Estuary Transit District Fare Study

Modeling Ridership and Revenue Impacts

October 12~~September 30~~, 2022

HATCH LTK

Positive Change for the Next Century

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Introduction

The Middletown Transit District (aka Middletown Area Transit) (MAT) and Estuary Transit District (ETD) (aka 9 Town Transit) merged as one combined transit district, ETD, effective July 1, 2022. The Boards of Directors and member municipalities of the respective agencies now function as one administrative entity. However, Middletown and Estuary operations continue to operate under separate brands, fleets, and policies. ~~January 1, 2023, is the target date for rebranding as one operating entity from the customer perspective.~~

To prepare for unified operations, ETD is currently performing several studies and analyzing various elements of their operations. These efforts include this Fare Study which is evaluating existing fare structures and fare equipment in place at both MAT and ETD, as well as providing recommendations regarding unified fare polices and collection methods as one seamless transit operation.

An important consideration is understanding how potential changes in fare structure would impact overall ETD ridership and revenue. The following sections will:

1. Discuss the framework for evaluating these impacts;
2. Review existing ridership on ETD's Middletown and Estuary divisions; and,
3. Estimate the impact of the fare structure~~s~~ alternatives on the ridership and revenue

Framework for Estimating Ridership/Revenue Impacts

Transit agency ridership is driven by multiple factors. In general, the most important are service area population and employment, level, type, and quality of service provided, travel patterns, gas prices, and fares. More people use transit if population and/or employment densities are high, and if higher quality and more extensive transit service is provided. Travel patterns relate to where people live and where they work, shop, and engage in other activities; transit must address an individual's entire trip to be a reasonable option for use. As auto use is the principal competitor for transit, higher gas prices will drive people to use transit if it provides a reasonable option.

In terms of transit fares, higher fares generally make ~~transit~~ it harder to afford transit and make it easier to justify using a car (if one is available), often reducing ridership. Conversely, lower fares generally make transit more affordable, increasing ridership. However, there are exceptions to this rule as observed during the height of the COVID-19 pandemic~~:~~; even free transit service will not be used if it does not meet an individual's distinct needs and desires.

Revenue is simply ridership times fares, and thus most factors which increase ridership also increase revenue. However, fare changes almost always result in a ridership impact that is opposite to the change in fares, such that the change in revenue generated by a fare change is smaller than the change in the fare levels, i.e., a 10% increase in fares might yield a 7% increase in revenue.

For this study, which is examining the impacts of fares on ridership, all other factors are assumed to be the same. In particular, we are not forecasting that ridership will recover from the losses of COVID-19 at any specific rate. That recovery will be impacted greatly by how people change their living and working locations and their level of comfort in being in an enclosed space with strangers. Instead, we are examining only how riders will react to the fare changes.

In general, the estimation of the effects of alternative fare structures involves four basic components:

1. Modelling Current Ridership – Any estimation of the impact of fare changes must start with understanding current ridership and understanding at least how many trips are taken using each fare product. Preferably we can gain an understanding of how many riders travel with what frequency and using what fare product.
2. Price Sensitivity – Fare option component evaluating the effect of relative changes in the price of each available fare option (e.g., cash, one-day pass, 31-day pass) on the share of riders who use each fare option. The result of this analysis is an estimate of riders' preferred fare product (i.e., what fare product riders would use if they did not increase or decrease their travel on transit).
3. Ridership Sensitivity – Ridership change estimates for each fare option, in each market segment, based on the elasticities of ridership, as developed above. Elasticities of ridership are most useful for small changes in fares, and other methods, including the historical experience of other agencies, must be used to analyze extremely low or free fares. Ridership across all fare options and market segments will be totaled to produce the overall ridership impact for each fare alternative.
4. Revenue Impacts – Calculation of the revenue effect of each fare alternative estimate. The amount of revenue lost or gained within each market segment, as well as for each fare option, is calculated using the projection of ridership and the prices of each option.

As will be discussed below, COVID-19 and the responses thereto have created a unique situation for transit agencies which requires adaptation and adjustment of the above four components. This will be included in the discussion below of MAT and ETD ridership and the estimation of the ridership and revenue impacts of alternative fare structures.

Current MAT and ETD Ridership

The core of estimating ridership and revenue impacts of fare changes is understanding current ridership: who is using the system and how they are using it. However, any examination of current ridership needs to understand the extent to which it is impacted by COVID-19, including:

1. MAT and ETD suspending fare collection from March 2020 to November 2020 and again starting April 1, 2022;
2. K-12 school closures and use of remote learning during parts of 2020 and 2021;
3. Employers increasing the use of remote work where possible starting in 2020; and
4. Employers reducing the use of remote work and increasing staff presence in their offices beginning late 2021.

The suspension of fares likely increased ridership during March through November 2020, and has clearly increased ridership starting in April 2022. It also means that there is no fare use data for these periods. The closures and increased use of remote work reduced the need to travel and thus transit ridership. The return to schools and decrease in remote work has increased ridership, but it is still unclear whether employee behavior will return entirely to what it was pre-COVID or if at least some employees have made permanent changes in where they work and how they travel. Given the above factors, ridership data from 2020, 2021, and 2022 cannot be considered as a good guide to what ridership will be in the future.

The most recent year with good ridership data is 2019, which can be used as the basis for the ridership estimation, and ~~has~~ will be~~en~~ used by ETD as the basis for its budget after fares are reimplemented. As of August 2022, ridership in what was MAT and what was ETD exceeded the ridership in August 2019, while when fares were last charged in March of 2022 ridership in what was MAT was at about 45% of 2019 levels and ridership on what was ETD was at about 60% of 2019 levels. It is unclear what portion of the recent growth in ridership is due to changing travel needs (e.g., returning to office work), new ETD services, or~~and what portion is due~~ solely to fares continuing to be free. However, for consistency with ETD's current budget, this analysis will use the 2019 ridership and revenue.

Nationally, transit bus ridership has seen less impact from COVID than rail transit ridership, and small agencies have seen less impact than the largest agencies. In general, this reflects the importance of commuters to agencies and to particular services. Transit agencies serving populations of less than 500,000 lost almost 80% of their ridership from late 2019 to April 2020. Since then these agencies have recovered most of their ridership. As of September 2022 these agencies were back to about 88% of their 2019 ridership,[1] even though many agencies have not restored all of their pre-COVID service due to labor shortages. Some of these smaller, bus-only transit agencies are already back to their pre-COVID ridership, while others are expected to reach that point by 2023, assuming that they solve their operator shortages and provide the same level of service. It is therefore not unreasonable to use 2019 ridership and revenue as a base case for ETD ridership after fares are restored.

