ATTACHMENT A

King County Metro Transit

ORCA Replacement Project

March 31, 2016

Prepared for:
King County Council

Prepared by:

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ORCA Replacement Project

Introduction

This report responds to questions that were identified during the adoption of the 2015/2016 budget. Ordinance 17941, Section 129, Proviso 1 states:

> *Of the appropriation for capital project 1124456, ORCA replacement implementation, $250,000 shall not be expended or encumbered until the executive transmits a report on ORCA replacement issues and a motion that accepts the report and the motion is passed by the council. The motion shall reference the subject matter, the proviso's ordinance, ordinance section and proviso number in both the title and body of the motion.*
>
> *The report shall include, but not be limited to:*
>
> A. *A work plan identifying when and how the council will be engaged in the decision process for selecting a replacement for the existing ORCA system;*
> B. *Identification of any changes to the King County Code, the regional fare coordination agreement and other Interlocal agreements that may be proposed a part of the project and the anticipated schedule for transmitting the changes;*
> C. *A description of policy issues for council consideration that could affect a replacement system, including but not limited to policies identified in the August 6, 2014 ORCA Needs Analysis and Technology Survey, such as fare simplification, universal elimination of cash transfers and movement to a cashless system;*
> D. *An update of the benefit achievement plan for the project;*
> E. *Identification of impacts to and dependencies on existing transit technology infrastructure and proposed projects including, but not limited to, the .9 MHz network project and mobile ticketing pilot project;*
> F. *Equity and social justice impacts to be considered in the replacement of ORCA; and*
> G. *Network and electronic payment security issues to be considered in the replacement of ORCA.*
>
> *The executive must file the report and motion required by this proviso by March 31, 2016 in the form of a paper original and an electronic copy with the clerk of the council who shall retain the original and provide an electronic copy to all councilmembers, the council chief of staff, the policy staff director and the lead staff for the transportation, economy and environment committee or its successor.*

Background

The ORCA Replacement Project is an effort by the seven Central Puget Sound Region transportation providers to plan for the next generation of electronic fare collection in the region. The participating agencies are: King County Metro, Sound Transit, Community Transit, Pierce Transit, Kitsap Transit, Everett Transit and Washington State Ferries. These agencies together launched the ORCA system in early 2009, following several years of development.

The ORCA system was implemented via a 10-year "design, build, operate and maintain" contract that will end in 2021, at which time vendor support for the system will cease. At that time, the transit agencies need to have a replacement system in place so customers can move seamlessly to the new system. The original regional contribution to ORCA system development was $42 million, with King County contributing $23 million.

The ORCA system built upon the regional fare integration efforts that started in 1999 with the implementation of the Puget Pass system, which established a system of regional passes and transfers to enable transit customers to travel seamlessly throughout the region. The system of passes was designed to reflect the various fare levels for different customer categories on the six transit agencies participating at that time. The ORCA system currently provides 21 regional pass denominations for purchase by customers.

Since the original design of the ORCA system, technology has changed substantially and many of the current elements of the system are out of date. As one example, the current system still relies on phone line communications rather than standard network communications between the vendor and third-party retailers. Retailers do not have these older connections anymore, so they are reluctant to install the older hardware that is required. This has severely limited the expansion of the retail network.

Another example is that ORCA is a "card based" system, meaning that customer information such as account balance resides on the physical card. If the customer adds value or products online, those additions must then be downloaded to all buses and ORCA readers at train, light rail and bus stations, and then to the physical card itself. This results in a time delay of 24 to 48 hours (and sometimes more) between a customer's transaction and getting the data to the customer's card. These delays could be eliminated by using an "account based" system that maintains the customer's information in a centrally managed account. When a customer uses the fare media, the customer's account is checked immediately (in less than a second) to determine pass availability or account balance, and appropriately decremented for the transit fare. Similarly, when the customer loads value to the account, it is available for immediate use. This is similar to the Google Wallet and Apple Pay systems, which make individual charges against the customer's central account. The next generation of ORCA will provide an opportunity for the region to update to more current technology and processes.

In order to support this improved system functionality, the next generation of ORCA will require new devices and real-time communications between the bus and the central system. New hardware to replace the current ORCA equipment will be funded as part of the ORCA replacement project. The essential communication requirements for the next generation of ORCA have already been gathered from the leading vendors who are likely to propose on the new system, and are being used to inform a separate King County project – Replacement of 4.9 Network and Mobile Access Routers, or "Next Generation Wireless."

The policy basis for the ORCA system resides in interlocal agreements (ILAs). Two ILAs have been adopted by the King County Council and other agency boards:

1. April 7, 2003 – Ordinance #14598: "Interlocal Cooperation Agreement for Design, Implementation, Operation and Maintenance of the Regional Fare Coordination System," which was superseded by:
2. March 23, 2009 – Ordinance #16415: "Amended and Restated Interlocal Cooperation Agreement for Design, Implementation, Operation and Maintenance of the Regional Fare Coordination System"

The first agreement guided the system development and the second, which superseded the first, currently guides the day-to-day operation of the system.

