



King County

## CASHLESS FARE COLLECTION BUSINESS PLAN



TECHNICAL MEMORANDUM

MAY 8, 2013



## DOCUMENT CONTROL

<b>Client:</b>	King County
<b>Project Name:</b>	ORCA Fare Collection Study
<b>Report Title:</b>	Cashless Fare Collection Business Plan
<b>IBI Reference:</b>	S2-31080
<b>Version:</b>	15 – Final Issue to Client
<b>Digital Master:</b>	J:\31080_ORCAfare\5.0 Design (Work) Phase\Business Plan
<b>Originator:</b>	Erin King
<b>Reviewer:</b>	Paul Lavallee
<b>Authorization:</b>	Paul Lavallee
<b>Circulation List:</b>	Randy Knapick, Brittany Petersen, Jill MacKay
<b>History:</b>	

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
Cashless Defined .....	1
Cashless Rationale .....	1
Guiding Principles .....	2
Methodology .....	3
Model Outputs .....	3
Business View .....	3
<b>1. INTRODUCTION .....</b>	<b>4</b>
1.1 Purpose.....	4
1.2 Why Go Cashless? .....	4
1.3 What is Covered in this Business Plan? .....	4
<b>2. PREVIOUS PROJECT WORK.....</b>	<b>5</b>
2.1 Guiding Principles .....	5
2.2 Market Segments .....	6
2.3 Toolkit Strategies.....	9
2.3.1 Fare structure incentive (F) .....	9
2.3.2 Distribution (D) .....	10
2.3.3 Partnerships (P) .....	11
2.3.4 Marketing (M) .....	11
2.3.5 Technology (T) .....	11
<b>3. MODEL DETAILS.....</b>	<b>12</b>
3.1 Model Inputs.....	12
3.2 Key Assumptions.....	13
3.3 Cost Estimates .....	14
3.4 Model Outputs.....	15
3.4.1 Cashless Strategy Impact .....	15
3.4.2 Cashless Strategy Cost .....	16
3.4.3 Application of impact to Cost Effectiveness .....	16
<b>4. IMPLEMENTATION PLAN .....</b>	<b>19</b>
4.1 Key Considerations .....	19
4.1.1 Near-Term: Rapid Impact .....	20
4.1.2 Mid-Term: Key Investments.....	21
4.1.3 Long-Term: Target Outliers.....	21
4.1.4 Core versus Supplemental .....	22
4.2 Costs and Conversion Rates.....	22

## TABLE OF CONTENTS (CONT'D)

4.2.1 Model Output Assumptions and Considerations .....	24
4.2.2 Model Evolution .....	25
5. BUSINESS VIEW .....	26
6. NEXT STEPS.....	28

## FIGURES

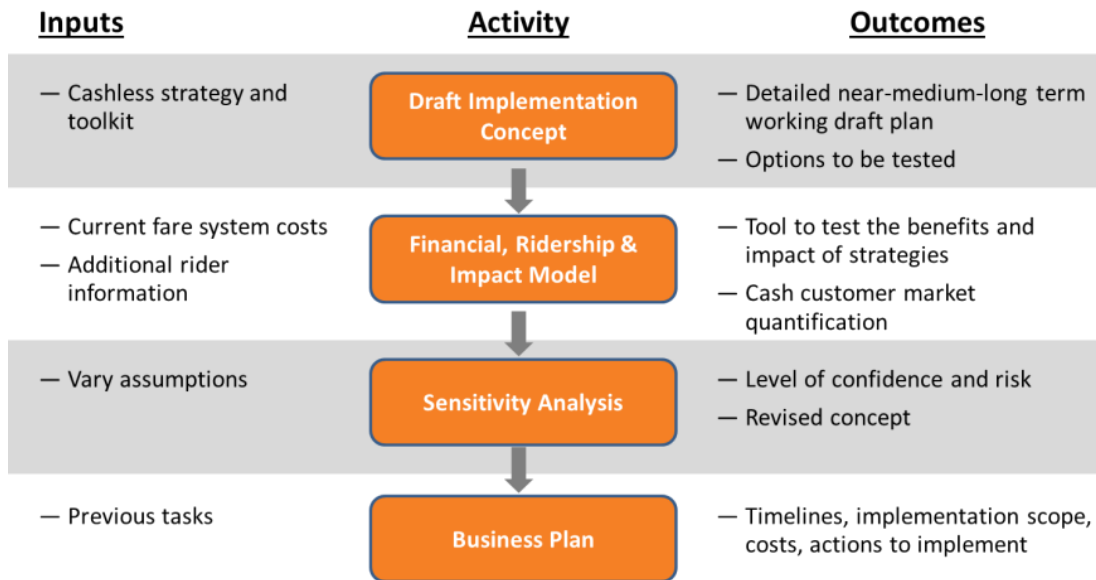
Figure 1: Cashless Fare Collection Project Workflow.....	1
Figure 2: The Tipping Point for Removing Fareboxes .....	2
Figure 3: Matching Guiding Principles to Rider Segments .....	2
Figure 4: Matching Guiding Principles to Rider Segments .....	6
Figure 5: Translating Rider Groups into Sub-Markets for Analysis.....	8
Figure 6: Cashless “Toolkit” Summary.....	10
Figure 7: Strategy Effectiveness Model Inputs and Outputs.....	13
Figure 8: Ranking of Strategies by Impact.....	15
Figure 9: Ranking of Strategies by Cost Effectiveness.....	16
Figure 10: Cost versus Impact of Strategies.....	18
Figure 11: Model Results .....	23
Figure 12: Cashless Conversion and Cost over Time .....	23

## TABLES

Table 1: Market Segments Detailed.....	7
Table 2: Strategy Impact Level per Adoption Rates .....	14
Table 3: Years 1 to 3 – Rapid Impact Strategies .....	20
Table 4: Years 3 to 6 – Technology Boom.....	21
Table 5: Years 6 to 10 – Pick up the Outliers .....	21
Table 6: Business View - High-level Cost Summary.....	27

## Executive Summary

This document presents a ten-year business plan for the migration of the King County Metro (KCM) transit system to cashless onboard payment. It is based on preceding analysis of rider profiles, ORCA technological capabilities, operational considerations, and international peer agency best practices, as well as consultations with senior management at King County Metro. Figure 1 summarizes the business plan development process inputs, activities and outcomes.



**Figure 1: Cashless Fare Collection Project Workflow**

### Cashless Defined

For purposes of this plan, “cashless” fare payment is defined as the elimination of onboard cash collection through a conventional farebox system such as exists today. Instead, cash would be collected off-board through ticket vending machines, KCM Customer Service Centers, and/or third-party retail points of sale with the ultimate objective of reducing or even eliminating off-board cash transactions through maximized use of electronic payment methods. Electronic payment methods may include the existing ORCA smartcard, future ORCA system enhancements, and other existing or emerging means of consumer electronic payment such as credit cards and e-wallets.

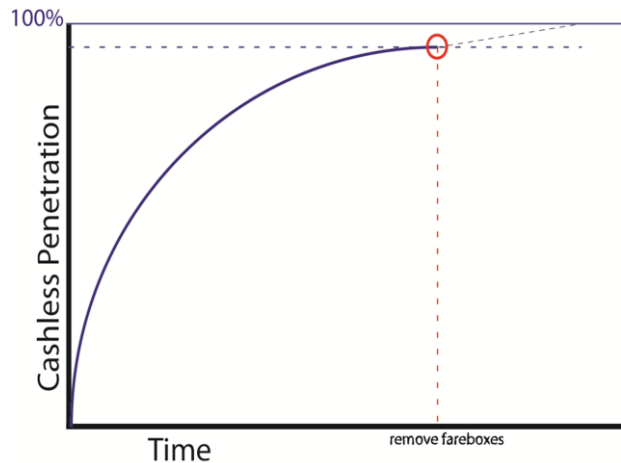
### Cashless Rationale

Why consider cashless? By applying various strategies intended to move the penetration of electronic payment media close to 100%, King County Metro can consider eliminating

the onboard cash fareboxes before the end of the useful life of this equipment. The capital funding required to replace the onboard farebox infrastructure would then become available for investments in electronic fare payment enhancements or other agency priorities. The lifespan of the current KCM fareboxes is expected to be roughly 5 additional years. However, the cost to maintain the fareboxes will increase over time.

Reducing onboard cash payment is expected to have other positive impacts, including:

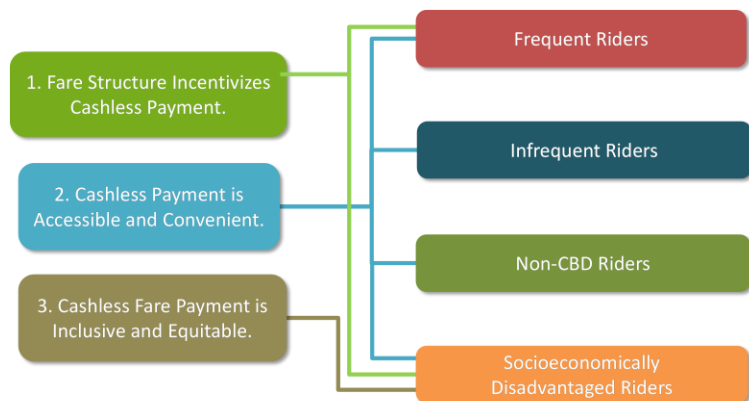
- **Reducing or eliminating the costs of cash handling and processing.**
- **Reducing the level of driver interaction with fare system.** This includes fare enforcement/disputes and management of fare collection equipment failures.
- **Expediting passenger boarding.** Boarding time for electronic payment is significantly less than for cash customers (on the order of 2 seconds vs. 8 seconds), resulting in reduced vehicle dwell time and improved operational reliability, particularly at high-volume stops like those in downtown Seattle.
- **Increasing customer convenience and choice in fare payment.** This increases the overall convenience and attractiveness of riding King County Metro.



**Figure 2: The Tipping Point for Removing Fareboxes**

**Guiding Principles**

Based on previous studies provided by KCM that looked into the characteristics of cash-dependent customer segments and behaviors, the cashless conversion analysis is built upon three guiding principles that would maximize cashless market share if fully present in the transit market environment.



**Figure 3: Matching Guiding Principles to Rider Segments**

The three principles, taken in combination, minimize the barriers of the four target Rider Groups (discussed later in this document) that prevent them from going cashless. The first principle, providing Fare Structure Incentives, targets frequent riders and addresses

the barriers of low income riders. The second principle, Accessibility and Convenience, is paramount for infrequent riders but also benefits all groups. The third principle, Inclusivity and Equity for all socioeconomically disadvantaged rider groups, may require focused KCM initiatives.

## Methodology

The development of the business plan was informed through the use of existing data and reports from King County Metro (particularly the 2011 Rider/Non-Rider Survey) and consultations with King County Metro staff.

The project team then developed a model to analyze the potential impact of the “toolkit” of cashless fare strategies identified in the Draft Implementation Concept (Appendix B). The model estimates the effectiveness of individual strategies and packages of strategies in attracting new cashless riders from the existing cash rider population. Details of the model analysis and assumptions are discussed later in this report.

The effectiveness of strategies in converting riders to cashless payment, combined with capital/operating costs, interdependencies, and deployment timelines, were used to evaluate implementation options and to develop the implementation plan discussed in this document.

## Model Outputs

The outputs from the model are focused on identifying the potential impacts of each cashless conversion strategy on each of the twelve identified submarkets in terms of the number of riders and corresponding trips converted. Because a given strategy would not be deployed in a vacuum, the model also looks at combinations of strategies. Costs are also factored in from a programmatic, per-trip and per-rider perspective.

## Business View

As this is a business plan, it is important to consider the year-over-year cost implications. Costs for each strategy were identified in the model, and the business plan itself considers a ten-year implementation plan with per-year capital, maintenance, and operations costs.

## 1. Introduction

### 1.1 Purpose

This document presents a plan for King County Metro (KCM) to move to a fare collection business model where cash is no longer collected on the bus (“cashless”). Instead, all riders will present prepaid media (e.g., ORCA card) or some other prepaid or cashless fare instrument.

### 1.2 Why Go Cashless?

The key reasons for KCM to consider moving to a cashless onboard fare collection model include:

- Reducing or eliminating the costs of cash fare handling and processing;
- Reducing the level of driver interaction with the fare system;
- Expediting passenger boarding; and
- Increasing customer convenience and choice in fare payment.

These motivations provided the primary drivers and focus for the project work.

### 1.3 What is Covered in this Business Plan?

The Business Plan is organized by the following sections:

**Section 2: Previous Project Work** – this section describes the project work completed to-date, including a description of the market segments and toolkit strategies developed in conjunction with King County that were the primary inputs to the model development.

**Section 3: Model Details** – this section discusses the model that was developed to analyze the toolkit strategies and includes the impacts to market segments, capital costs, operations and maintenance costs, and overall impacts of implementing each strategy.

**Section 4: Implementation Plan** – this section provides recommendations on how KCM can deploy the toolkit strategies in combination, considering that the effectiveness of many of the strategies can be increased in the presence of others.

**Section 5: Business View** – this section provides a projected schedule and costs, both capital and ongoing operations and maintenance, for each implementation plan phase and strategy.

**Section 6: Next Steps** – this section identifies the next steps KCM should take to move forward with implementation.



## 2. Previous Project Work

In order to provide a more complete picture of the work done to analyze cashless options, this section describes the work that was completed prior to developing the cashless strategy model. Specifically, an Implementation Concept for cashless fare collection was developed through workshop sessions with KCM, and this concept formed the basis for the business plan analysis. The key points of the Implementation Concept are described below.

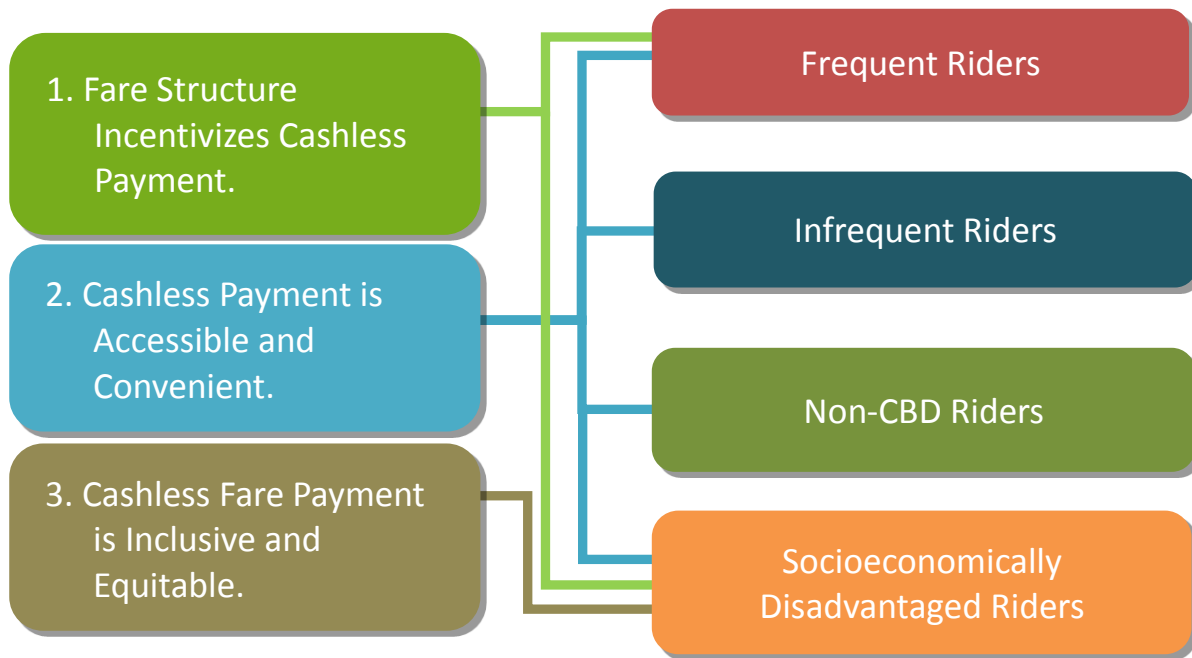
### 2.1 Guiding Principles

Based on a previously completed rider survey provided by KCM that looked into the characteristics of existing cash-dependent customer segments and behaviors, the cashless conversion strategy is built upon three guiding principles that, taken together, are intended to maximize cashless market share.

**Principle #1 – Fare Structure Incentivizes Cashless Payment.** KCM can use fare structure changes and new rider incentives to increase the appeal of cashless payment. These strategies are targeted towards frequent riders who need an additional incentive to alter their existing cash payment behavior. An example would be to offer a cashless fare discount, as is offered in Boston, Los Angeles, and London for users of their smartcard systems. Policies and Incentives target the “natural” audience for the ORCA card without requiring substantial investments in new technology infrastructure or distribution channels. For this reason, these strategies have the lowest cost per new cashless rider and are the focus of the near-term implementation plan (in the next 0-3 years).

**Principle #2 – Cashless Payment is Accessible and Convenient.** The rider survey indicates that for some travelers, particularly those who are infrequent riders and/or do not travel to the central business district (CBD) or U-District, there are limits to the appeal and practicality of the existing ORCA technology and distribution network. To reach these customers, it is necessary to invest in new payment platforms and/or distribution networks to capture an increased cashless market share. Example strategies may include open payment, e-wallets, and/or expanded retail distribution. Due to the capital investments and new operating costs introduced from new technologies and distribution channels, Access and Convenience strategies will result in higher costs per new cashless rider than Policies and Incentives. Many strategies also involve significant lead times to plan, fund, and implement these strategies, so they are weighted towards the medium- (3-6 years) and long-term (6-10 years) periods of the implementation plan.

**Principle #3 – Cashless Payment is Inclusive and Equitable.** As a public service, the cashless conversion strategy must ensure that public transportation services remain accessible and equitable. While cashless payment is a departure from established practices and habits, its implementation must allow for equal access without causing undue burden to vulnerable or disadvantaged populations. Specific strategies may include community partnerships, discount programs, and/or points of sale targeted to socioeconomically disadvantaged areas. Facilitating cashless fare payment by these populations is likely to result in the highest cost per new cashless rider.



**Figure 4: Matching Guiding Principles to Rider Segments**

The three principles, taken in combination, address the barriers of the four target Rider Groups (discussed further later in this document). Fare Structure primarily incentivizes frequent riders and addresses some barriers of low income riders. Inclusivity and Equity for all socioeconomically disadvantaged rider groups will require focused KCM initiatives. Accessibility and Convenience is paramount for infrequent riders but also benefits all groups.

**2.2 Market Segments**

Previous market analysis provided by KCM indicates that the motivations for using cash vary among rider market segments. Cashless strategies must be responsive to rider market needs, with a clear value proposition to the customer and KCM. Therefore, because a one-sized approach would not fit all customers, it was logical to identify the key customer market segments to be targeted so that specific strategies could be tailored to each.