It should also be noted that the two agencies collected different amounts of data regarding fares and ridership. The previous MAT was a much higher ridership system with 265,000 ride~~r~~s in 2019 and used Odyssey fareboxes which automatically collect data. The previous ETD had almost 68,000 ride~~r~~s in 2019 and used dropbox fareboxes with manual recording of ridership data. 2019 ridership for both agencies is set forth below in Table 1. More recently, both systems used Token Transit (a mobile app) for some fares from November 2020 through March 2022. Token Transit was about 10% of ridership during this period. However, Token Transit is mostly just a change in how fares are paid, those riders still used almost the same fare products as other riders.

The previous MAT had some fare products that are almost identical to each other, but ~~which~~ are slightly different due to the needs of specific purchasers, such as having a 31-Day Pass which better met the needs of the general public and a monthly pass which better met the needs of employer-based programs.

[1] APTA Ridership Trends website, (transitapp.com)

Table 1: MAT and ETD 2019 Ridership

MAT Ridership 2019

			Adult							CT	
2019	Cash Revenue	Total Ridership	Basic Fare	1 Ride	10 Ride	Day Pass	31 Day	Local 31-Day	Local Monthly	Fare Products	Transfers
January	$ 14,798.97	22,442	8,517	719	1,186	172	985	744	431	300	1,232
February	$ 12,605.91	20,700	7,269	543	1,388	207	1,162	959	474	494	1,014
March	$ 11,718.18	19,530	6,725	546	1,226	203	1,124	880	452	605	1,005
April	$ 13,710.81	23,328	7,856	588	1,691	276	1,331	934	477	565	1,009
May	$ 15,336.86	25,617	8,682	786	1,865	339	1,731	1,076	590	550	885
June	$ 11,772.56	18,725	6,655	335	1,521	393	1,374	690	401	500	665
July	$ 14,810.36	23,883	8,231	417	1,849	495	1,825	861	466	670	954
August	$ 15,605.54	24,168	8,836	399	1,946	415	1,947	674	473	550	1,171
September	$ 13,136.16	21,953	7,377	660	1,753	350	1,970	660	379	618	1,005
October	$ 14,945.28	24,874	8,320	815	1,999	376	2,170	740	450	559	1,063
November	$ 13,019.38	20,692	7,227	635	1,656	369	1,555	650	347	503	925
December	$ 14,231.00	19,239	6,815	438	1,653	389	1,449	955	376	249	799
TOTAL	$ 165,691.01	265,151	92,510	6,881	19,733	3,984	18,623	9,823	5,316	6,163	11,727

	E&H				Youth 31 Day	Transfer	Upass & College	FREE
	SNR/ADA	1 Ride	10 Ride	Monthly				
January	296	-	560	1,273	42	1,547	1,175	1,991
February	363	-	656	1,693	36	2,180	2,107	1,804
March	303	-	724	1,858	23	2,583	1,743	1,006
April	448	13	782	2,463	92	3,293	2,277	996
May	488	6	819	3,037	57	3,220	2,225	911
June	426	-	638	2,171	19	2,258	1,124	320
July	715	-	843	2,683	70	2,805	1,529	473
August	514	-	855	2,705	62	3,036	1,184	307
September	478	-	946	2,555	10	2,666	3,506	274
October	672	-	847	3,141	10	3,114	3,858	302
November	570	1	627	2,392	16	2,630	2,859	333
December	506	14	607	1,800	41	2,555	1,686	266
TOTAL	5,779	34	8,904	27,771	478	31,887	25,273	8,983

ETD Ridership 2019

						TICKETS			FREE RIDE				
2019	Total $$ / *Shuttle* Route	SHUTTLE ROUTE	Driver reported Amt / OFF Route	Driver reported Amt /SHUTTLE Route	REDUCED	Regular	Senior	Xfers	Child/Aid	UPASS	SR/DIS Monthly	Monthly UnLtd	TOTALS
January	$ 3,551.20	TOTALS	$474.25	1,783	507	1,359	373	363	61	135	364	904	5,849
February	$ 3,345.95	TOTALS	$334.25	1,690	457	1,374	336	357	27	247	335	822	5,645
March	$ 3,749.60	TOTALS	$372.75	1,909	481	1,515	407	372	29	258	436	865	6,272
April	$ 3,798.15	TOTALS	$472.50	1,945	464	1,424	372	410	21	344	324	1,042	6,346
May	$ 3,993.70	TOTALS	$411.25	2,048	482	1,368	416	522	39	241	528	834	6,478
June	$ 3,616.55	TOTALS	$477.75	1,917	308	1,195	372	367	50	120	348	735	5,412
July	$ 3,946.75	TOTALS	$666.75	2,112	295	1,167	394	331	37	71	384	854	5,645
August	$ 4,095.55	TOTALS	$610.75	2,198	293	1,185	395	360	16	93	455	748	5,743
September	$ 3,411.35	TOTALS	$620.50	1,825	256	1,145	399	258	30	266	424	842	5,445
October	$ 3,508.20	TOTALS	$665.00	1,841	337	1,233	445	336	44	318	548	813	5,915
November	$ 2,806.55	TOTALS	$432.25	1,493	228	1,054	374	283	28	224	494	631	4,809
December	$ 2,490.40	TOTALS	$444.50	1,290	274	876	382	274	20	127	373	634	4,250
TOTAL	$ 42,313.95		$ 5,982.50	22,051	4,382	14,895	4,665	4,233	402	2,444	5,013	9,724	67,809

Several issues that were identified in the *Existing Fare Structures Report* (ETD Fare Study, July 2022), such as a unified website and improved distribution of fare products, can be expected to increase ridership beyond 2019 levels even absent any change to fares.

Current MAT and ETD Ridership

Findings from the Evaluation Criteria and Conceptual Options Report

As discussed in the *Evaluation Criteria and Conceptual Options Report* (ETD Fare Study, September 2022) the overall direction for future ETD fare policy was clearly indicated by the survey results on evaluation criteria. ETD Board of Directors, ETD management and key staff, and CTDOT and CTtransit staff indicated a desire to implement a fare structure that:

- Improves customer convenience-/r-Removes barriers to use;
- Simplifies fares;
- Maximizes ridership; and,
- Improves affordability for low-income individuals, seniors, and other transportation-disadvantaged individuals.

