vessel? Seems like comparing mid-life projections or average over expected life projections would be more reasonable. Also, it's not clear to me if that $145,000 number factors in the overhaul costs mentioned earlier in the narrative.		1. The comparison of maintenance costs for propulsion systems is found in the Alternative Fuels memo (Tables 3 and 4). 2. Correct, Attachment E of the Existing Conditions memo includes the historical dry dock costs. 3. The ROM cost is $220,000. This will be included in the memo. 4. We corrected for annualized maintenance costs.
Charles Bailey	4/11/2018	One of Whatcom County's stated goals for the ferry planning process is to "Balance capacity against operating costs (fuel, personnel, etc.) to ensure affordable fares over the long run, including needs based fares." Table 4 (p. 4) should be expanded to project for each year from 2018 to 2040 the following information for each vessel size: 1. Punch card fares for vehicles up to 8,000 lbs. 2. Ridership 3. Total fare box revenue 4. Operating costs (fuel & lube oil, repairs and annual maintenance, vessel insurance, other operating costs and system expenses)		Task 7 Service Alternatives compares all options rather than the Task 4 vessel memos. Ridership was calculated using an unconstrained ridership model and the ridership demand would not change with service changes. Fares were assumed to remain the same and incrase with inflation. For the funding section, we assume fares increase with inflation.
Charles Bailey	4/11/2018	A key metric in evaluating the choice of vessel size is the maximum number of that can cross Hale Passage on the ferry per hour, that is, throughput. Comment #1 Table 2 Voyage Models (p. 3) presents peak throughput for 20, 28 and 34 car vessel sizes for single lane loading/unloading and double lane loading/unloading. The Consultants should add a column to this table between these two columns which shows Time (minutes) for single lane loading and double lane unloading and the associated peak throughputs for this configuration. With the Whatcom Chief we have single lane loading/unloading on the Gooseberry and Lummi sides. In the next phase we could be having double lane loading/unloading with a new terminal at Gooseberry but still single lane loading/unloading at the Lummi end for a further period of years. An amended Table 2 will show peak throughput more accurately.		Revised to include
Charles Bailey	4/11/2018	Comment #2 The vehicle layouts for the three vessel size options on pages 9-11 appears to show a more efficient loading pattern for the 34 car boat compared to the 28 and 20 car boats, because the 34 car boat adds two more vehicle spaces by staggering the alignment. That same layout pattern could add two vehicles to any multiple of four, including 20, 24, and 28, making boat sizes of 22, 26, and 30 useful options to consider. The reason the Chief has been so successful for so many years is because of its ability to add or subtract runs to meet varying demand. So it is worthwhile determining what is the largest capacity modern vessel that could make up to five runs in two hours. A boat that could make three runs an hour could have a peak throughput of: 20 car ferry --> 60 vehicles/ hour 22 car ferry --> 66 " 24 " " --> 72 " 26 " " --> 78 " According to Table 2 (p. 3) the 34-car boat could have a peak throughput of 68 vehicles/ hour. With three runs/ hour a 24-26 car vessel could exceed the hourly throughput of the 34 car vessel. It should be cheaper to build and operate than a larger vessel, yet still offer many years of excess capacity. The question for the Consultants: What is the largest capacity boat that would be able to make 3 runs per hour?"		Comment received. We found that a 20-car vessel is the largest size that could make 3 runs per hour for planning purposes, and over a longer period of time that frequency is not sustainable.

Name	Date	Comment		Response
Patricia Dunn	4/25/2018	1. Would be helpful to have an introductory statement describing the costing methodology used. For expenses based on 2016 prices has an inflation factor been applied? Are any 2016 and current prices (for operating expenses) mixed? 2. Shipyard Construction Costs: Labor rate of $65/hr and overhead of 13% of labor hours seem slightly low considering union wages and benefits and shipyard profit – could this be verified or confirmed as being at least median rates? 3. Non-shipyard Costs: The allowance of 1% of the shipyard contract cost for procurement cost of spare parts and special tools also seems low. Is this Whatcom County procurement systems or outside? Is this % from actual experience with previous vessels? If Whatcom County procurement, is it a standard cost allocation? Same with post-delivery support of 25% - is this % based on actual previous experience? 4. Fuel and Lube Oil: What LOS is fuel usage based on for each vessel? The 175' boat can only make 2 runs per hour so would have a different LOS than smaller boats. Show #runs, gallons to clarify. 5. Fuel and Lube Oil: Is price inclusive of taxes? County will get rebate of certain taxes. Also, could pricing source be stated (ie, DOE projections? Refinery price?). 6. Results: State LOS used to estimate operating costs. 7. Results: Table 4: State LOS for each ferry configuration. 8. Most importantly: Need lifecycle costing, or at least 10 years out. Maybe it's too early to model? 9. Could a schedule, similar to KPFF's Terminal Options Appendix A, be added? 10. Training cannot be capitalized (there are rare exceptions), per GAAP. Training should be categorized as an expense. (Note: In some contracts, training is provided at no charge by the vendor, but crew costs would still be expensed). 11. What are the expected warranties? This can impact R&M expenses significantly in the near outyears, and should be considered in the lifecycle cost model. 12. Do ferry costs include new technology? IE, GPS, radar, radios, cameras, other electronics. Or will existing technology be transferred to new boat? 13. Will also need estimated dry dock times for general information and lifecycle costing.		These are industry-wide estimates used for anticipating ROM costs without having a vessel design or knowing things like, where the vessel would be constructed. These are meant to be general estimates for planning purposes. The fuel price was taken from the current Whatcom County fuel rates. What is the definition of LOS for operating costs and ferry configuration? LOS is presented in the Task 3 memo. We have annualized the mid-life repairs required for each vessel in the "Annualized major maintenance" found in the draft report and service alternatives. See Task 7 Service Alternatives for a compilation of options.
Patricia Dunn	4/25/2018	Additional Comments on ferry cost: Attachment A from Terminal Options memo is great - is something like this available for the vessel costs? What is expected warranty on ferry components? Extendable? This is significant and can affect operating expenses within the first 5 years. Consider buying additional warranty time if possible. Training for new ferry cannot be capitalized per GAAP, must be expensed. GAAP changed training capitalizable to expensed in late 90s, I believe. If grants included this in funding, it wouldn't be much of an issue and a case could be made for federal grant terms superseding GAAP classification (similar to when terminal was painted). Do ferry costs include new technology? IE, GPS, radar, radios, cameras, other electronics. Or will existing technology be transferred to new boat? For buses, this is a significant cost, assume it is also for vessels. Will also need estimated dry dock times for general information and lifecycle costing.		See Task 7 Financial Forecast for the 34-car vessel and draft report for a breakdown of operating costs comparing the 20-car and 34-car ferries.