Four key target market segments were identified:

1. **Frequent Riders** are those who have made more than 11 trips in the past 30 days and consider cash their primary payment method. They are approximately 13% of the cash-paying market and a 39% of the overall Metro rider market. Frequent riders generally cite a lack of motivation to convert to a cashless product, cash-flow issues, and privacy concerns for their continued use of cash.
2. **Infrequent Riders** use transit one to five trips per month, and to a lesser extent, also include “regular” riders using transit five to ten times per month. They are approximately 56% of the cash payment market and 43% of the overall rider market and say that they do not travel frequently enough to maintain an ORCA card or pass, as well as perceive a lack of convenience in doing so.

Rider Group	Description	Relative Market Size, % Survey Responses	Cash Payment Share	Key Reasons Stated for Cash Fare Payment
<b>Frequent Riders</b>	About 13% of Frequent Regular Travelers (11+ trips per month) indicate cash as their primary payment method.	Large (39%)	13%	<ul style="list-style-type: none"> <li>▪ “Inertia”/un-motivated</li> <li>▪ Personal cash flow</li> <li>▪ Privacy concerns</li> </ul>
<b>Infrequent Riders</b>	Use transit 1-4 trips per month. To a lesser extent, trends are valid for travelers making 5-10 trips per month (Regular Riders)	Large (43%)	56%	<ul style="list-style-type: none"> <li>▪ Do not travel frequently enough to maintain a card/account</li> <li>▪ Low perceived convenience</li> </ul>
<b>Non-CBD Riders</b>	Customers whose primary destination is outside of downtown Seattle or the U District.	Large (57%)	40%	<ul style="list-style-type: none"> <li>▪ Lower accessibility to KCM customer service centers/ORCA recharge locations</li> <li>▪ Lower participation in employer-based transit pass programs</li> </ul>
<b>Socioeconomically Disadvantaged Riders</b>	Rider-households with annual income of \$25,000 or less.	Low Income: Medium (12%)	Low Income: 42%	<ul style="list-style-type: none"> <li>▪ Personal cash flow</li> <li>▪ “Unbanked” persons</li> <li>▪ Language/cultural factors</li> <li>▪ Accessibility to sales outlets/recharging near home or place of work</li> <li>▪ Less familiar/comfortable with technologies</li> <li>▪ Disabilities or other impairments</li> </ul>

**Table 1: Market Segments Detailed**

3. **Non-Central Business District (CBD)** riders are those whose primary destination is outside of downtown Seattle or the University District. These riders may be frequent, infrequent, or regular riders, and comprise 40% of the cash payment market. They cite less access to KCM customer service/ORCA recharge locations and less participation to employer transit pass programs as their reasons for continuing to use cash.
4. **Socio-economically Disadvantaged** riders are rider households with annual incomes of \$25,000 or less. They may also fit into any of the above groups and comprise 42% of cash riders. They cite personal cash flow, lack of bank usage, language/cultural barriers, accessibility to customer service, and lack of familiarity with technology as impediments to conversion.

As noted in the above text, there is some overlap between the market groups. As a key element of the modeling work was to estimate the size of each submarket, these four groups needed to be further segmented.

The frequent and infrequent rider groups were redefined as riders who travel above 11 trips per month and below 5 trips per month, respectively. A third rider-frequency category was introduced to represent moderate-frequency riders (between 6 and 10 trips per month). The combination of three possible trip frequencies, two geographic characteristics, and two socioeconomic groups led to the identification of 12 distinct rider submarkets for analysis (3 x 2 x 2 = 12).

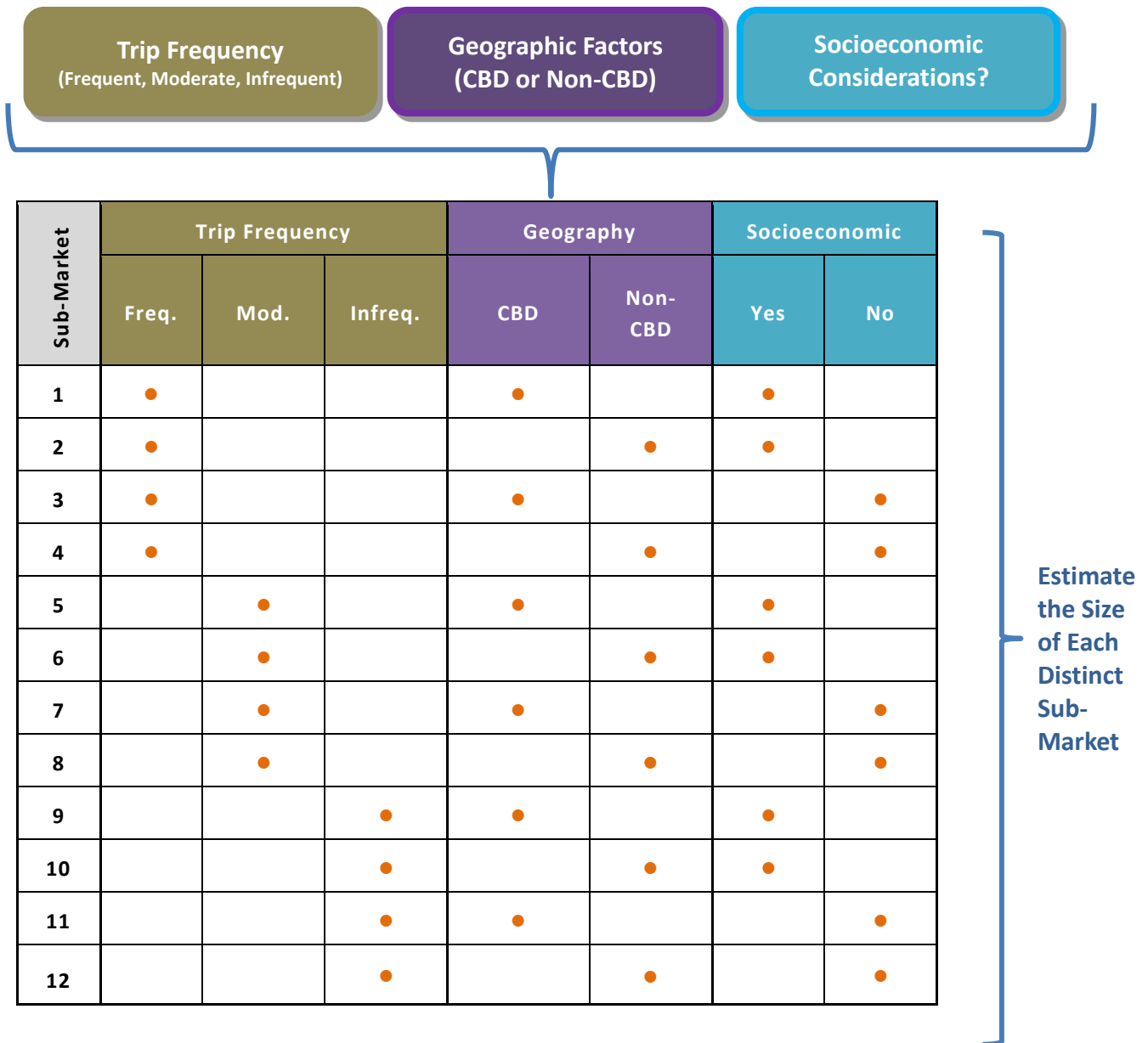


Figure 5: Translating Rider Groups into Sub-Markets for Analysis

With these twelve submarkets in mind, the cashless model would be able to be more sensitive to the different impact that various implementation strategies would have on converting a rider to use a cashless fare payment method.

## 2.3 Toolkit Strategies

Considering the cash-paying customers (in terms of the submarkets), the next effort focused on developing the toolkit of strategies that could be implemented to encourage conversion to cashless methods.

Strategies in the categories of Fare Structure Incentive (F), Distribution (D), Partnerships (P), Marketing (M), and Technology (T) were identified that could serve to overcome the barriers to cashless payment previously cited in customer surveys by the various submarkets.

Fare Structure Incentive (F) strategies refer to those that adjust the fare in some way to incentivize cashless payment. While price is a strong motivator, caution must be taken to avoid putting the stick before the carrot and potentially having an excessive impact on socioeconomic riders without providing other options. Distribution (D) strategies involve making it easier for customers to obtain various cashless products. Partnership (P) and Marketing (M) strategies involve working with community and retail partners to provide customer information and promote the use of cashless products. Finally, Technology (T) strategies involve the use of new mobile and personal computing technologies to provide new options for cashless customers. Generally, the technology options appeal to customers who have already adopted cashless fare payment; however, they also support ease of use for all customers.

Within these categories, the following strategies were identified and evaluated.

### 2.3.1 FARE STRUCTURE INCENTIVE (F)

- **F1: Cashless Fare Discount** – Offer discount below the cost of cash payment.
- **F2: Week and Day KCM Pass Products** – Offer week and/or day passes for KCM-only travel. This incentive has been used by peer agencies to resolve Title VI arguments over fare increases.
- **F4: Eliminate Free Cash Transfers** – Offer free transfers to cashless customers; charge for cash transfers.

Note that three of the originally identified fare structure strategies shown on the following page in Figure 6 were dropped from further consideration per feedback from KCM during the Implementation Concept workshop session.

2.3.2 DISTRIBUTION (D)

- D1: New Single-ticket TVMs** – Offer single-ticket TVMs that print non-permanent new single non-cards or paper tickets from parking ticket-sized machines. KCM is currently exploring procurement of this style of TVM in locations such as along the 3<sup>rd</sup> Avenue Corridor through the Self-Serve ORCA & Ticket Vending Machines project.
- D2: Expand ST-type TVM Locations to Obtain ORCA** – Deployment of existing full-service ST-Type TVMs in new locations (in addition to planned 2012/2013 installations) to expand access and convenience to cashless payment. Deployment feasibility is limited by high capital and operating costs.
- D3: Add ORCA Retail Re-value Locations** – Add more ORCA re-value locations as a lower-cost means of expanding the existing ORCA retail network. The most effective strategy for success with this method would be to target geographic regions that are not currently served by a retail location in an effort to reach additional cashless customers.
- D4: Pre-loaded Fare Media at Retail Locations** – Sell pre-loaded fare media at retail locations, similar to the sale of retail gift cards at supermarkets. A similar step has been taken by the ORCA joint board, recently making a decision to allow existing retail outlets to sell new ORCA cards. This action is currently being implemented.
- D5: Enhance Online Sales via Mobile App** – A mobile application for maintaining ORCA accounts could attract a higher share of the smart phone enabled users. Aside from converting new cashless *riders*, there is potential to increase the number of cashless *trips* made by ORCA-holding passengers. The share of riders who currently reload their cards at ST-type TVMs would have access to a new solution to reload empty ORCA cards.
- D6: At-Home Re-value Systems** – The concept of at-home retail re-value systems has recently been introduced to KCM and could be an opportunity to deploy low-cost reloading solutions for homes and businesses.

F - Fare Structure	
F1	Cashless fare discount
F2	Week and day KCM pass products
F3	Price capping
F4	Eliminate free cash transfers
F5	Flat fare for multi-zone trips
F6	Cashless means-based discounts
D - Distribution	
D1	New single-ticket TVMs
D2	Expand ST-type TVM locations to obtain ORCA
D3	Add ORCA retail re-value locations
D4	Pre-loaded ORCA fare media at retail locations
D5	Enhance online sales via mobile application
D6	At-home re-value systems
P - Partnerships	
P1	Community organization partnerships
P2	Continue to expand business accounts
P3	Expand marketing partnerships
M - Marketing	
M1	Targeted customer outreach
M2	ORCA card fee promotions
T - Technology	
T1	Pilot open and mobile payment technologies
T2	Implement open and mobile payment technologies
T3	Disposable cashless chip ticket

Figure 6: Cashless “Toolkit” Summary

### 2.3.3 PARTNERSHIPS (P)

- **P1: Community Organization Partnerships** – Leverage community organizations, human service organizations, charities, and other partners to provide access, training, and/or distribution of cashless fare media to socioeconomically challenged populations.
- **P2: Continue to Expand Business Accounts** – Expand existing KCM business account programs for both schools and employers that could be enhanced as new opportunities arise. Programs such as ORCA Business Choice and Passport could be expanded to a larger share of local employers and promoted within their organizations to reach new non-cash customers. Partnerships with additional schools and universities could reach an expanded group of youth passengers aged 6 to 18.
- **P3: Expand Marketing Partnerships** – Partner with prominent retailers in King County for cooperative marketing and/or payment programs. Such partnerships are also an opportunity for expanded distribution.

### 2.3.4 MARKETING (M)

- **M1: Targeted Customer Outreach** – Targeted marketing through tabling, mailings, bus ads, etc., to reach cash customers
- **M2: ORCA Card Fee Promotions** – Waive or reduce \$5 ORCA fee for targeted cash users. Has been used as an incentive for toll customers, certain neighborhoods, etc.

### 2.3.5 TECHNOLOGY (T)

- **T1: Pilot Open and Mobile Payment Technologies** – Introduce new fare media ticketing through near-field communications (NFC) or other emerging consumer electronic payment technologies. The pilot program model allows for proof of concept and study of consumer response, technology effectiveness, and other operational considerations prior to a full-scale investment.

Note that in this context, “open and mobile technologies” refers to mobile phone and credit cards with a chip embedded in them that can be read by devices on a bus, similar to the way ORCA cards are read today. There are other mobile technologies that rely on driver visual verification that could be implemented separately from chip-enabled technologies if desired.

- **T2: Implement Open and Mobile Payment Technologies** – Represents a full-scale implementation of emergent consumer electronic payment technology to augment or replace the existing smartcard and pass system.
- **T3: Disposable Cashless Chip Ticket** – Introduce a form of a limited-use, low-cost cashless fare medium geared towards infrequent, special event, and tourist market segments.



### 3. Model Details

The strategies and market segments described above, along with some key data points on ridership and demographics, formed the key inputs to the cashless model. The purpose of the model was to develop an objective predictive rating for each strategy identified in the toolkit. The model was built in a way that varying key assumptions—based on updated data and feedback from KCM—broadly applied to all model results. The model attempted to remove all qualitative considerations and focus solely on two key quantitative outputs for overall strategy evaluation.

The key model outputs are estimated impact and cost figures for each strategy. Here, “impact” refers to the number of trips to be converted from cash payment to cashless methods by implementing the identified toolkit strategy. Establishing these values aided in determining which strategies could achieve the most effective results per dollars invested (in other words, “best bang for the buck”). Consideration was also given to which market shares are expected to demonstrate the most significant acceptance of each strategy.

The model output data was factored into the selection of strategies for the implementation plan described in Section 4. In addition to the model’s statistical results, qualitative considerations, such as alignment with key KCM objectives and risk to KCM, were also applied to the recommended implementation plan and schedule.

Throughout the model development process, KCM provided feedback that was applied to the model assumptions and strategy prioritization. Based on discussions and internal studies within KCM, many of the model details were refined to produce more accurate results. Some of these changes include decreased impact for discount incentives and card distribution based on customer product use assessment and history with card distribution. As well, impact was increased for the elimination of cash transfers based on similar scenario assessments performed internally. King County Metro has provided valuable input throughout the cashless model iterations, and the model will continue to sharpen and improve as more data becomes available.

The model is predictive representation of anticipated KCM customer behavior, strategy adoption, and cost, but there are many factors that may influence these predictions. The cashless strategy model should be considered a *living model* that may require adaptations based on available industry offerings, consumer behavior, and other economic factors.

#### 3.1 Model Inputs

The model first considers each cashless strategy from the toolkit in isolation. This is to say that the efficacy of each strategy initially considers the cost and impact for *only* that strategy to be introduced to the cash-paying market segments. The cumulative addition of strategies in concert is later applied in the implementation strategy derivations.

For each strategy in isolation, the customer impact was determined by considering:



- The relative expected impact of each strategy as a whole (based on preliminary assessments and peer input);
- The population of each of the 12 market segments (derived from data within the 2011 Rider/Non-Rider survey);
- The application of pre-defined zero, low, baseline, and high uptake figures determined for each individual market segment for the given level of expected impact of the strategy;
- In some cases, the application of other statistical data or assumptions on the market segments (such as removal of non-transferring cash riders for the *F4 – Eliminating Cash Transfers* strategy); and
- Other factors to influence the impact figures, such as exclusion of pass product users, expected sales of retail locations, transfer frequencies, pilot participation, and targeted customer propensity for ORCA card activation.

A visual representation of the model inputs and outputs is shown below.

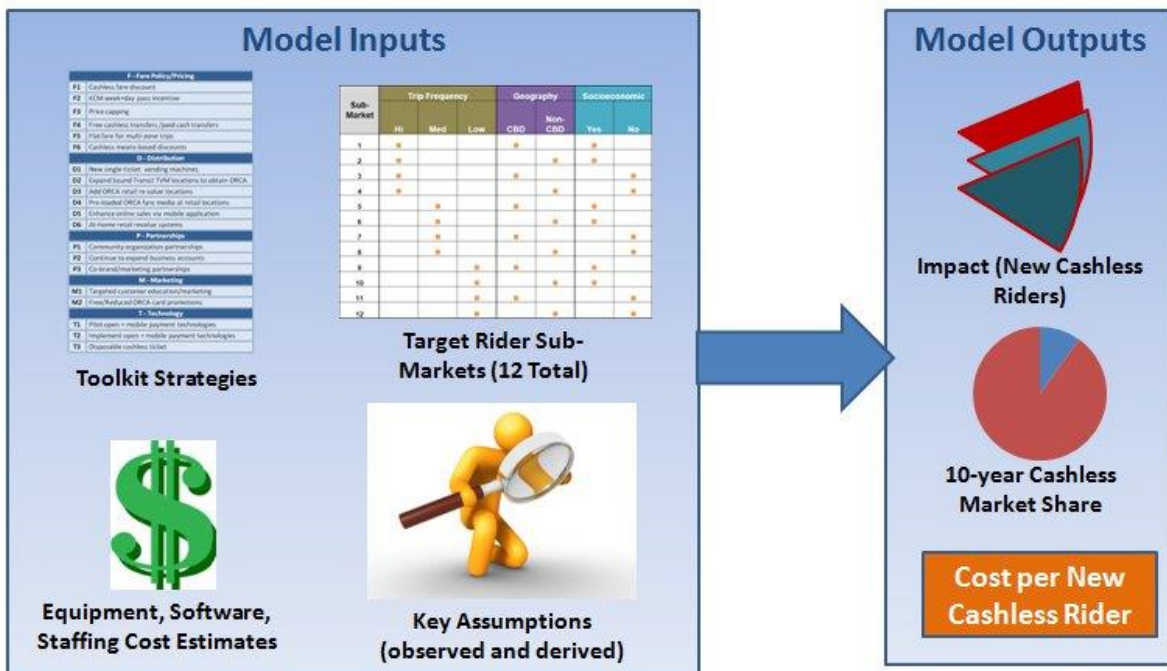


Figure 7: Strategy Effectiveness Model Inputs and Outputs

### 3.2 Key Assumptions

There were a number of assumptions in the model that impact multiple strategies. These assumptions, built on both industry research and data given to us by KCM, were tied to the impact and cost calculations and automatically applied to the output figures as

information was updated. A few of the main KCM-specific assumptions used to calculate market share, impact, and costs are listed here:

- Annual KCM boardings: 113M
- Percent cash customers: 28% (~31.6M boardings)
- Percent of riders who transfer: 49%
- Percent of trips with transfers: 35%
- Average full passenger fare paid: \$2.25
- Cost of each ORCA card to KCM: \$3.00

In order to determine the uptake within each market segment, each strategy was first classified as a Level 1 through 5, depending on the presumed impact. This impact was based on industry feedback and experience and was adjusted throughout the model development as we received feedback from meetings and correspondence with KCM.