Ideally the future ETD fare structure will also serve the needs of all rider groups, be equitable within the new service area, and potentially facilitate intermodal and interagency travel. The report then presented some conceptual fare options that potentially meet these requirements and are reported in Table 2 below:

Table 2: Conceptual Fare Options

Option	Descriptions	Examples	Objectives of Alternative
1. Simplify the Current Fare Structure	Make only those modifications needed to eliminate inconsistencies across previous ETD and MAT fares and create a single uniform fare structure.	E.g. setting a single age limit for children traveling free and setting a single price for an All Day pass	Customer convenience / Removing barriers to use Fare simplification
2. Introduce New Reduced Fare Categories	This would build upon the simplified structure of Option 1 by expanding the categories of individuals qualifying for reduced fares.	E.g., extending reduced fares to low-income individuals	Increased ridership Improved affordability
3. Implement "Best Fare"	This would also build on Option 1 or 2, but would require new fare equipment capabilities.	E.g. allowing riders to accumulate the amount they pay for single trips and ride free once they have paid an amount equal to a pass	Customer convenience / Removing barriers to use Fare Simplification Increased ridership Improved affordability

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4. Eliminate Fares for Some Users	This would build on Option 1, 2, or 3 by eliminating fares for some individuals who would otherwise pay a reduced fare.	E.g., providing free fares to youth, students, seniors, and/or low-income individuals.	Customer convenience / Removing barriers to use Increased ridership Improved affordability
5. Eliminate Fixed Route Fares	Eliminate fares across all fixed route services while retaining fares for demand-responsive services.		Customer convenience / Removing barriers to use Increased ridership Improved affordability Reduced capital and operating costs
6. Eliminating All Fares	Eliminate fares across all services		Customer convenience / Removing barriers to use Fare simplification Increased ridership Improved affordability Reduced capital and operating costs

Findings from the Existing Fare Structures Report

The *Existing Fare Structures Report* (ETD Fare Study, July 2022) identified a number of differences in the fare products available and with certain price points. These included:

- The previous ETD offered a pre-paid single ride paper ticket in packs of 10; the previous MAT offered a pre-paid single ride paper ticket in packs of 100.
- Twelve communities in the previous ETD district provided funding for a senior discount to those age 60+ allowing them to make Dial-A-Ride trips on a donation-only basis.
- The previous ETD provided the opportunity to make same day ADA Dial-A-Ride reservations at twice the base ADA fare.
- Both systems offered an All-Day Pass, 10-Ride Senior/Disabled Pass, 10-Ride ADA Pass, Monthly Pass and Monthly Senior Disabled Pass, but the prices differed.
    - The previous MAT charged more for the All-Day Pass and the 10-Ride Dial-A-Ride/ADA
    - The previous ETD charged more for the 10-Ride Senior/Disabled Pass
    - The previous ETD charged more for Monthly Pass, but certain towns offer a discount for their residents which is effectively less than the cost of the previous MAT Monthly Pass
- The previous MAT offered a discounted Youth Monthly Pass.
- The previous MAT offered free fare for children 5 and under; the previous ETD offered free fare for children 4 and under.

- The previous ETD operated a deviated fixed route system and charged an additional fare for this Off-Route service.

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These issues, especially the specific differences in eligibility and pricing, will be addressed in the options below.

Refining Options and Estimating Impacts

The next step in this process will be to refine the above six conceptual options into initial fare alternatives and estimating the ridership and revenue impacts of each option.

Option 1: Simplify the Current Fare Structure

Refining this option means addressing the issues identified in the *Existing Fare Structures Report* (ETD Fare Study, July 2022). We have addressed each of these issues below with recommendations, rationale, and an estimate of the ridership and revenue impact. In addressing these issues, we have assumed that a consistent fare collection approach has been implemented across the combined service area. Implementing that consistent fare collection approach, and issues of phasing in these recommendations, are discussed in a subsequent document.

- The previous ETD offered a pre-paid single ride paper ticket in packs of 10; the previous MAT offered a pre-paid single ride paper ticket in packs of 100
    - In considering this option, it needs to be noted that the previous ETD's 10-ticket book is essentially equivalent of the previous MAT's 10-Ride ticket, both are priced at $15.75, although there is a difference in the ticket form. Making these two products into a single form will have no impact on ridership or revenue. It will result in a minor decrease in costs. The discount for this product is in line with the most common national practice, which is a discount from zero up to about 10%, as a common marketing campaign is to offer 10 rides for the price of 9.
    - The previous MAT's sale of packs of 100 single-ride tickets is primarily focused on social service agencies to allow them to provide transportation to individuals. The existence of this option does not add to the complexity of the fare structure. Furthermore, providing a fare product that is convenient for social service agencies is an important element of maximizing ridership and improving access to transit. There should be no change to this policy. The sale of these packs of single-ride tickets should be extended to all social service agencies in the region.
- All communities in the previous ETD district provided funding for a senior discount to those age 60+ allowing them to make Dial-A-Ride trips on a donation-only basis
    - Under Off-Route and Dial-A-Ride service it states that a pre-registered resident senior has a $1.75 donation, while the discussion under Senior Fare Program just refers to a donation, which undoubtedly causes confusion as to ETD's willingness to accept other donations, or none at all.
    - This policy applies only to Dial-A-Ride trips and only in specific locations. It does not add complexity to the fixed route fare structure or have any impact on ADA complementary paratransit. Care does need to be taken when describing general public Dial-A-Ride service, especially on the website, to clarify all limitations on the program. It is also important to note that the communities are not paying the full cost

of this program, and thus increased ridership does result in an increased total deficit. Furthermore, it may be politically difficult to limit this program even if the demand and unsubsidized cost of it grows significantly. Since this program increases ridership, by reducing the effective cost of transit to these seniors, without reducing revenue (, since the program is funded by the communities,), it should be retained.

- This program is presented on the ETD website as a Senior Fare Program and it is easy to miss that it only applies on Dial-A-Ride service and only when reservations are made in advance.
- The rules for this policy need to be standardized and clearly stated in the fare policy for ETD to ensure that the rules are clear to all riders and to all funding communities.

