

Pass Program Study

Modeling Results

December 19, 2017



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n i n e s

TECHNOLOGIES

Agenda

- Ridership & Revenue Projections
- 2019 Base Fare for Modeling Purposes
- Overall Modeling Results
- Alternative Baseline
- Option A
- Option Components:
 - General Public Fare Products
 - Nonprofit Program
 - Low Income Fare Program
 - Regional Youth Pass Program
 - College Program
 - Business Programs
 - FlexPass Program
 - Neighborhood Program

CAUTION

- Modeling only one piece of the decision making process
- Working Group recommendations should be based not only on modeling results but also policy objectives, guiding principles, and PPWG values
- When reviewing model results, it is important to consider the tradeoffs of providing discounts to different groups, the rider's (or organization's) willingness and ability to pay, and the resulting implications the discounts on fairness and Title VI Equity
- Modeling assumes that all components of each option is implemented in 2019
 - Modeling does not account for technology availability
 - Modeling does not account for phasing in any of the changes

Ridership & Revenue Projections

Boardings (millions)

^u Fiscal Year	2017	2018	2019	2020	2021	2022	2023
Base System	80.1	80.6	81.1	81.5	82.1	82.6	83.1
FasTracks	12.1	15.7	19.3	20.9	21.8	22.5	23.2
Total Boardings	92.2	96.6	100.6	102.5	104.0	105.1	106.3
% Incr from Prior Year		4.8%	4.2%	1.8%	1.4%	1.1%	1.1%

- Base System includes Access-a-Ride paratransit
- Ridership growth due to regional population & employment growth
- Ridership growth due to completion of FasTracks
 - Gold (G) Line in 2018
 - Southeast Rail Extension Line (E, F & R) in 2019
 - North Metro Rail (N) Line in 2019

Ridership & Revenue Projections

Fare Revenue (millions)

Fiscal Year	2017	2018	2019	2020	2021	2022	2023
SBP (Strategic Budget Plan)	\$114.2	\$115.2	\$127.7	\$128.5	\$129.3	\$142.9	\$143.7
APE (Annual Program Evaluation)	\$26.4	\$31.6	\$41.2	\$44.3	\$46.0	\$52.3	\$54.0
Total Fare Revenue	\$140.6	\$146.8	\$168.9	\$172.8	\$175.3	\$195.2	\$197.7
% Incr from Prior Year		4.4%	15.0%	2.0%	1.0%	11.0%	1.0%

- Base System (SBP) includes Access-a-Ride paratransit
- APE revenue targets consider the length of trips on new FasTracks lines
- Fare changes planned for every 3 years (FY2019 and FY2022)
 - ~ 10% revenue increase from fare increase

2019 Base Fare for Modeling Purposes

- Baseline model is calibrated based on the FY19 fare revenue target
- In order to increase revenue 10%, fares must increase by more than 10% to account for fare elasticities
- ~11-12% fare increase assumed to reach the FY19 fare revenue target
 - Local One-Way Fare: \$2.90 (currently \$2.60) 12% ↑
 - Regional One-Way Fare: \$5.00 (currently \$4.50) 11% ↑
 - Airport One-Way Fare: \$10.00 (currently \$9.00) 11% ↑
- All fares are assumed to increase by the same percentage growth
- All current pass multiples and discounts retained

Overall Modeling Results

	Boardings (Millions)		Linked Trips (Millions)		Fare Revenue (Millions)	
	2019	% Change from Baseline	2019	% Change from Baseline	2019	% Change from Baseline
2019 Baseline	99.7	-	58.7	-	\$167.9	-
Option B	99.3	0%	56.4	-4%	\$136.0	-19%
Option C32 (monthly 32x)	101.9	+2%	59.4	+1%	\$151.6	-10%
Option C38 (monthly 38x)	100.7	+1%	58.6	0%	\$156.4	-7%
Option E10 (discount 10%)	103.0	+3%	60.0	+2%	\$152.6	-9%
Option E20 (discount 20%)	103.3	+4%	60.6	+3%	\$149.0	-11%
Option E40 (discount 40%)	104.0	+4%	61.8	+5%	\$139.6	-17%

