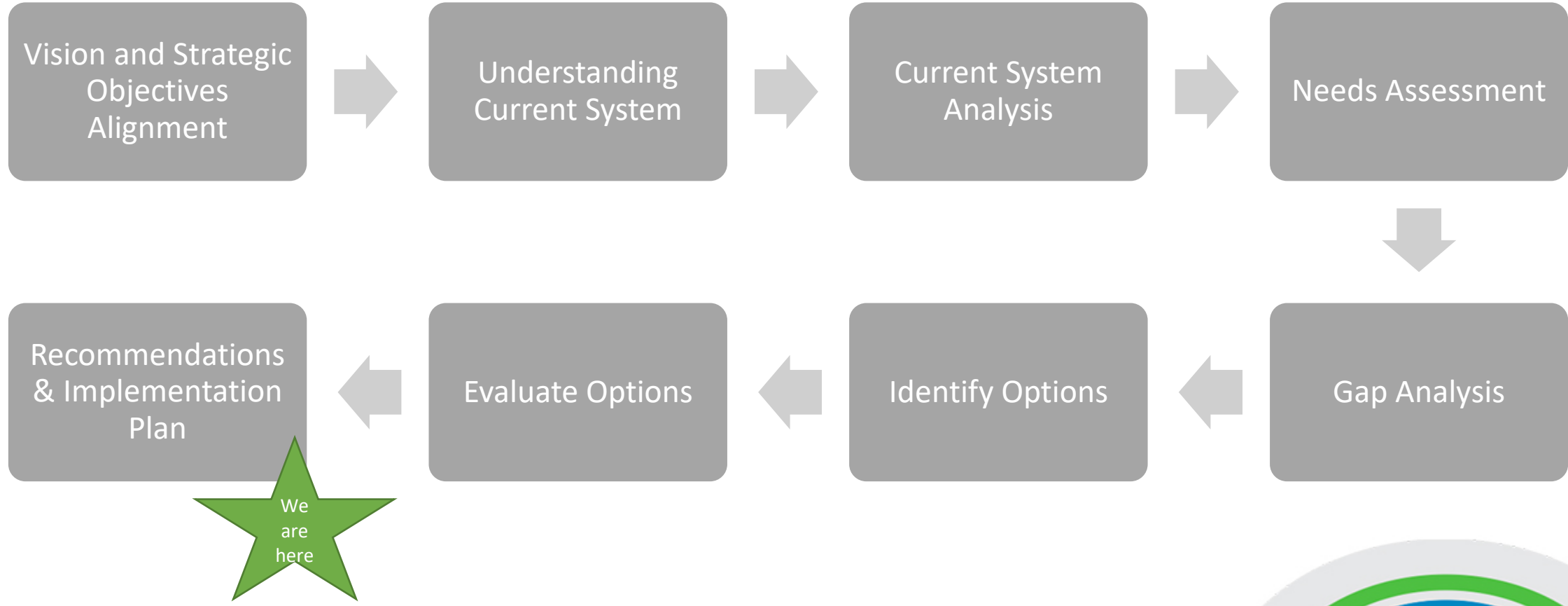


# Fare System Technology Review



# Project Progress



# Clevor Analysis and Recommendations

- Procure New EFC System
- New EFC Integrated TVM's
- Mobile App- Virtual Barcode with NFC Option
- Validating Fareboxes



## EFC Options

01

New Validators,  
Maintain Current  
EFCX System

\$8.2M Capital

02

Upgrade EFCX  
System

\$10.3M Capital

03

Procure New EFC  
System

\$17.8M Capital





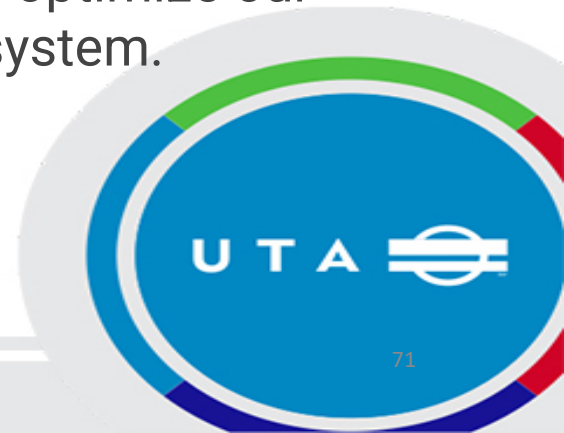
	Salt Lake City (UTA)	Boston (MBTA)	Chicago (CTA)	Dallas (DART)	Honolulu (HART)	LA (Metro)	Nashville (WeGo)	New York (MTA)	Portland (TriMet)	San Francisco (MTC)	Seattle (Sound Transit)	Tampa (HART)
<b>Supported Media</b>												
Closed-Loop Limited-Use Media	✓	✓				✓	✓		✓	✓	✓	✓
Closed-Loop Extended-Use Media	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barcoded Media (Paper or Mobile)							✓	✓				✓
Open-Loop EMV		✓	✓				✓	✓	✓	✓	✓	✓
NFC Virtual Cards		✓	✓			✓	✓	✓	✓	✓		
<b>Features</b>												
Integrated Retail Network	✓			✓		✓	✓	✓	✓		✓	✓
Fare Capping	✓			✓			✓		✓	✓		✓
Real-Time Fare Information				✓			✓		✓		✓	✓
Enhanced Customer Service Tools (COTS CRM)		✓	✓			✓	✓	✓	✓	✓		
Integration with Accounting Systems		✓	✓		✓		✓	✓	✓	✓		
Customer and Institutional Websites Integrated with EFC		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Open-Loop EMV Inspection		✓					✓		✓	✓		