+ -The previous ETD provided the opportunity to make same day Dial-A-Ride reservations at twice the base Dial-A-Ride fare.
    - ETD's website groups Oo-ff-Rr-oute, Dial-A-Ride, and ADA complementary paratransit fares together, which can be confusing. Because of the strict rules of the Americans with Disabilities Act, it is important to clearly distinguish the rules and prices for ADA complementary paratransit, including that ETD is charging no more than twice the fixed route price for ADA complementary paratransit. Offering general public Dial-A-Ride service at a higher price (even if it is only for same-day reservations) does not violate the ADA rules. If this program is limited to reservations made on a space available basis, it can increase ridership and revenue without significantly increasing costs. It should be offered consistently where ETD offers Dial-A-Ride service and thus no change needs to be made to this program.

+ The previous ETD operated a general public demand responsive ride-sharing service, the Shoreline XtraMile, beginning in 2019, which has never charged a fare. ETD has continued that service and in August 2022 implemented a new Middletown XtraMile service, which also does not charge a fare. Riders can arrange for a trip through an app or online, or can walk on to a shuttle bus if it stopped at a convenient location.
    - Each XtraMile service operates within a geographically limited area serving as a supplement to, or substitute for, fixed route transit. An important part of its role is to provide first mile / last mile connections to other transit services.
    - While the most affordable and convenient option for XtraMile is to continue to operate for free, it would be potentially confusing to have one free service while charging fares for others. The simplest option for the XtraMile service would be to treat it the same as another similar ETD service. ETD's Dial-A-Ride service is also general public demand responsive, but it can serve long trips across the entire service area, which is very different from XtraMile which serves a small geographic area.
    - Within the transit industry, services such as XtraMile commonly charge the same fares as fixed route transit. This includes accepting passes as well as free transfers (if they are free on the fixed route system). Adopting passes and transfers are important for first mile / last mile services, especially if there is a greater need for the service among low-income individuals. Examples with this type of fare structure are DART GoLink (Dallas, TX), Metro Transit micro (Minneapolis / St. Paul, MN) and King County Metro's (Seattle, WA) Community Ride, Pingo, and Via services. As with ETS, fare collection equipment issues can require a service to accept a more limited set of fare products. We therefore recommend that XtraMile use the same fare structure as fixed route transit, including fixed route passes and transfers. Fare collection equipment issues may force ETD to temporarily accept a more limited set of fare products.

- Many microtransit services have a lower, or no, introductory fare for a period of 6 months or so to increase the willingness of riders to try this new service. It would be reasonable for ETD to continue operating its new Middletown XtraMile service, as well as any future XtraMile services, with no fare for a total of six months, even if fares are re-implemented on other services earlier.
- In the small survey of XtraMile passengers that was conducted in 2019, 80% of respondents stated they were willing to pay a fare of at least $2.00 for the XtraMile service. This suggests that a $1.75 fare would be accepted by most riders and have a lower than normal impact on ridership. A reasonable estimate of the elasticity of these riders to imposing ETD's fixed route fare structure would be a loss of 30% of these riders. Furthermore, two-thirds of the respondents to this survey rode other ETD services and almost half of all riders paid with some type of monthly pass. Other riders used other transit services and might be able to use a transfer for XtraMile. These riders would be unaffected by implementing a fare equal to ETD's regular fixed route fare. Assuming at least two-thirds of the riders have no impact and the other third have an impact of a 30% loss in ridership, a reasonable estimate for the maximum impact on total ridership on XtraMile would therefore be about a 10% loss from imposing ETD's fixed route fare structure. The impact could be significantly less if a significant share of riders are transferring from ETD or other transit services.
- In the last 12 months the ridership on the Shoreline XtraMile was 21,428, while the last 31 days ridership on the new Middletown XtraMile was 1,206 (projecting to about 14,500 per year). If ETD imposes its fixed route fare structure, ridership would decrease from a total of about 36,000 to at least 32,400, a loss of 3,600. Revenue increase would also depend on the number of riders transferring from other services, as well as the mix between reduced and full fare riders. However, a reasonable estimate of the revenue per boarding for non-pass boardings would be about $1.00, which would give the revenue from charging a fare on XtraMile a maximum of $8,400 per year.

+ The previous MAT charged more for the All-Day Pass
  - The previous MAT charged $4.50 for an adult All-Day Pass while the previous ETD charged $3.50 for the same product. Both of these prices are within the norm~~al~~ for an All-Day Pass, which is two to three times the price of a single ride.
  - In 2019, MAT had 3,984 ride~~s~~ taken on the~~rs use the~~ All-Day Pass and about 1,000 passes sold, while ETD's use was not recorded. Assuming an elasticity of ridership with respect to fares of -0.20, the direct impact of lowering MAT's price from $4.50 to $3.50 would therefore be a gain of about 800 rider~~s~~ and a loss of about $1,000 based on 2019 ridership.
  - Since the previous MAT had free transfers, a day pass priced at $3.~~55~~ 50 would equal the cost of a round trip, whether or not the rider transfers, thus riders switching between using cash or a ticket plus a transfer for a round trip ~~and~~ or using a $3.50 All-Day Pass would have no revenue impact.
  - In studies at other agencies, we have found that riders purchasing an All-Day Pass are more likely to take additional spontaneous trips once they have purchased the pass, as the additional trips have no cost impact. Riders switching from paying per trip to purchasing a Day Pass have been found to take up to 10% more trips. If one-quarter of the previous MAT's 2019 base fare and 1 Ride ticket riders were to switch to an All-Day Pass, this could be an increase of 2,500 trips per year with no reduction in revenue.
  - The total estimated impact of setting a single $3.50 price for the All-Day Pass is therefore an increase of about 3,300 trips per year and a loss of about $1,000. Setting a single $4.50 price for the All-Day Pass

would reduce ridership that served the previous ETD slightly and raise a small amount of revenue. Because of the much greater concern regarding ridership rather than revenue, we are recommending that ETD adopt a price of $3.50 for the All-Day Pass for this conceptual option.

- CTtransit also charges $3.50 for their All-Day Pass. Making the cash fare and All-Day Pass prices the same as CTtransit would make fares simpler for riders.

