



TRANSPORTATION PLANNING AND TRAFFIC ENGINEERING CONSULTANTS

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MEMORANDUM

To: Cindy Kelly, YARTS

From: Gordon Shaw, PE, AICP, LSC Transportation Consultants, Inc.

Date: August 10th, 2018

RE: YARTS Fare Alternatives

This memorandum presents a discussion and evaluation of preliminary fare alternatives for the YARTS services on the 140, 120 West and 120/395 Routes. Per previous discussions, this evaluation excludes the potential for fare increases for the following:

- Route 41 service.
- Commuters, seniors, persons with disabilities, Veterans, and others receiving a discount.

In addition, as Amtrak compensates YARTS for passengers on Route 140 on a daily contracted rate (rather than a per-passenger rate), any fare increase applies only to Amtrak passengers carried on the 120/395 Route.

This memo first presents a review of why a fare increase may be needed. A comparison is then provided with other peer systems, as well as other private transportation firms serving Yosemite.

Need for Additional Revenues

There are two key factors driving the need for additional operating revenues: increasing operating costs and the need for capital funding.

Operating Cost Increases

As has been common in recent years for many transit programs, the YARTS operating budget has been impacted by increases in wage rates, benefit rates, and fuel costs. YARTS and VIA

recently negotiated a new five-year contract that reflects current costs. As a result, the contracted cost per vehicle-hour of service is increasing between 2017 and 2019 as follows:

- Cost per Vehicle-Hour of YARTS-provided buses: 9.9 percent cost increase
- Cost per Vehicle-Hour of VIA-provided buses staged in Merced: 37.1 percent increase
- Cost per Vehicle-Hour of VIA-provided buses staged in Fresno: 18.2 percent increase

Factored by the proportion of annual vehicle-hours operated by each vehicle type (69 percent, 10 percent and 21 percent, respectively), the overall increase in per vehicle-hour operating costs is 15 percent. Assuming no change in service levels, this factor results in an increase in annual operating costs of \$309,300. There are other smaller changes in funding sources and costs that in total help to address a portion of this cost increase. Overall, however, the YARTS operating budget for 2019/20 is facing a shortfall of **\$220,600**.

Capital Needs

The sustainability of YARTS service is threatened by the need to replace (and preferably expand) the YARTS-owned vehicle fleet. YARTS currently owns a total of 10 coaches:

- 1 placed in service in 2010
- 3 placed in service in 2011
- 4 placed in service in 2012
- 2 placed in service in 2015

Federal Transit Administration standards call for the replacement of coach vehicles at 12 years or 500,000 miles (whichever comes first). On an age basis, a total of eight vehicles will warrant replacement by 2024: one in 2022, three in 2023, and four in 2024. Given the existing mileage on these eight vehicles (currently ranging from approximately 330,000 to 415,000 miles) and the average mileage incurred per YARTS bus (38,700 per year), replacement will be warranted based on mileage in 2021 for one bus and 2023 for the remaining seven buses.

While there are several state and Federal assistance programs that can help fund the purchase of buses, these programs typically require a 20 percent “local match” that must be raised from farebox revenues and/or local sources. YARTS buses currently cost on the order of \$625,000, with a local share of \$125,000. There are also a total of approximately \$17,500 in costs for each bus related to automatic chains, fareboxes and bus wraps, which are not typically covered by the outside funding program. The total local cost per bus is thus approximately \$142,500. For eight buses, this totals a sobering \$1,140,000 in local funds. With five years until the bulk of these funds are needed, on average YARTS needs to generate approximately **\$228,000 per year** in capital reserve funds in order to ensure that current service levels can continue (without the need for additional leased vehicles).

Total Annual Funding Needs

In total, YARTS annual revenues by 2019/20 will need to increase by **\$441,600 per year** in order to balance the operating budget and generate adequate local funds for bus replacement. This is equal to 15.5 percent of the forecast 2019/20 operating costs.