Name	Date	Comment		Response
				Used double-ended vessels are difficult to find as many operators typically run them until they have reached the end of their useful life. With an older vessel, maintenance costs will be similar to those of the Chief.
Interpretation of e	4/30/2018	Task 4 should consider a cheaper, used vessel to replace the Chief and consider the Hiyu.		
Rhayma Blake	5/4/2018	Maintenance/ReserveVessels Since a lease, not ownership, of a reserve vehicular vessel seems to be the only reasonable expectation, I am disappointed to see that there is no viable recommendation about how best to make that happen in the future. Is there really no possibility? Alternative Fuel Analysis I learned a lot. Thank you! But is there any value in referencing why Skagit /Guemes in only looking at all-electric? Probably not, but I imagine the question will be asked. Vessel Costs Page 2 - If you are suggesting that fuel and lube costs will increase as compared to the Whatcom Chief, I am embarrassed to admit that I can't make sense of this explanation. Help make this clearer, please, for those of us who want to know, but are not technical.		There are options for leasing a vehicle vessel like the Hiyu or the Trek as options. Explanation of why all electric is not recommended is included. Because the vessels are heavier, they will burn more fuel.

Name	Date	Comment		Response
Patricia Dunn	4/25/2018	1. ROM is used, but not defined on page 1 or thereafter. Is this Rough Order of Magnitude?		Revised
Mike Skehan	4/29/2018	Looking at the drawing for alternative 1 has a couple of corrections that should be made. 1. Parking at the existing triangle is only 15 cars currently. Drydock increased that last year for only a couple of weeks time. 2. Queue lane capacity is show as 42 for the shoulder lane along Lummi View. This is about twice as many as it will hold, so I suspect the consultant used double lanes in the calculation. simple mistake. 3. I would like to throw some additional parking opportunities into the mix. Specifically along the east side of Lummi View Rd, across from the 8 properties in question for alt3, from about the store entry driveway, which would logically become a turnback stop for buses and drop offs, to about the Century Link switchgear building. Diagonal head in parking along there would add another 30-40 full time spots on county owned ROW (more convenient than same type parking east of the existing dock, near the artifact piles). Take a look for 20' parking, 2- 12 foot lanes, 1- Queue lane (56') within the 60' ROW.		1. Revised 2. Revised 3. Noted for consideration
Mike Skehan	5/1/2018	As Gooseberry Alternative 2 is likely to be the preferred alternative, I offer a simple solution for gaining additional parking within existing county owned ROW. The attached sketched shows double loading lanes as a given. 360Lf of approach and 160Lf of trestle combine to hold 52 cars. Both trestle and transfer spans are slightly longer that existing and 30' wide. Parking would be on the east side of Lummi View as shown, providing spaces for 40 vehicles. On the west side of Lummi View would be the existing 18 cars queue as overflow during busy periods. An additional 20 parking spaces would be provided in the Emma Rd Stub lot, after improvements to comply with Shorelines Act. In summary, this plan gives space for 70 cars to queue and 60 cars to park, which is significantly higher than the existing 42 car queue and 15 parking spaces (228%). Both plans could utilize head-in parking that is currently provide along the shoreline on Lummi View, east of the current dock. If fee simple land becomes available in the future, several of the Alt 3 parcels could add additional amenities and parking. Likewise, as Lummi Nation develops their marina, parking permits at a fee could be in the mutual best interest of both parties. Vehicles destined for the diagonal parking would share a turn back circle with buses waiting at the existing bus stop. I hope citizen suggestions such as this are given consideration as documents begin to be circulated among our community members. Respectfully, Mike Skehan 2040 Granger, Lummi Island WA 360-758-7333		Comment noted for consideration
Nancy Ging	5/4/2018	Should some of the lease cost estimates be included in this memo?		Lease costs are rolled into the operating costs and found in the operating cost breakdown.