+ The previous MAT charged more for the 10-Ride Dial-A-Ride/ADA
  - The previous MAT charged $35.00 for a 10-Ride Dial-A-Ride/ADA ticket while the previous ETD accepted 2 tickets from its discounted 10-ride ticket book, for an effective price of $31.50 for 10 rides on Dial-A-Ride as well as ADA complementary paratransit.
  - Discounted multi-ride fare products are generally offered on fixed route transit because they increase ridership and the agency has an extremely low cost of serving that additional trip. Indeed, discounted 10-Ride tickets can increase ridership by the purchasers by 10%-15%, meaning that a 10% discount on these ticket books can result in an agency increasing both ridership and revenue with virtually no increase in costs.
  - Discounted multi-ride fare products are not generally offered on Dial-A-Ride or other demand-responsive services because the marginal cost of serving those additional trips can be extremely high. This is especially true for ADA complementary paratransit where the agency is required to provide a trip for every rider requesting one. For example, the cost to many agencies of serving an ADA complementary paratransit trip can be $35 to $50, and thus any increase in ADA complementary paratransit ridership can have a profound negative impact on agency finances. There is potentially less impact on finances from discounts on other demand-responsive services because the agency is not required to serve every trip, and the discounted fare product is more likely to just fill up available capacity without raising costs. However, refusing to provide trips can lead to public and political pressure to provide more demand-responsive service and thus higher costs.
  - For purposes of this conceptual alternative, we recommend that ETD offer no 10-Ride or other bulk discounts on ADA complementary paratransit or on Dial-A-Ride service because of the potential impact on the costs of providing service.
+ The previous ETD charged more for the 10-Ride Senior/Disabled Pass
  - The previous MAT charged $7.65 for a 10-Ride senior/disabled ticket, while the previous ETD charged $7.75
  - This small of a difference will have no significant impact on ridership and revenue regardless of which option is chose for the future
  - The $7.65 price is consistent with CTtransit's price for their 10-Ride senior/disabled ticket. However, the $7.75 price is more consistent with other senior/disabled fares at half the full fare price and is slightly easier to pay for since it requires fewer coins. Choosing the lower $7.65 price for this option is slightly more consistent with the overall effort of increasing ridership, and will also result in less opposition to the proposed fares. It is therefore recommended for use with this conceptual option.
+ The previous ETD charged more for Monthly Pass, but certain towns offer a discount for their residents which is effectively less than the cost of the previous MAT's Monthly Pass
  - The previous MAT charged $52.50 for a monthly pass while the previous ETD charged $59, but only $47~~.00~~ for its town rate

- The previous ETD sold about 300 monthly passes during 2019. Even if they were all full fare passes, reducing the price from $59 to $52.50 would result in less than $2,000 in direct lost revenue and, given a normal elasticity of -0.20, an increase in ridership of about 2.4% or around 200 trips per year.
- Increasing the previous MAT's Monthly Pass price to $59 would likely result in a drop in ridership of about 1,000 riders or less and an increase of about $4,000 in revenue. Passes would also be more difficult to afford for low-income riders.
- Most small transit agencies use a breakeven point, at which the monthly pass price is equal to paying cash for each trip, of about 30 or slightly higher. At a price of $52.50 the breakeven point is 30 trips, while at a price of $59 the breakeven is 33.7 trips. This entire range is reasonable, but a breakeven of 30 trips is more common. Choosing the lower price~~s~~ also means that only a narrow range of fairly frequent riders would move from being better off paying for each trip individually to being better off paying for a monthly pass. Indeed, the biggest impact would likely be from making the pass more affordable to lower income riders who are most likely to be frequent users of the transit system.
- We recommend that the option of setting ETD's Monthly Pass price at $52.50 be used for this conceptual option.
- CTtransit's 31-Day Pass is significantly more expensive than either the previous ETD's or MAT's passes. The new ETD pass will be accepted on all ETD services, while CTtransit only accepts the ETD pass (or previous MAT pass) within the ETD service area. This should not be an issue as it is easy to communicate that a state-wide 31-Day Pass provides significantly greater value, and should therefore cost more, than a 31-Day or Monthly Pass limited to one transit district. In the future it is desirable if ETD's pass is accepted by CTtransit statewide, which should be the subject of future discussions.

+ The previous MAT offered a discounted Youth Monthly Pass.
  - The previous MAT offered a discounted Youth Monthly Pass at $38 while youth on the previous ETD needed to pay the full price of $59
  - This is the only discounted fare option either agency offered to youth, and CTtransit does not offer a discounted youth Monthly or 31-Day Pass. Thus fare simplification would suggest that ETD not offer any discounted youth fare products.
  - Discounted student/youth passes are important parts of school transportation in many areas, and the role of this pass in providing school transportation needs to be considered.
  - The potential future riders of transit are today's youth and there can be a long-term benefit to transit agencies of getting youths used to the idea of using transit.
  - It is unclear how many individuals who currently ride ETD would be eligible for a discounted youth pass, but in 2019 only 478 trips were made on MAT using this pass with the sale of only a few passes each month. Eliminating this pass can therefore be expected to have minimal impact on ridership or revenue.
  - We recommend that this pass be eliminated for this conceptual option for reasons of fare simplification. However, if this becomes an important political issue, and/or if schools or other government entities are willing to provide a subsidy or help promote this pass, there are significant long-term benefits to the combined agency implementing it.
+ The previous MAT offered free fare for children 5 and under; the previous ETD offered free fare for children 4 and under.
  - MAT had a total of 8,380 free child ~~riders~~ rides in 2019 while ETD recorded 402 free child ~~riders~~rides.

- It is our understanding that most operators do not inquire closely as the age of a child that appears to be sufficiently young and is traveling with a parent/guardian, a practice that is also followed at most agencies across the country. Thus, regardless of the difference in policies, there is likely little difference in how this is implemented in the field. Therefore, we recommend to useusing the higher age in this conceptual option as it would be less likely to cause objections when adopting the policies and it is unlikely to have any impact on ridership or revenue.
- Some agencies have implemented a height rule rather than an age rule for children, using a marking such as the height of the farebox or tape on a stanchion at the entry to determine whether the child can travel for free. This method has the advantage of being simple for operators to enforce. We recommend that ETD consider implementing this standard only if enforcing the child age rule becomes a significant issue for ETD and its operators.

