Reservation System

Alternatives Analysis - FINAL

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1 Introduction

Kitsap Transit (KT) began fast passenger-only ferry service from Bremerton to Seattle in July 2017. In conjunction with the launch of service, KT rolled out an online reservation system, allowing for the advance reservation of up to 88 seats per sailing, with the remaining 30 available seats held for walk-up passengers. The concept of a reservation system proved very popular with members of the public prior to launch of the fast ferry, in part due to the certainty it would provide to travelers: ridership demand for the peak commute periods exceeds capacity. While the reservation system at launch has provided significant benefits for some riders, it has also been the subject of customer and agency complaints.

To launch the reservation system concurrently with the fast ferry, KT had to rapidly design, procure, and implement the reservation system. Although ticketing and reservation systems are common in the transportation industry, the typical applications for passenger ferries have been developed for events such as dinner cruises and/or linked to the sale of a ticket. By design, the current version of KT's reservation system does not offer prepaid boarding and does not charge a reservation fee. KT signed a contract with an online ferry ticketing vendor, RocketRez, to provide a ferry reservation system. The vendor willingly made modifications to make their ticketing system work as a no fee reservation system for Kitsap Fast Ferries. The vendor has been amenable to implementing additional modifications since system launch to improve the customer experience and meet KT's unique needs.

Four Nines is conducting an evaluation of KT's current fast ferry reservation system to determine where it could be improved to provide a convenient, fast, intuitive customer experience or whether a reservation system is needed.

Four Nines and Kitsap Transit staff have defined three major goals for this project:

- Maximize passenger satisfaction
- Operate the ferry as efficiently as possible
- Relieve pain quickly

This document, the Alternatives Analysis, examines possible paths forward for KT and evaluates viable alternatives across project goals and key attributes such as customer experience, system flexibility, and cost. First, we describe the approach taken to develop the Alternatives Analysis. We then briefly review the strengths, weaknesses, opportunities, and challenges associated with KT's existing reservation system and then describe four broad alternatives that may satisfy KT's needs and explore the benefits and risks associated with each. Lastly, we present some initial conclusions and outline the next steps in our review of the reservation system.

Our objectives in this document are to:

- Identify all possible paths forward for KT's reservation system

- Present the attributes of each solution in a way that will allow KT to compare and contrast the expected benefits of each alternative
- Discuss the potential risks associated with each alternative

2 Approach and Existing Conditions

To develop this Alternatives Analysis, we first reviewed information uncovered during development of the Fit/Gap Analysis, including insight shared by KT staff during stakeholder interviews and by customers through unstructured in-person rider intercepts and the related online form. We further incorporated information we received during interviews with peer agencies as part of our Peer Analysis. We also drew upon our own experience using the KT reservation system, using other reservation systems, and our professional familiarity with available alternatives for transit IT projects.

To set a baseline for evaluating alternatives in the following sections, we identified the strengths, weaknesses, opportunities, and challenges of the current situation.

Strengths	Weaknesses
Guaranteed seats reduce rider uncertainty **Staggered schedule with WSF** provides alternative if KT full **Customer-focused** staff support at KT	- Existing reservation system is **unwieldy, not intuitive,** and leads to customer frustration. **Multiple changes** created barriers and increased customer service load. **Incomplete data** makes it difficult to track no-shows and limits KT's options.
Opportunities	Challenges
- Develop more **robust reporting system** empowering KT staff to make more informed decisions moving forward. - Explore opportunities to **integrate with the next generation ORCA** regional fare collection system, which could streamline customer experience and simplify KT operations.	**Demand** for KT's fast ferry services exceeds existing capacity, resulting in customer frustration. - KT staff, riders, potential customers, and other stakeholders have varying ideas of **"fairness"**. Defining and creating a system that balances needs of regular riders, occasional riders, taxpayers, monthly pass holders, or other groups represents a challenge for KT.

● **Use new technology** to provide an interface for reservation and real time schedule adherence information displays at terminal locations and on computers or mobile devices including real time number of seats available on each sailing, enabling riders to make more informed choices about their transportation alternatives	● Uncertainty around the number of successful reservations sought may result in customers **avoiding some fare products**, such as the Monthly passes. Since customers are not taking advantage of the discounts included in those products, they **pay more than they might otherwise**. ● **Negative perception about the reservation system** due to issues with use, concerns over bots and gaming of the system, and the inability to obtain their desired times and quantities of reservations.