As established in the ILA, the regional ORCA system is managed by a Joint Board made up of representatives from each of the agencies. Each agency has equal voting rights for system changes and/or enhancements, and all decisions must be by consensus. As a result, none of the agencies can dictate policies to the others. In addition, the ORCA ILA recognizes that each of the agencies has a council or board responsible for making policy decisions—including local fare policies—for that agency. These provisions govern the agencies as they move into the planning for the next generation of ORCA.

The ORCA Replacement Project to Date

The ORCA Replacement Project Steering Committee includes representatives from each of the ORCA agencies. The project manager is a regionally funded position at Sound Transit. The regional project team will initially be comprised of staff from King County, Community Transit and Sound Transit. (Under the current ORCA system, the King County Water Taxi is under King County Metro's services as Metro is the ORCA agency. Primarily Metro coordinates any system issues including fare or service changes to ensure Water Taxi routes are functioning and collecting correct ORCA fares.)

The new ORCA system will be provided by a fare collection system vendor (or vendors) selected through a competitive bid process. At the time of this report, the regional project team is in place and the planning and design consultant has been selected. The system vendor will not be selected until later in the process.

The *ORCA Next Generation Strategy* report (February 9, 2015), was completed as an initial step in the ORCA replacement planning process. The purpose of this work was to help identify potential opportunities for the next-generation fare collection system. In the original ORCA system, the agencies did not fully evaluate the impacts that replicating existing fare structures might have on the project design and cost. The fundamental assumption was that each agency's existing fare structure would be reflected in system design. That remains the fundamental premise for the next generation of ORCA. However, the ORCA agencies want to be able to understand the internal cost as well as customer implications of maintaining existing fare structures and policies.

The *ORCA Next Generation Strategy* report identified the following strategic objectives for a next generation ORCA system:

- Improve customer experience

  - Programs for unbanked/underbanked—create programs that make it easier for customers without banking relationships to use ORCA to purchase tickets, take advantage of ride discounts and participate fully in any services ORCA may offer
  - Business and institutional programs—continue to provide programs that cater to the needs of local businesses and leverage the scale that their constituents provide
  - Instantaneous availability of loaded value—increase customers satisfaction by eliminating the waiting period for value added to the ORCA cards

- Increase ORCA usage
  - All modes—make ORCA easily usable on all modes of transport
  - Market penetration—make ORCA available through as many venues as possible in addition to the current retail network and ticket machines

- Fiscal responsibility
  - Lower total cost of ownership—ensure that the new system is cost-effective to implement and efficient to operate
  - Lower upgrade and improvement cost—increase use of state-of-the-art technology to create efficiencies and design a system that is modular enough to be easily upgraded as technology changes

- Operational efficiency
  - Roll out new functionality and upgrades faster—use technology and administration to enable the region to quickly assess and pilot new technology features and implement them efficiently
  - Make data easier to access for agencies and public—allow agencies to find, analyze and report information easily

This report also outlined four guidelines for moving forward:

- Leverage what works
- Provide security for agencies and public
- Utilize next generation technologies
- Plan for scalability and future upgrades

This report identified the following fare policy considerations for guiding system development:

- Fare policies must acknowledge and accommodate agency-specific needs. ***The authority to change fare policy resides exclusively with each agency's governing board or council and not with the Joint Board*** [emphasis added]
- Fare policies and technology choices have an impact on the options
- Electronic fare collection should continue to outpace paper products and cash
- Policies and technology that can increase ORCA penetration rates should be emphasized
- New administration models and fare policies are linked and should be considered

With regard to fare simplification, the report acknowledged the success of the ORCA transit agencies in simplifying fares through the system of regional passes, ORCA transfer rules and common rider categories. The report also suggested that the following areas be reviewed and examined for further fare simplification:

- Reviewing current technical business rules with the intent of identifying unused or obsolete rules that make the current system complex
- The elimination of some Business Account fare rules
- The elimination of unused fare programs such as Washington State Ferries' Commercial Account Program
- The elimination of King County Metro's fare zones and peak/off-peak pricing
- The elimination of Sound Transit's fare zones
- The elimination of agency-specific passes issued by Everett Transit, Kitsap Transit, King County Metro, Pierce Transit, and the Washington State Ferries

Some of these are technical business rules that the ORCA agencies could simplify within the current ORCA ILA; others, such as eliminating Metro's fare zones and peak/off-peak pricing, are fare structure changes that would require King County Council approval.

During 2016, King County will be evaluating its fare policies and structures to determine if there are changes that could advance the policy goals. If fare structures are simplified, there could be opportunities to reduce program costs. There could also be impacts, including to the next generation ORCA system, and these impacts would have to be closely examined. King County will have an opportunity to examine the costs and benefits of Metro's existing fare structure and policies as they relate to the new system.

If King County does not make any changes to Metro's fare structure, the existing fare structure will be used to design the next generation ORCA system.

Specific Responses to the Proviso

A. A work plan identifying when and how the council will be engaged in the decision process for selecting a replacement for the existing ORCA system.

The Council's engagement in the process of selecting a replacement system will occur as the Council adopts revisions to the Metro fare policies and fare policy options that may be proposed by the Executive. The project is committed to identifying and raising these choices in a timely manner so that policy guidance from the King County Council and other agency boards can be incorporated. Any changes would be reflected in the business and functional requirements for the ORCA Replacement System. More detail on this process is outlined below.