# EFC Option Recommendation



## Procure New EFC System

- Scoring between the Procure New and Upgrade options were close
- PCI Compliance requirements are passed along to the vendor
- Delivery should occur in phases based on UTA's needs and timeline
- We will strive for a full-featured solution that allows us to optimize our resources in developing, maintaining, and operating the system.



# TVM Options

01

Refurbish Existing  
TVMs

\$5M Capital

02

Procure New Paper  
Ticket TVMs

\$10M Capital

03

Procure New EFC  
Integrated TVMs

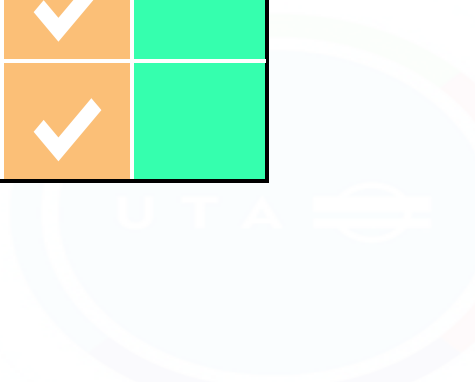
\$12M Capital



# TVMs

Salt Lake City (UTA)  
 Boston (MBTA)  
 Chicago (CTA)  
 Dallas (DART)  
 Honolulu (HART)  
 LA (Metro)  
 Nashville (WeGo)  
 New York (MTA)  
 Portland (TriMet)  
 San Francisco (MTC)  
 Seattle (Sound Transit)  
 Tampa (HART)

		TVM Features										
Integrated with EFC		✓	✓		✓	✓	✓		✓	✓	✓	
Full Service TVMs Integrated with EFC (Issue smart media, reload, accept cash and payment cards)		✓	✓		✓	✓	✓		✓	✓	✓	
Full Service TVMs NOT Integrated with EFC	✓			✓								✓
Simple TVMs Integrated with EFC (reload only, no change)		✓						✓			✓	
Simplified UI/UX									✓		✓	



# TVM Option Recommendation



## New EFC Integrated TVMs

- Provides the best customer experience and operational efficiencies for the agency
- Will give the agency the ability to support electronic transfers
- Will provide more consistency across the sales channels (e.g., distributing contactless media)
- New equipment should reduce reliability issues
- It is recommended that the EFC system be procured first if a TVM integration with the back office is desired.

# Mobile App Options

01

Maintain Current App

\$N/A Capital

02

Upgrade and Integrate Current App

\$715K Capital

03

Procure New Integrated Barcode Virtual Card App

\$2.1M Capital

04

Procure New Integrated NFC Virtual Card App

\$3.6M Capital

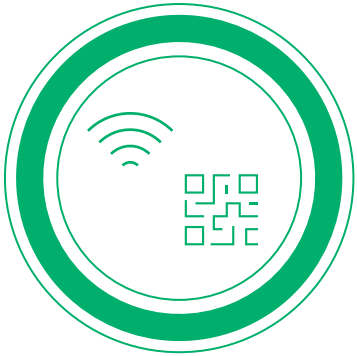


# Mobile Ticketing

Salt Lake City (UTA)  
 Boston (MBTA)  
 Chicago (CTA)  
 Dallas (DART)  
 Honolulu (HART)  
 LA (Metro)  
 Nashville (WeGo)  
 New York (MTA)  
 Portland (TriMet)  
 San Francisco (MTC)  
 Seattle (Sound Transit)  
 Tampa (HART)