2.1 Strengths

- The reservation system provides reservation seekers with a guaranteed seat on the ferry, if they can successfully secure a space. This helps to reduce rider uncertainty and travel time (including wait time).
- KT has actively aimed to stagger sailings with Washington State Ferries to ensure customers have alternatives if their preferred KT Fast Ferry sailing is full.
- KT is customer-focused. Staff regularly support customer issues with the reservation systems, have been responsive to customer feedback, and have hosted training sessions to help customers feel confident when using the reservation system.

2.2 Weaknesses

- There is a level of rider dissatisfaction with the current system, although some of that has been ameliorated with system improvements and some of it is based on the scarcity of seats rather than the system itself
- The existing reservation system is not intuitive and is very click intensive. This leads to customer frustration with the system.
- Regular changes to the existing reservation system, while aimed at improving the system, require customers to constantly relearn the system and necessitate extra support from KT staff in the form of customer service and communication efforts. Regular changes to the existing system may also represent an increased investment to a system that may not be maintained in the future, potentially increasing KT's overall investment in a reservation system.

- The data currently collected by the system is incomplete due to the inability to check-in reservation holders who cannot produce their barcode. This results in inaccurate no-show counts and prevents KT from tracking and keeping regular no-shows accountable through loss of reservation privileges or another penalty.

2.3 Opportunities

- The Fast Ferries are clearly addressing a strong market need, indicating potential to significantly expand KT's ridership and revenue if the need can be met.
- Development of a more robust reporting system that includes adequate reports, quality control metrics, and allows for simple data extraction for ad-hoc and custom reporting would improve service planning and policy decision making. The existing data collected is incomplete and data extraction by KT is challenging, preventing that information from being used. An improved reporting module, whether internal or external to the reservation system, would provide KT with more information about existing conditions, empowering staff to make more informed decisions moving forward.
- Exploring opportunities to integrate with the next generation ORCA regional fare collection system may provide alternative pricing and customer experience features. No integration with ORCA is currently available - while customers can pay at the dock using their ORCA card, KT has no way to accept ORCA fares in advance to hold a reservation or otherwise interact with the system. Many integration opportunities that could streamline the customer experience and simplify KT operations may be available as the region develops the new system, but early planning will be crucial to take advantage of those opportunities.
- Using new technology to provide an interface for reservation and real time schedule adherence information displays at terminal locations and on computers or mobile devices including real time number of seats available on each sailing would improve the customer experience, allowing customers to make informed transportation choices. For example, a rider may check on their phone the number of available seats while still at the office and, based on that information, choose to wait and catch the next ferry instead when they will have ample time to arrive at the walk-up line.

2.4 Challenges

- Demand for KT's fast ferry services exceeds existing capacity. This leads to many more riders seeking reservations than there are available reservations, resulting in customer frustration. The reservation system or lack thereof cannot directly address this challenge.
- KT staff, riders, potential customers, and other stakeholders have varying ideas of who the service and system needs to serve and prioritize to be "fair". Creating a system that works for and balancing the needs of regular riders, occasional riders, taxpayers, monthly pass holders, or other groups represents a challenge for KT.

- KT has tried to provide riders with additional options by staggering the Fast Ferry schedule with the Washington State Ferries schedule. However, because Washington State Ferries does not participate in the regional PugetPass, some customers are forced to pay for an additional fare product above their regular monthly pass if they are unable to make a Fast Ferry and opt to take a Washington State Ferry instead. This adds to the pressure of excessive demand that KT experiences as riders have expressed frustration with having to make an additional investment in their trip.
- Many customers have a negative perception about the reservation system due to issues with use, concerns over bots and gaming of the system, and the inability to obtain their desired times and quantities of reservations. It may be difficult to overcome those customers' perceptions and some may have already ceased using the reservation system and even possibly the Fast Ferry service. Creating a more positive and consistent experience for customers moving forward may help to bring some of these customers back.

A more detailed evaluation of the current reservation system can be found in the Fit/Gap Analysis.