Overall Modeling Results

Component	Linked Trips						Fare Revenue					
	B	C32	C38	E10	E20	E40	B	C32	C38	E10	E20	E40
General Public (Adult/Senior/Disabled)	↑	↑	-	-	-	-	↓↓↓↓↓	↓↓	-	-	-	-
Low Income	↑↑↑	↑↑↑	↑↑	↑↑	↑↑	↑↑	↓↓↓↓↓ ↓↓	↓↓↓↓↓ ↓	↓↓↓↓↓ ↓↓↓↓↓	↓↓↓↓↓ ↓↓↓↓↓	↓↓↓↓↓ ↓↓↓↓↓	↓↓↓↓↓ ↓↓↓↓↓
Youth	-	-	-	↑↑	↑↑	↑↑	↑	↑	↑	-	-	-
College	↓↓↓↓↓ ↓	-	-	-	-	-	↓↓↓↓↓ ↓↓↓↓↓ ↓	-	-	↓	↓↓↓	↓↓↓↓↓ ↓
EcoPass	↓↓	↓↓	↓↓	↓	↓	-	↓↓↓↓↓ ↓↓	↓↓↓↓↓ ↓↓	↓↓↓↓↓ ↓	↓↓↓↓↓ ↓↓	↓↓↓↓↓ ↓	↓↓↓↓↓ ↓↓↓↓↓ ↓↓
FlexPass	-	-	-	-	-	-	-	-	↑	-	-	-
NECO Pass	-	-	-	-	-	-	-	-	-	-	-	-

Legend: arrows based on comparison with the 2019 baseline

Linked Trips

↑ ≅ +0.5 million ↓ ≅ -0.5 million

Revenue

↑ ≅ +1.0 million ↓ ≅ -1.0 million

Fatal Flaws

Option B

- Loss of ridership and revenue due to the elimination of College Pass Program
- Loss of ridership and revenue due the elimination of cross-subsidization within an employer, and across employers with elimination of EcoPass
- Loss in revenue due to the increase in discounts available to general public (e.g., greater discounts on stored value and day pass) and low income riders

Option C32

- Loss in revenue due to the increase in discount on monthly pass

Options E20 and E40

- Loss in revenue due to offering a larger discount for EcoPass, NECO Pass, and College Pass. Increasing the discount ignores the willingness to pay by organization/neighborhood

Alternative Baseline

- In 2009, Pass Program Committee made recommendation to RTD Board for utilization pricing of EcoPass and Neighborhood EcoPass based on actual ridership from the smart card system
- 2009 Recommendation:
 - 40% discount on the cash fare value of trips taken for specific pass program
 - For EcoPass, retain service level areas (SLAs) but adjust employer size buckets to reduce the pricing matrix from 20 cells to 16 cells
- Alternative Baseline includes no changes to General Public, Nonprofit Program, or College Pass from the 2019 Baseline and does not introduce a Low Income Program
- Alternative Baseline does not meet the 2019 SBP revenue target

	Linked Trips (Millions)		Fare Revenue (Millions)	
	2019	% Change from Baseline	2019	% Change from Baseline
2019 Baseline	58.7	-	\$167.9	-
Alternative Baseline	59.7	+2%	\$155.3	-8%

Option A

- Approximates the ridership & revenue impact of charging the same fare per linked trip for all fare products
 - Product discounts eliminated
 - Senior/Disabled retain their discount; Student charged Full, Adult fare
- This is a high-level theoretical analysis. If preference is to move Option A forward, a more detailed analysis would be required
- Eliminating all non-mandated discounts may enable reducing the average fare per linked trip to:
 - Local Regular One-Way Fare: \$2.50
 - Regional Regular One-Way Fare: \$4.50
 - Airport Regular One-Way Fare: \$9.00

	Linked Trips (Millions)		Fare Revenue (Millions)	
	2019	% Change from Baseline	2019	% Change from Baseline
2019 Baseline	58.7	-	\$167.9	-
Option A	57.4	-2%	\$169.5	+1%