Existing Fares

As discussed in detail in Working Paper One, YARTS currently charges fares based upon a complicated system of fares between individual origins/destinations by corridor, discounted fares (generally at 2/3 of full fares) for seniors, children and persons with disabilities, as well as commuter, monthly, 10-ride and 20-ride ticket fares. As this potential fare increase focuses on the full-fare single ride fare, the remainder of this discussion is limited to the full-fare single rider. These fares are as follows, depending on the length of trip between origin and destination:

- Route 140 -- \$2 to \$25
- Route 120/395 -- \$6 to \$36
- Route 140 West -- \$4 to \$25
- Route 41 -- \$6 to \$30

On each route, the average fare per mile (for the various trip lengths) is as follows:

- Route 140 -- \$0.16 per mile
- Route 120/395 -- \$0.15 per mile
- Route 140 West -- \$0.19 per mile
- Route 41 -- \$0.15 per mile

Comparison with Fares on Peer Long-Distance Rural Public Transit Systems

One point of comparison in evaluating fare changes is the fares charged by similar transit programs. While YARTS is arguably a unique public transit service, Table A presents other public transit services traveling along long routes in rural California areas. The full fares and mileage for a one-way trip are provided, and used to calculate the fare per mile. As shown, this figure averages \$0.15 per mile over all peer systems. This figure varies widely, from a low of \$0.06 per mile for the Kern Transit service between Bakersfield and Lancaster to a high of \$0.24 per mile for Mendocino Transit service between Willits and Santa Rosa, followed by \$0.22 for Eastern Sierra Transit Authority service between Reno and Bishop. Overall, this comparison indicates that the current YARTS fares are near the median for the peer systems, but that there is substantial “room” for fare increases without exceeding the higher of the peers.

Discussion of Ridership Response to Fare Increases

Just like with any other consumer choice, the decision of an individual to choose to purchase a transit trip can be impacted by the cost of that decision – the fare. As fares increase, the standard model of microeconomics indicates that the ridership demand would decrease. Transportation planners typically evaluate fare changes through an “elasticity analysis”. In simple terms, an elasticity analysis applies an “elasticity factor” to compare the percentage change in ridership resulting from a percentage change in fare. As an example, many studies of the observed change in ridership resulting from an increase in fares indicates that the percentage reduction in ridership is 0.3 times the percentage increase in fares – indicating an elasticity factor of -0.3. This would indicate that a doubling of fares – a 100 percent increase – would result in a 30 percent loss in ridership.

It is important to consider ridership effects in assessing the revenue potential of fare increases, in order to avoid overestimating the revenue increase generated by a fare increase. In the example above, without considering ridership elasticity the future revenue would be expected to be 2.0 times the existing revenue. Considering the loss of ridership, however, the future revenue would be $2.0 \times (1 - 0.3) = 2.0 \times 0.7 = 1.4$ times the existing revenue. In this instance, ignoring ridership elasticity would overestimate the increase in revenues resulting from the fare increase by a full 60 percent. (2.0 vs. 1.4).

The key issue in the case of a YARTS fare increase is the appropriate elasticity factor to apply to the analysis. Unfortunately, there is little academic research with regards to elasticity of ridership demand for rural recreational public transit programs – particularly those serving a major national park. In the absence of good previous research, it is useful to consider the costs associated with other travel options to/from Yosemite:

- As a premier national park with a worldwide reputation, the desire/demand to visit Yosemite is very high. Moreover, the growth in traffic/parking issues within Yosemite Valley over recent years has increased the attractiveness of transit access during peak times. Put simply, at the busiest times driving to the Park provides a chance that one might visit the Valley while a reservation on YARTS provides a certainty. These factors argue for a lower sensitivity (elasticity factor) of YARTS passengers to fare levels.
- As of June 2018, per vehicle entrance fees to enter the Park were increased from \$30 to \$35 – a 17 percent increase. (There was no change in costs for entrance by YARTS buses or passengers.) Given the strong demand to visit the park and that the private automobile is the key alternative to YARTS, this would argue that YARTS fares could be increased by 17 percent with essentially no impact on ridership.
- Another travel option is a private charter or tour company. There are a number of private firms offering 1-day tours between the Bay Area and Yosemite (some including Amtrak service to Merced), with rates generally around \$170 per person. Discover

Yosemite Tours offers daily round-trips from the Oakhurst area, starting at \$144 per person for adults. Sierra Shuttle Service will provide a 1-way group trip to Yosemite Valley from Mammoth Lakes for \$300. Given these relatively high costs, private tour operations do not impact the demand for YARTS at various fare levels.