3 Demand Analysis & Peer Comparison

To help inform the range of alternatives considered, we reviewed previous consultant modeling of demand on the Bremerton - Seattle sailing and the required supply to meet that demand. Some of the challenges and customer frustration with the current reservation system is due to the significant supply-demand imbalance that currently exists, and the emphasis that places on the reservation system to guarantee a seat. With KT expecting a second operating vessel in 2019, we were interested in understanding whether some of the current scarcity issues may be reduced, potentially taking some of the pressure off of a reservation system. The timing of the second vessel may also allow for a combination of alternatives, some before the second vessel is available and some once the second vessel is operating.

Table 3.1 - Review of Peak Period Demand Forecasts

1. Bremerton-SEA	Peak Demand	Vessel Supply	Vessels Required
6-9 AM, West to East	617	354	1.74
3-8 PM, East to West	739	472	1.57

The analysis of peak period, peak direction demand undertaken by KT's consultant suggests that the addition of the second vessel should alleviate some of the scarcity issues that are currently being experienced and provide a higher probability of being able to simply walk on to the fast ferry. This demand analysis should not be interpreted as customer demand being fully satisfied on a particular sailing (i.e.: there are likely to be certain peak period sailings that remain entirely full with some customers left behind), but rather that the use of multiple vessels should be capable of meeting morning and evening commute demand in aggregate if customers have some flexibility in their schedules.

We also undertook a brief competitive analysis of the KT Fast Ferry services, comparing the value of KT Fast Ferry services against customer's next best transit options. This analysis was undertaken to understand the relative benefits of KT Fast Ferry services in terms of travel time savings and out of pocket costs to the customer. The goal of this review is to inform whether pricing mechanisms, such as fare changes or reservation fees would be possible while continuing to maintain the benefits of the KTFF service.

Table 3.2 - Competitive Analysis of Kitsap Transit Fast Ferry vs. Competing Transit Options

<u>Route</u>	<u>Kitsap Fast Ferry</u>	<u>Next Best Transit</u>	<u>Difference</u>
Bremerton - SEA	Single Ride, 60-min R/T, $12.00 R/T	Single Ride, 120-min R/T, $8.50 R/T	60-min daily time savings for $3.50 <u>additional</u> cost
Kingston - SEA	Single Ride, 80-min R/T, $12.00 R/T	<u>WSF to Sounder Rail</u>: Multi Leg, 150-min R/T, $16.50 R/T <u>Drive/Park/Bainbridge Ferry</u>: Multi Leg, 120-min R/T $19.50 R/T	<u>WSF to Sounder Rail</u>: 70-min daily time savings with $4.50 cost <u>savings</u> <u>Drive/Park/Bainbridge Ferry</u>: 40-min daily time savings with $7.50 cost <u>savings</u>

The analysis of alternative transit options suggests that the current pricing of the KT Fast Ferry service is very attractive, in some cases providing customers with substantial travel time savings and fare savings at the same time.

We also compared KT Fast Ferry pricing against a number of peer operators on the West Coast. Since the services offered by many operators differs based on distance travelled and travel time, a metric of price per minute of sailing was used to compare peer services. Once again, the goal of this review is to inform whether pricing mechanisms, such as fare changes or reservation fees would be possible while continuing to keep KT Fast Ferry services in the same range as peer service providers.

Table 3.3 - Comparison of Pricing Across Peer Operators

Operator	Route	R/T Price	R/T Travel Time	Price per Minute
Kitsap FF	Bremerton - SEA	$12.00	60-min	$0.20/min
Kitsap FF	Kingston - SEA	$12.00	80-min	$0.15/min

Kitsap FF	Southworth - SEA	$12.00	60-min*	$0.20/min
King Co. W.T.	Vashon - SEA	$11.50	44-min	$0.26/min
King Co. W.T.	West SEA - SEA	$10.00	20-min	$0.50/min
GGBHTD	SF - Larkspur	$15.50	60-min	$0.26/min
GGBHTD	SF - Sausalito	$13.50	55-min	$0.25/min
WETA	SF - Harbor Bay	$11.00	50-min	$0.22/min
WETA	SF - Vallejo	$22.00	120-min	$0.18/min

*Service Plan, from Ferry Business Plan, Phase II

As the table indicates, KT Fast Ferry pricing is on the lower end of commuter fast ferry peers, when considering price and length of sailing. KT pricing is typically $0.15 - $0.20/minute, whereas peers are in the $0.18 to $0.26/minute (the King Co. water taxi to West Seattle at $0.50/minute is a clear outlier). This does suggest that pricing could be adjusted upwards slightly through pricing mechanisms and remain competitive with peer operators.