Table 1 shows the ORCA replacement project work plan. This plan is still under development and is being managed and maintained by the ORCA replacement project manager. Should the ORCA Joint Board conclude that significant changes in current regional coordination efforts are worth serious consideration by policy makers, they will propose convening a Regional Fare Policy Workshop to try to

develop consensus recommendations for such changes. This would involve representatives of the King County Council and the boards of the other agencies. Any such recommendations would need final approval by the full King County Council and other agency boards.

This schedule identifies the period between July and September of 2016 as the time frame when the Region would review and identify any proposed changes to agency fare structures, should Metro and the other ORCA agencies propose any such changes as part of this project.

Table 1: ORCA Replacement Project Work Plan

Phase/Task Name	Duration	Start	Finish
PLANNING PHASE	2 yrs	9/14/2015	12/31/2016
Consultant Procurement	200 days	5/4/2015	2/5/2016
Program Plan	122 days	10/1/2015	3/18/2016
ORCA Survey / Needs Validation	97 days	10/1/2015	2/12/2016
Request for Information (Vendors)	133 days	10/5/2015	4/6/2016
Review Regional Fare Structure	254 days	10/13/2015	9/30/2016
Identify opportunities	15 days	10/13/2015	11/2/2015
High level vendor discussions	15 days	10/20/2015	11/9/2015
Fare Evaluation Team (FET) Workshop(s)	90 days	11/17/2015	3/21/2016
Present simplification options at Orca 2 Steering Committee	0 days	3/22/2016	3/22/2016
Regional FET follow-up discussion	14 days	3/23/2016	4/11/2016
Discuss approach with ORCA Joint Board	0 days	4/11/2016	4/11/2016
Agency Policy Board Workshops	50 days	5/2/2016	7/11/2016
Propose simplifications to Agency Boards	60 days	7/11/2016	9/30/2016
Establish Technical Team	172 days	10/12/2015	6/7/2016
Concept of Operations	80 days	3/21/2016	7/8/2016
Draft Risk Management Plan	20 days	4/15/2016	5/12/2016
Systems Engineering Management Plan	20 days	3/7/2016	4/1/2016
Alternatives Analysis	20 days	6/13/2016	7/8/2016
High-Level Architectural Design	125 days	5/12/2016	10/21/2016
PROCUREMENT PHASE	460 days	6/6/2016	3/9/2018
DESIGN PHASE	180 days	3/12/2018	11/16/2018
DEVELOPMENT AND TESTING PHASE	240 days	11/19/2018	10/18/2019
DEPLOYMENT AND VALIDATION PHASE	440 days	10/21/2019	6/25/2021
TRANSITION PHASE	175 days	5/3/2021	12/31/2021
OPERATIONS AND MAINTENANCE PHASE	0 days	12/31/2021	12/31/2021

B. Identification of any changes to the King County Code, the regional fare coordination agreement and other Interlocal agreements that may be proposed as a part of the project and the anticipated schedule for transmitting the changes.

The current ORCA ILA clearly recognizes that decisions about local transit agency fare policies and fare structure are reserved for each agency's board, while providing for regional fare media, interagency transfer credits using regional media, and regional revenue apportionment to participating agencies.

The next generation of ORCA is not expected to require a new ILA. The project also would not require any changes to regional passes, regional transfer credits, or regional revenue apportionment. As noted in Section A above, should the replacement for ORCA result in recommendations for fare simplification or other changes to regional fares that would require changes to local agency fare structures, the governing bodies of each of the agencies would need to adopt such changes. Any such recommended changes would come before the Council per the schedule in Table 1 above.

As part of the 2017/2018 budget process, Metro staff will be evaluating fare policy as well as fare rates and will be providing information to the Executive and Council prior to budget adoption.

C. A description of policy issues for council consideration that could affect a replacement system, including but not limited to policies identified in the August 6, 2014 ORCA Needs Analysis and Technology Survey, such as fare simplification, universal elimination of cash transfers and movement to a cashless system.

Beginning in 1999, the King County Council and the boards of four other transit agencies (Community Transit, Everett Transit, Pierce Transit and Sound Transit) in the Central Puget Sound Region adopted fare policies establishing regional fare integration as a high priority, to enable transit agency customers to travel seamlessly throughout the region. Later that year, the King County Council and other agency boards adopted the Puget Pass Agreement, which provided for a system of regional passes valid on all partner agencies, a system of intersystem transfer credits and a method for reconciling fare revenue among the participating agencies. This level of regional fare integration was the first of its kind in the nation, and it remains unique in the country today.

These policies were affirmed with the 2003 and 2009 adoption of the ORCA ILAs discussed above. This fare policy direction continues to provide the basis for the ORCA replacement project.

The *ORCA Next Generation Strategy* report identified a number of fare structure issues. Some but not all of these are potentially related to the design of an ORCA replacement system. The report identified fare simplification as an issue with possible implications for the cost of the ORCA replacement system. In addition, fare simplification would make it easier to provide customers with more flexible and innovative pricing in the form of "fare capping."