The predicted cashless strategy adoption for eligible members of the customer market is shown below for each level of strategy impact. There is a distribution of strategies for each impact level.

	Impact Level				
	L1	L2	L3	L4	L5
High Adoption	3.0%	12.0%	24.0%	36.0%	48.0%
Baseline Adoption	2.0%	8.0%	16.0%	24.0%	32.0%
Low Adoption	1.0%	4.0%	8.0%	12.0%	16.0%
Zero Adoption	0.0%	0.0%	0.0%	0.0%	0.0%

**Table 2: Strategy Impact Level per Adoption Rates**

### 3.3 Cost Estimates

The cost estimates incorporated into the model were based on industry experience and market research, which included peer survey results. Estimates were determined for the following two categories:

1. **Upfront costs** – including capital costs for equipment, software development, and initial staffing costs; and
2. **Annual costs** – including operations, maintenance, fare revenue lost and gained, commission fees, and other recurring costs.

The various costs within these categories were compiled with consideration of the expected customer uptake and impact to determine the total upfront and annual cost estimates for each strategy.

### 3.4 Model Outputs

The impact results of the model are given in both:

1. **Overall Riders Converted** – new non-cash-paying riders; and
2. **Trips Converted per Year** – boardings previously paid for with cash via the farebox → now converted to boardings paid for by electronic or other pre-paid media.

Because the number of trips taken by riders varies greatly by trip frequency, the trips-per-year figure presents a much more accurate picture of actual strategy impact.

The estimated trips converted per year are steady-state figures. Customers would presumably not all convert to cashless methods on the first day of strategy deployment, but instead would convert over a period of time. Therefore, each impact figure represents the total number of trips converted per year after the conversion phase is complete.

#### 3.4.1 CASHLESS STRATEGY IMPACT

The impact of strategies resulting from the model ranges from hundreds of thousands of trips converted per year to as high as 7.7 million trips converted per year for the customer incentive *Cashless Fare Discount* strategy F1. A ranking of the strategy effectiveness was developed based on the converted trips per year impact figure. This simple list (below) does not factor in KCM policy objectives, costs, or strategic deployments, but does present the predicted ranking of impact for each strategy in isolation.



**Figure 8: Ranking of Strategies by Impact**

**3.4.2 CASHLESS STRATEGY COST**

When adding cost figures into consideration, the model produces a cost per converted rider, as well as a cost per converted trip. We'll again focus on the trip figures in our results. The costs per trip range from low negative values for the revenue gained from the elimination of free cash transfers in strategy *F4*, to the high cost of \$2.66 per trip converted for the pilot phase of the open and mobile payment strategy *T1*. For the majority of strategies, the cost per trip converted is in the \$0.10 to \$0.20 range. The list below provides a ranking of the cost-effectiveness of each strategy in isolation.



**Figure 9: Ranking of Strategies by Cost Effectiveness**

**3.4.3 APPLICATION OF IMPACT TO COST EFFECTIVENESS**

The consideration of impact alongside cost effectiveness provides a more complete picture for cashless strategy selection. The graph on the following page (Figure 10) is a cost versus impact plot for each of the toolkit strategies.

While the cashless strategies can be ranked in a more conclusive manner after factoring in the costs, the aforementioned subjective criteria of risk, policy objectives, and strategic priorities were also taken into account during the implementation plan phase to complete the full picture for strategy selection. With respect to policy objectives, those strategies that closely met the majority of the following objectives were given a higher priority:

- |                              |                              |
|------------------------------|------------------------------|
| 1. Regional Fare Integration | 3. Simple Revenue Allocation |
| 2. Operational Efficiency    | 4. Equality and Access       |



Figure 10: Cost versus Impact of Strategies

## 4. Implementation Plan

The Implementation Plan provides a strategic approach to implementing cashless strategies in a phased manner, taking into account the insights of the foregoing model and rider market analysis. The Implementation Plan provides a foundation for subsequent planning budget requests, staffing analysis, and technology procurements.

The implementation plan provides a phased approach for deploying strategies over a ten year horizon: Near Term (1 to 3 years), Mid Term (3 to 6 years) and Long Term (6 to 10 years).

The implementation plan was developed in terms of a “Core Implementation” plan and “Supplemental Strategies.” The Core Implementation consists of the highest-impact strategies incorporated into an overall recommended implementation package, primarily for years 1 through 6. The design of the Core Implementation plan recognizes that implementing all of the strategies may not be financially and/or operationally feasible, and thus puts forth a plan to deploy strategies that achieve the most “bang for the buck.” The Supplemental Strategies offer additional strategies in the long-term (years 6 through 10) to help KCM reach full conversion to cashless payment by targeting the remaining outlier rider markets.

### 4.1 Key Considerations

The following key considerations formed the basis for evaluating the potential impact of each of the above strategies:

- **Strategy Effectiveness** – Ability of the strategy to reach a large portion of the targeted submarkets and anticipated capability to convert cash customers.
- **Capital and O&M Costs** – Up-front equipment and ongoing operations and maintenance cost of the strategy, to weigh against the anticipated effectiveness and also for cost-per-rider and cost-per-trip calculations.
- **Implementation Timeframe** – Whether the strategy would be implemented in the near, medium or long term.
- **Balance Options and Equity Considerations** – The extent to which the strategy considers social equity, socioeconomic factors, and hardships affecting some cash riders.
- **Prerequisites and Interdependencies** – The extent to which the strategy is dependent upon other strategies or KCM initiatives to be deployed prior to, or in tandem with, the particular strategy.

For the purpose of the exercise, the percentage of cash boardings was found to be 28% of total boardings<sup>1</sup>. Over time, as the cash payment rider share decreases due to the

---

<sup>1</sup>ORCA card taps contribute to roughly 62-65% of cashless boardings; the remaining share of boardings is attributed to children, ticket books, flash passes, and fare evasion.

application of various strategies, the cost per rider to collect the cash at the farebox increases. Eventually, the remaining percentage will be so low that it will make sense to take steps as needed to eliminate the remaining conversion barriers and decommission KCM’s fareboxes. However, for the foreseeable future, the focus will be on policy incentives using existing infrastructure and the gradual strategic expansion of accessibility and convenience through new infrastructure investments.

The near-, mid-, and long-term phased approaches are summarized below, along with the model output for costs and conversion rates.

**4.1.1 NEAR-TERM: RAPID IMPACT**

In the near term (1 to 3 years), the plan focuses on “rapid impact” – reaching out to key market segments, leveraging existing cashless infrastructure (including existing community partnerships), and expanding the ORCA sales distribution network for pre-loaded fare media. The intent is to maximize capture of the low-hanging-fruit market share that can most readily be converted to cashless media by continuing or expanding programs and technologies that KCM already has in place.

Approach	Target Submarkets	Expected Outcomes
<ul style="list-style-type: none"> <li>Get the word out</li> <li>Make it easy</li> <li>Expand sales/distribution network</li> <li>Offer incentives</li> </ul>	<ul style="list-style-type: none"> <li>Socioeconomic</li> <li>Non-CBD</li> <li>Frequent and moderate frequency</li> </ul>	<ul style="list-style-type: none"> <li><b>Total impact:</b> Moderate</li> <li><b>Total cost:</b> Low</li> <li>Low risk, high diplomacy</li> </ul>

**Table 3: Years 1 to 3 – Rapid Impact Strategies**

Core strategies in the near term include:

- D4: Pre-loaded Fare Media at Retail Locations
- P1: Community Organization Partnerships
- M1: Targeted Customer Outreach
- M2: ORCA Card Fee Promotions
- D3: Add ORCA Retail Re-value Locations

Supplemental strategies that could also be deployed in the near term include:

- P2: Continue to Expand Business Accounts
- D2: Expand ST-Type TVM Locations to Obtain ORCA

**4.1.2 MID-TERM: KEY INVESTMENTS**

In the mid-term (3 to 6 years), the focus would be on expanding technology and distribution options (such as launching an open-payment pilot) and offering high-impact strategies for conversion (such as discounting cashless fares now that more fare media purchase options are available). The mid-term would have the highest marginal return for the cashless conversion rate because some of the more heavy-hitting strategies can be implemented after laying the groundwork and increasing outreach and education in the near term.

Approach	Target Submarkets	Expected Outcomes
<ul style="list-style-type: none"> <li>Add new technologies</li> <li>Offer new products</li> <li>Higher cost, but higher impact investments</li> </ul>	<ul style="list-style-type: none"> <li>Infrequent riders</li> <li>Socioeconomic</li> </ul>	<ul style="list-style-type: none"> <li><b>Total impact:</b> High</li> <li><b>Total cost:</b> High</li> <li>Moderate Risk</li> </ul>

**Table 4: Years 3 to 6 – Technology Boom**

Core strategies in the mid-term include:

- F1: Cashless Fare Discount
- T1: Pilot Open and Mobile Payment Technologies
- F2: Week and Day KCM Pass Products
- T3: Disposable Cashless Chip Ticket

Supplemental strategies that could also be deployed in the mid-term include:

- D1: New Single-ticket TVMs

**4.1.3 LONG-TERM: TARGET OUTLIERS**

For the long term (6 to 10 years), supplemental targeted strategies for converting the remaining cash customers would be selectively implemented, including possibly revisiting some of the near-term strategies such as increased marketing and outreach. In the long term, technology investments from the mid-term would continue to positively impact the overall cashless conversion rate.

Approach	Target Submarkets	Expected Outcomes
<ul style="list-style-type: none"> <li>Re-assess goals for cashless conversion</li> <li>Fine-tune Phase 1 and Phase 2 strategies</li> <li>Try new approaches</li> </ul>	<ul style="list-style-type: none"> <li>Non-CBD Riders</li> <li>Infrequent Riders</li> <li>Socioeconomic</li> <li>Existing Customers</li> </ul>	<ul style="list-style-type: none"> <li><b>Total impact:</b> Low</li> <li><b>Total cost:</b> High</li> <li>Higher Risk</li> </ul>

**Table 5: Years 6 to 10 – Pick up the Outliers**



Possible new/supplemental strategies include the following, depending on the rider market to be targeted.

- **Infrequent Riders** – *T2: Implement Open and Mobile Payment Technologies*, which is likely to have the highest impact of all of the long-term strategies. Revisiting expanded distribution options could also target infrequent riders.
- **Non-CBD Riders** – *F4: Eliminate Free Cash Transfers* and potentially revisit expanded distribution options in suburban areas.
- **Socioeconomic** – *P3: Expand Marketing Partnerships*, as well as reinvigorate community outreach and customer communication programs and potentially offer new promotional product pricing.
- **Frequent, High Income Riders** – Finally, for the remaining frequent riders, introducing a mobile revalue smartphone app (*D6*) and at-home revalue systems (*D5*) may add the “cool” factor that is needed to attract some higher-income riders. However, these strategies may have more appeal for existing cashless riders rather than being a “tipping point” to convert stragglers.

#### 4.1.4 CORE VERSUS SUPPLEMENTAL

In analyzing the impact of the core strategies versus the full set of strategies over the ten-year period, the full program had significant additional costs with limited additional conversion benefits. The total capital and O&M costs increased significantly, with only a few percentage point increases in the cashless ridership rate. Therefore, it is recommended that deployment of the “supplemental” strategies be considered carefully and with additional analysis of the benefit/cost per converted rider.

## 4.2 Costs and Conversion Rates

The chart on the following page (Figure 11) summarizes the results of the modeling of the phased implementation plan in terms of the cumulative costs and cashless user rates. As shown, the initial investment is estimated at \$210,000 with a \$1.1M annual cost. The low upfront cost is due to the near-term leveraging of resources that KCM already has in place for outreach and information. At the end of year 3, the expected result is a cashless rate of 80.1%.

In the mid-term, a larger investment is made, resulting in a further increase to 87.4% cashless penetration rate by the end of year 6. After year 6, however, there are some diminishing returns as rates over 90% are sought.

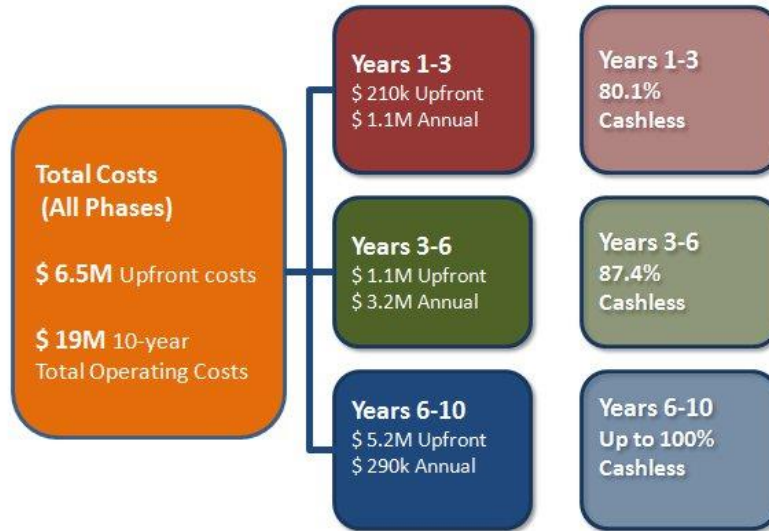


Figure 11: Model Results

Based on these estimates, if we plot this data on a similar chart to our original plot on page 2 of “Figure 2: The Tipping Point for Removing Fareboxes”, we can observe how both the cost and impact increase over time, shown below in Figure 12. As in Figure 2, the cashless trip percentage does not reach 100%, but reaches the aforementioned “tipping point.” Note that the cost figures are not cumulative, but signify only the upfront and annual figures identified for each phase of deployment.

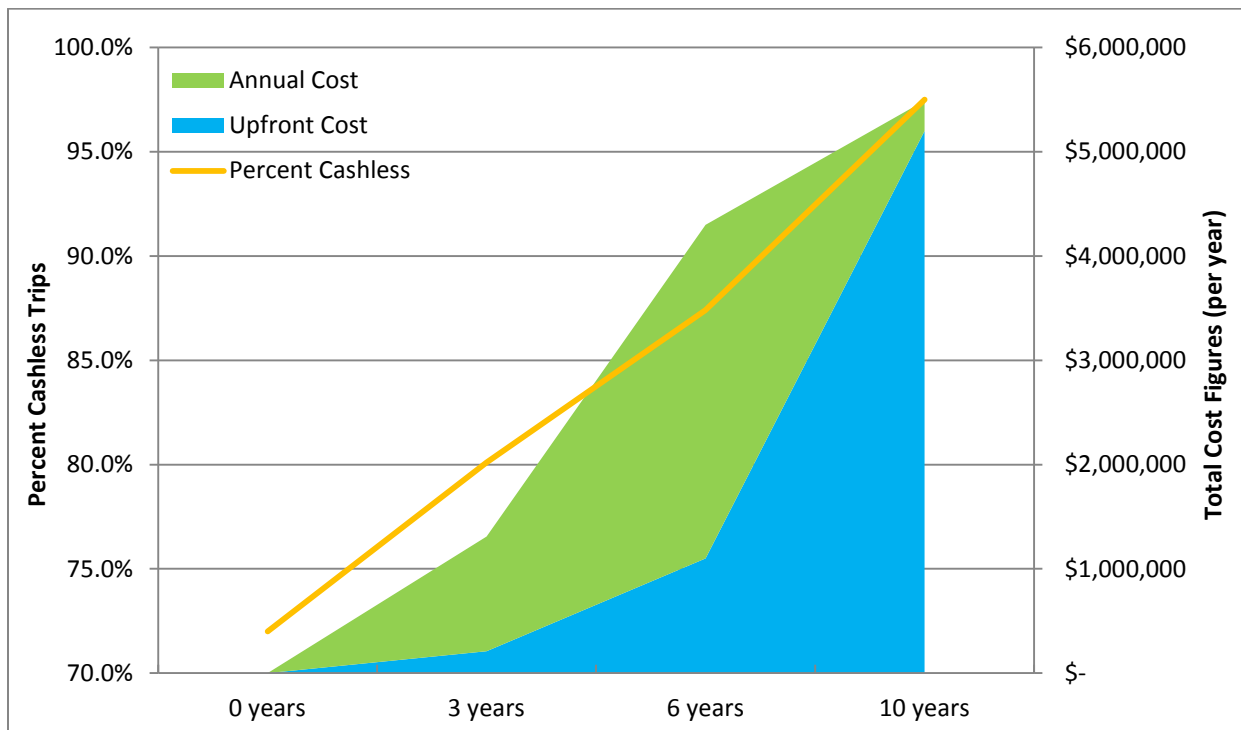


Figure 12: Cashless Conversion and Cost over Time

#### 4.2.1 MODEL OUTPUT ASSUMPTIONS AND CONSIDERATIONS

There are a number of factors to consider when interpreting these figures:

- The “core” strategies identified in the implementation plan are the only strategies factored into the total cost and impact estimates. Layering in the supplemental strategies will generally increase both the cost and impact values.
- The cost estimates for each implementation phase was determined by adding the upfront and annual costs over the total implementation period for the selected core strategies. The strategy costs were largely added cumulatively, but some minor cost overlap was factored in for reduction in spending for similar items within the strategies.
- The implementation plan schedule was considered to estimate the number of years expected to multiply annual costs within the ten-year plan. Therefore, strategies expected to be deployed in the near term may have a higher overall cost than long-term strategies, due to the additive annual costs over multiple years.
- As previously discussed, the impact of strategies are not based on the cumulative addition of the impact figures for each individual strategy, as they were estimated in isolation prior to determining the implementation plan roll-out. There were two methods for calculating the combined impact of selected strategies:
  1. The impact phases were applied in an iterative fashion. Because the strategies are organized into phases, the impact for the first phase was determined and applied to the market segments to produce a new list of remaining cash customer market segments. The second phase impact estimates were applied to the output of the first phase, and so forth.
  2. Within each of the phases, it was assumed that multiple strategies may apply to and “convert” the same KCM riders. In this way, the strategy effectiveness had to be considered to have an inverse exponential effect. An equation was used to compensate for the diminishing returns that would result from applying more and more strategies over time to the same pool of riders.
- The only strategy added into the cost and impact figures for the Years 6 to 10 phase is the Implementation of *T2: Open and Mobile Payment Technologies*. It is intended that additional strategies will be executed in the third phase of implementation, selected based on the makeup of the remaining cash-paying market segments. Depending on the strategies selected, the costs will increase as will the impact.
- The *Eliminate Free Cash Transfers* strategy (*F4*) was not factored into the numbers above due to the high potential risk to KCM of negative customer reactions to taking away benefits. The King County Council has directed that KCM establish an advisory committee to review fare options for low-income transit riders and make recommendations to the Council. Should the Council adopt a low-income fare implemented via the ORCA system, this would address the significant barriers to Elimination of Free Cash Transfers, making

this a more viable strategy in the short- or mid-term. It should be noted that if this were incorporated into the strategy, the impact would increase by approximately 3%, and the total annual operating costs would *decrease*, due to the potential increase in revenue for cash transfer trips.