Overall, the competitive analyses suggest that KT's current pricing is very attractive to customers. It does indicate that some changes to pricing, in conjunction with reservation system changes, may help meet KT's project goals and reducing inappropriate use of the reservation system. For this reason, two policy alternatives that don't directly influence the reservation system (Increase Fares & Charge a Reservation Fee) were added for consideration, because preliminary analysis suggests that they may support Kitsap goals. These policy alternatives will be evaluated more fully in Section 4.

4 Alternatives

We explored six potential alternatives for KT which are described in detail below:

- Modification of the current system
- Replacement of the current system with a commercial off the shelf system
- Replacement of the current system with a custom system

- Proceeding without a reservation system
- Increase fares on peak sailings to manage demand
- Charge a reservation fee

Not all of the alternatives considered are mutually exclusive - a fare increase or a reservation fee could be incorporated alongside modification or replacement of the current system and a fare increase could still occur if KT chooses to proceed without a reservation system.

For the purposes of this Alternatives Analysis, we did not consider a no change or maintain current state as-is alternative. Maintaining the current system as-is without further modifications is a less desirable alternative for both KT staff and Fast Ferry customers. However, maintain the existing system with modifications is considered as a potential alternative.

In addition to considering how each alternative fares against overall project goals, we will review each alternative against the following system impacts:

- **Experience for Frequent Riders** - is the system convenient and easy to use for frequent riders?
- **Experience for Casual Riders** - is the system convenient and easy to use for casual, irregular riders?
- **Reservation Management** - are customers able to easily retrieve, cancel, and otherwise manage their existing reservations without staff intervention?
- **Reservation Validation** - can reservations be quickly and easily validated at time of boarding?
- **System Flexibility** - is the system sufficiently flexible to manage reservations for special events, changes to operating schedules, and the addition of locations/routes?
- **Integration Capabilities** - is the system capable of integrating with other systems (e.g. reporting system, fare collection system)? What level of effort is required to do so?
- **Reporting/Analytics** - is the system capable of producing basic reports on use of the system and quality metrics? Is system data easily extractable by KT for manipulation outside of the reservation system reporting module?
- **Cost** - how much would this alternative cost to own and operate compared to the costs associated with the existing system? Additional analysis will be provided in the Vendor Landscape deliverable.
- **Timeline to Implement** - how long would this alternative take to implement?

4.1 Alternative #1: Modify Current System

The logical first alternative for KT to consider is whether the existing system can be retained, with the aim of continuing with system modifications that lead to a better overall customer and agency experience. As documented in the Fit/Gap Analysis, approximately half of KT's desired functionalities are

currently being met, after the enhancements implemented in Summer 2018. This suggests that additional system modifications would likely be needed for the system to function as desired.

Maintaining and modifying the existing system would allow customers to continue to benefit from the existing reservation system, while continuing to improve upon it incrementally over time. This could result in some cost savings to KT by avoiding procurement/contracting with a new provider. This approach is likely more cost effective than developing a custom system, but depending on the number of modifications over time, that relative development cost advantage may diminish. From an operating cost standpoint, this is unlikely to change markedly, with similar monthly fees and staff requirements into the future for the existing Bremerton-Seattle service. If the reservation system were to be implemented on the Kingston and/or Southwark services in the future, the customer experience is likely to be similar, but one would expect operating costs to increase in conjunction with the launch of those services.

The customer experience might be expected to improve somewhat, but it is unlikely that all functionality desired will be supported and KT would need to be alright with that. The existing provider has implied that they may be reluctant to support all of KT's desired functions, as currently conceived, and as such KT may need to consider a combination of system modifications and policy modifications, depending on the customer experience being sought. For example, a comprehensive approach to management of 'no show' customers may require a policy change in terms of when customers are charged their fare, and a system change to implement the policy. There is the possibility that some functionality cannot be supported by the current vendor under any circumstances. In these cases, KT will want to prioritize their list of functions and ensure that the highest priority requirements can be accommodated by the existing vendor. Some of the issues, though certainly not all, will be mitigated when the second vessel comes on line, lessening the excess demand.