General Public Fare Products

Fare Product	Baseline	Option B	Option C	Option E
One-Way Fares/ 2-3 Hour Passes	One-Way	3-Hour Pass (electronic only)	2-Hour Pass	3-Hour Pass
Stored Value Discount/ Load Bonus	\$0.25/\$0.15	10% load bonus	\$0.25/\$0.15	\$0.25/\$0.15
10-Ride	10% discount on cash	Not available	Not available	Not available
Day Pass	2 x cash	2 x stored value	2 x cash	2 x cash
Monthly Pass	38 x cash	Not available	32 x cash 38 x cash	38 x cash
Annual Pass	11 monthly passes	Not available	Not available	11 monthly passes (except youth, 12 monthly passes)

General Public Fare Products

- **Transition from one-way fares to 2-hour or 3-hour passes** is anticipated to result in minor revenue loss as some riders may be able to complete a round trip within the validity period of the pass
- **Stored value discount/load bonus** relatively consistent across options. Option B results in a slightly greater increase in the discount provided for Regional and Airport trips due to a 10% load bonus instead of flat \$0.25 discount
- **Passes:**
 - **Option B:** day pass price assumes pricing based on stored value/load bonus fare resulting a 10% discount on day pass compared to other options. Elimination of monthly and annual passes results in rider migration to day pass
 - **Option C:** increase in discount in monthly pass in C32 and elimination of annual pass results in rider migration to monthly pass, resulting in a lower average fare per linked trip
 - **Option E:** Minimal changes from baseline; slight deviation due to the elimination of 10-Ride tickets

General Public Fare Products

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	% Change from Baseline		Average <u>Adult</u> Fare per Linked Trip
	<u>Adult</u> Linked Trips	<u>Adult</u> Fare Revenue	
2019 Baseline	-	-	\$3.61
Option B	+3%	-8%	\$3.25
Option C32 (monthly 32x)	+2%	-3%	\$3.45
Option C38 (monthly 38x)	0%	0%	\$3.63
Option E	0%	0%	\$3.63

Note: #s for adult ridership & revenue not provided as ridership
Is impacted by the other programs

Nonprofit Program

- The intent of the options is that an organization serving low income populations would be able to load stored value onto a Low Income MyRide card for the individual who has been precertified through the Low Income Program instead of issuing them a nonprofit fare
- The fare received by RTD would be equal to the Low Income or Discount fare, which would both receive a 50% discount in the options
- The additional 50% discount provided on Discount fares for seniors, persons with disabilities, and youth would be discontinued
- The challenge with implementation would be the delay for remote loads. Value loaded online would not be available immediately for use and may take several days to load

Low Income Fare Program

- Options B, C, and E all include a low income fare program with a 50% discount
- Modeling assumes income threshold of 200% of federal poverty level

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Federal Poverty Level Threshold	2017 Survey Income Threshold	% of Survey Respondents		
		Qualify for Adult Low Income Fare	Qualify for S/D/M or Youth Fare	Total Qualify for Discount Fare
138% FPL	< \$35,000	17%	16%	33%
150% FPL	< \$35,000	17%	16%	33%
185% FPL	< \$45,000	23%	16%	39%
200% FPL	< \$50,000	25%	16%	41%

- Modeling assumes 50% adoption by eligible adult low income riders

Low Income Fare Program

- Modeling results in \$8 to \$10 million in lost fare revenue for RTD in 2019
 - Discount: 50%
 - Income threshold: 200% of federal poverty level
 - Adoption: 50% adoption by eligible adult low income riders

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	Linked Trips		Fare Revenue	
	2019	% Change from Baseline	2019	% Change from Baseline
2019 Baseline	15,500,000	-	\$41,000,000	-
Option B	16,900,000	+9%	\$31,100,000	-24%
Option C32 (monthly 32x)	16,900,000	+9%	\$32,100,000	-22%
Option C38 (monthly 38x)	16,700,000	+8%	\$33,100,000	-19%
Option E	16,700,000	+8%	\$33,100,000	-19%