#### **4.2.2 MODEL EVOLUTION**

As previously discussed, there are many factors that influence the model predictions. As the strategies are rolled out throughout the implementation period, the cashless model should continue to evolve based on strategy success, accuracy of perceived adoption, expansion of available data, and any other economic factors on the customer market.

## 5. Business View

The purpose of the Business View is to provide a year-over-year summary of the financial impacts of the capital, operations and maintenance costs of the strategies to assist with budget planning.

The strategies considered to have the highest likely impact are shown in bold. Strategies listed with an asterisk are those that may have additional costs due to “lost” fare, such as pass or retail products where KCM would theoretically collect more revenue if the customer continued to pay cash. This accounts for the cost difference with Table 6. Additionally, a fee for cash transfers would theoretically provide an additional \$1.7M per year that could offset some of the capital and operations costs of other strategies. It was assumed that Ticket Vending Machines, once deployed, would be maintained for the life of the program, while disposable chip tickets may only be a pilot program to test their popularity with customers, due to the high ongoing cost.

The business view assumes that all strategies begin in the first year of the phase in which they were identified for deployment in the implementation plan, although it is possible that some may start towards the middle or end of the phase due to KCM preference, availability of funds, or institutional readiness.

Table 6: Business View - High-level Cost Summary

Strategies	Near Term			Mid-Term			Long Term				Total Cost of Strategy
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10+	
D4: Pre-loaded Fare Media at Retail Locations*	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00	\$ 600,000.00
P1: Community Organization Partnerships	\$ 294,287.00	\$ 294,287.00	\$ 294,287.00								\$ 882,861.00
M1: Targeted Customer Outreach	\$ 116,899.00	\$ 116,899.00	\$ 116,899.00								\$ 350,697.00
M2: ORCA Card Fee Promotions	\$ 308,525.00	\$ 308,525.00	\$ 308,525.00								\$ 925,575.00
D3: Add ORCA Retail Re-value Locations	\$ 200,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 1,100,000.00
P2: Continue to Expand Business Accounts	\$ 60,000.00	\$ 60,000.00	\$ 60,000.00								\$ 180,000.00
D2: Expand ST-type TVM Locations to Obtain ORCA	\$ 990,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 165,000.00	\$ 2,475,000.00
F1: Cashless Fare Discount*				<i>Cost is lost revenue - no cost to implement or operate</i>							\$ -
T1: Pilot Open and Mobile Pmt Technologies				\$ 750,000.00	\$ 37,500.00	\$ 37,500.00					\$ 825,000.00
F2: Week and Day Pass Products*				\$ 100,000.00							\$ 100,000.00
T3: Disposable Cashless Chip Ticket				\$ 958,581.00	\$ 948,581.00	\$ 948,581.00					\$ 2,855,743.00
D1: New Single-ticket TVMs				\$ 2,400,000.00	\$ 480,000.00	\$ 480,000.00	\$ 480,000.00	\$ 480,000.00	\$ 480,000.00	\$ 480,000.00	\$ 5,280,000.00
T2: Implement Open and Mobile Technologies							\$ 5,250,000.00	\$ 296,892.00	\$ 296,892.00	\$ 296,892.00	\$ 6,140,676.00
F4: Eliminate Free Cash Transfers							<i>N/A - Additional fee is revenue</i>				\$ -
P3: Expand Marketing Partnerships							\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 100,000.00	\$ 400,000.00
D5: Enhance Online Sales via Mobile Application							\$ 100,000.00	\$ 10,000.00	\$ 10,000.00	\$ 10,000.00	\$ 130,000.00
D6: At-Home Re-value System							\$ 100,000.00	\$ 75,000.00	\$ 75,000.00	\$ 75,000.00	\$ 325,000.00
<b>Total Cost by Year</b>	<b>\$ 2,029,711.00</b>	<b>\$ 1,104,711.00</b>	<b>\$ 1,104,711.00</b>	<b>\$ 4,533,581.00</b>	<b>\$ 1,791,081.00</b>	<b>\$ 1,791,081.00</b>	<b>\$ 6,355,000.00</b>	<b>\$ 1,286,892.00</b>	<b>\$ 1,286,892.00</b>	<b>\$ 1,286,892.00</b>	<b>\$ 22,570,552.00</b>
<b>Total Program Cost</b>											

## 6. Next Steps

Following KCM's acceptance of this business plan, the following next steps are recommended:

**Begin Implementation of Near-Term Strategies:** Cashless strategies identified for near-term implementation are early opportunities to increase cashless market share using existing/funded infrastructure and under current policies. These strategies include expanded outreach efforts to community groups and cash customers; marketing promotions; identification of expanded retail partners, and implementation of planned Ticket Vending Machine expansion programs.

**Develop Detailed Cashless Program Operating and Maintenance Costs:** The implementation plan strategies involve both initial capital costs as well as ongoing operating costs. The next step in understanding overall program costs is to develop an annualized capital and operating cost budget based on estimated year of expenditure. With additional information on existing farebox operations and cash handling costs, it will be possible to compare the costs of the new cashless program with existing fare system expenditures. Another key metric is understanding the potential "crossover" point whereby replacement of the farebox system is no longer cost-effective (based on the comparable costs to convert remaining cash customers to cashless payment).

**Continue Monitoring Emerging Technology Trends:** As the program continues, technologies (such as NFC and mobile ticketing) will continue to develop and evolve, as will costs and timelines for technology deployment. These emerging technologies and changes should be monitored, and the business plan should evolve accordingly.

**Initiate policy and technology planning for Mid- and Long-Term Strategies:** Many of the strategies identified for mid- and long-term implementation require advanced efforts to address technology assessment, capital planning, and policy issues that must be resolved before implementation. Laying the groundwork for these higher cost, but highly effective, strategies should commence in the near term. Examples include:

- Exploring fare structure incentive options, fiscal impacts and ORCA institutional issues related to e-purse discounts, cash transfers, and other fare-based strategies;
- Performing a detailed assessment of technology options for fare system enhancements, e.g. open payments and e-wallets;
- Planning for ticket vending machine deployment throughout the KCM system, as well as selecting preferred ticketing technologies; and
- Capital programming for major cashless fare system investments based on these preliminary assessments.

## APPENDIX A

---

### KICK OFF MEETING PRESENTATION



# King County Cashless Fare Strategy Business Plan

---

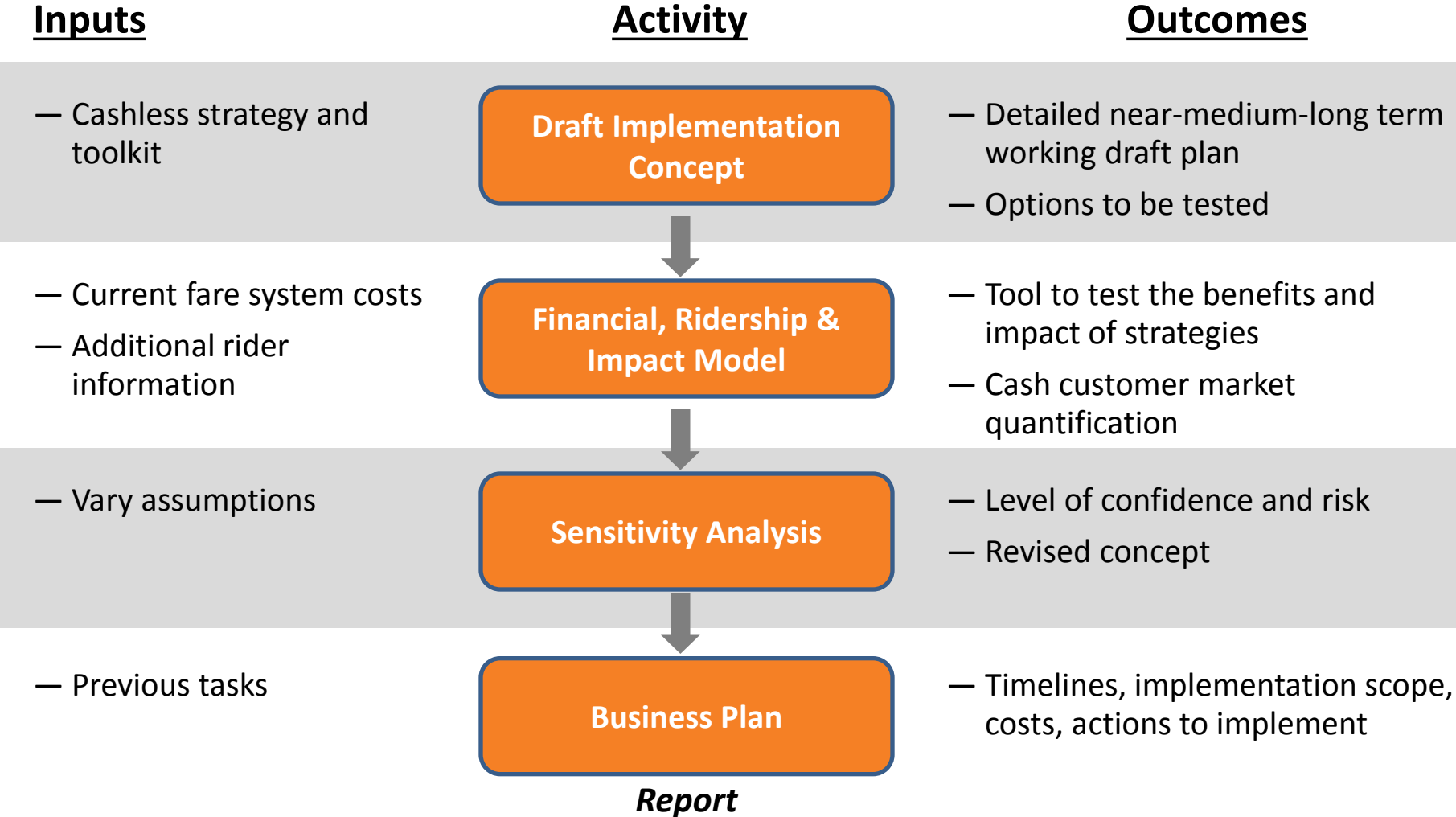


Kickoff Presentation  
June 29, 2012



1. Recent Developments at King County
2. Project Objectives, Scope of Work, and Outcomes
3. Overview of the Modeling Approach
4. Proposed Project Schedule and Milestones
5. Next Steps and Action Items

*OBJECTIVE: Develop a business plan to reduce, and ultimately eliminate, the collection of cash fares on King County buses within the next ten years.*



**Anticipate parallel implementation streams**

**Timeframes need to consider:**

- Implementation logistics and procurement process
- Approval and decision making structure
- Partner participation
- Costs and funding
- “Bang for the buck”

F - Fare Policy/Pricing	
F1	Cashless fare discount
F2	KCM week+day pass incentive
F3	Price capping
F4	Free cashless transfers /paid cash transfers
F5	Flat fare for multi-zone trips
F6	Cashless means-based discounts
D - Distribution	
D1	New single-ticket vending machines
D2	Expand Sound Transit TVM locations to obtain ORCA
D3	Add ORCA retail re-value locations
D4	Pre-loaded ORCA fare media at retail locations
D5	Enhance online sales via mobile application
D6	At-home retail revalue systems
P - Partnerships	
P1	Community organization partnerships
P2	Continue to expand business accounts
P3	Co-brand/marketing partnerships
M - Marketing	
M1	Targeted customer education/marketing
M2	Free/Reduced ORCA card promotions
T - Technology	
T1	Pilot open + mobile payment technologies
T2	Implement open + mobile payment technologies
T3	Disposable cashless ticket



**GUIDING PRINCIPLES**

1. Use Fare Policy to Incentivize Cashless Payment

2. Make Cashless Payment Accessible and Convenient

3. Make Cashless Fare Payment Inclusive and Equitable

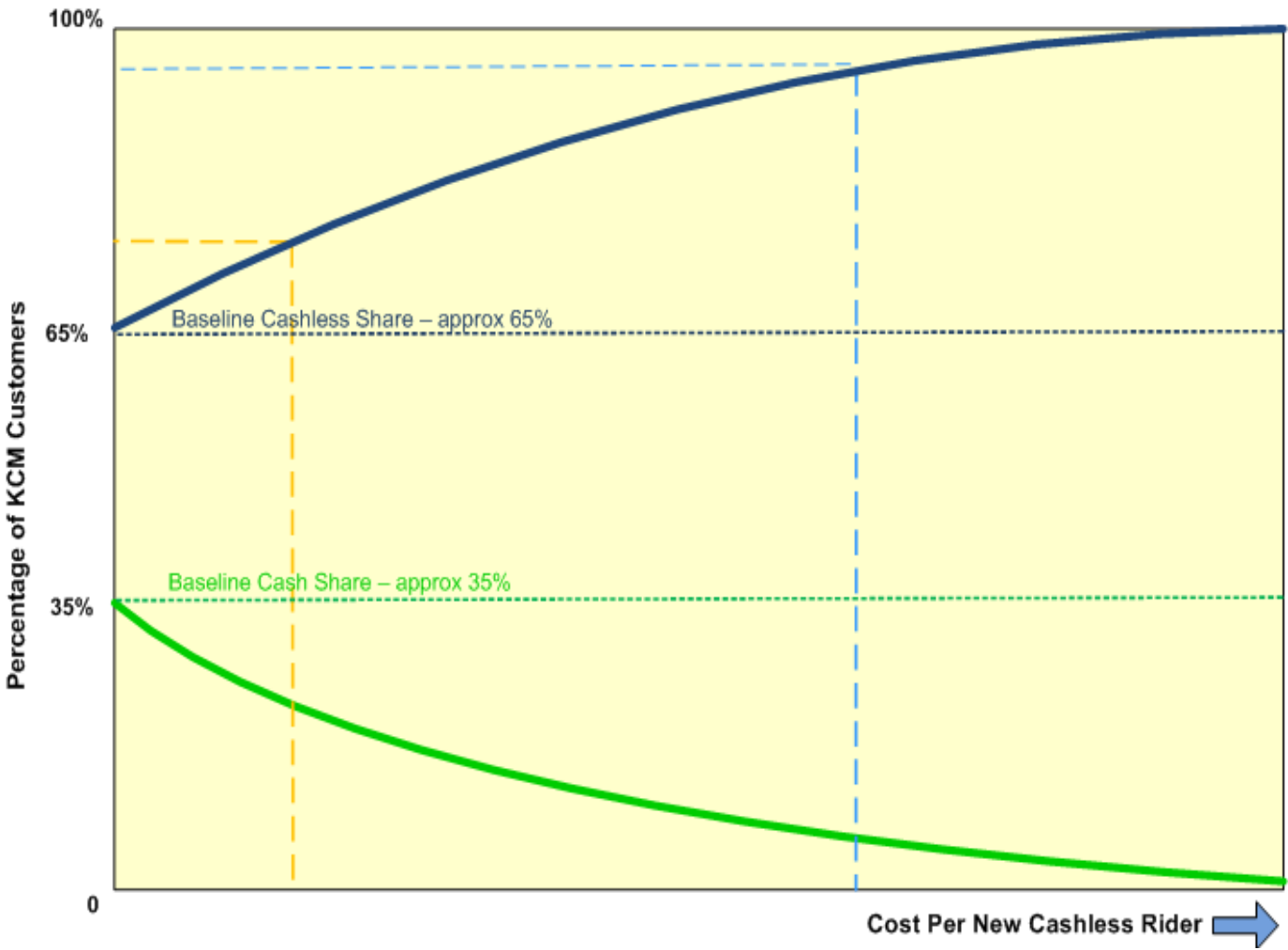
**RIDER MARKET GROUPS**

Frequent Riders

Infrequent Riders

Non-CBD Riders

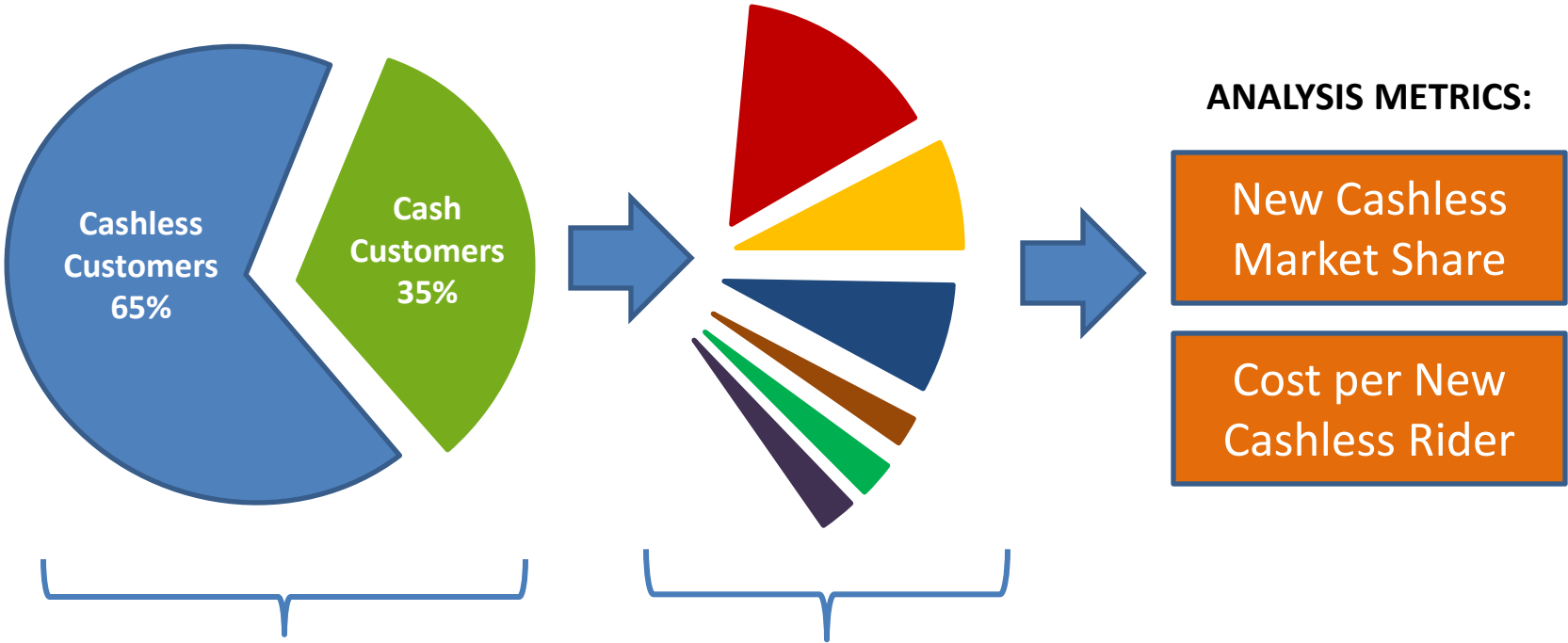
Socioeconomically Disadvantaged Riders



Quantify this group by sub-market as basis for the analysis

What are KCM's primary performance measures?