This approach does pose some potential challenges and risks for KT. As with any software development effort, KT would be dependent on the software developer for updates, further enhancements, and ongoing maintenance. The agency's desired system functionality would also be limited to that which the existing provider is willing and capable of providing. This approach is likely to support only limited, if any, next generation ORCA integration given the degree of customization that would likely be required. Finally, KT communication with Fast Ferry customers would be essential, to manage expectations on which features are being provided and where trade-offs are being made.

4.2 Alternative #2: Replace with Commercial off the Shelf System

Replacing the current system with a Commercial off the Shelf (COTS) system would provide KT a tested option that is likely faster to implement and less costly than a custom system, but that may not perfectly align with all of KT's needs. A COTS system by definition is already developed and available for purchase; there should be opportunities to see how the system functions for an existing customer in a production environment. A COTS system also presents the opportunity to leverage the benefits of software as a service, SaaS, where the software is licensed on a subscription basis and is centrally hosted by the software vendor, requiring no KT hosting resources. While KT would be responsible for regular subscription payments to the vendor for the life of the contract, upfront development and implementation costs would be low or zero. Because KT would be using an already built system,

requirements development and testing needs would be low - KT would be purchasing a fully developed system as is. This also means that opportunities for customization will be limited, though some vendors may offer optional modules or upgrades that KT can opt in to if desired. Using identical or highly similar systems across all customers is what allows COTS vendors to keep costs low in comparison to custom systems. While these systems offer many benefits in terms of cost, reliability, and time to implement, if this alternative is selected, it will be critical that KT is clear on what capabilities the system must have and is open to solutions that may meet KT's needs using a different or less preferred approach.

The experience for frequent and casual riders would vary across COTS systems - some may be designed in ways that better suit one customer group over another and some may be fairly balanced between the two groups. The management and validation of reservations will also vary by vendor - by focusing any requirements on the needed outcome, rather than being prescriptive in the approach used to reach that outcome, more systems will meet KT's needs. Integrations and basic reporting capabilities may be better in COTS systems since both are commonly required by customers. A good COTS system will also offer the flexibility KT needs to manage special events and other schedule/location changes since these types of options are likely also required by a vendor's existing customers.

The major risk associated with this scenario is being unable to find a vendor with a system that meets all of KT's requirements.

4.3 Alternative #3: Replace with Custom System

Replacing the current system with a custom system means that KT would contract with a software developer and create a system specifically designed around KT's requirements. Such a system would have the advantage of meeting all of the needs that KT identified, and KT would have significant input during the design of the system. Once the system goes live, KT will take on the operations of it, likely with a contract for maintenance with the developer so that changes can be made as and if they are needed. This scenario adds time to the process; the development of a system from the ground up will require additional needs analysis and testing cycles beyond what is necessary for a COTS system. Custom systems are typically costlier to procure and to maintain. There are risks associated with this scenario, one of which is that the agency would be dependent on the software developer for updates, further customization, and maintenance.

The experience for frequent and casual riders would presumably be excellent, because the system would be designed around their stated needs. The management and validation of reservations would also be customized to the way that KT wants to operate those functions, and the system would have the flexibility to manage whatever types of events, operating schedules and routes that KT specifies, although if changes to these elements need to be made periodically, they would probably incur additional costs.

Custom systems can be more challenging to integrate with existing systems; although the software developer can certainly create a custom interface, and reports, those may require updates as the systems they are connected to change or are upgraded.

In summary, system cost (development, implementation and maintenance) is higher with a custom system, and the time to implement is longer. The tradeoff is that this alternative provides all the capabilities that KT wants in a reservation system, with fewer of the compromises required by other alternatives.