The ORCA replacement project team has requested information from potential vendors to identify the cost savings that could result from regional fare simplification. Fare capping is an emerging innovation in transit pricing that would substitute a "cap" on monthly transit fares for a monthly pass. This gives

customers the flexibility of "pay as you go" fare payment and the certainty that their fare expenditures will not exceed the price of a pass. This would be a significant advantage for Metro's low-income customers. Even with the reduced ORCA LIFT fare, the monthly pass price is $54. Price capping would allow low-income riders to pay no more than $54 per month, while removing the barrier of the up-front cost of the pass. This would allow customers to take advantage of the price cap, while loading smaller amounts to their account throughout the month. Clearly, the more complicated a fare structure is, the more difficult it would be to design and implement fare capping, and the more difficult it would be for customers to understand.

Of the issues identified in the *ORCA Next Generation Strategy* report, "differing interests among agencies in moving towards cashless fare payment" and "differing policies among agencies regarding cash transfers" have no direct bearing on the design of the next generation of ORCA.

Metro is interested in fare structure changes and fare collection procedures and technology that can speed operations by reducing boarding times. Increased use of ORCA and reduced cash fare payment on the bus help speed up service. Eliminating the zone surcharge during peak hours, ORCA fare incentives and the elimination of cash transfers are just some of the possible fare structure changes that could be made to support this effort. Speeding up service, particularly in downtown Seattle, will be increasingly important as bus service is moved from the Downtown Seattle Transit Tunnel to the surface in the next few years. Fare simplification can also help reduce customer confusion, simplify fare enforcement and reduce fare disputes. Metro will be addressing these options in a forthcoming report to Council in response to another proviso, P7, related to "Cashless Fares."

Any proposed changes to Metro's fare structure or policies will be assessed in terms of Metro's fare policy goals adopted by the King County Council. These policy goals were reviewed in Metro's 2014 *Report on Transit Fares* (pp.7-8) and are summarized below.

Metro's fare system should:

- Meet fare revenue targets and comply with the Fund Management Policies, including maintaining a target cost recovery ratio of 25 percent
- Be easy for customers to understand and use
- Align with regional transit partners
- Reduce costs
- Reflect the cost of service
- Enable all people in King County, including those with low incomes, to use public transportation
- Increase ridership
- Comply with state and federal regulations

Some of these goals conflict with each other. For instance, lowering fares would increase Metro's ridership, but work against meeting Metro's fare recovery targets. Changing Metro's fare structure would necessarily involve making policy tradeoffs between these goals. Metro staff will analyze the fare policy tradeoffs of any recommended changes to simplify Metro's fare structure or increase the use of ORCA and other pre-paid fare media.

D. An update of the benefit achievement plan for the project.

The benefit achievement plan for the project is attached as Appendix A.

E. Identification of impacts to and dependencies on existing transit technology infrastructure and proposed projects including, but not limited to, the 4.9 MHz network project and mobile ticketing pilot project.

With respect to the transit technology infrastructure and projects, ORCA replacement project dependencies include:

On-Board Infrastructure

The systems on board King County buses are highly integrated. For example, the transit radio system, ORCA and other on-board systems are all operated using a single device, the Driver Display Unit (DDU). The DDU was designed and purchased as part of the original ORCA system and will likely be replaced by a new device as part of ORCA replacement. Two areas where this will have a significant impact are:

- System design – The decisions regarding the new system and equipment design must accommodate Metro's unique on-board environment and ensure that we create a "rational driver experience" for all of our coach operators. This includes maintaining a single driver login, organizing the functions in a way that minimizes distractions for operators, and presenting them with essential information when they need it. The new device must have simple menus and a minimum number of key taps.

- Transition – There will be a transition period as new equipment is installed and operating on some buses while other buses are awaiting installation. Depending upon the transition method chosen, system re-engineering and/or equipment placement complications may occur. Any transition method must take into account the integration between Metro's various on-board systems and space constraints in the driver's area.

Replacement of 4.9 Network and Mobile Access Routers Project

Currently, ORCA is a card-based system. Customer account information is stored on the card, and fare rules are stored on the card reader, i.e., fare transaction processor. Fare payment transactions occur when customers tap their cards on the card reader. The back office is updated periodically as these offline devices establish communications and transmit data. For coaches, this generally occurs when they return to the bus bases. There is no need for real-time communication to the back office.

The *ORCA Next Generation Strategy* report, prepared for the ORCA Joint Board, included the recommendation that the new ORCA system be account-based. Account-based systems offer numerous benefits to the customer, including an improved customer experience by providing "instantaneous availability of loaded value," one of the strategic objectives of the new system. With account-based systems, customer account information and fare rules are both stored in the back-office system. When the customer loads their account over the web, the account is immediately updated and the funds are immediately available for use. Typically, the customer can also immediately verify their account balance

from a computer or mobile device. When the customer taps their card (or other form of fare media) on the card reader, the system uses real-time wireless communications to connect with the back-office system and process the fare payment transaction. This is a significant improvement over the current ORCA system, in which a card reload can take 24-48 hours to reach the card readers, where it is stored until the next time the customer taps their card.