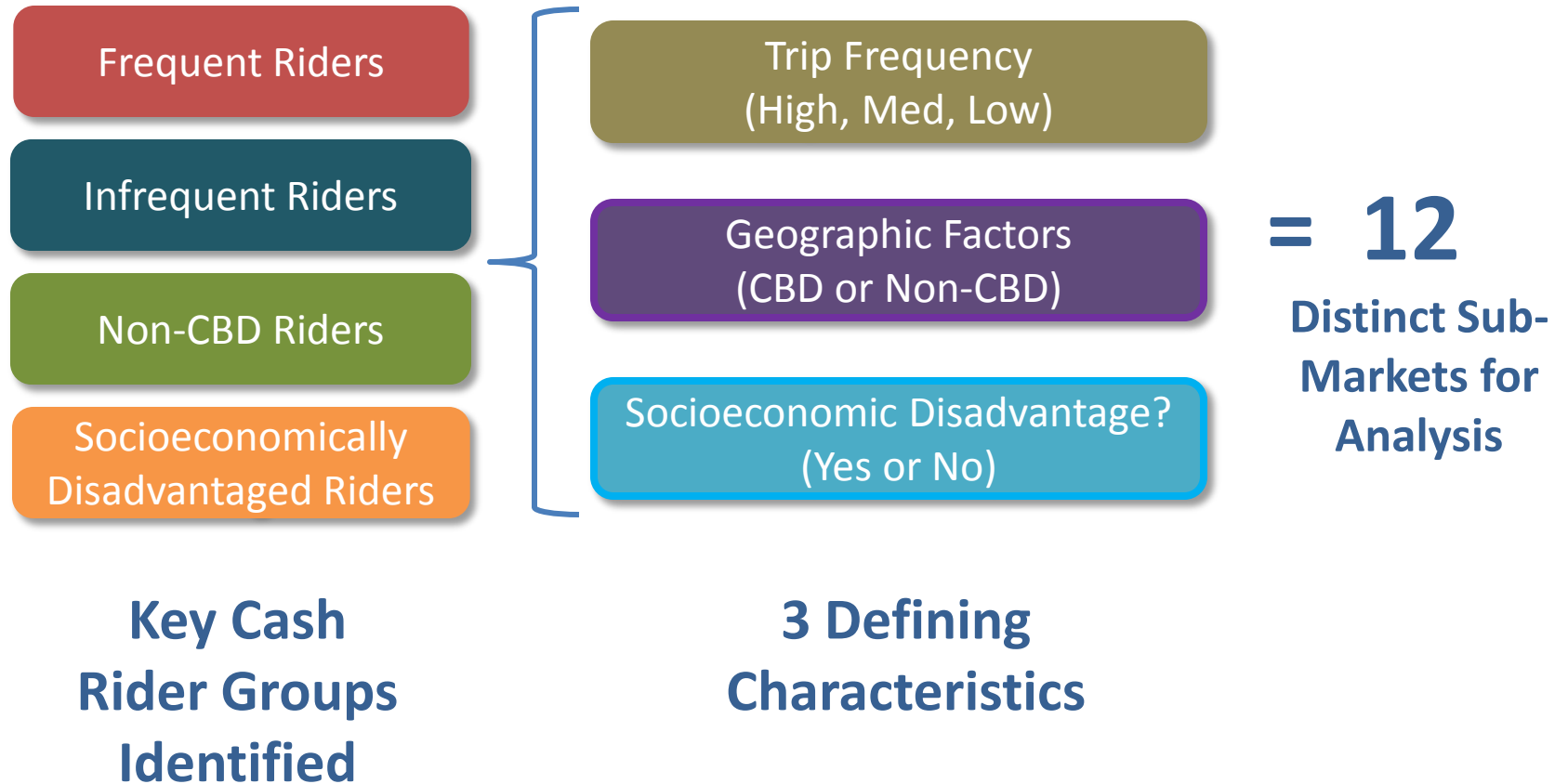
**Model Objective:** Determine the effectiveness and cost-effectiveness of Implementation Scenarios in capturing new Cashless Customers.



**CURRENT SITUATION:**  
- Identified Cash-Dependent Rider Groups

**TEST IMPLEMENTATION SCENARIO:**  
- Prioritized Strategies  
- New Cashless Market Share by Strategy  
- Cost to Implement

# TRANSLATING RIDER GROUPS INTO SUB-MARKETS FOR ANALYSIS





# TRANSLATING RIDER GROUPS INTO SUB-MARKETS FOR ANALYSIS

Trip Frequency  
(High, Med, Low)

Geographic Factors  
(CBD or Non-CBD)

Socioeconomic ?  
(Yes or No)

Sub-Market	Trip Frequency			Geography		Socioeconomic	
	Hi	Med	Low	CBD	Non-CBD	Yes	No
1	■			■		■	
2	■				■	■	
3	■			■			■
4	■				■		■
5		■		■		■	
6		■			■	■	
7		■		■			■
8		■			■		■
9			■	■		■	
10			■		■	■	
11			■	■			■
12			■		■		■

Estimate the  
Size  
of Each  
Distinct  
Sub-Market

# CALCULATING NEW CASHLESS MARKET SHARE AND COST-EFFECTIVENESS

F - Fare Policy/Pricing	
F1	Cashless fare discount
F2	KCM week+day pass incentive
F3	Price capping
F4	Free cashless transfers /paid cash transfers
F5	Flat fare for multi-zone trips
F6	Cashless means-based discounts
D - Distribution	
D1	New single-ticket vending machines
D2	Expand Sound Transit TVM locations to obtain ORCA
D3	Add ORCA retail re-value locations
D4	Pre-loaded ORCA fare media at retail locations
D5	Enhance online sales via mobile application
D6	At-home retail revalue systems
P - Partnerships	
P1	Community organization partnerships
P2	Continue to expand business accounts
P3	Co-brand/marketing partnerships
M - Marketing	
M1	Targeted customer education/marketing
M2	Free/Reduced ORCA card promotions
T - Technology	
T1	Pilot open + mobile payment technologies
T2	Implement open + mobile payment technologies
T3	Disposable cashless ticket

**Toolkit  
Strategy**

- Effectiveness in Meeting the Needs of Rider Sub-Markets
- Size of the Rider Sub-Market (# of Riders, Trips)
- Impact of *Preceding* Strategies in Capturing Market Share

**Effectiveness**

**New Cashless  
Market Share**



**Cost of Strategy as Implemented**

**Cost per New  
Cashless Rider**

1. Put forward a realistic timeline to ultimately achieve the objective in a cost-effective manner
2. Summarize the periodic (annual, monthly) costs and benefits (savings, additional revenues) for a strategy to move from the status quo to a cashless system
3. Provide a summary of constraints (technical, distribution, customer etc) along with a (comprehensive) plan to address each one
4. Provide a summary of actions and recommendations to achieve the stated objectives

## **Introduction**

- Objective and reasoning
- Constraints/challenges and need to overcome

## **Background / Context**

- Ridership growth, fare media options and the percentage of cash payments
- Context for percentage of cash today

## **Analysis of Obstacles and Options**

- Assessment of the challenges to achieving the objective and an analysis of the costs and benefits to overcome the obstacles

## **Implementation Plan**

- Description of the proposed plan, activities and timeline
- Suggested points to measure successes / setbacks and readjust as necessary

## **Financial Assessment**

- Analysis of periodic costs and benefits anticipated with the implementation
- NPV of periodic capital and operating costs and benefits; compare to NPV of status quo

## **Conclusion and Next Steps**

- Recommendations for activities to be undertaken

## Project Schedule and Milestones

Task	Description	Due Date
<b>Draft Implementation Concept</b>	Conduct workshop and prepare summary of strategies, assumptions, and variables to consider in the analysis.	July 13, 2012
<b>Financial, Ridership and Other Impacts of Fare Alternatives</b>	Develop analytical tool for analysis of business plan scenarios.	July 29, 2012
<b>Sensitivity Analysis and Final Implementation Concept</b>	Use the model developed under Task 8 to analyze business plan scenarios to determine cost impacts of varied assumptions.	August 15, 2012
<b>10-Year Business Plan</b>	Develop a ten-year business plan based on the outcomes of the preceding analysis.	September 7, 2012
<b>Final Report</b>	Prepare a summary report and presentation of the analysis findings and recommendations.	September 28, 2012

- Implementation Concept Review Workshop
  - Proposed week of July 9<sup>th</sup>
- Information Request
  - Follow up with King County staff on data for the analysis model
- Steering Committee Meetings
  - Schedule meeting dates between July and September

## APPENDIX B

---

### IMPLEMENTATION CONCEPT WORKSHOP PRESENTATION

# King County Cashless Fare Strategy Business Plan

---



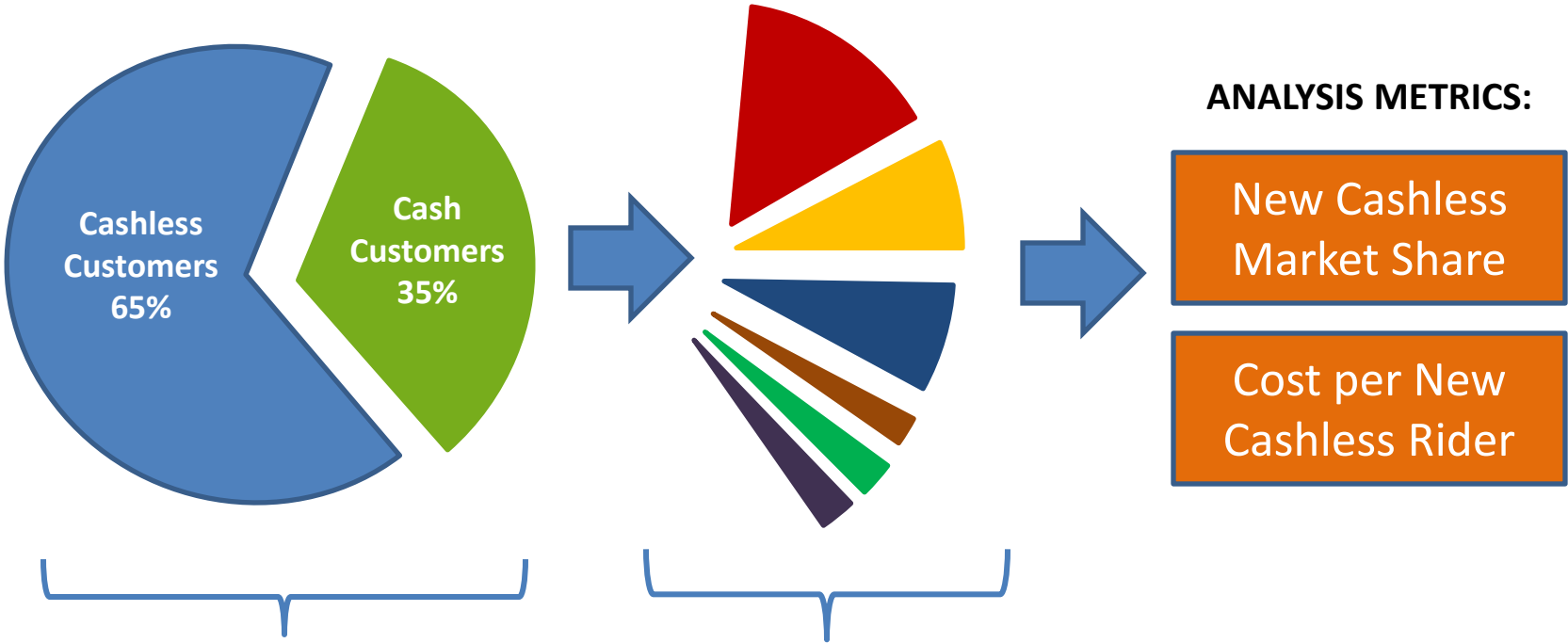
Implementation Concept Workshop  
July 12, 2012





1. Review the proposed Implementation Plan from the conceptual study as a basis for the business plan
2. Identify strategies of highest potential impact/effectiveness at KCM
3. Review analysis assumptions for each implementation strategy
4. Discuss Next Steps and Data/Quantification Needs

**Model Objective:** Determine the effectiveness and cost-effectiveness of Implementation Scenarios in capturing new Cashless Customers.



**CURRENT SITUATION:**  
- Identified Cash-Dependent Rider Groups

**TEST IMPLEMENTATION SCENARIO:**  
- Prioritized Strategies  
- New Cashless Market Share by Strategy  
- Cost to Implement

**GUIDING PRINCIPLES**

1. Use Fare Policy to Incentivize Cashless Payment

2. Make Cashless Payment Accessible and Convenient

3. Make Cashless Fare Payment Inclusive and Equitable

**RIDER MARKET GROUPS**

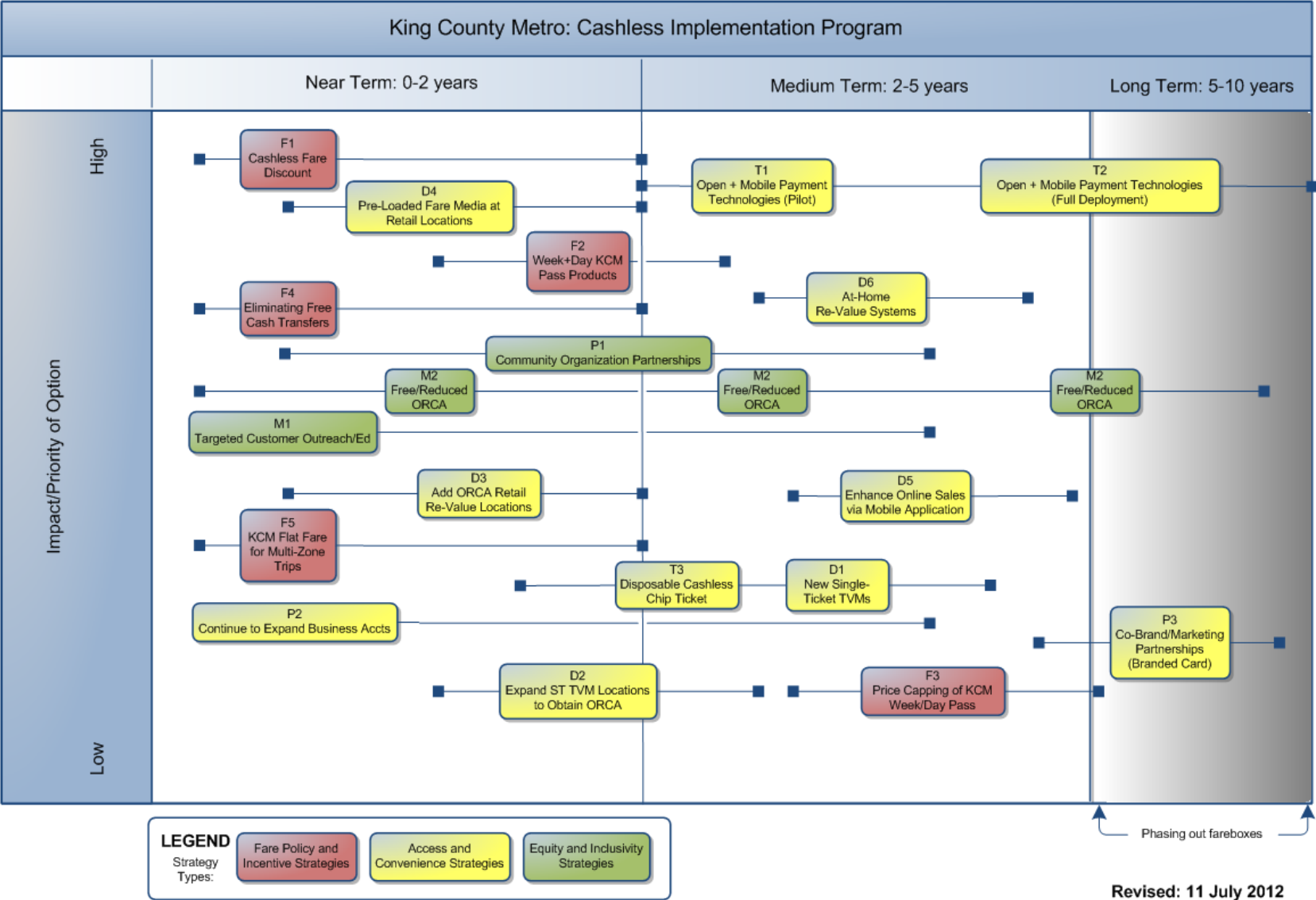
Frequent Riders

Infrequent Riders

Non-CBD Riders

Socioeconomically Disadvantaged Riders





1. Which strategies are of highest interest to KCM in terms of implement ability and effectiveness? Lowest Interest?
2. What are the basic definitions and analysis assumptions for each toolkit strategy?
3. Are there known sources of data or information to help to quantify the cost and impact of the strategies?