4.4 Alternative #4: Proceed without a Reservation System

The next alternative we will discuss is offering Fast Ferry service without the reservation system. Under this alternative, riders would simply queue for each ferry, there would be no way to reserve seats in advance. The earlier a customer arrived at the dock, the more likely they would be to make it on high-demand sailings. For rider convenience it would be advisable to provide some sort of information about how many people were already queued for a given sailing. On the dock, this could be done by a KT employee counting riders in line and informing the last one who will make it on or perhaps putting up a sign that the ferry would be full. Online a similar function could be achieved by a webcam of the line, perhaps with some indication of where the line needs to be to sell the boat out.

From a direct financial standpoint, this would be the least expensive of the alternatives we are examining here. Not only would there be no capital cost for implementation, there would be no ongoing system maintenance costs required. It is easily understood and uses the time tested "first come, first served" principal for allocating scarce resources. This is potentially attractive to Kitsap County voters, as they have all paid for the Fast Ferry service through taxes. This approach guarantees all county residents have a chance to try the Fast Ferry service, without needing access to the online system or having an ORCA card for registration. This alternative also fits with the model of the service as a public transit offering that is available to all, not just people who plan ahead and have the time and resources to access an online system in advance. Riders would likely quickly learn how early they need to get to each sailing and adjust either by arriving early enough, or by switching sailings. Riders who weren't going to make it on a sailing would probably have more time to switch to an alternate service. This would also match how all other KT services are offered, including buses and the other foot ferries.

For many riders this would represent an unwelcome and severe change from the current system. Monthly pass buyers would have no way of knowing in advance whether they would be able to board enough sailings to make the pass worthwhile. Currently, of all Fast Ferry trips made with any KTFF Monthly Pass, only 40% are made on peak sailings (the remaining 60% are on non-peak, or reverse direction sailings) and this share of pass usage on peak sailings would likely be expected to decrease as riders would have no way of adjusting their schedule in advance (e.g.: by working from home) to accommodate sailings they don't get on. Riders who show up at the last minute due to work schedules would not be accommodated. And it would cost every rider during peak times more time to ride the ferry, because they would have to stand in line. This would remove some or perhaps all of the time advantage of the fast ferry. It's also possible that it would drive ridership down by discouraging riders so much that some sailings would depart less than full that would have been full with a reservation system.

Implementation of this alternative could be done immediately or could be done after the second vessel comes on line (when excess demand is lessened). Since there is very little that needs to be built to do this the timeline would mainly be set by communication needs. KT would not need to depend on any external resources to roll out this alternative.

4.5 Alternative #5: Increase Fares on Peak Sailings to Manage Demand

Under this alternative, fares would be increased, likely focused on peak sailings as a method of managing demand. Assuming that Fast Ferry customers value their time as suggested in economic studies, a fare increase of $3-$4 per direction would better reflect the value of time savings from the KT Fast Ferry as compared to the travel time on the WSF ferry. This level of fare increase would likely encourage some shift to off peak sailings, but may also result in some loss of customers.

This option would not require any additional system development and could be done in conjunction with any of the first four alternatives. Pricing could be increased in stages and prices could be tested for market reaction. This would both shift demand away from the peak sailings and (as long as prices weren't raised high enough to make currently full vessels sail with empty seats) would increase revenue.

This option would go against community commitments made by KT as a part of the campaign to fund the Fast Ferries. It would also go against KT policy to price all of the Fast Ferry services identically. This alternative could be implemented in conjunction with any of the first four alternatives discussed previously.

4.6 Alternative #6: Add a Reservation Fee

The final alternative considered is the addition of a reservation fee. This fee would have several intended effects: It would reduce the current practice of making more than one reservation for a single peak period (to cover contingencies), it would decrease the number of no shows, and it would increase revenue, at least partially offsetting the cost of building and maintaining any reservation system.

For both technical and policy reasons, the fee would not be payable by ORCA, particularly by ORCA business passport programs. This would have the further effect of having riders pay for their reservation with their own money in exchange for the certainty of having a guaranteed seat during peak sailings.

This alternative could be implemented in conjunction with any of the first three alternatives. It would require programing whether implemented under the current reservation system or a future COTS or custom system.

5 Evaluation of Alternatives

We evaluated the alternatives a number of ways, including the relative pros and cons of each option, how they would impact riders, staff and the agency, how they perform from a vendor cost perspective, and how well they achieve project goals.