- The key travel option for many potential YARTS passengers is to travel by private automobile, either owned by the driver (such as by California residents) or a rental car (such as a visitor from out of the state)¹. It is therefore worthwhile to compare the cost of a YARTS round-trip to a car round-trip. Table B presents an evaluation of auto travel costs to Yosemite from various locations, as well as the size of travel group that would find auto use less expensive than YARTS:
 - For rental car costs, a one-day mid-sized car rental (with pick up the evening prior to the trip) was assumed, for visitors flying into the Bay Area or Fresno. Fuel, park entrance fee and toll costs were also included.
 - For private auto use, only the marginal costs (fuel, entrance fees and tolls) were included, as travelers typically do not consider depreciation into their travel mode decision-making.
 - The cost per traveler is calculated by dividing the total auto travel costs by the assumed number of travelers.
 - The auto travel cost per person is then compared with the YARTS fare (or in the case of the Bay Area the YARTS plus Amtrak fare), to identify the number of persons at the travel group that would result in a lower cost for auto versus YARTS travel.

For the existing YARTS fares, renting a car is only less expensive for travel groups from Fresno of 5 or more, and travel groups from the Bay Area of 3 or more. For travelers with a personal car available, auto travel is less expensive than YARTS for groups of 3 or more from Fresno, Merced and Sonora, while groups of two travelers by auto would incur a lower marginal cost than using YARTS/Amtrak from the Bay Area and Mammoth Lakes.

Assuming a 20 percent increase in YARTS fares, the minimum size of travel group that would find auto travel less expensive than travel by YARTS would change as follows:

¹ As evidence of the availability of autos as a travel option for YARTS passengers, 74 percent of Route 140 surveyed resident passengers indicate that if YARTS were not available they would have traveled by car along with 54 percent of surveyed visitor passengers. Furthermore, 33 percent of Route 140 riders arrived in the Yosemite Region by car (17 percent by personal car and 16 percent by rental car) and then shifted to YARTS to enter the Park.

- A travel group of four flying into Fresno would find renting a car less expensive than YARTS (while YARTS would be less expensive at current fares).
- A travel group of two (such as a couple) with a private vehicle available would find auto travel less expensive from Fresno, Merced and Sonora.

In evaluating these results, it is important to note that the largest proportion of YARTS visitor passengers are traveling in a group of two on Route 140 (43 percent) and on Route 120 West (58 percent). (There were not sufficient survey responses on the other routes to draw meaningful conclusions.) This increases the potential that shifting the cost balance from YARTS to auto travel from Merced, Sonora and Fresno for two-person travel groups could result in a loss of ridership on YARTS.

Summary and Conclusion

On balance, the sensitivity of YARTS riders to fare increases can be considered to be relatively low compared with typical urban or rural-non-recreational riders ... but it is not zero. The recent entrance fee increase of \$5 per vehicle should also be considered. As shown in Table B, a typical auto trip to Yosemite incurs a marginal cost on the order of \$100, which indicates that the entrance fee increase equates to roughly a 5 percent increase in auto travel cost. Based on the overall discussion, it is recommended that the first 5 percent of a fare increase incur no reduction in ridership, while any increase in fare level over 5 percent incur an elasticity value of -0.25.

Analysis of Fare Alternatives

Using this elasticity factor and existing ridership data, we can forecast the impact of a wide range of fare options on both ridership and farebox revenue generation. This was done for four options (developed by YARTS staff, as presented previously to the Board and AAC), as well as a fifth option developed by the Consultant.

Table C presents the annual forecasts by route for Option A, assuming no fare increase. Based on recent trends, a baseline growth in ridership of 3 percent per year is assumed. Compounded over seven years, this indicates a growth in ridership of 21 percent by 2025.