## APPENDIX C

---

### PRELIMINARY ANALYSIS REVIEW PRESENTATION

# King County Cashless Fare Strategy Business Plan

---



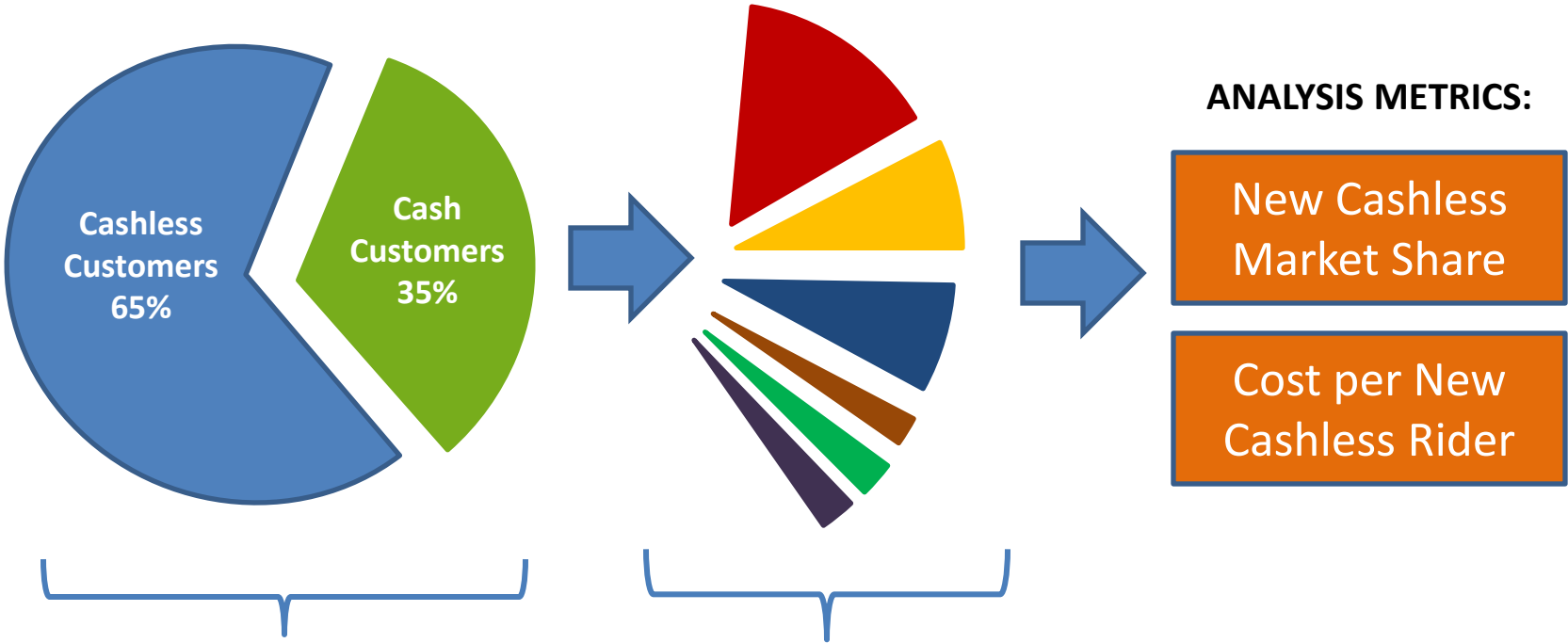
Preliminary Analysis Review  
August 28, 2012



1. Review Cashless Fare Payment Analysis Methodology
2. Summary of Preliminary Analysis Results
3. Review Implementation Strategies in light of Preliminary Results
4. Next Steps

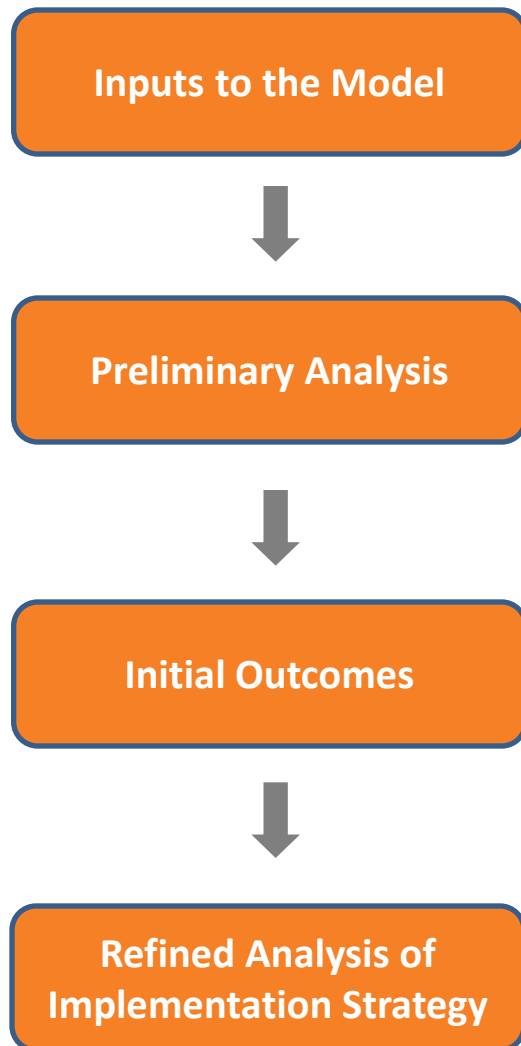


**Model Objective:** Determine the effectiveness and cost-effectiveness of Implementation Scenarios in capturing new Cashless Customers.



**CONCEPTUAL PLAN:**  
- Identified Cash-Dependent Rider Groups

**IMPLEMENTATION SCENARIOS:**  
- Prioritized Strategies  
- New Cashless Market Share by Strategy  
- Cost to Implement



- Toolkit strategies
  - Conceptual transition plan
  - Steering Committee input
- 
- Riders/Trips by 12 Submarkets
  - Impact of Strategies
  - Capital and Operating Costs
- 
- Strategy effectiveness – all else being equal
  - Key effectiveness measures
    - Riders/Trips Converted
    - Cost Effectiveness
- 
- Based on prioritized Implementation Plan
  - Evaluate cumulative effectiveness of strategies

# DISTRIBUTION OF CASH RIDERS BY RIDE FREQUENCY

Rider Type	% of Total KCM Riders	% of Riders Using Cash	Avg Trips per Year	Annual CASH Trips	Annual TOTAL Trips	% of Total Cash Trips
Frequent Regular Riders	39%	13%	364.8	11,227,366.43	86,364,357	53%
Regular Riders	18%	31%	90	6,605,168.76	21,306,996	31%
Infrequent Riders	43%	56%	25.2	3,340,936.97	5,965,959	16%

Total Cash Trips	21,173,472	18.6%
Total Non-Cash Trips	92,463,840	81.4%
Total KCM Trips (2010)	113,637,312	100%

# ESTIMATED ANNUAL RIDERSHIP BY SUB-MARKET

	Frequency			Geography		Socioeconomic		Total Sub-Market Annual Cash Trips	%
	Hi	Med	Low	CBD	Non-CBD	Soc Disv	Not Soc Disv		
<b>1 - High-CBD-Soc</b>	■			■		■		4,026,753	19%
<b>2 - High-CBD-NonSoc</b>	■			■			■	3,198,601	15%
<b>3 - High-NonCBD-Soc</b>	■				■	■		1,894,353	9%
<b>4 - High-NonCBD-NonSoc</b>	■				■		■	1,066,200	5%
<b>5 - Med-CBD-Soc</b>		■		■		■		2,459,018	12%
<b>6 - Med-CBD-NonSoc</b>		■		■			■	1,630,865	8%
<b>7 - Med-NonCBD-Soc</b>		■			■	■		1,706,311	8%
<b>8 - Med-NonCBD-NonSoc</b>		■			■		■	878,158	4%
<b>9 - Low-CBD-Soc</b>			■	■		■		1,526,147	7%
<b>10 - Low-CBD-NonSoc</b>			■	■			■	697,994	3%
<b>11 - Low-NonCBD-Soc</b>			■		■	■		1,399,239	7%
<b>12 - Low-NonCBD-NonSoc</b>			■		■		■	571,086	3%
KCM Annual Total Cash Trips								21,054,725	100%

- Highest Impact Strategies (L<sub>5</sub> and L<sub>4</sub>)
  - F1 - Cashless fare discount (L<sub>5</sub>)
  - T2 - Implement Open and Mobile Technologies
  - D4 - Pre-Loaded Fare Media at Retail Locations
- Moderate Impact Strategies (L<sub>3</sub>)
  - T3 - Disposable Cashless Chip Ticket
  - D1 - New Single-Ticket TVMs
  - F4 - Eliminating Free Cash Transfers
  - P1 - Community Organization Partnerships
  - D3 - Add ORCA Retail Re-Value Locations
  - F2 - Week+Day KCM Pass Products

- Moderate/Low Impact Strategies (L<sub>2</sub>)
  - M1 - Targeted Customer Outreach/Ed
  - P2 - Continue to Expand Business Accounts
  - D6 - At-Home Re-Value Systems
  - D2 - Expand ST TVM Locations to Obtain ORCA
- Low Impact Strategies (L<sub>1</sub>)
  - T1 - Pilot Open and Mobile Technologies
  - M2 - Free/Reduced ORCA
  - D5 - Enhance Online Sales via Mobile App
  - P3 - Co-Brand/Marketing Partnerships

## MODEL INPUT: DEGREE OF IMPACT OF STRATEGIES

	L <sub>1</sub> Low	L <sub>2</sub> Mod/Low	L <sub>3</sub> Moderate	L <sub>4</sub> Mod/High	L <sub>5</sub> High
High	3%	8%	15%	22%	30%
<b>Baseline</b>	<b>2%</b>	<b>5%</b>	<b>10%</b>	<b>15%</b>	<b>20%</b>
Low	1%	2%	5%	8%	10%
Zero	0%	0%	0%	0%	0%



# **SUMMARY OF PRELIMINARY ANALYSIS RESULTS**



# EFFECTIVENESS OF IMPLEMENTATION PLAN STRATEGIES

Toolkit Strategy	Conceptual Plan Time Frame	Effectiveness in Converting Trips	Cost-Effectiveness
M2 - Free/Reduced ORCA	All	Low	High
D4 - Pre-Loaded Fare Media at Retail Locations	Near	High	High
D3 - Add ORCA Retail Re-Value Locations	Near	High	High
F2 - Week+Day KCM Pass Products	Near	Medium	High
P1 - Community Organization Partnerships	Near/Med	High	High
D2 - Expand ST TVM Locations to Obtain ORCA	Near/Med	Medium	Low
M1 - Targeted Customer Outreach/Ed	Near/Med	Low	Medium
P2 - Continue to Expand Business Accounts	Near/Med	Medium	Medium
P3 - Co-Brand/Marketing Partnerships	Near/Med	Low	Low
T3 - Disposable Cashless Chip Ticket	Near/Med	Medium	Low
T1 - Pilot Open and Mobile Technologies	Med	Low	Low
D1 - New Single-Ticket TVMs	Med	Medium	Low
D5 - Enhance Online Sales via Mobile App	Med	Low	High
D6 - At-Home Re-Value Systems	Med	Medium	Medium
F4 - Eliminating Free Cash Transfers	Med	High	High
F1 - Cashless fare discount	Long	High	Low
T2 - Implement Open and Mobile Technologies	Long	High	High

- Refinement of Analysis Model based on Input and Updated Information
- Analysis of Implementation Plan
  - Strategy Precedence/Interdependencies
  - Sensitivity Analysis
- Next Committee Meeting

## APPENDIX D

---

### RECOMMENDED IMPLEMENTATION PLAN PRESENTATION

# Cashless Fare Payment Business Plan: Recommended Implementation Plan

---

King County Metro ORCA/Fare Collection Project



November 2012



# Today's Agenda

- Review Key Results of Analysis Model
- Present Recommended Implementation Strategy
- Discussion/Q&A
- Next Steps

# Cashless Analysis Model Overview

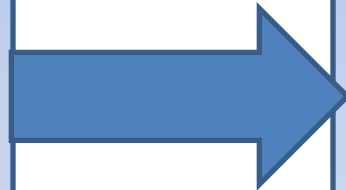
## Model Inputs

F - Fare Policy/Pricing	
F1	Cashless fare discount
F2	KCM week+day pass incentive
F3	Price capping
F4	Free cashless transfers /paid cash transfers
F5	Flat fare for multi-zone trips
F6	Cashless means-based discounts
D - Distribution	
D1	New single-ticket vending machines
D2	Expand Sound Transit TVM locations to obtain ORCA
D3	Add ORCA retail re-value locations
D4	Pre-loaded ORCA fare media at retail locations
D5	Enhance online sales via mobile application
D6	At-home retail revalue systems
P - Partnerships	
P1	Community organization partnerships
P2	Continue to expand business accounts
P3	Co-brand/marketing partnerships
M - Marketing	
M1	Targeted customer education/marketing
M2	Free/Reduced ORCA card promotions
T - Technology	
T1	Pilot open + mobile payment technologies
T2	Implement open + mobile payment technologies
T3	Disposable cashless ticket

### Toolkit Strategies

Target Rider Sub-Markets (12 Total)

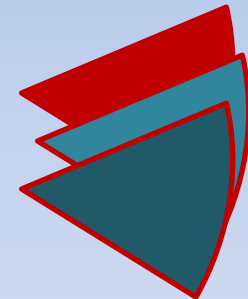
Capital and Operating Costs



## Model Outputs



10-year Cashless Market Share



Impact (New Cashless Riders)

Cost per New Cashless Rider

## Analysis Model – Key Results

---



# Stand-Alone EFFECTIVENESS of Toolkit Strategies



## Highest Ranked

1. (F1) Cashless Fare Discount
2. (D4) Pre-Loaded Fare Media at Retail Locations\*
3. (T1/T2) Open and Mobile Technologies
4. (D3) – Add ORCA Retail Re-Value Locations\*
5. (P1) Community Organization Partnerships\*

\* = Also High Cost-Effectiveness



## Lowest Ranked

12. (D2) Expand ST TVM Locations+
13. (M1) Targeted Customer Outreach/Education
14. (P3) Co-Brand/Marketing Partnerships
15. (P2) Continue to Expand Business Accounts
16. (D5) Enhance Online Sales via Mobile App

+ = Also Low Cost-Effectiveness





## Highest Ranked

1. (F4) Eliminate Free Cash Transfers
2. (D3) – Add ORCA Retail Re-Value Locations\*
3. (D4) Pre-Loaded Fare media at Retail Locations\*
4. (P1) Community Organization Partnerships\*
5. (D5) Enhance Online Sales via Mobile App

\* = Also High Effectiveness

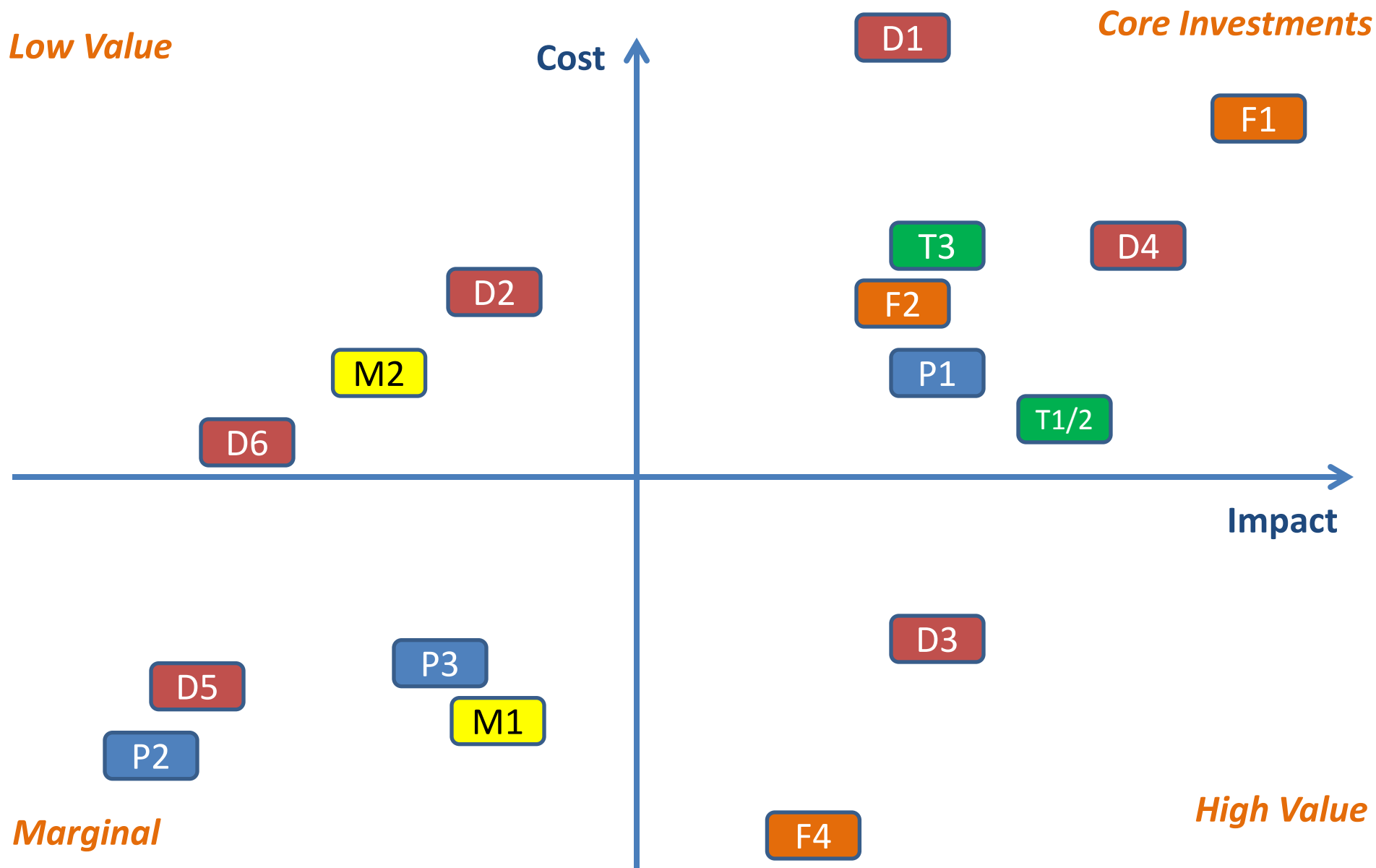


## Lowest Ranked

12. (T1/T2) Open and Mobile Technologies
13. (M2) ORCA Reduced Fee Promotions
14. (T3) Disposable Cashless Chip Ticket
15. (D1) New Single-Ticket TVMs
16. (D2) Expand ST TVM Ticket Locations to Obtain ORCA+

+ = Also Low Effectiveness

# Relative Effectiveness of Toolkit Strategies



# Cashless Strategy Implementation Framework

---



## Key Considerations

- Strategy Effectiveness
- Capital and O&M Costs
- Implementation Timeframe
- Balance Options and Equity Considerations
- Prerequisites and Interdependencies

1. Use Fare Policy to Incentivize Cashless Payment

2. Make Cashless Payment Accessible and Convenient

3. Make Cashless Fare Payment Inclusive and Equitable

## The Guiding Principles

## Core Implementation



- Highest Impact Strategies
- Recommended Implementation Package

## Supplemental Strategies



- Additional Strategies for Full Conversion to Cashless Payment
- Target Outlier Rider Markets

- **Near Term: Rapid Impact**
  - Reach out to key market segments
  - Leverage existing infrastructure
  - Expand sales network using pre-loaded fare media
- **Mid Term: Key Investments**
  - Expand technology and distribution options
  - Offer high-impact incentives for conversion
  - Highest marginal return
- **Long Term: Target Cash Outliers**
  - Target strategies for remaining cash customers
  - Realize benefits of long-term technology investments

# Phased Implementation: Years 1-3 – Rapid Impact

## Approach

- ✓ *Get the Word Out*
- ✓ *Make it Easy*
- ✓ *Expand Sales/Distribution Network*
- ✓ *Offer Incentives*

## Targeted Submarkets

- Socioeconomic
- Non-CBD
- High/med frequency

## Expected Outcomes

Total Impact: Moderate  
 Total Cost: Low  
 Low Risk, High Diplomacy

## Strategies

- D4: Pre-Loaded Fare Media at Retail Locations***
- P1: Community Organization Partnerships***
- M1: Targeted Customer Outreach/Education***
- M2: ORCA Card Fee Promotions**
- D3: Add ORCA Revalue Locations**
- P2: Continue to Expand Business Accounts***
- D2: Expand ST TVM Locations to Obtain ORCA***