Metro is planning its next generation wireless communications system through the Replacement of 4.9 Network and Mobile Access Routers Project. The project requirements include both supporting the current ORCA system's communication needs and planning for the ORCA replacement system's communication needs. For the latter, the Replacement of 4.9 Network and Mobile Access Routers Project relies upon the ORCA Replacement Project's planning documents, vendor feedback from a Request for Information to the fare collection industry, and consultant guidance, to describe the new system's communication needs. The project team is coordinating closely with the ORCA replacement project team to ensure alignment as ORCA replacement plans are refined. This close and ongoing coordination will help manage, mitigate and reduce risk as the requirements for these projects are refined. .

Mobile Ticketing Pilot Project

There are no technical impacts or immediate dependencies between the ORCA Replacement Project and the Mobile Ticketing Pilot Project. The primary goal of the mobile ticketing pilot is to assess if mobile ticketing will help reduce cash transactions on the vehicle and provide customers a convenient way to pay their fares. This pilot is intended to allow Metro to evaluate the efficacy of this solution, as well as to gauge public interest and assist in developing requirements and operational practices for the potential full roll-out of a mobile ticketing system. The system is intended to complement the current ORCA smart card system and provide options for infrequent transit users, visitors from out of town, and any other customers who would otherwise pay by cash.

The mobile ticketing contract includes options for closing down the demonstration after the pilot phase, and for extending the pilot into ongoing operations. The decision about which option to pursue will be addressed in the report that summarizes the results of the demonstration.

F. Equity and social justice impacts to be considered in the replacement of ORCA.

The ORCA replacement project has the potential to support King County's equity and social justice priorities. The replacement system will enable Metro to continue providing discounted fares for:

- Low-income adults (ORCA LIFT)
- Youth
- Seniors and riders with disabilities.

The next generation of ORCA will be designed to give all customers convenient ways to acquire regional transit fare media like the current ORCA cards. Moving ORCA to an open, account-based system will expand options for all customers to access ORCA fare media using their own smart phones/devices or credit cards.

As noted in Section C above, the ORCA replacement system could allow the ORCA agencies to provide customers with "fare capping" instead of purchasing passes. This would be of significant benefit to low-income riders who may find it difficult to pay the full price of a monthly pass all at once.

G. Network and electronic payment security issues to be considered in the replacement of ORCA.

The current ORCA system regularly undergoes system updates to improve electronic payment security and minimize risks in this area. The ORCA Security Committee, representing each ORCA agency and the current vendor, monitors the system and plans and implements system security enhancements on an ongoing basis. The ORCA Security Committee is moving to align its procedures with the recently developed National Institute of Standards and Technology (NIST) Cybersecurity Framework. The updated ORCA Security Framework will provide a foundation for establishing the security of the next generation of ORCA and continuously looking for opportunities to improve our security posture.

In the context of both ORCA and its replacement, the ORCA agencies are working to significantly reduce the Payment Card Industry (PCI) security burden for the region. Through various technology and architecture approaches we are working to remove storage or processing of payment card information on agency networks or equipment. The next generation of ORCA will not solve or eliminate these issues, but we will continue work to address and mitigate PCI security risks to the greatest extent possible. The next generation of ORCA will provide the opportunity to embed enhanced security strategies within the system architecture rather than layering them on top of it. The ORCA replacement system is proposed to be modular, permitting the region to target security issues as they arise and adapt to new threats more easily.

Appendix A. Project Benefits Achievement Plan

IT Project Benefits Achievement Plan (Version 2)

Section 1. What are the purposes of the Benefit Achievement Plan (BAP)?

1. To achieve a clear understanding and focus on the benefits of a project prior to its beginning
2. To update projected benefits of the project as it moves through stages of project approval, implementation, and post-project closure
3. To establish accountability for identifying and achieving benefits
4. To ensure that benefits are achieved

To complete this document fully, please read all of the colored sections and fill in the white cells. For assistance in completing this form, please contact your PSB analyst.

King County Department/Agency Name	DOT/Transit
Project Title	ORCA Replacement Planning
EBS Project Number	

Section 2. Business Owner Accountability

Business Owners are responsible for achieving project benefits and ensuring this Benefit Achievement Plan (BAP) is regularly updated and completed when benefits are achieved. Business Owners are required to be at the deputy department director or higher.

Business Owner Name and Title: Kevin Desmond, Transit General Manager

Section 3. Who is involved in developing the Benefit Achievement Plan?

The development of the BAP should include significant involvement from the business operations or management staff related to this project and the services it will support. Consider involving staff who will be using the technology to help identify the benefits of the project. KCIT business analysts or technology project staff may assist in benefit identification and documentation. List the staff who contribute to the benefit achievement plan below:

Name	Title / Agency	Project Role
Dan Overgaard	Supervisor, DOT Transit Division	Stakeholder
Kathleen McMurray	Supervisor, DOT Transit Division	Stakeholder
Jill Krecklow	Finance Manager, DOT Transit Division	Finance Manager

Section 4. When should the Benefit Achievement Plan be started, updated and completed?

The BAP is intended to be an iterative, evolving document that will be updated as the project evolves, as information is refined or scope changes, and when benefits are finally achieved. Department and agencies (the business owners of project benefits) are required to update this document at the following times or actions:

1. To support initial project request during "gate two" phase of conceptual review.
2. For the annual Benefits report that PSB compiles.
3. To support funding release requests. If there are no changes, simply indicate "review only" in the revision table.
4. When a material scope change is identified and reported.
5. Up to one year after project completion and then annually until it is determined by the business owners that anticipated benefits have been achieved or no further benefits are expected.