An important factor with regards to the revenue generation potential of future ridership growth is that not all full-fare (and non-Amtrak) passengers travel the full length of the various routes (and thus pay the highest potential fare). As an example, the passenger surveys summarized in Working Paper One indicate that fully 83 percent of the passengers on the 120 West Route board in the Groveland/Yosemite Pines/Yosemite Lakes area, and thus pay an \$8 one-way fare rather than the \$13 one-way fare from Sonora. Similarly, approximately 75 percent of the full-fare passengers on the 140 Route (excluding Amtrak passengers) travel from the Midpines-El Portal area. Considering the shift in Route 120/395 service (two full round-trips between Mammoth Lakes and Yosemite Valley rather than one full round-trip and other runs

only between Mammoth Lakes and Tuolumne Meadows), it is estimated that in the future 20 percent of riders on this route will pay the lower fares. Considering these trip patterns, the average fare per full-fare passenger shown in Table C were estimated. Multiplying by the increase in ridership from 2018 estimated ridership yields the additional fare revenues shown in the bottom portion of Table C. As indicated, this increase due solely to background ridership increases will start out at \$23,900, climbing to \$178,900 by 2025.

Analyses including the evaluation of ridership (based on an elasticity analysis) and fare revenue generation for the other three previously-presented fare alternatives are shown in Tables D through F. These analyses indicate the following:

- **Option B** consists of a 30 percent fare increase in 2019 followed by 10 percent increases each year from 2020 to 2023. This would result in a relatively modest 4 percent decrease in ridership (from 2018 levels) in 2019, rising to a 10 percent decline by 2024. The increase in farebox revenues would be \$194,400 in 2019, rising to \$513,300 in 2025.
- **Option C** would implement the same 30 percent increase in 2019, and then 10 percent increases every other year. This yields the same results in 2019 as under Option B. By 2025 the ridership loss would be 8 percent while the revenue increase would be \$445,000.
- **Option D** is a more aggressive strategy, with 50 percent increase in 2019 and a second 50 percent increase in 2023. This would result in a 7 percent reduction in ridership in 2019, rising to 13 percent by 2024. Revenue generation would start off at \$314,900 in 2019, rising to \$708,400 in 2025.

The annual funds generated for vehicle replacement (over and above the funds needed to address the increase in operating costs) is shown in the lower right portion of each of these tables. As indicated, none of these options would generate the \$1,140,000 needed by 2023 to fund the key need to replace vehicles (though Option D comes closest).

Conclusions and Recommendations

With respect to ridership, this analysis indicates that significant increases in farebox revenues can be generated without creating a large reduction in ridership. Regarding revenue generation, the resulting figures can be compared to the revenue needs as discussed above. The additional \$441,600 per year identified above is not achieved until 2023 under Option B, 2024 under Option C and 2023 under Option D. This argues for a more aggressive series of fare increases in the next few years.

On the other hand, in reality it is not possible to exactly know the impacts of a substantial fare increase on the variety of fares and trip types on the YARTS service. This argues for a more cautious strategy, including a first increase followed by a detailed review of the impacts.

Finally, in general transit systems find that a gradual series of fare increases have a smaller impact on ridership patterns than larger but less frequent increases. This argues for a series of ongoing annual increases.

Based on these considerations, and assuming no other increases in revenues are available, the following schedule of fare increases are recommended:

- A 30 percent fare increase in 2019, followed by a review of ridership and revenue impacts (in the fall of 2019)
- A 30 percent fare increase in 2020 (assuming no changes based upon the review)
- A 15 percent fare increase in 2021
- A 15 percent fare increase in 2022

The ridership and revenue impacts of this scenario are shown in Table G. This is the minimum overall fare increase that can address both the increase in operating costs as well as generating the \$1,140,000 in local capital funding needed by 2023.

As an aside, YARTS could also consider changing from the current policy of setting fares along a specific route based upon the mileage between boarding and alighting points. A large proportion of ridership on the 140 Route, 120 West Route and 41 Route boards in the communities just outside the park, rather than at the end points. While on the one hand it seems equitable to have fares proportionate to the miles travelled, in reality YARTS must incur the full cost of providing service from the start of the route (either directly as in-service hours or indirectly as deadhead time that is reflected in the overall contractor costs) in order to serve short trips from the immediate gateway communities into the park. Increasing the fares for shorter trips would allow the overall revenue generation goal to be met while reducing the scope of fare increases for the longer trips.