Impact	Cost	Risk
4	5	5
3	5	5
2	4	5
2	5	3
3	4	3
2	4	4
2	2	4

# Phased Implementation: Years 1-3 – Rapid Impact

## Phase 1 Core Strategies

- **D4** – Pre-Loaded Fare Media at Retail Locations
- **P1** – Community Organization Partnerships
- **M1** – Targeted Customer Outreach/Education
- **M2** – ORCA Card Fee Promotions
- **D3** – Add ORCA Retail Re-Value Locations



### CORE Strategy Results:

Capital Cost:	\$215,000
Annual Cost:	\$946,672
Converted Trips: (annual, steady state)	9,611,510
<b>Total Cash Trips Converted:</b>	<b>30.4%</b>
Cost Per Trip Converted:	\$0.08



# Phased Implementation: Years 3-6 – Key Investments

## Approach

- ✓ Add New Technologies
- ✓ Offer New Products
- ✓ Higher Cost, but Higher Impact Investments

## Targeted Submarkets

- Infrequent riders
- Socioeconomic

## Expected Outcomes

Total Impact: High  
 Total Cost: High  
 Moderate Risk

## Strategies

**F1: Cashless Fare Discount**

**T1: Pilot Open & Mobile Technologies**

**F2: Week + Day KCM Pass Products**

**T3: Disposable Cashless Chip Ticket**

**D1: New Single Ticket TVMs**

Impact	Cost	Risk
5	4	2
4	2	3
2	4	3
3	4	4
3	2	4

# Phased Implementation: Years 3-6 – Key Investments

## Phase 2 Core Strategies

- **F1** – Cashless Fare Discount
- **T1** – Pilot Open and Mobile Technologies
- **F2** – Week+Day KCM Pass Products
- **T3** – Disposable Cashless Chip Ticket



### CORE Strategy Results:

Capital Cost:	\$1,110,000
Annual Cost:	\$3,712,081
Converted Trips: (annual, steady state)	19,343,156
<b>Cumul. Cash Trips Converted:</b>	<b>61.1%</b>
Cost Per Trip Converted:	\$0.25

# Phase 3 Implementation: Years 6-10 – Convert Outliers

## Approach

- ✓ *Re-assess Goals for Cashless Conversion*
- ✓ *Fine-Tune Phase 1 + Phase 2 Strategies*
- ✓ *Try New Approaches*

## Targeted Submarkets

- Non-CBD Riders
- Infrequent Riders
- Socio-Economic
- Existing Customers

## Expected Outcomes

Total Impact: Low  
 Total Cost: High  
 Higher Risk

## Strategies

**T2: Implement Open & Mobile Technologies**

F4: Eliminating Free Cash Transfers

D6: At-home Revalue Systems

D5: Enhance Online Sales Via Mobile App

P3: Co-Brand/Marketing Partnerships

Impact	Cost	Risk
4	2	3
2	5	1
2	2	4
1	3	3
TBD	TBD	TBD

## Phase 3 Implementation: Years 6-10 – Convert Outliers

### Left Over: Infrequent Riders

- **T2** – Implement Open and Mobile Technologies
- Backup: If necessary, can re-visit F2 distribution

### Estimated Results:

Total trips converted:	6.7%
Capital cost:	\$5,250,000
Annual cost:	\$170,500

### Left Over: Non-CBD Riders

- **F4** – Eliminate Free Cash Transfers
- Backup: If necessary, can re-visit D2, D3

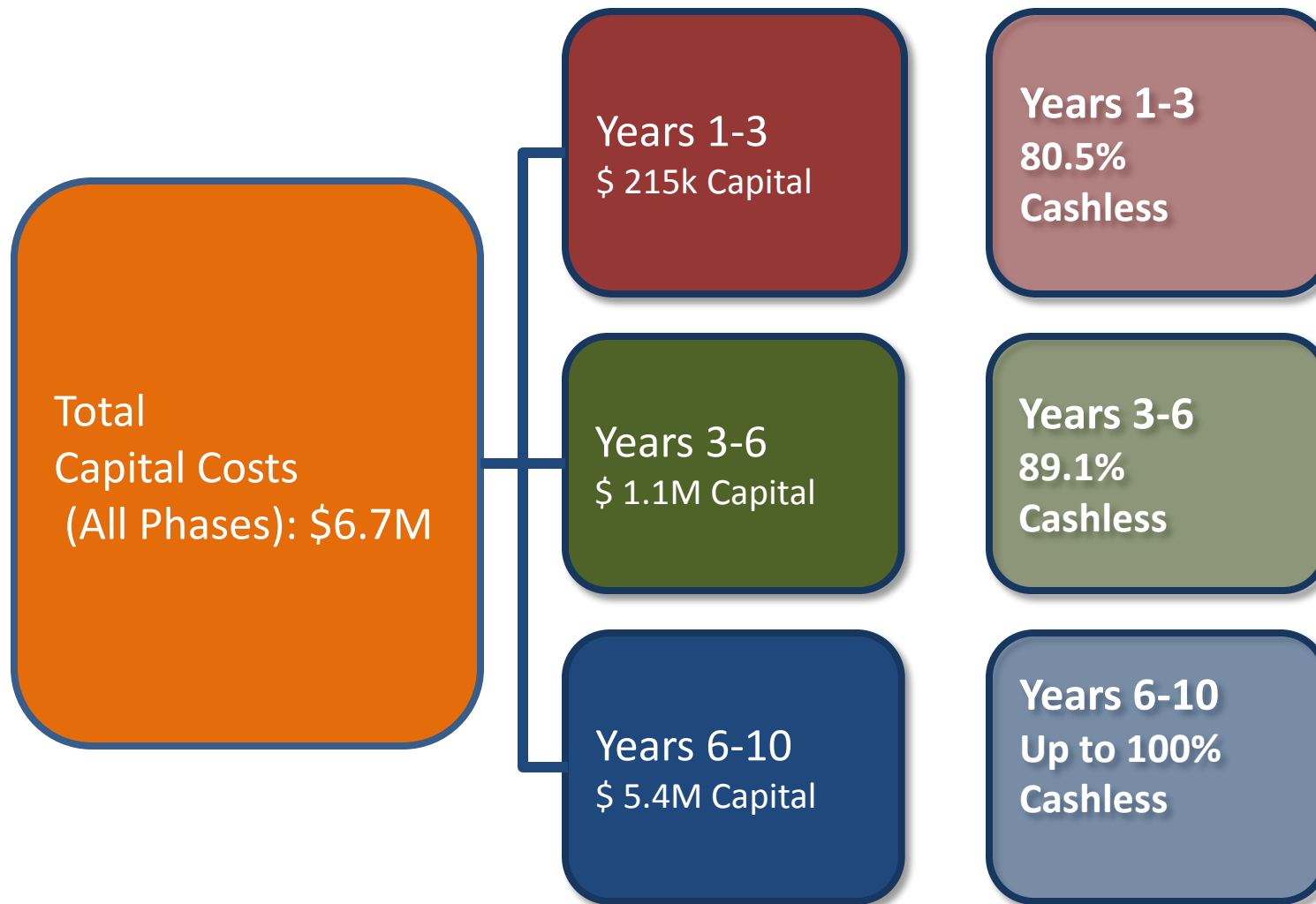
### Left Over: Socio-Economic Riders

- **P3** – Marketing Partnerships
- Backup: If necessary, can re-visit M1, M2, F2

### Left Over: Frequent, Higher Income Riders

- **D6** - At-Home Re-Value Systems
- **D5** - Enhance Online Sales via Mobile App

## Outcomes: Capital Cost and Impact Summary



- Finalize Capital Program Requirements
- Finalize O&M and Lifecycle Costs
- Develop Near-Term Implementation Plan

## Detailed Analysis Model Output by Strategy

---



# Analysis of Toolkit Strategies: Assumptions and Output

Each slide details one of the strategies for moving towards a cashless bus system.

## Notes

- Evaluation of stand-alone impacts of each strategy, all other factors held equal
- Risk considers public reaction, potential for controversy, newness of technology, Title VI compliance, etc.
- Trips per year figure assumes “steady state “

Impact:



(low impact) (high impact)

Cost Rating:



(high cost) (low cost)

Risk Rating:



(high risk) (low risk)

Time Frame:



(near) (medium) (long)

## SUB-MARKET IMPACTS

- Qualitative assessment of strategy’s relative impact on each of 12 submarkets
- Baseline, High and Low impacts each assigned a variable value for percent of submarket converted





# F1 – CASHLESS FARE DISCOUNT

Through this strategy, King County Metro would offer a fare discount to ORCA users ranging from 10-30% below the cash fare pricing. Cashless fare discounts are the most common incentive used by peer agencies.

## Impact on Policy Objectives:

	2			
			4	
	2			
	2			

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Annual number of cash trips 21,054,725
- Average full fare \$2.25
- Average expected discount off full fare 10%

## Estimated Results:

**Trips converted /year: 10,342,677**  
**Capital cost: \$250,000**  
**Annual cost: \$2,327,102**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

				5
			4	
	2			
		M		

- Fare policy changes would be a later priority, after further distribution improvements have been made
- Higher frequency riders more likely to convert
- Socioeconomically disadvantaged riders likely to convert

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	High
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Baseline
7	Medium	Non-CBD	Soc	Baseline
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 15% 30% 45%

## F2 – WEEK+DAY KCM PASS PRODUCTS

This strategy would introduce week and/or day passes for KCM-only travel. It would be targeted for travelers making a higher number of trips within the given period. This incentive has been used by peer agencies to resolve Title VI arguments over fare increases.

### Impact on Policy Objectives:

1				
			4	
		3		
			4	

Regional Fare Integration  
Operational Efficiency  
Simple Revenue Allocation  
Equality and Access

### Key Assumptions

- Average full fare \$2.25
- Average discount from full fare 10%

### Estimated Results:

**Trips converted /year:** 2,299,870  
**Capital cost:** \$100,000  
**Annual cost:** \$517,141

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

	2			
			4	
		3		
		M		

- Use would be higher for infrequent riders
- Assuming that those in the socioeconomic segment may receive day passes instead of human services tickets

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Baseline
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	High
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	High
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0% 4% 8% 12%

## F4 – ELIMINATING FREE CASH TRANSFERS

Through deployment of this strategy, transfer fees would be introduced to King County riders. However, free transfers would be available to all non-cash paying customers.

### Impact on Policy Objectives:

1				
		3		
	2			
1				

Regional Fare Integration  
Operational Efficiency  
Simple Revenue Allocation  
Equality and Access

### Key Assumptions

- Percent of riders transferring 49%
- Percent of trips with transfers 35%
- Induced fee for cash transfers \$0.25
- Percent of cash transfer trips lost 20%

### Estimated Results:

**Trips converted /year:** 1,441,460  
**Capital cost:** \$100,000  
**Annual cost:** (\$1,926,508)

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

	2			
				5
1				
		M		

- There is a high risk of negative customer reactions or Title VI issues associated with this strategy
- This assumes fewer CBD riders would need transfers
- Some transfer trips for cash customers may be lost

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	High
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	High
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 7% 14% 21%

# D1 – NEW SINGLE-TICKET TVMS

Offer TVMs in key areas to allow customers to purchase and print single-use paper tickets from systems similar to existing parking payment machines.

## Impact on Policy Objectives:

		3		
			4	
	2			
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Number of key locations for new TVMs 120
- Number of TVMs per location 1
- Cost for each TVM (+ installation) \$15,000

## Estimated Results:

**Trips converted /year: 2,137,335**  
**Capital cost: \$2,400,000**  
**Annual cost: \$480,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
	2			
			4	
			ML	

- This strategy is a slightly lower cost alternative to D2, but requires infrastructure/maintenance investment
- Serves only specific geographic locations
- Introduces a new fare medium
- Unlikely to convert frequent users; better for infrequent

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Zero
4	Frequent	Non-CBD	Non-Soc	Zero
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	7%	14%	21%
----	----	-----	-----

## D2 – EXPAND ST TVM LOCATIONS TO OBTAIN ORCA

This strategy would deploy more of the full-service Sound Transit TVMs in new strategic high-traffic locations. These TVMs allow customers to purchase and load an ORCA card without access to a computer or a retailer.

### Impact on Policy Objectives:

			4	
		3		
		3		
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

### Key Assumptions

- Number of locations for new TVMs 11
- Cost for each TVM (+installation) \$60,000
- Operations + Maintenance cost 20%

### Estimated Results:

**Trips converted /year: 622,970**  
**Capital cost: \$825,000**  
**Annual cost: \$165,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
	2			
			4	
		M		

- Offers the simplicity of continuing to provide the existing fare product in more locations
- These TVMs are expensive to purchase and maintain, limiting the scope of the expansion
- Requires strategic assessment of the best site locations

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Zero
2	Frequent	CBD	Non-Soc	Zero
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Zero
6	Medium	CBD	Non-Soc	Zero
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	4%	8%	12%
----	----	----	-----

# D3 – ADD ORCA RETAIL RE-VALUE LOCATIONS

This strategy expands the existing ORCA retail network by increasing locations where customers can add value to ORCA cards. An effective strategy would be to target geographic regions not currently served by retail locations in an effort to reach additional cashless customers.

## Impact on Policy Objectives:

		3		
			4	
			4	
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Estimated number of new locations 80
- Number of expected new sales/month 120

## Estimated Results:

**Trips converted /year: 2,714,342**  
**Capital cost: \$100,000**  
**Annual cost: \$100,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
			4	
		3		
	NM			

- Will require effort to identify underserved locations and recruit new partners, as well as publicize new availability
- Higher usage for non-CBD; travelers already have access to retailers in downtown core
- Lower socio-economic usage due to funds availability

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	High
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Baseline
7	Medium	Non-CBD	Soc	Baseline
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	7%	14%	21%
----	----	-----	-----

# D4 – PRE-LOADED FARE MEDIA AT RETAIL LOCATIONS

Fare media would be pre-loaded with value and sold at retail locations. Peer agencies use this method of distribution to target customers throughout the region who lack convenient access to TVMs or online tools.

## Impact on Policy Objectives:

		3		
			4	
	2			
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Average cost of pre-loaded media \$25
- Average sales per location per month 100
- Total expected sales per month \$255,000
- Retailer commission percentage 2%

## Estimated Results:

**Trips converted /year: 4,712,654**  
**Capital cost: \$100,000**  
**Annual cost: \$305,547**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

			4	
				5
				5
	NM			

- Higher frequency travelers would be more likely to take advantage of further distributed fare media
- Socioeconomically disadvantaged riders would be less likely to pay the up-front cost to purchase the fare media

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	High
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Baseline
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	10%	20%	30%
----	-----	-----	-----



# D5 – ENHANCE ONLINE SALES VIA MOBILE APP

This strategy would launch an “app” for mobile phones that would allow customers to order ORCA cards and products via their smart phone. The app would allow the customer to add value while on-the-go.

## Impact on Policy Objectives:

		3		
			4	
			4	
	2			

Regional Fare Integration  
Operational Efficiency  
Simple Revenue Allocation  
Equality and Access

## Key Assumptions

➤ Customer cost for app \$0.99

## Estimated Results:

Trips converted /year: 251,508  
Capital cost: \$100,000  
Annual cost: \$10,000

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

1				
		3		
		3		
			ML	

- The customers most likely to use are already ORCA users
- Socioeconomic riders less likely to have smart phones
- A mobile-friendly version of the existing ORCA web site could be developed in lieu of an app

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Medium	CBD	Soc	Zero
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Zero
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	1%	2%	3%
----	----	----	----



## D6 – AT-HOME RE-VALUE SYSTEMS

At-home retail revalue technologies are small devices that can be purchased for home and business computers that allow customers to revalue their ORCA card from their personal computer.

### Impact on Policy Objectives:

		3		
		3		
			4	
	2			

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

### Key Assumptions

➤ Customer cost for each home system                      \$20

### Estimated Results:

**Trips converted /year:**                      **697,860**  
**Capital cost:**                                      **\$100,000**  
**Annual cost:**                                        **\$75,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
	2			
			4	
			ML	

- Higher frequency travelers more likely to use systems
- May be unfamiliar technology to even tech-savvy users
- Unlikely to be widely adopted by socioeconomic users
- KCM may wish to provide devices to key institutions or employer customers, increasing the usage and impact

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Zero
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Zero
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Medium	CBD	Soc	Zero
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Zero
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Zero
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	4%	8%	12%
----	----	----	-----

# M1 – TARGETED CUSTOMER OUTREACH

Through identification of key target markets for conversion, this strategy would seek to reach customers in a given submarket to educate them on cashless options.

## Impact on Policy Objectives:

		3		
			4	
		3		
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Total mailings sent 28,000
- Total cost per mailing \$1.50
- Percent expected to convert 10%

## Estimated Results:

**Trips converted /year: 620,396**  
**Capital cost: \$5,000**  
**Annual cost: \$97,416**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
			4	
				5
	NM			

- KCM has specific experience with targeted marketing to specific groups, such as households affected by tolling
- While socioeconomic groups would likely be a targeted market, they would not be the sole target

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	High
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	4%	8%	12%
----	----	----	-----

## M2 – ORCA CARD FEE PROMOTIONS

This strategy would reduce or eliminate the \$5 fee currently associated with acquiring an ORCA card. This fee compensates Metro for the cost of the card purchased from the vendor, but has been cited as a deterrent to conversion for low-income as well as infrequent riders.

### Impact on Policy Objectives:

	2			
		3		
	2			
				5

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

### Key Assumptions

- Number of cards handed out 14,000
- Expected percent of cards activated 20%
- Reduction in ORCA card fee \$5.00
- Cost of ORCA card to KCM \$3.00

### Estimated Results:

**Trips converted /year: 841,281**  
**Capital cost: \$5,000**  
**Annual cost: \$243,709**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
				5
		3		
N				

- Could have operational implications if only KCM offers low/no fees while regional partners continue to charge
- Customers may learn to treat cards as disposable
- The baseline/low/high figures also indicate the strength with which each market will be targeted

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	High
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Baseline
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 4% 8% 12%

# P1 – COMMUNITY ORGANIZATION PARTNERSHIPS

This strategy leverages KCM’s relationships with charitable organizations, human service organizations, and other partners to provide access, training, and/or distribution of cashless fare media to socioeconomically challenged populations.

## Impact on Policy Objectives:

		3		
			4	
		3		
				5

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Number of partner programs 15
- Number of events per month 2
- Customers reached per event 60
- Percent of cards activated and reloaded 20%

## Estimated Results:

**Trips converted /year: 2,671,181**  
**Capital cost: \$5,000**  
**Annual cost: \$200,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
				5
				5
	NM			

- Likely a precursor to implementing policy changes
- Ensures accessibility of cashless conversion to socioeconomically disadvantaged; builds public support
- Community partners can provide translators and other resources to help KCM reach targeted customers

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Baseline
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Zero
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Zero

Baseline Values

0%	7%	14%	21%
----	----	-----	-----

## P2 – EXPAND BUSINESS ACCOUNTS

This strategy would expand the existing KCM business account programs for both schools and employers to convert a larger portion of the participants affiliated with these institutions to ORCA cards.