+ The previous ETD operated a deviated fixed route system and charged an additional fare for this Off-Route service
  - Route deviation is an important element of the service that ETD provided to its community and decisions regarding providing that should not be driven by fare considerations.
  - Given that ETD will continue to operate route deviation service, having the same surcharge for a deviation as for a base fare, and having the total route deviation fare equal to the fare for Dial-A-Ride service, provides the simplest fare structure.
  -

Based on the above, with a price of $3.50 for the All-Day Pass, $7.65 for the 10-Ride Senior/Disabled Pass, and $52.50 for the Monthly Pass, the elimination of any discounts on 10-Ride tickets for use on ADA or Dial-A-Ride, the elimination of any Youth Monthly Pass, a free fare for children 5 and under, and no change to the previous ETD's surcharge for route-deviations, ridership would be expected to increase by about 3,500 and revenue drop by about $3,000. See Table 3.

Table 3: Elements of Option 1 with Impacts: Simplify the Current Fare Structure

Fare Product	Previous ETD	Previous MAT	Proposed	Ridership Impact	Revenue impact
Cash Fare	$1.75	$1.75	**$1.75**	0	$0
10-Ride Ticket	$15.75	$15.75	**$15.75**	0	$0
Dial-A-Ride Senior for donation-only funded by communities	Y	N/A	**Y (where funded)**	0	$0
Same Day Dial-A-Ride (on space available basis)	$7	N/A	**$7**	0	$0
XtraMile	Free	NA	**Same as Fixed Route**	Maximum -3,600	Maximum +$8,400
All--Day Pass	$3.50	$4.50	**$3.50**	3,300	-$1,000
Dial-A-Ride multiple Multiple Ttrip	$15.75/5	$35-/-10	**$35/10**	----	----
Senior-/-Disabled 10-Ride	$7.75	$7.65	**$7.65**	0	0
Monthly Pass	$59	$52.50	**$52.50**	200	-$2000
Discounted Youth Monthly Pass	$59	$38	**$52.50**	0	0
Age for free children with parent	4 -	5-	**5-**	0	0
Surcharge for route deviationOff-Route	$1.75	NA	**$1.75**	0	0

Option 2: Introduce New Reduced Fare Categories

This option builds off of~~,~~ and incorporates all of the changes in~~,~~ Option 1 above. Agencies are increasingly looking at how to better serve their highest need customers and to develop the use of transit in their customers of the future~~,~~: youth. To do this, many agencies have implemented, or are considering implementing, reduced (and in some cases free) fares for these groups.~~-~~ Some of the agencies with reduced fares for low-income riders include New York MTA, Los Angeles Metro, San Francisco Muni, King County Metro (Seattle, WA), Denver RTD, TriMet (Portland, OR), and DART (Dallas, TX).

According to the Lower Connecticut River Valley Transit Study (LCRVTS), 37% of the previous ETD riders and 53% of the previous MAT riders had household incomes of less than $30,000~~,~~ (half the median household income), while 12% of the previous ETD riders and 14% of the previous MAT riders were students. It is unclear to what extent these groups overlap, or either overlaps with riders who already receive a discount such as senior riders or those with a disability. However, assuming that there is no overlap, implementing a reduced fare of 50% (equal to the discount for senior and disabled riders) for these ~~discounts~~ riders would reduce revenue from full fare riders by about 25% for the previous ETD and 33% for the previous MAT, or a total of $132,500 before considering any increase in ridership or revenue from the fare discount.

Our standard elasticity for fare reductions ~~in~~ is -0.20, but many lower income riders are financially constrained. They may have a budget for travel and a 50% reduction in price could lead up to a 100% increase in travel. In practice, implementing a low-income discounted fare has found that these riders can increase their travel by about 30%, equal to an elasticity of -0.60. Using this elasticity that has been reported for low-income fare reductions of -0.60, this would result in a 15% increase in ridership and a 17% reduction in revenue for the previous ETD, while the previous MAT would experience closer to a 21% increase in ridership and a 23% reduction in revenue. Based on 2019 ridership and revenue, this would result in increased ridership of almost 66,000 (from almost 333,000 to almost 399,000) and a drop in revenue of over $91,000 (from $450,000 to under $359,000).

While these can be implemented with current technology, they are easier for an agency, and especially its operators, to administer with an account-based system that uses smartcards that also serve as photo IDs. In this case, ~~-~~operators merely check to make sure that the picture on the ID matches the rider, while all other issues are handled at the agency level. A key issue is determining eligibility. Best practices have been to rely on other agencies to determine eligibility and actually distribute the reduced fare cards, such as working through schools to distribut~~ed~~ed reduced fare student smartcards and working with state administered low-income programs, such as Medicaid and AFDC, for low-income fares. This minimizes the agency's administrative effort, allowing the agency to focus on its core competency of providing transit service, while also reducing the issue of storing confidential personally identifiable information. This option would still result in increased demand on agency staff to deal with these other agencies and arrange for distribution of the cards.

Table 4: Impacts of Option 2: Introduce New Reduced Fare Categories

Option	Ridership Impact	Revenue Impact	Cost Impact
Reduced fares for students and low-income individuals	+66,000	-$91,000	Additional demand on staff time

Option 3: Implement "Best Fare"

"Best Fare" or "Fare Capping" provides riders with a free upgrade to a Daily or Monthly Pass after they pay the equivalent amount in other fares, thus riders are always receiving the Best Fare ~~best fare~~ that the agency can offer them for their trips. The intent of this is to provide an equitable solution for riders who cannot afford to purchase a pass up-front or may not know how often they will ride. Like the low-income fare, it is focused primarily on riders with low incomes who cannot afford to pay the upfront cost ~~or~~ of the pass, or cannot afford the risk of losing the pass and having to pay again for all of their transit travel during a month. Best Fare works best for specific, easily defined periods, such as one day, a calendar week starting on a specific day, or a calendar month. Applying the Best Fare concept on a rolling 31-Day period can be a highly complex and confusing effort.

The most common arguments in favor of the best fare strategy are as follows:

- A best fare strategy allows low-income riders who may not be able to afford to purchase an unlimited ride pass to take advantage of a pass even if they pay for their initial rides individually.
- A best fare strategy makes it easy for riders to pay their fares economically, as they do not have to figure out the most cost-effective payment method. This can be used in marketing the service.

The arguments against the concept are as follows:

- A best fare strategy has the potential to result in significant revenue loss to the transit agency, as it converts rides that would otherwise have been paid for to free rides. An agency might then have to increase fares to make up for the lost revenue.
- While the rider does not have to calculate the best payment option, the strategy may cause confusion or uncertainty on the part of a rider: for instance, the rider will have to keep track of how many rides ~~he/she has~~ they have taken to know exactly which ride is the last ~~he/she has~~they had to pay for. This can particularly be an issue in a system having multiple single-ride fares (e.g., $2 for Local Bus, $2.25 for Urban Bus, $2.50 for Trolley) and/or multiple day passes (e.g., $5 for the Regional Day Pass and $4.50 for the NCTD Day Pass).