TABLE A: Regional Route Fare Structure Peer Analysis				
System	Route	Full 1-Way Fare	Miles	\$/Mile
ESTA	Bishop - Mammoth	\$7.00	41	\$0.17
	Lone Pine - Bishop	\$7.25	59	\$0.12
	Reno - Bishop	\$59.00	263	\$0.22
	Lancaster - Bishop	\$39.00	240	\$0.16
Sequoia Shuttle	Visalia - Sequoia NP	\$7.50	52	\$0.14
Sage Stage	Alturas - Klamath Falls	\$18.00	99	\$0.18
	Alturas - Reno	\$32.00	172	\$0.19
	Alturas - Redding	\$26.00	143	\$0.18
Mendocino Transit	Santa Rosa - Willits	\$20.00	82	\$0.24
	Willits - Ukiah	\$3.00	23	\$0.13
	Pt. Arena - Santa Rosa	\$8.25	81	\$0.10
Kern Transit	Bakersfield - Lancaster	\$5.00	87	\$0.06
	Frazier Park - Bakersfield	\$3.50	46	\$0.08
Monterey-Salinas Transit	Monterey - Big Sur	\$3.50	59	\$0.06
Peer Average				\$0.15
YARTS	140 Route	\$13.00	83	\$0.16
	120/395 Route	\$18.00	121	\$0.15
	120 West Route	\$13.00	68	\$0.19
	41 Route	\$15.00	98	\$0.15

TABLE B: Comparison of YARTS Fares with Marginal Auto Costs

Round Trip to Yosemite Valley

	Rental Car Costs (Visitors)		Personal Car Costs (Residents)				
	Fresno	Bay Area	Fresno	Bay Area	Merced	Sonora	Mammoth Lakes
Auto Trip Marginal Costs							
Auto Rental	\$80.00	\$110.00	--	--	--	--	--
Park Entrance Fee	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00
Tolls	\$0.00	\$6.00	\$0.00	\$6.00	\$0.00	\$0.00	\$0.00
Fuel	\$28.80	\$57.60	\$28.80	\$57.60	\$22.46	\$21.02	\$29.66
Total	\$143.80	\$208.60	\$63.80	\$98.60	\$57.46	\$56.02	\$64.66
Cost per Passenger Based on Travel Group Size							
1 Traveler	\$143.80	\$208.60	\$63.80	\$98.60	\$57.46	\$56.02	\$64.66
2 Travelers	\$71.90	\$104.30	\$31.90	\$49.30	\$28.73	\$28.01	\$32.33
3 Travelers	\$47.93	\$69.53	\$21.27	\$32.87	\$19.15	\$18.67	\$21.55
4 Travelers	\$35.95	\$52.15	\$15.95	\$24.65	\$14.37	\$14.01	\$16.17
Current YARTS/Amtrak Full Round-Trip Fare							
	\$30.00	\$74.00	\$30.00	\$74.00	\$25.00	\$25.00	\$36.00
<i>Auto is Less Expensive For:</i>	<i>5 or More</i>	<i>3 or More</i>	<i>3 or More</i>	<i>2 or More</i>	<i>3 or More</i>	<i>3 or More</i>	<i>2 or More</i>
YARTS/Amtrak Full Round-Trip Fare Assuming 20% Fare Increase							
	\$36.00	\$79.00	\$36.00	\$79.00	\$30.00	\$30.00	\$43.00
<i>Auto is Less Expensive For:</i>	<i>4 or More</i>	<i>3 or More</i>	<i>2 or More</i>	<i>2 or More</i>	<i>2 or More</i>	<i>2 or More</i>	<i>2 or More</i>
<i>Does Fare Increase Change Cost Balance?</i>	Yes	No	Yes	No	Yes	Yes	No
Note: Rental car costs assume 1 day rental of mid-sized car from national chain with pickup the evening prior. All costs assume 25 mpg and average gas cost of \$3.60 per gallon.							