Note: ridership & revenue includes adult ridership & revenue from the Nonprofit Program¹⁷

Low Income Fare Program

- Results at other Low Income thresholds suggests revenue impacts ranging from -\$6 to -\$10 million
- Assumptions for additional thresholds remain identical
 - Discount: 50%
 - Adoption: 50% adoption by eligible adult low income riders

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	Linked Trips - # Change from Baseline (2019)	Fare Revenue - \$ Change from Baseline (2019)
138%/150% of FPL	+0.9M to +1.1M	-\$5.7M to -\$7.1M
185% of FPL	+1.1M to +1.3M	-\$7.3M to -\$9.1M
200% of FPL	+1.2M to +1.4M	-\$7.9M to -\$9.9M

Note: ridership & revenue includes adult ridership & revenue from the Nonprofit Program

Regional Youth Pass Program

- Options B & C retain existing 50% discount. Ridership & revenue impacts generally align with adult ridership trends with slight deviations due to distribution of ridership amongst fare products
- The increase in revenue for Options B & C increase is due to elimination of additional discounts on fare products purchased through the Nonprofit Program or high school purchases
- Option E increases the discount:
 - Youth 12 & under free
 - 3-hour pass: 50% discount
 - Day, monthly, and annual pass: 70% discount (note: annual pass priced at 12 monthly passes)
- Modeling results do not reflect migration to/from Neighborhood EcoPass Program as information of whether Discount Fare Neighborhood EcoPass riders are youth, seniors, or persons with a disability is not available

Regional Youth Pass Program

- Free fares for 12 & under with fare-paying rider results in ~\$1 million in forgone fare revenue
 - Children 5 years of age or younger already ride free with a fare-paying adult (limit three children with each fare-paying adult)
 - ~1/3 of youth are 14 & under based on APTA study
 - Modeling assumes 30% increase in ridership by children 12 & under, by offering free fares
 - Offering the free fares to children 12 & under generates growth in ridership, but the additional ridership is not assumed to impact foregone revenue

Regional Youth Pass Program

- Budget for Youth Regional Pass in Denver ~\$3 million for youth 13 & older
 - DPS currently provides ~\$1 million in passes to students
 - City of Denver considering purchase of up to 10,000 passes
 - ~94% of youth trips are local; ~6% of trips are regional/airport
 - At 70% discount, an annual pass for this distribution of trips would be ~\$413/year
 - ~7,260 annual passes could be purchased at ~\$413/year
 - This would cover ~10% of My Denver Card participants (some of whom are under 12 years) or ~35% of DPS high school students
 - Passes would be issued on smart cards to track ridership data for pricing the second year
 - Modeling assumes 30% increase in ridership as the result of the City of Denver offering a free pass to youth 13 & older

Regional Youth Pass Program

- Modeling suggests majority of youth ridership is currently participating in high school purchase programs or Nonprofit Program (~80% of 2016 ridership), that would migrate from one pass product to another.
- The growth in linked trips is due to offering free fares to children 12 & under and youth 13 & older in the City of Denver
- Revenue projections assumes that RTD is reimbursed for the growth in ridership generated by the City of Denver offering free fares to youth 13 & older

	Linked Trips		Fare Revenue	
	2019	% Change from Baseline	2019	% Change from Baseline
2019 Baseline	3,740,000	-	\$3,290,000	-
Regional Youth Pass Program + 70% Discount on Student Passes	4,610,000	23%	\$2,910,000	-12%

College Program

- Option B discontinues the CollegePass program
 - Students pay for themselves
 - Modeling assumes a 50% decrease in trips
 - Significant drop in ridership and revenue as trips are forgone
- Options C & E price CollegePass program for each institution based on actual ridership
 - Modeling assumes that all current institutions remain in the College Pass program and no new institutions join
 - The greater the discount the greater the negative impact on revenue