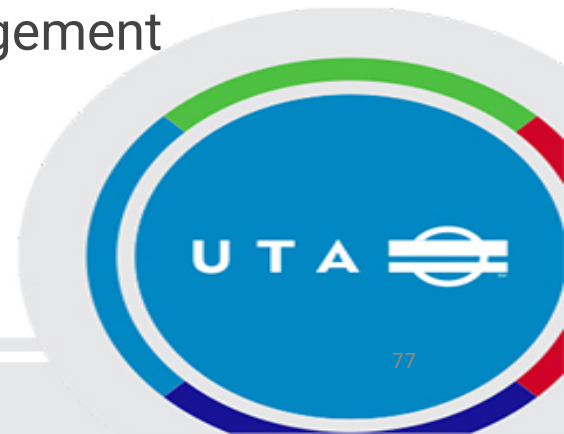
	Mobile Application Features										
Integration with EFC	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Barcoded Mobile Card						✓					✓
NFC-Based Virtual Card	✓	✓			✓		✓	✓	✓	✓	
Mobile Ticketing	✓	✓	✓		✓		✓		✓	✓	
Integrated with Retail Network			✓		✓		✓				
Supports Institutional Products	✓	✓		✓	✓	✓	✓	✓	✓	✓	
Third-Party Integration					✓						
Supports Electronic Fare Inspection	✓	✓	✓	✓	✓	✓		✓	✓	✓	

# Mobile App Option Recommendation



## Barcode Virtual Card with NFC Option

- Barcoded mobile virtual card with a future option for an NFC virtual card, based on the SI selected and gaining wallet provider approvals.
- While NFC virtual cards provide the best customer experience the option is completely dependent on wallet provider approval. This approval is difficult to secure.
- The new app can support fully integrated account management functionality to enhance the customer experience
- Future fare integration with our mobile trip planning app.



# Farebox Options

01

Maintain Existing  
Fareboxes

<\$.1M Capital

02

Procure New Basic  
Dropbox Fareboxes

\$1.1M Capital

03

Procure New Basic  
Registering Fareboxes

\$7.8M Capital

04

Procure New  
(Currency) Validating  
Fareboxes

\$10.4M Capital



# Fareboxes

Salt Lake City (UTA)  
 Boston (MBTA)  
 Chicago (CTA)  
 Dallas (DART)  
 Honolulu (HART)  
 LA (Metro)  
 Nashville (WeGo)  
 New York (MTA)  
 Portland (TriMet)  
 San Francisco (MTC)  
 Seattle (Sound Transit)  
 Tampa (HART)

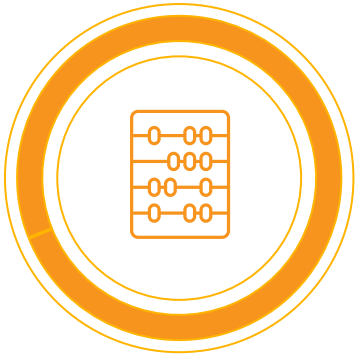
Simple Farebox (non-validating)

Validating Farebox

Farebox Features											
✓				✓	✓	✓		✓	✓	✓	✓
	✓	✓	✓				✓				



# Farebox Option Recommendation (3-5 years)



## Validating Fareboxes

- Fareboxes are in working condition and are expected to last 3 to 5 years.
- Implement robust cash controls from fareboxes through cash collection, bank deposit and reconciliation.
- After 3-5 years, based on farebox State of Good Repair and effectiveness of increased cash controls, procure new validating fareboxes.
- It is recommended that the EFC system be procured first if a farebox integration with the back office is desired.

# Cost of Recommendation over 10 years

Mobile Ticketing		Maintain Current App	Procure New Integrated Barcode Virtual Card App	Change in Costs
	Vendor Operating Cost	\$ 2,618,202.10	\$ 2,000,000.00	\$ (618,202.10)
	Agency Operating Cost	\$ 377,019.10	\$ 377,019.10	\$ -
	Operating Contingency	\$ 998,354.14	\$ 936,533.93	\$ (61,820.21)
	<b>Operating Cost (10 Years)</b>	<b>\$ 3,993,575.34</b>	<b>\$ 3,313,553.03</b>	<b>\$ (680,022.32)</b>

Farebox		Maintain Current Fareboxes	Procure New Validating Fareboxes	Change in Costs
	Vendor Operating Cost	\$ 235,015.07	\$ 235,015.07	\$ -
	Agency Operating Cost	\$ 9,708,003.22	\$ 12,597,982.18	\$ 2,889,978.95
	Operating Contingency	\$ 1,024,301.83	\$ 1,318,299.72	\$ 293,997.90
	<b>Operating Cost (10 Years)</b>	<b>\$ 10,967,320.12</b>	<b>\$ 14,151,296.97</b>	<b>\$ 3,183,976.85</b>