Once the project is complete and benefits are achieved and reported, no additional reporting is required.

Please update the document online. Do not delete your previous text. Update the text as necessary and date those updates. Make sure that you upload the updated version to Innotas. The intent is for this single document to show the history of benefits over the course of the project. List any changes in the table in section 5. (If there are no changes, type none)

Section 5. How long will it take to complete the benefit achievement plan?

Completion of the BAP depends on the project's complexity. In general, it should take a few hours to complete this BAP form once there is a shared understanding of the project and what value it will bring to the County. More complex and costly projects may require more extensive analysis. To improve this process in the future, please record the time spent on this in the table below at each stage of revision:

Revision History Table

Stage	Date	Revised By	Description	How long did it take?
Please use conceptual review, budget process, funding release, annual report, project implementation, or project completion.	*Date this document was updated*	*Who did the document updates?*	*A brief summary of what changed in the document. If this is an initial draft, please indicate new. If nothing has changed, indicate "review only."*	*How long did it take to complete or revise the form at this stage?*
Conceptual review	9/4/2014	Kathleen McMurray	New, initial draft	6 hours
Annual Report	2/18/2015	Catherine Boon	Review only	.25 hours
Council Proviso	1/12/2016	Kathleen McMurray	Updates in Section Category #3	.25 hours

Section 6. Description of Project Benefits

Identify the category(ies) of benefits your project will provide and include narrative descriptions of estimated benefits. The benefits of IT investments generally fit into the following four categories:

1) External service benefits: Improving the quality or quantity of services provided to the public
2) Internal service benefits: Improving internal operations, including the quality or quantity of internal services
3) Maintaining service levels by replacing or upgrading older technology, reducing risk of system failures, or providing regulatory compliance
4) Reduced cost to produce services (internal or external)

Each category is described below. Most projects will have benefits in one or two categories. If the project does not have benefits in a category, there is no need to provide information for that category.

What is the primary benefit of your project? After reviewing the benefit categories below, please identify the primary type of benefit for the project. For most projects, the primary type benefit will be Category #2 improving internal operations or Category #3 replacing or upgrading older technology.

Primary project benefit? (Check only one)

☐ Category #1: External service benefits: Improving the quality or quantity of services provided to the public

☐ Category #2: Internal service benefits: Improving internal operations, including the quality or quantity of internal services

X Category #3: Maintaining service levels by replacing or upgrading older technology, reducing risk of system failures, or providing regulatory compliance

☐ Category #4: Reduced cost or cost avoidance to produce services

Category #1: External service benefits: Improving the quality or quantity of services provided to the public. This category is intended for projects that directly benefit the public. This includes improved quality of service, such as faster response times and better access to services for the public.

Example: *If this project to upgrade our licensing software is approved, licenses will be issued in two business days instead of the four days currently required. This is largely due to the ability of the new software to check national and state databases more efficiently. About one-quarter of our customers currently complain about the delay in obtaining a license and this time reduction is expected to eliminate almost all complaints and allow staff resources to be directed to other customer services.*

Example: *If this project to accept on-line reservations is approved, residents will be able to schedule athletic fields over the Internet and make payments by credit card. This will allow scheduling to occur at any time, rather than the current limited hours available for in-person or phone reservations. In-person and phone reservations will still be available.*

The above examples are summaries. Please respond to each question listed below rather than provide a summary.

1. *Describe why you expect the proposed IT investment to produce the benefit(s).*
   This project is to fund King County's participation in the detailed planning and scoping to replace the existing regional ORCA smart card fare collection system. The ORCA agencies have agreed to a number of strategic objectives for the ORCA replacement project of which the following are designed to improve the quality of services provided to the public.
   - *Improve customer experience*
     - *Programs for unbanked/underbanked--create programs that make it easier for customers without banking relationships to use ORCA to purchase tickets, take advantage of ride discounts and participate fully in any services ORCA may offer.*
     - *Business and institutional programs--continue to provide programs that cater to the needs of local businesses and leverage the scale that their constituents provide*
     - *Instantaneous availability of loaded value--increase customer satisfaction by eliminating the waiting period for value added to the ORCA cards*
   - *Increase ORCA usage*
     - *All modes--make ORCA easily usable on all modes of transport*
     - *Market penetration--make ORCA available through as many venues as possible in addition to the current retail network and ticket machines*

2. *How will you measure the benefit(s)? (How will you know if the benefit has been achieved?)*
   This is a planning project, therefore the benefits to the public will not be fully realized at its completion. However, the scope of this project includes development of detailed requirements for the new system. The benefits of this planning project will be measured by the inclusion of the following requirements in the planning project deliverables:
   1. The system must address the needs of the customers with limited or no access to bank accounts.
   2. The system must provide programs that support Metro's institutional customers (such as schools and local businesses).
   3. The system must provide instantaneous availability of loaded value. Note: Currently, due to limitations in the technology, a customer must wait up to 48 hours for fare value purchased via the ORCA website to be available on their ORCA card.
   4. ORCA must be easily available for use on all modes of transportation.
   5. ORCA availability must be expanded beyond the current retail network and ticket vending machines.