US transit agencies began implementing ~~best~~ Best ~~fare~~ Fare beginning in 2017 with TriMet (Portland, OR) and the impacts of it are still unclear. TriMet implemented fare capping together with its partner agencies C-TRAN (Vancouver, WA) and the Portland Streetcar. The three agencies have a regional fare system using the Hot Fastpass, although each agency has control over their own fares. In May 2019, 7-8% of Hop card users used virtual cards, while a similar share used contactless credit or debit cards. The remaining 85% used a physical Hop card. Adoption was initially slow, but has increased steadily. As of February 2019 about 35% of boardings were made with the Hop program, increasing to 50% of boardings in October 2019. This has led TriMet to phase out paper tickets effective December 31, 2019.

Prior to implementation, TriMet informally estimated that fare capping could reduce fare revenue between 1% and 1.5%. In fact, TriMet's total fare revenue fell 4.0% when comparing the 12 months prior to implementation of fare capping (ending June 2017) with the following 12 month period (ending June 2018). This was due in part to a decrease in boardings, as fare revenue per boarding only fell by 2.2%. However, prior to fare capping TriMet's boardings had been falling at a rate of

about 2.2% per year, which began leveling off during implementation, and subsequently became almost flat with a decline of 0.4% per year.

C-TRAN operates using a calendar year, so the transition to Hop occurred roughly in the middle of 2017. Prior to 2017, C-TRAN's ridership was in a downward trend. Operating hours were stable, until the a decrease from 2015 – 2016. In addition to adopting Hop, C-TRAN increased its hours of service by just over 4% from 2016 to 2017, and by just over 1% in 2018 and 2019. The result of these changes was were an increase in boardings of almost 2% in 2017 and over 3% in 2018.

DART (Dallas, TX) introduced fare capping effective August 18, 20182018, as part of a comprehensive restructuring of fares, its first change since December of 2012. DART introduced the change about 90% of the way through its fiscal 2018, a year which saw ridership and revenue dropping significantly from the previous year. However, in the following year, the new fare structure and fare capping led to a substantial increase in ridership of 10.9%, and a small increase in revenue of 0.6%. This combination resulted in fare revenue per boarding falling by 9.2%.

It is our understanding that DART's experience is an outlier, but that almost all agencies have seen boardings rise, or at least fall slower than they had previously been falling, while revenue per boarding falls. Total revenue has normally been seen to fall, but on occasion has actually risen due to the increase in ridership. A reasonable estimate for ETD would be that Best Farebest fare could increase ridership by 2%-3% over a period of a couple of years, while reducing revenue 3%-4%.

It must be noted that while "Best Farebest fare" results in a substantial improvement in equity, it cannot be implemented with MAT and ETD's current fare equipment. It requires a real-time, account-based fare collection system.

Table 5: Impacts of Option 3: Implement "Best Fare"

Option	Ridership Impact	Revenue Impact	Cost Impact
Implement "Best Fares"	Increase 6,000-10,000	Loss of $13,500 - $18,000	Requires real-time account-based fare collection system

Option 4: Eliminate Fares for Some Users

This option is basically an extension of Option 2, in that some transit riders travel for free.

Multiple agencies have considered eliminating fares on fixed route for individuals eligible for ADA complementary paratransit. The rationale for this is that many of these individuals may have a condition that allows them to use fixed route transit on some days, but forces them to use paratransit on other days and that the need for paratransit can often be foreseen. For example, some of these individuals have conditions that are exacerbated by heat or cold and can predict ahead whether they will be likely to need to use paratransit on a given day in the near future. Providing these individuals with a financial incentive to use paratransit where and when possiblepossible results in a slight increase to in ridership and generally no significant change to fixed -route revenue, but can also result in a reduction in paratransit demand and a net savings to the agency. The greatest difficulty with eliminating fares for this group is that is has been seen to result in an increased number of applications for ADA paratransit eligibility. If an agency does not have a careful process for determining eligibility, this can result in a significant increase in the number of individuals determined to be eligible,

increased revenue losses from the free fares, and even increased costs if these individuals use paratransit. For ETD, there were about 9,000 trips taken on fixed -route by ADA eligible individuals in 2019 and in March 2022 there were 682 ADA complementary paratransit trips provided. Assuming that it cost ETD $22 (based on 2022 budget and compared with the $60-$90 at many cities) to provide the marginal ADA complementary paratransit trips, converting only 5% of the ADA paratransit trips to fixed r route would cover the lost fare revenue while potentially increasing ridership by 3,000 or more.

Some agencies are also experimenting with free fares for other specific groups, such as Los Angeles Metro (low-income riders and students) and Washington State (students), but has not been widely adopted. Initial indications are that this can result in significant ridership increases, when conducted with a good marketing program. Agencies have also seen that, as with free fares for ADA paratransit eligible individuals, determining eligibility can be key. Failure to tightly control eligibility has led at other agencies to unqualified riders gaining access to the free fares and a resulting drop in revenues. Agencies have also seen that riders who travel for free, especially if they do so without being qualified to travel for free, tend to place a lower value on the service and are more disruptive to other riders.

Free fares for specific groups can be implemented with the current systems, but it again works best with an account-based electronic system. The advantage of this system is that in the event an individual causes problems, their rights can be cancelledrevoked, even if the ID remains in their hands. Furthermore, as with the discounts for specific groups, it is important that determinations be made at the agency level and that the potential for conflict between operators and riders be minimized.

As an example, if fares were eliminated for low-income riders and students, the revenue and ridership impacts would be about double that of just reducing fares for these groups. Based on the data from the LCRVTS and the estimated ridership and revenue for ETD and MAT, this would result in a ridership increase of around 132,000 and a revenue loss of around $182,000. Demands on staff would increase from having to administer this new program.