5.1 Pros and Cons of the Alternatives

Working with KT staff we evaluated the pros and cons of each alternative:

Alternative	Pros	Cons
Modify Current System	- Riders understand the current system - Staff understand the current system - Meets the basic need of reserving seats - Capable of accommodating incremental improvements - Existing relationship with the vendor - Limited investment to date - Scalable vendor (accommodate user growth) - Leveraged hardware investment - Integration opportunities	- Cost of continued enhancements - Not built for KT's specific use case - Rider dissatisfaction likely to persist
Replace w/ COTS System	- Demonstrated track record with other clients - Keeps up with changes in technology - Public perception of more modern approach	- Ongoing operating costs likely higher - Does not leverage previous investment - Potentially limited customization opportunities - Customers would need to familiarize with the system
Replace w/ Custom System	- System built to KT's specific needs - Improved customer interaction experience - Potential for nextgenORCA and/or other integrations	- Highest overall cost option - Lengthy schedule to implement - Requires staff time and effort - Ongoing maintenance costs likely to be high, including KT personnel
Proceed w/o Reservation System	- Lowest Cost Option - Potentially greater perception of fairness	- Likely higher KT customer service resources initially - Potential for poor behavior in the queues (e.g.: greater line jumping, saving a place for friends) - Lack of reservations negates the time and certainty benefits of a fast ferry - No reservations creates a potential for additional out of pocket costs for riders
Increase Fares	May better balance supply and demand for service	- Does not currently fit with KT policy - Different fares for different routes may cause

		confusion ● May be perceived as catering to wealthy, elite customers ● Requires study, public consultation which takes time ● May discourage participation among employers
Reservation Fee	● Likely to decrease "no shows" ● Likely to reduce multiple peak period reservations ● Customers financially accountable for "no show" ● Responds to some customer requests ● Potentially shifts demand to other sailings	● Requires study, public consultation, possibly Title VI study ● More walk-ons could potentially delay sailings ● Potentially results in a loss of customers ● Administrative time and costs may increase

5.2 Impacts on Riders, Staff and the Agency

We also considered the impact the alternatives would have on riders, staff and the agency:

Alternative	Experience for Frequent Users	Experience for Casual Users	Reservation Management	Reservation Validation	System Flexibility	Integration Capabilities	Reporting/ Analytics	Cost	Timeline to Implement	Implementation Risk
Modify Current System	***	***	**	**	**	**	**	$$	***	***
Replace w/ COTS System	***	***	***	***	***	*	***	$$$	**	**
Replace w/ Custom System	***	***	***	***	***	***	***	$$$$	*	*

Proceed w/o Reservation System	*	***	N/A	N/A	*	N/A	N/A	N/A	***	***
Increase Fares	*	*	**	**	**	**	**	$	***	***
Reservation Fee	**	***	***	***	**	*	***	$	***	***

*** Better   ** Neutral/Similar to Current   * Worse

5.3 Vendor Cost Performance

While specific vendor costs could be developed with further analysis, we provide the following table as a rough guideline of the comparative costs of the approaches. It is important to note that KT has already invested significant capital in the current reservation system and that this investment will continue by way of the annual system fees, even if no improvements are made to the system. The operating costs below are relative to the current state, that is above and beyond KT's current operating costs for the reservation system.

Alternative	Relative Implementation Costs	Relative Annual Costs (paid to Vendors)	5 Year Totals - Rough Order of Magnitude
Modify Current System	$$	$	A few hundred thousand dollars
Replace w/ COTS System	$$$	$$$	A half a million dollars
Replace w/ Custom System	$$$$	$$	Significantly more than half a million dollars
Proceed w/o Reservation System	-	-	Essentially free
Increase Fares	$	-	Very low initial cost for switching out media, communications

Reservation Fee	$	$	A few tens of thousands of dollars

5.4 Performance against Project Goals

Finally, we compared each alternative to the goals established at the beginning of the project, and how well they support the goals:

Better   Neutral   Worse

Alternative	Maximize Customer Satisfaction	Operate as Efficiently as Possible	Relieve Pain Quickly
Modify Current System	Continues to provide access to reservations and provide options to customers, but may not substantially alter the customer experience.	Maintains current operating cost profile, including more time consuming boarding process. Likely helps ensure vessel is full during peak sailings (but Alternatives 2 & 3 also likely to accomplish this).	Will depend on service provider's ability to accommodate all desired features.
Replace w/ COTS System	System will be thoroughly tested with contractual guarantees related to uptime and reliability; system problems affect more customers (not just KT) so issues get resolved faster.	Lower cost option, limited staff effort to operate and maintain.	Fast to stand up, could quickly address pain related to poor user experience.
Replace w/ Custom System	A system designed to KT specifications could also be designed to maximize customer satisfaction, within the parameters of available space at peak sailings.	The system can be designed for optimal operational ease, but the cost would not be efficient.	A custom system would take the longest to relieve pain.
Proceed w/o Reservation System	Most peak riders would be less satisfied.	More efficient, simpler ticket taking, perhaps fewer staff on docks.	Alleviates reservation system pain, perhaps introduces new pain of waiting. Could be implemented quickly.
Increase Fares	While riders would almost certainly be dissatisfied with the principal of increasing fares, they might be more satisfied to the extent it led to less scarcity on peak sailings. Some riders have expressed a willingness to pay higher fares in order to	Increasing fares on peak sailings would increase operational efficiency by shifting demand.	This could be implemented quickly, but the pain relief might not be evident for some time.

	reliably secure a seat on peak sailings.		
Reservation Fee	The principal of paying for something (a reservation) that was previously available for free will invariably lead to some dissatisfactions, but riders are likely to be satisfied by reduced no-shows and less demand for scarce seats. Customers would have the choice of paying more for a guaranteed seat, or paying less and walking up.	Decreasing no-shows would increase operational efficiency.	This could be implemented quickly. It would also yield pain relief for both riders and staff immediately.

6 Conclusion

We presented the alternatives during a workshop with Kitsap Transit staff. The conclusions reached here were shaped by the discussions and opinions expressed during that meeting.

A number of the options have impediments serious enough to prevent them from serious consideration.

As we discuss further in the Vendor Landscape document, KT's system requirements are unique, at least in North America. Specifically, Kitsap Fast Ferries are the only regularly scheduled commuter ferry transit service with a reservation system for specific trips on specific days. Because of that, there is not a market for commercial software which addresses the need. Thus, while COTS systems (commercial software) has been developed for ferries as well as for the reservation of limited resources of a similar nature, none of it is purpose-built to support repeat users in the nature of commuters, with a repeating schedule. This means that most COTS software is likely to be ill-suited to the task without significant customization.

Any custom system will be expensive with a long implementation timeline, making it a poor fit for KT which needs a fast solution and where the landscape will change dramatically in 2019 when a second operational ferry is put into service. Even if KT could afford to build the perfect system it might well be obsolete before it was deployed.

If Kitsap Transit chose to do away with reservations for the Fast Ferry all together, prior to a second operational ferry coming on line, it would remove a beneficial system that riders have today and, at least in the short term, remove the perceived time benefit for most peak riders, since they would have to line up so far in advance that a walk on ride on Washington State Ferries would be nearly as fast and at a lower fare.

Increasing fares would go against both KT's policy and commitments made during the campaign to secure funding for the fast ferries. Not only was pricing set, but KT promised that pricing would be the same across all fast ferries.

The two options without impediments, continuing with the current system and adding a reservation fee, can be implemented together and each appear to present a viable option. Additionally, whatever option is chosen, KT could develop a mobile application for reservation management that would

answer the request of many riders. We will discuss these two alternatives and the mobile application option further, along with a road map for ORCA integration and specific next steps in our final recommendations.

7 Next Steps

In the next few weeks, Kitsap Transit will publish a survey to its customers. Four Nines has added questions to this to further elicit rider points of view regarding the reservation system. From the feedback there, we hope to gather additional specific ideas on ways to improve the current system, and an understanding of the current level of satisfaction, since several improvements have been made since the start of the project.

Four Nines will review the alternatives presented here with KT staff, and refine them further based on those conversations, and these two activities will inform the recommendations that we make in our final report, which will include a summary of the project activities and deliverables and action items that we feel are appropriate for Kitsap Transit to take.