College Program

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	Linked Trips	Fare Revenue
2019 Baseline	5,430,000	\$17,840,000
Option B (discontinue CollegePass)	2,715,000	\$8,700,000
Change from baseline	-50%	-51%
Option C (discount = stored value)	5,430,000	\$17,720,000
Change from baseline	0%	-1%
Option E10 (discount = 10%)	5,430,000	\$17,190,000
Change from baseline	0%	-4%
Option E20 (discount = 20%)	5,430,000	\$15,280,000
Change from baseline	0%	-14%
Option E40 (discount = 40%)	5,430,000	\$11,460,000
Change from baseline	0%	-36%

Business Programs

- Two types of business programs:
 - EcoPass
 - FlexPass
- It is difficult to compare the ridership & revenue impacts between options since riders shift between EcoPass and other fare products (e.g., general public adult fare products and FlexPass):
 - For a new employer that signs up for EcoPass, modeling assumes a 20% growth in transit ridership from that employer
 - For a current employer who drops out of EcoPass, modeling assumes 33% migrate to FlexPass, 33% pay their own fare, 33% stop riding RTD

EcoPass - Option B

- Option B discontinues the Business EcoPass program and employees are given stored value by their employer

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	Linked Trips	Fare Revenue
2019 Baseline	8,560,000	\$34,460,000
Option B (stored value from employer)	7,760,000	\$27,940,000
Change from baseline	-9%	-19%

EcoPass - Options C & E

- In Option C, employer invoiced monthly based on its employee's ridership
 - Discount: \$0.25 stored value discount
- Option E retains the current Service Level Areas (SLAs) and employer size buckets to enable cross-subsidization between organizations
 - Discount: 10%, 20%, 40%
- Note: for Options C & E, two sets of ridership numbers are provided:
 - Future EcoPass Linked Trips - linked trips for participating employers in 2019 under the option. This number includes retained employers and migration from existing riders to EcoPass + 20% increase in new ridership by employers who join EcoPass
 - Current EcoPass Linked Trips - linked trips for current EcoPass riders. This number includes retained employers and migration from EcoPass to FlexPass and Monthly Pass for employers who opt of the EcoPass program in the future due to the price increases

EcoPass - Option C

	2019 Baseline	Option C	
		Monthly = 32x	Monthly = 38x
<u>Future EcoPass</u> Linked Trips	8,560,000	6,860,000	6,860,000
Retained in Eco		6,060,000	6,060,000
Sign-Up for Eco			
<i>Current Non-EcoPass Riders</i>		660,000	660,000
<i>Inc. in Ridership</i>		140,000	140,000
Opt-Out of Eco			
<i>Opt-In FlexPass Riders</i>		(830,000)	(830,000)
<i>Opt-In Monthly Pass Riders</i>		(830,000)	(830,000)
<i>No Longer Ride RTD</i>		(830,000)	(830,000)
<u>Current EcoPass</u> Linked Trips	8,560,000	7,730,000	7,730,000
Change from baseline		-10%	-10%
<u>Current EcoPass</u> Fare Revenue	\$34,460,000	\$27,550,000	\$28,610,000
Change from baseline		-20%	-17%

EcoPass - Option E

	2019	Option E		
	Baseline	10% Discount	20% Discount	40% Discount
<u>Future EcoPass</u> Linked Trips	8,560,000	7,320,000	8,330,000	10,610,000
Retained in Eco		6,620,000	6,960,000	7,920,000
Sign-Up for Eco				
<i>Current Non-EcoPass Riders</i>		580,000	1,140,000	2,230,000
<i>Inc. in Ridership</i>		120,000	230,000	460,000
Opt-Out of Eco				
<i>Opt-In FlexPass Riders</i>		(650,000)	(530,000)	(210,000)
<i>Opt-In Monthly Pass Riders</i>		(650,000)	(530,000)	(210,000)
<i>No Longer Ride RTD</i>		(650,000)	(530,000)	(210,000)
<u>Current EcoPass</u> Linked Trips	8,560,000	7,910,000	8,020,000	8,340,000
Change from baseline		-8%	-6%	-3%
<u>Current EcoPass</u> Fare Revenue	\$34,460,000	\$27,520,000	\$25,280,000	\$19,920,000
Change from baseline		-20%	-27%	-42%