3. *What is the current baseline for this measure?*
   The current baseline for this measure is that there are no detailed requirements for a next generation ORCA system.

4. *What is the target for this measure? (How much improvement will this project achieve?)*
   This is a planning project, therefore the benefits to the public will not be fully realized at its completion. Therefore, the target baseline for this measure is a set of detailed requirements for a next generation ORCA system that include the strategies identified to improve the customer experience and to increase ORCA usage.

5. *When is the benefit likely to be achieved?*
   These detailed requirements are likely to be finalized by the end of 2016.

Category #2: Internal service benefits: Improving internal operations, including the quality or quantity of internal services. Be sure to explain the value of such improvements to your operations.

Example: *If this project to acquire hand-held devices and develop custom software is approved, inspectors will be able to check an average of 10 sites per day compared with the average of 6 currently checked. This will allow the agency to handle the 20% increase in workload projected in the next three years without adding more staff..*

Example: *If this project to implement a systems management tool for the Service Center is implemented we will be able to reduce the duration of technology outages during major incidents by 30 percent. We also will reduce the wait time for customers on hold with the Service Center. These improvements will allow us to redirect an existing position to other priorities.*

Example: *The Active Directory Consolidation project is part of an overall effort to promote IT standardization. This project will make the current management of user accounts, applications, and devices easier for IT administrators at Public Health because the end user experience will also be improved by having a single sign-on to applications such as Lync, SharePoint, and Outlook. Our success will be measured by having a single set of procedures and security models rather than the multiple ones that now exist.*

The above examples are summaries. Please respond to each question listed below rather than provide a summary.

1. *Describe why you expect the proposed IT investment to produce the benefit(s).*
   This project is to fund King County's participation in the detailed planning and scoping to replace the existing regional ORCA smart card fare collection system. The ORCA agencies have agreed to a number of strategic objectives for the ORCA replacement project of which the following are designed to improve internal operations.
   - *Fiscal responsibility*
     - *Lower Total Cost of Ownership (TCO)--ensure that the new system is cost-effective to implement and efficient to operate.*
     - *Lower upgrade and improvement costs—increase the use of state-of-the-art technology to create efficiencies, and design a system that is modular enough to be easily upgraded as technology changes*
   - *Operational efficiency*
     - *Roll out new functionality and upgrades faster--use technology and governance to enable the region to quickly assess and pilot new technology features and implement them efficiently.*
     - *Make data easier to access for agencies and public--allow agencies to find, analyze and report information easily.*

2. *How will you measure the benefit(s)? (How will you know if the benefit has been achieved?)*
   This is a planning project, therefore the benefits to King County will not be fully realized at its completion. However, the scope of this project includes development of detailed requirements for the new system. The benefits of this planning project will be measured by the inclusion of the following requirements in the planning project deliverables:
   1. The system must be cost effective to implement and efficient to operate.
   2. The system must use state-of-the-art technology and be easily upgraded as technology changes.
   3. The system must provide the ability to quickly and efficiently roll out new functionality and upgrades.

4. The system must provide easy access to data by allowing agencies to find, analyze and report information easily.

3. *What is the current baseline for this measure?*
The current baseline for this measure is that there are no detailed requirements for a next generation ORCA system.

4. *What is the target for this measure? (How much improvement will this project achieve?)*
This is a planning project, therefore the benefits to the agency will not be fully realized at its completion. Therefore, the target baseline for this measure is a set of detailed requirements for a next generation ORCA system that include strategies that are fiscally responsible and improve operational efficiency

5. *When is the benefit likely to be achieved?*
These detailed requirements are likely to be finalized by the end of 2016.

Category #3: Projects that maintain service at current levels by either replacing or upgrading older technology, reducing the risk of system failures, or providing regulatory compliance. If the project will result in improvements to external or internal services or cost savings, please note those benefits in the appropriate categories.

Example: *This project will upgrade PeopleSoft from 9.0 to 9.2. This upgrade is necessary because vendor support for 9.0 will be ending in 2015 and that creates a large risk for the County. Without vendor support the County will not receive tax and regulatory updates and will likely result in errors in complying with tax and regulatory issues.*

Example: *This project will implement an Advanced Authentication solution which will allow King County to comply with U. S. Department of Justice - Federal Bureau of Investigation, Criminal Justice Information Services (CJIS) Security Policy Version 5.0, Section 5.6.2.2. Effective September 30, 2013, advanced authentication (AA) must be in place in order to access sensitive CJIS information.*

1. *Describe why you are proposing to upgrade or replace existing technology. Please include age of existing technology and the average life cycle replacement for this type of technology.*

This project is to fund King County's participation in the detailed planning and scoping to replace the existing regional ORCA smart card fare collection system. The ORCA system was deployed in 2009 and is now used for nearly 65% of all fares collected on King County Metro service. The system includes field devices (ORCA readers and other devices) that are operated by the 7 participating ORCA agencies (Community Transit, Everett Transit, Kitsap Transit, Pierce Transit, Sound Transit, Washington State Ferries and King County Metro). In addition, there is a central clearinghouse that stores ORCA data and distributes fare revenue based upon a complex set of business rules established by the ORCA agencies. This clearinghouse is hosted and operated by the ORCA contractor under an operating and maintenance agreement. This agreement ~~ends in 2020~~ is effective through 2021.