### Impact on Policy Objectives:

		3		
		3		
			4	
		3		

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

### Key Assumptions

- Current business account participants ?
- Baseline percentage increase per SM 10%

### Estimated Results:

**Trips converted /year: 316,400**  
**Capital cost: \$5,000**  
**Annual cost: \$60,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
			4	
			4	
	NM			

- Assumes a uniform impact across all sub-markets
- Impact will depend upon level of resources focused on program expansion
- High ease of implementation, as programs are already established on both the system and operations sides

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 1% 2% 3%

# T1/T2 – PILOT/IMPLEMENT OPEN AND MOBILE TECHNOLOGIES

Introduce fare ticketing through near-field communications (NFC) or other consumer electronic payment technologies. The pilot program would allow for study of consumer response, technology effectiveness, and other operational considerations. The full-scale investment would augment or replace the existing smartcard system.

## Impact on Policy Objectives:

		3		
			4	
	2			
		3		

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- SLU, LINK, Water Taxi ridership (T/mo) 684,437
- Converting Pilot Participants 70%
- KCM fleet size 1,500
- Credit card fee 2%

## Estimated Results:

**Trips converted /year: 4,411,358**  
**Capital cost: \$6,000,000**  
**Annual cost: \$317,518**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

			4	
	2			
		3		
			ML	

- Key target rider group: infrequent travelers for whom the existing ORCA account/e-purse structure is not suited
- Credit card use tied to higher incomes.

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Baseline
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	High
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	High

Baseline Values

0%	10%	20%	30%
----	-----	-----	-----

# T3 – DISPOSABLE CASHLESS CHIP TICKET

This strategy would introduce a form of a limited-use, low-cost cashless fare media. These would be disposable tickets that could be read by existing ORCA readers and purchased at existing retailers. These cards could also be distributed as day/week pass products.

## Impact on Policy Objectives:

		3		
		3		
			4	
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Revenue Allocation**  
**Equality and Access**

## Key Assumptions

- Cost (to KCM) for each chip ticket \$2.50
- Average trips per chip ticket 8

## Estimated Results:

**Trips converted /year:** 2,656,027  
**Capital cost:** \$10,000  
**Annual cost:** \$838,008

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
			4	
			4	
	NM			

- Tickets would be geared towards infrequent, special event, and tourist market segments
- The cost of chip tickets must somehow be recovered
- Not likely to convert frequent users

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Medium	CBD	Soc	Low
6	Medium	CBD	Non-Soc	Low
7	Medium	Non-CBD	Soc	Low
8	Medium	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	7%	14%	21%
----	----	-----	-----

## APPENDIX E

---

### UPDATED MODEL OUTPUTS



## Detailed Analysis Model Output by Strategy

---



# Analysis of Toolkit Strategies: Assumptions and Output

Each slide details one of the toolkit strategies for moving towards a cashless bus system.

## Scale for Evaluation

The reader should consider all ratings within the Policy Objectives and Impact/Cost/Risk tables as ranging from worse to better, similar to the *Numeric Pain Intensity Scale* used in medicine:



## Notes

- Evaluation of stand-alone impacts of each strategy, all other factors held equal
- Risk considers public reaction, potential for controversy, newness of technology, Title VI compliance, etc.
- Trips per year figure assumes “steady state “

Impact:



(low impact) (high impact)

Cost Rating:



(high cost) (low cost)

Risk Rating:



(high risk) (low risk)

Time Frame:



(near) (medium) (long)

## SUB-MARKET IMPACTS

- Qualitative assessment of strategy’s relative impact on each of 12 submarkets
- Baseline, High and Low impacts each assigned a variable value for percent of submarket converted

No Impact 0%	Low X%	Baseline Y%	High Z%
-----------------	-----------	----------------	------------

# F1 – CASHLESS FARE DISCOUNT

Through this strategy, King County Metro would offer a fare discount to ORCA users ranging from 10-30% below the cash fare pricing. Cashless fare discounts are the most common incentive used by peer agencies.

## Consistency with Policy Objectives:

		3		
			4	
	2			
	2			

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Annual number of cash trips 21,054,725
- Average full fare \$2.25
- Expected discount off full fare 10%

## Estimated Results:

**Trips converted /year: 7,710,641**  
**Upfront cost: \$250,000**  
**Annual cost: \$1,734,894**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

				5
			4	
	2			
		M		

- Fare policy changes would be a later priority, after further distribution improvements have been made
- Higher frequency riders more likely to convert
- Socioeconomically disadvantaged riders likely to convert

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	High
2	Frequent	CBD	Non-Soc	High
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	High
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Baseline
7	Moderate	Non-CBD	Soc	Baseline
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 16% 32% 48%

## F2 – WEEK+DAY KCM PASS PRODUCTS

This strategy would introduce week and/or day passes for KCM-only travel. It would be targeted for travelers making a higher number of trips within the given period. This incentive has been used by peer agencies to resolve Title VI arguments over fare increases.

### Consistency with Policy Objectives:

1			
			4
		3	
			4

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

### Key Assumptions

- Average full fare \$2.25
- Day pass displacement 2.5 trips

### Estimated Results:

**Trips converted /year:** 2,299,870  
**Upfront cost:** \$100,000  
**Annual cost:** \$574,968

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

	2		
			4
		3	
		M	

- Use would be higher for infrequent riders
- Assuming that those in the socioeconomic segment may receive day passes instead of human services tickets

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Baseline
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	High
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	High
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0% 4% 8% 12%

## F4 – ELIMINATE FREE CASH TRANSFERS

Through deployment of this strategy, transfer charges would be introduced to King County riders. The model assumes that each transfer would cost cash customers a full fare. However, free transfers would be available to all non-cash paying customers.

### Consistency with Policy Objectives:

			4	
			4	
		3		
1				

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

### Key Assumptions

- Percent of riders transferring 49%
- Percent of trips with transfers 35%
- Percent of cash transfer trips lost 20%

### Estimated Results:

**Trips converted /year:** 3,342,826  
**Upfront cost:** \$100,000  
**Annual cost:** (\$1,755,339)

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

			4	
				5
1				
			ML	

- There is a high risk of negative customer reactions or Title VI issues associated with this strategy
- This assumes fewer CBD riders would need transfers
- Some transfer trips for cash customers may be lost

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	High
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	High
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0% 12% 24% 36%

# D1 – NEW SINGLE-TICKET TVMS

Offer TVMs in key areas to allow customers to purchase and print single-use paper tickets from systems similar to existing parking payment machines.

## Consistency with Policy Objectives:

1				
			4	
	2			
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Number of key locations for new TVMs 120
- Number of TVMs per location 1
- Cost for each TVM (+ installation) \$15,000

## Estimated Results:

**Trips converted /year: 2,442,669**  
**Upfront cost: \$2,400,000**  
**Annual cost: \$480,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
	2			
			4	
			ML	

- This strategy is a slightly lower cost alternative to D2, but requires infrastructure/maintenance investment
- Serves only specific geographic locations
- Introduces a new fare medium
- Unlikely to convert frequent users; better for infrequent

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Zero
4	Frequent	Non-CBD	Non-Soc	Zero
5	Moderate	CBD	Soc	Low
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 8% 16% 24%

## D2 – EXPAND ST-TYPE TVM LOCATIONS TO OBTAIN ORCA

This strategy would deploy more of the full-service Sound Transit TVMs in new strategic high-traffic locations. This strategy considers adding *additional* TVMs beyond what was planned for 2012 and 2013. These TVMs allow customers to purchase and load an ORCA card without access to a computer or a retailer.

### Consistency with Policy Objectives:

			4	
		3		
		3		
			4	

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

### Key Assumptions

- Number of locations for new TVMs 10
- Cost for each TVM (+installation) \$75,000
- Operations + Maintenance cost 20%

### Estimated Results:

**Trips converted /year: 622,970**  
**Upfront cost: \$825,000**  
**Annual cost: \$165,000**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
	2			
			4	
	NM			

- Offers the simplicity of continuing to provide the existing fare product in more locations
- These TVMs are expensive to purchase and maintain, limiting the scope of the expansion
- Requires strategic assessment of the best site locations

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Zero
2	Frequent	CBD	Non-Soc	Zero
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Zero
6	Moderate	CBD	Non-Soc	Zero
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	4%	8%	12%
----	----	----	-----

# D3 – ADD ORCA RETAIL RE-VALUE LOCATIONS

This strategy expands the existing ORCA retail network by increasing locations where customers can add value to ORCA cards. An effective strategy would be to target geographic regions not currently served by retail locations in an effort to reach additional cashless customers.

## Consistency with Policy Objectives:

			4	
			4	
			4	
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Estimated number of new locations 80
- Number of expected new sales/month 120

## Estimated Results:

**Trips converted /year: 2,469,516**  
**Upfront cost: \$100,000**  
**Annual cost: \$248,171**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
			4	
		3		
	NM			

- Will require effort to identify underserved locations and recruit new partners, as well as publicize new availability
- Higher usage for non-CBD; travelers already have access to retailers in downtown core
- Lower socio-economic usage due to funds availability

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	High
5	Moderate	CBD	Soc	Zero
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Baseline
8	Moderate	Non-CBD	Non-Soc	High
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	8%	16%	24%
----	----	-----	-----



# D4 – PRE-LOADED ORCA FARE MEDIA AT RETAIL LOCATIONS

Fare media would be pre-loaded with value and sold at retail locations. Peer agencies use this method of distribution to target customers throughout the region who lack convenient access to TVMs or online tools.

## Consistency with Policy Objectives:

			4	
			4	
	2			
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Average cost of pre-loaded media \$25
- Average sales per location per month 100
- Total expected sales per month \$255,000
- Retailer commission percentage 2%

## Estimated Results:

**Trips converted /year: 3,770,123**  
**Upfront cost: \$100,000**  
**Annual cost: \$293,325**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
				5
				5
	NM			

- Higher frequency travelers would be more likely to take advantage of further distributed fare media
- Socioeconomically disadvantaged riders would be less likely to pay the up-front cost to purchase the fare media
- May be able to find funding options for initial deployment

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	High
5	Moderate	CBD	Soc	Low
6	Moderate	CBD	Non-Soc	Baseline
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	8%	16%	24%
----	----	-----	-----

# D5 – ENHANCE ONLINE SALES VIA MOBILE APPLICATION

This strategy would launch an “app” for mobile phones that would allow customers to order ORCA cards and products via their smart phone. The app would allow the customer to add value while on-the-go.

## Consistency with Policy Objectives:

		3		
			4	
			4	
	2			

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

## Key Assumptions

➤ Customer cost for app \$0.99

## Estimated Results:

**Trips converted /year: 251,508**  
**Upfront cost: \$100,000**  
**Annual cost: \$10,000**

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

1				
		3		
		3		
			ML	

- The customers most likely to use are already ORCA users
- Socioeconomic riders less likely to have smart phones
- A mobile-friendly version of the existing ORCA web site could be developed in lieu of an app

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Moderate	CBD	Soc	Zero
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Zero
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	1%	2%	3%
----	----	----	----

## D6 – AT-HOME RE-VALUE SYSTEMS

At-home retail revalue technologies are small devices that can be purchased for home and business computers that allow customers to revalue their ORCA card from their personal computer.

### Consistency with Policy Objectives:

			4	
		3		
			4	
	2			

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

### Key Assumptions

➤ Customer cost for each home system \$20

### Estimated Results:

**Trips converted /year:** 697,860  
**Upfront cost:** \$100,000  
**Annual cost:** \$75,000

Overall Impact:

Relative Cost Rating:

Risk Rating:

Time Frame:

	2			
	2			
			4	
			ML	

- Higher frequency travelers more likely to use systems
- May be unfamiliar technology to even tech-savvy users
- Unlikely to be widely adopted by socioeconomic users
- KCM may wish to provide devices to key institutions or employer customers, increasing the usage and impact

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Zero
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Zero
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Moderate	CBD	Soc	Zero
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Zero
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Zero
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Zero
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	4%	8%	12%
----	----	----	-----

# M1 – TARGETED CUSTOMER OUTREACH

Through identification of key target markets for conversion, this strategy would seek to reach customers in a given submarket to educate them on cashless options.

## Consistency with Policy Objectives:

		3		
			4	
		3		
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Total mailings sent 28,000
- Total cost per mailing \$1.50
- Percent expected to convert 12%

## Estimated Results:

**Trips converted /year: 893,370**  
**Upfront cost: \$5,000**  
**Annual cost: \$116,899**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
			4	
				5
N				

- KCM has specific experience with targeted marketing to specific groups, such as households affected by tolling
- While socioeconomic groups would likely be a targeted market, they would not be the sole target

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	High
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	8%	16%	24%
----	----	-----	-----

## M2 – ORCA CARD FEE PROMOTIONS

This strategy would reduce or eliminate the \$5 fee currently associated with acquiring an ORCA card. This fee compensates Metro for the cost of the card purchased from the vendor, but has been cited as a deterrent to conversion for low-income as well as infrequent riders.

### Consistency with Policy Objectives:

		3		
		3		
	2			
				5

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

### Key Assumptions

- Number of cards handed out 50,000
- Expected percent of cards activated 30%
- Reduction in ORCA card fee \$5.00
- Cost of ORCA card to KCM \$3.00

### Estimated Results:

**Trips converted /year: 1,442,195**  
**Upfront cost: \$5,000**  
**Annual cost: \$278,525**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
				5
		3		
N				

- Could have operational implications if only KCM offers low/no fees while regional partners continue to charge
- Customers may learn to treat cards as disposable
- The baseline/low/high figures also indicate the strength with which each market will be targeted

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	High
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	High
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Baseline
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0% 8% 16% 24%

# P1 – COMMUNITY ORGANIZATION PARTNERSHIPS

This strategy leverages KCM's relationships with charitable organizations, human service organizations, and other partners to provide access, training, and/or distribution of cashless fare media to socioeconomically challenged populations.

## Consistency with Policy Objectives:

		3		
			4	
		3		
				5

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Number of partner programs 15
- Number of events per month 2
- Customers reached per event 60
- Percent of cards activated and reloaded 35%

## Estimated Results:

**Trips converted /year: 3,052,779**  
**Upfront cost: \$5,000**  
**Annual cost: \$294,287**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
				5
				5
	NM			

- Likely a precursor to implementing policy changes
- Ensures accessibility of cashless conversion to socioeconomically disadvantaged; builds public support
- Community partners can provide translators and other resources to help KCM reach targeted customers

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Baseline
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Zero
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Zero
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Zero

Baseline Values

0%	8%	16%	24%
----	----	-----	-----

## P2 – EXPAND BUSINESS ACCOUNTS

This strategy would expand the existing KCM business account programs for both schools and employers to convert a larger portion of the participants affiliated with these institutions to ORCA cards.

### Consistency with Policy Objectives:

		3		
		3		
			4	
		3		

Regional Fare Integration  
Operational Efficiency  
Simple Fare Structure  
Equality and Access

### Key Assumptions

- Current business account participants ?
- Baseline percentage increase per SM 10%

### Estimated Results:

**Trips converted /year:** 469,469  
**Upfront cost:** \$5,000  
**Annual cost:** \$60,000

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

	2			
			4	
			4	
	NM			

- Assumes a uniform impact across all sub-markets
- Impact will depend upon level of resources focused on program expansion
- High ease of implementation, as programs are already established on both the system and operations sides

### IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Baseline
2	Frequent	CBD	Non-Soc	Baseline
3	Frequent	Non-CBD	Soc	Baseline
4	Frequent	Non-CBD	Non-Soc	Baseline
5	Moderate	CBD	Soc	Low
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Low
10	Infrequent	CBD	Non-Soc	Low
11	Infrequent	Non-CBD	Soc	Low
12	Infrequent	Non-CBD	Non-Soc	Low

Baseline Values

0%	1%	2%	3%
----	----	----	----



# T1/T2 – PILOT/IMPLEMENT OPEN AND MOBILE TECHNOLOGIES

Introduce fare ticketing through near-field communications (NFC) or other consumer electronic payment technologies. The pilot program would allow for study of consumer response, technology effectiveness, and other operational considerations. The full-scale investment would augment or replace the existing smartcard system.

## Consistency with Policy Objectives:

	2			
			4	
	2			
		3		

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- SLU, LINK, Water Taxi ridership (T/mo) 684,437
- Converting Pilot Participants 70%
- KCM fleet size 1,500
- Credit card fee 2%

## Estimated Results:

**Trips converted /year: 4,557,629**  
**Upfront cost: \$6,000,000**  
**Annual cost: \$324,392**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

			4	
	2			
		3		
		M		L

- Key target rider group: infrequent travelers for whom the existing ORCA account/e-purse structure is not suited
- Credit card use tied to higher incomes.

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Zero
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Low
6	Moderate	CBD	Non-Soc	Baseline
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Baseline
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	High
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	High

Baseline Values

0%	12%	24%	36%
----	-----	-----	-----



# T3 – DISPOSABLE CASHLESS CHIP TICKET

This strategy would introduce a form of a limited-use, low-cost cashless fare media. These would be disposable tickets that could be read by existing ORCA readers and purchased at existing retailers. These cards could also be distributed as day/week pass products.

## Consistency with Policy Objectives:

			4	
			4	
		3		
			4	

**Regional Fare Integration**  
**Operational Efficiency**  
**Simple Fare Structure**  
**Equality and Access**

## Key Assumptions

- Cost (to KCM) for each chip ticket                      \$2.50
- Average trips per chip ticket                                      8

## Estimated Results:

**Trips converted /year:                      3,035,459**  
**Upfront cost:                                      \$10,000**  
**Annual cost:                                      \$948,581**

**Overall Impact:**

**Relative Cost Rating:**

**Risk Rating:**

**Time Frame:**

		3		
			4	
			4	
		M		

- Tickets would be geared towards infrequent, special event, and tourist market segments
- The cost of chip tickets must somehow be recovered
- Not likely to convert frequent users

## IMPACT ON RIDER SUB-MARKETS

1	Frequent	CBD	Soc	Low
2	Frequent	CBD	Non-Soc	Low
3	Frequent	Non-CBD	Soc	Low
4	Frequent	Non-CBD	Non-Soc	Low
5	Moderate	CBD	Soc	Low
6	Moderate	CBD	Non-Soc	Low
7	Moderate	Non-CBD	Soc	Low
8	Moderate	Non-CBD	Non-Soc	Low
9	Infrequent	CBD	Soc	Baseline
10	Infrequent	CBD	Non-Soc	Baseline
11	Infrequent	Non-CBD	Soc	Baseline
12	Infrequent	Non-CBD	Non-Soc	Baseline

Baseline Values

0%	8%	16%	24%
----	----	-----	-----