Master EcoPass

	Linked Trips	Fare Revenue
2019 Baseline	640,000	\$1,430,000
Option B	430,000	\$1,500,000
Change from baseline	-33%	+5%
Option C	640,000	\$2,340,000
Change from baseline	0%	+63%
Option E10 (discount = 10%)	640,000	\$2,230,000
Change from baseline	0%	+56%
Option E20 (discount = 20%)	640,000	\$1,990,000
Change from baseline	0%	+39%
Option E40 (discount = 40%)	640,000	\$1,490,000
Change from baseline	0%	+4%

EcoPass \$5 Fee - Option E

- Contributes ~7-10% of revenue necessary to fund a low income program at 200% of FPL

	Total Revenue from \$5 Fee
Option E10 (discount = 10%)	\$670,000
Option E20 (discount = 20%)	\$740,000
Option E40 (discount = 40%)	\$900,000

Note: \$5 fee not included in the fare revenue summary since it's unclear whether it would be dedicated 100% to RTD or to offset revenue loss associated with introducing a Low Income Program

FlexPass

Fare Product	Baseline	Option B	Option C	Option E
FlexPass	Available, ~15% Discount off of Monthly Pass	Not available	Available, No Discount compared to Monthly Pass	Available, ~15% Discount off of Monthly Pass

- For current FlexPass customers:
 - Option B - minimal linked trip impact, decrease of ~\$200,000 in revenue
 - Option C32 - minimal linked trip impact, minimal revenue impact
 - Option C38 - loss of ~40,000 trips, increase of ~\$700,000 in revenue
 - Option E - minimal linked trip impact, minimal revenue impact

Note: numbers above exclude current EcoPass riders migrating to FlexPass

Neighborhood EcoPass - Options B & C

- Options B & C discontinue the Neighborhood EcoPass program
 - Boulder subsidy is discontinued in Options B & C
 - Reduction in administrative costs with elimination of NECO Pass

	Linked Trips	Neighborhood Revenue	Boulder Subsidy	Fare Revenue
2019 Baseline	550,000	\$960,000	\$360,000	\$1,320,000
Option B (discontinue NECO Pass)	370,000	\$1,080,000	-	\$1,080,000
Change from baseline	-33%	+14%	-100%	-18%
Option C (discontinue NECO Pass)	370,000	\$1,110,000	-	\$1,110,000
Change from baseline	-33%	+17%	-100%	-15%

Neighborhood EcoPass - Option E

- Option E retains the Neighborhood EcoPass program

	2019 Baseline	Option E 10% Discount	Option E 20% Discount	Option E 40% Discount
<u>Future NECO Pass</u> Linked Trips	550,000	288,000	343,000	461,000
Retained in NECO		269,000	315,000	399,000
Sign-Up for NECO				
<i>Current Non-EcoPass Riders</i>		16,000	23,000	51,000
<i>Inc. in Ridership</i>		3,000	5,000	11,000
Opt-Out of Eco				
<i>Continued RTD Riders</i>		(189,000)	(159,000)	(103,000)
<i>No Longer Ride RTD</i>		(95,000)	(80,000)	(52,000)
<u>Current NECO Pass</u> Linked Trips	550,000	460,000	470,000	500,000
Change from baseline		-17%	-14%	-9%
<u>Current NECO Pass</u> Fare Revenue	\$1,320,000	\$1,350,000	\$1,290,000	\$1,090,000
Change from baseline		+2%	-2%	-18%

Minimizing Revenue Loss

- General observation: lower the discount for specific programs, the lower the revenue loss
- Low Income Fare Program
 - Reduce discount provided
 - Adjust federal poverty level income threshold to make program more restrictive

Minimizing Revenue Loss

- EcoPass Program
 - Reduce discount provided
 - Adjust sensitivity of DIA employers to price increases
 - Change how program is priced (analysis underway)
 - Service level areas
 - Employer size buckets
 - Consider strategies to increase retention of employer contributions
 - Phase in price increases
 - Offer other employer program options (e.g., FlexPass, stored value)