King County and its partner agencies are starting to plan for the next generation of fare collection in the Puget Sound region. Since King County is the largest transit operator in the region and has significant interest in influencing the design and strategic direction for the new system, its participation in the planning and procurement for the new system is critical.

If this project to fund King County's participation in the detailed planning and scoping to replace the existing ORCA smart card fare collection system is approved, King County will be able to properly

participate in the regional planning effort. The scope of this effort will be participation in the regional planning process, the development of detailed requirements, and the possible start of a procurement process for the replacement system.

Transit expects to submit a follow-on request with system procurement and implementation costs in the 2017/2018 budget cycle.

2. *If the primary reason for the project is risk reduction project, please estimate the probability of the risk or describe how likely it is to occur.*

The ORCA clearinghouse collects, reconciles and apportions fare revenue between King County and the other six participating ORCA agencies. The ORCA vendor maintains and operates the ORCA clearinghouse under an operating agreement that expires in ~~2020~~ 2021. An extension of this agreement is extremely unlikely. Should the agreement end and the clearinghouse cease to operate without a replacement system in place, King County will be without its primary fare collection system. This is a significant risk to business continuity.

In addition, the ORCA equipment and clearinghouse systems are approaching end of life, from a technology perspective, and by ~~2020~~ 2021 will be obsolete.

For these reasons, the ORCA Joint Board (General Managers and CEOs of the participating agencies) has initiated a planning project to define a next generation ORCA system that will build on the success of the current system while also improving the experience for both the agencies and customers. If Metro is not able to fully participate in the planning and requirements definition phase of this effort, the risk is high that Metro will not be in a position to influence the strategic direction and that its needs will not be adequately met by the new system.

Category #4: Reduced cost to produce service (external or internal) or cost avoidance
This category is for those projects that will reduce the costs to deliver a county service (external or internal). The information provided here should be consistent with the information in the cost-benefit analysis (CBA) form. Please describe how the cost savings will be used by your organization. This category also includes cost avoidance. Cost avoidance is those costs that the County would need to pay, has the capacity and intent to pay, but will be avoided due to the project.

Example: *Reduced cost to produce service. If this project to install accounts payable software is approved, we will automate three tasks that are currently done manually by agency and central purchasing employees. Based on experience of other users of the software, this will reduce processing time from the current average of ten days to less than one. This will allow us to take advantage of prompt payment discounts for over $15,000,000 of annual purchases. These discounts average 2%, yielding annual savings of about $300,000. This will result in savings in department expenditures for those items qualifying for prompt payment discounts.*

Example: *Cost Avoidance. Moving to this new vendor that uses a SaaS product, we will avoid the need to upgrade the system to the newest version which goes end-of-life at the end of next year. We were required to make this upgrade due to regulatory reasons, so this represents a cost avoidance of $100,000.*

The above examples are summaries. Please respond to each question listed below rather than provide a summary.

1. *Describe why you expect the proposed IT investment to reduce costs?*
2. *How will you measure the cost reduction or cost avoidance? (How will you know if the benefit has been achieved)*
3. *What is the current baseline?*
4. *What is the target for this measure? (How much savings will this project achieve)*
5. *When is the cost reduction likely to be achieved?*

Section 7. Benefit Achievement Summary

Benefit Achievement Summary

To be completed when benefits have been achieved or no further benefits are expected. *For each of the benefits you identified above, explain whether benefits were achieved at target levels. Please include both quantitative measures and qualitative descriptions of benefits, including any monetary benefits. Use the measures identified above. If not achieved, explain why.*

Example: *This project, to repair an emergency radio tower, was successfully completed in April 2014. The anticipated benefit was to maintain current service levels at 99.999% up time for an additional five years. This project is currently functioning at 99.999% up-time and will report annually for the next five years on up-time levels.*

If one of these towers failed physically, the cost to the county would be enormous, generally in the neighborhood of $500K - $1 Million per tower depending on the construction techniques and size. User agencies on the emergency radio system will benefit by having infrastructure systems in place that will be assured of not experiencing catastrophic failures due to lack of maintenance.

Example: *This project to automate accounts payable software was implemented and did improve the processing time average. The average time was reduced from 10 days to 2 days, not quite reaching the 1 day target. Additionally, only 20 percent of purchases received a prompt payment discount resulting in less cost swings than anticipated. We did not meet the target because there were fewer purchases that qualified for prompt payment than originally estimated.*

Example:

Metric Description	Metrics	Baseline	Target	Actual
Reduce cost to deliver service. This project reduced processing time from the current average of ten days to less than one allowing us to take advantage of prompt payment discounts.	*Processing Time annual savings, and percentage of purchases receiving prompt payment discounts*	• *10 days processing time* • *10 percent of purchases are receiving discount* • *Savings of $100,000*	• *1 day processing time* • *30 percent of purchases are receiving prompt payment discounts* • *$400,000 savings*	*2 day processing time* *20 percent of purchases are receiving prompt payment discounts* *$200,000 savings*