Table 6: Impacts of Option 4: Eliminate Fares for Some Users

Option	Ridership Impact	Revenue Impact	Cost Impact
Implement free fares on fixed route for ADA paratransit eligible	Potentially increase +3,000 or more	Uncertain	Reduced ADA paratransit cost. Potential additional cost for eligibility determination
Implement free fares for students and low-income individuals	Increase 13270,000 10,000	Loss of $182,000	Additional costs of administering program

Options 5 and& 6: Eliminate Fixed Route Fares and Eliminate All Fares

There are many arguments regarding the extent to which transit fares provide a barrier to use and the social benefits of cheaper or free transit. It is clear that eliminating fares increases ridership. Transit Cooperative Research Program TCRP's's Report "Implementation and Outcomes of Fare-Free Transit Systems" concludes that providing fare-free public transit service is virtually certain to result in significant ridership increases, giving a range of increases of 20% to 60% in just a few months. ETD has seen ridership increases when fares were eliminated beginning in April of this year, although some portion of that is undoubtedly due to employees returning to working in offices rather than at home. Kansas City has a new

zero-fare trial program, which was analyzed by the Mid-America Regional Council (MARC). MARC found that while the impacts of COVID-19 make conclusions difficult, Kansas City ridership dropped less and recovered more quickly than peer transit agencies. Furthermore, they estimate that continuing zero fare would increase ridership by about 31% for the Kansas City region. Intercity Transit (Olympia, WA) saw a 20% year-over-year ridership increase when implementing free fares.

The economic impacts of fare-free transit are more complex. While it is simple to calculate the lost fare revenue, fare-free transit eliminates some operating costs (such as printing fare products, sales of fare products, and handling cash fares) and can reduce the time required for each rider to board and the variability of the required boarding time. Reducing the variability of boarding time directly improves service reliability, while an overall reduction in boarding time can be used to improve route design and/or to add service. In addition, while less staff time will be required for maintaining fare collection equipment or addressing fare collection issues, there are other demands on their time and it is unlikely that ETD would be able to make any staff reductions. ETD's estimated annual operating cost savings of eliminating fares are set forth in Table 7 below.

Table 7: ETD Annual Operating Costs of Fare Collection	
Armored Vehicle Cost	$2773
Money County Supplies	$450
Token Transit Fees	$4500
Outlet Delivery	$1600
Bank Fees (Braintree)	$1800
Fare Media (tickets)	$3250
Credit Card Fees (est.)	$2500
Farebox Maintenance Parts & Labor (est.)	$2600
GFI Software Maintenance	$1000
ESTIMATED TOTAL AVOIDABLE COSTS	***$20473***

Increased ridership can require an increase in total boarding time, cause excessive loads on buses, and require the provision of additional service. These factors can lower the extent to which free fares increase ridership or raise costs. As ETD currently has significant excess capacity, we have assumed that it will not need to provide additional fixed route service in the near future if fares are eliminated.

One of the greatest concerns of free fares is the impact of the Americans with Disabilities Act and the required provision of ADA complementary paratransit. The FTA has consistently ruled that if all or a portion of an agency's fixed route system is free, trips on ADA complementary paratransit in the same area must also be free. They have not addressed the impact of temporary eliminations of fares, and several agencies that have temporarily eliminated fares (such as Kansas City) are still charging fares on ADA paratransit. Furthermore, the FTA has also consistently ruled that an agency may not refuse to serve riders who request an ADA complementary paratransit for next day service that complies with agency rules (within the area of service and hours of operation). Capacity constraints on ADA complementary paratransit are a de facto violation of the ADA. Agencies experimenting with broad elimination of fares therefore need to be prepared for significant increases in ADA demand. The study *Cost Estimation of Fare-free ADA Complementary Paratransit Service in Illinois* by Paul Metaxatos and Lise Dirks concluded that it would not be unreasonable to expect increases in ADA paratransit ridership approaching 100%. Intercity Transit (Olympia, QA) has a much lower forecast that free fares would only add about 30% to ADA complementary

paratransit demand over the next four years. ETD has seen a 51% increase in ADA ridership from March 2022, the month before going fare free, to August 2022, and considering the experience of other cities it would be reasonable to assume that ADA paratransit demand would be 60% - 80% higher if there were no fares than if ETD charged its pre-COVID fares.

Note that the ridership increases from free fares are higher for ADA paratransit than for fixed route service because:

- ADA paratransit begins at a higher fare ($3.50 versus $1.75) and thus there is a greater reduction in the fare,
- ADA paratransit riders are more likely to be lower income and limited in the number of trips that they can currently take, and therefore more likely to increase ridership.

~~Tables 8 & 9 table~~Tables 8 and 9 below presents a range of potential ridership and revenue impacts for ETD with a 30%-40% increase in fixed route ridership, a 60%-80% increase in ADA demand and a cost to serve each ADA paratransit trip of between $22 (current ETD budget) and $60 (low end of the national average range).

Table 8: Estimated Impacts of Eliminating All Fares (30/60%)

Factor	Ridership	Revenue	Cost
Annual Operating Costs of Fare Collection			-$20,473
Eliminating Fares on Fixed Route (est. **30%** increase)	±100,000	-$450,000	
Eliminating Fares on ADA Paratransit (est. **60%** increase @ $22 per ride Increased cost)	±4,800		±$105,000
TOTAL IMPACT	±104,800	-$450,000	±$85,021

Table 9: Estimated Impacts of Eliminating All Fares (40/80%)

Factor	Ridership	Revenue	Cost
Annual Operating Costs of Fare Collection			-$20,473
Eliminating Fares on Fixed Route (est. **40%** increase)	±133,000	-$450,000	
Eliminating Fares on ADA Paratransit (est. **80%** increase @ $60 per ride Increased cost)	±6,400		±$384,000
TOTAL IMPACT	±137,800	-$450,000	±$363,527

As shown above, eliminating all fares is likely to increase ridership by at least 104,000, but to lower revenue annually by $450,000 and increase costs annually by at least $85,000. However, eliminating fares would eliminate the cost to ETD of acquiring a new fare collection system. The cost of a new fare collection system can vary greatly depending on the design of the system, but a reasonable range of the total cost for a system that would service ETD is from $400,000 to $1,200,000.

Options 5 ~~&~~ and 6 have minimal differences, in that Option 5 would still have fares on general public demand-~~-~~responsive services which would generate less than $10,000 in fare revenue. Option 6 would lose that revenue and have increased demand for the general public demand-~~-~~responsive services. Serving this additional demand could increase costs similarly to serving the increased demand for ADA paratransit trips. We have not included the cost of serving this demand in the impacts as there is no legal requirement that ETD serve this additional demand. However, not serving this demand could be politically difficult.

Next Steps

The next step in this process is to evaluate all options presented in this report and provide recommendations for ETD's future unified fare structure.