## Cost of Recommendation over 10 years (continued)

EFC		Maintain Current EFCX System	Procure New EFC System	Change in Costs
	Vendor Operating Cost	\$ 7,662,144.46	\$ 19,094,303.73	\$ 11,432,159.27
	Agency Operating Cost	\$ 45,505,886.05	\$ 43,093,731.06	\$ (2,412,154.99)
	Operating Contingency	\$ 5,316,803.05	\$ 6,218,803.48	\$ 902,000.43
	<b>Operating Cost (10 Years)</b>	<b>\$ 58,484,833.57</b>	<b>\$ 68,406,838.27</b>	<b>\$ 9,922,004.70</b>

TVM		Refurbish Existing TVMs	Procure New TVMs	Change in Costs
	Vendor Operating Cost	\$ 8,349,815.36	\$ 12,662,209.88	\$ 4,312,394.52
	Agency Operating Cost	\$ 22,705,145.84	\$ 20,474,512.47	\$ (2,230,633.37)
	Operating Contingency	\$ 3,105,496.12	\$ 3,372,877.78	\$ 267,381.66
	<b>Operating Cost (10 Years)</b>	<b>\$ 34,160,457.32</b>	<b>\$ 36,509,600.12</b>	<b>\$ 2,349,142.80</b>



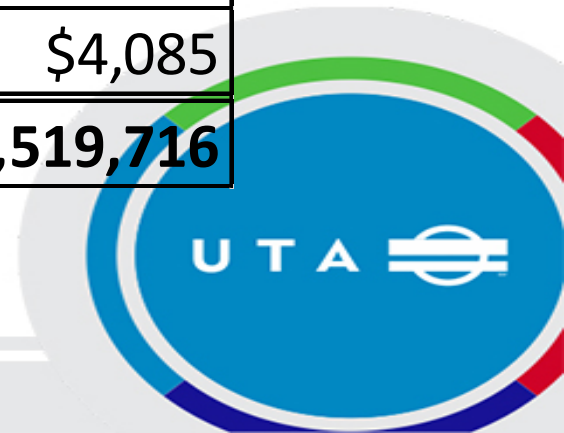
## Summary of Fare Revenues by Group

Revenue Group	2017	2018	2019	2020
Contracts	\$16,585,933	\$19,809,344	\$23,105,001	\$19,292,745
Farebox	\$4,844,465	\$4,624,834	\$4,195,298	\$1,227,770
FAREPAY	\$5,159,735	\$5,249,901	\$5,067,203	\$2,012,747
Mobile Ticket	\$50,773	\$988,237	\$2,033,574	\$1,289,044
Other	\$8,211,010	\$7,712,052	\$7,972,029	\$4,367,976
Pass Sales	\$9,589,350	\$6,623,195	\$5,295,544	\$2,585,644
TVM	\$8,827,035	\$8,199,301	\$6,934,625	\$2,786,822
Microtransit			\$1,261	\$34,358
<b>Grand Total</b>	<b>\$53,268,302</b>	<b>\$53,206,863</b>	<b>\$54,604,535</b>	<b>\$33,597,105</b>



## Summary of Fare Costs by Group

Revenue Groups	2017	2018	2019	2020
Contracts	\$2,408,613	\$3,703,724	\$2,596,848	\$2,017,048
Farebox	\$693,083	\$737,648	\$651,345	\$706,426
FAREPAY	\$1,522,437	\$1,691,341	\$1,602,244	\$820,542
Mobile Ticket	\$465,144	\$542,995	\$736,708	\$531,961
Other	\$110,184	\$106,525	\$128,444	\$208,233
Pass Sales	\$789,459	\$853,170	\$602,714	\$464,343
TVM	\$2,225,169	\$2,380,204	\$2,274,168	\$1,767,077
Microtransit	\$0	\$0	\$0	\$4,085
<b>Grand Total</b>	<b>\$8,214,088</b>	<b>\$10,015,606</b>	<b>\$8,592,472</b>	<b>\$6,519,716</b>



## Forecasted Rates for Year 10

	Year 10 Operating (current system w/ upgraded TVM's)	Year 10 Operating (upgraded system)
Expected Costs	10,361,000	12,168,000
Expected Revenues	60,000,000	60,000,000
<b>% of Collection</b>	<b>17%</b>	<b>20%</b>



## Forecasted Cumulative Cost Over 10 Years

	Cumulative Operating (current system w/ upgraded TVM's)	Cumulative Operating (upgraded system)
Expected Costs	103.6 M	121.7 M
Expected Revenues	742 M	742 M
<b>% of Collection</b>	<b>17%</b>	<b>20%</b>



## Critical Decision Points

- Fare Strategy
- Timeline
- Partner Projects Assessment
- Begin RFP Process – Focused on integration for each piece
  - EFCX, TVM's, Fareboxes, Mobile App



**Questions?**