TABLE C: Ridership and Revenue Analysis: Option A -- No Fare Increase				
<i>- Does Not Apply to Route 41</i>				
	140 Route	120/395 Route	120 West Route	Total
<u>Estimated 2018 Ridership</u>				
	58,300	12,500	12,000	82,800
<u>Estimated Existing Average Full Fare</u>				
	\$7.72	\$16.15	\$8.86	
<u>Annual Ridership</u>				
2019	61,800	13,300	12,800	87,900
2020	63,700	13,700	13,200	90,600
2021	65,600	14,100	13,600	93,300
2022	67,600	14,500	14,000	96,100
2023	69,600	14,900	14,400	98,900
2024	71,700	15,300	14,800	101,800
2025	73,900	15,800	15,200	104,900
<u>Annual Additional Fare Revenues (Over 2018 at Current Fares)</u>				
2019	\$13,900	\$6,500	\$3,500	\$23,900
2020	\$28,600	\$12,900	\$7,100	\$48,600
2021	\$43,200	\$19,400	\$10,600	\$73,200
2022	\$58,700	\$25,800	\$14,200	\$98,700
2023	\$74,100	\$32,300	\$17,700	\$124,100
2024	\$90,300	\$38,800	\$21,300	\$150,400
2025	\$107,300	\$46,800	\$24,800	\$178,900
<i>Note: All figures assume 3 percent background growth in ridership</i>				

TABLE D: Ridership and Revenue Analysis: Option B -- 30% Increase in 2019 and 10% Annual Increase 2020 Through 2023

- Does Not Apply to Route 41
 - Does not Apply to NPS or Aramark employees, commuters, seniors, disabled or Veterans
 - Does not apply to Amtrak passengers on Route 140

	140 Route	120/395 Route	120 West Route	Total	Change from Option A	
					#	%
Annual Ridership						
2019	59,100	12,700	12,200	84,000	-3,900	-4%
2020	60,000	12,900	12,400	85,300	-5,300	-6%
2021	60,900	13,100	12,600	86,600	-6,700	-7%
2022	61,900	13,300	12,800	88,000	-8,100	-8%
2023	63,000	13,500	13,000	89,500	-9,400	-10%
2024	64,900	13,800	13,400	92,100	-9,700	-10%
2025	66,900	14,300	13,800	95,000	-9,900	-9%
Annual Additional Fare Revenues (Over 2018 at Current Fares)					Funds Generated for Vehicle Replacement	
2019	\$136,800	\$29,400	\$28,200	\$194,400	\$0	
2020	\$185,200	\$39,800	\$38,300	\$263,300	\$16,500	
2021	\$235,000	\$50,600	\$48,600	\$334,200	\$130,100	
2022	\$286,600	\$61,600	\$59,300	\$407,500	\$317,000	
2023	\$340,400	\$72,900	\$70,200	\$483,500	\$579,900	
2024	\$350,600	\$74,600	\$72,400	\$497,600	\$856,900	
2025	\$361,400	\$77,300	\$74,600	\$513,300	\$1,149,600	

Note: All figures assume 3 percent background growth in ridership

TABLE E: Ridership and Revenue Analysis: Option C -- 30% Increase in 2019 and 10% Increase in 2020, 2022, 2024

- Does Not Apply to Route 41
 - Does not Apply to NPS or Aramark employees, commuters, seniors, disabled or Veterans
 - Does not apply to Amtrak passengers on Route 140

	140 Route	120/395 Route	120 West Route	Total	Change from Option A	
					#	%
Annual Ridership						
2019	59,100	12,700	12,200	84,000	-3,900	-4%
2020	60,000	12,900	12,400	85,300	-5,300	-6%
2021	61,800	13,300	12,800	87,900	-5,400	-6%
2022	62,800	13,500	13,000	89,300	-6,800	-7%
2023	64,600	13,800	13,400	91,800	-7,100	-7%
2024	65,700	14,000	13,600	93,300	-8,500	-8%
2025	67,700	14,500	13,900	96,100	-8,800	-8%
Annual Additional Fare Revenues (Over 2018 at Current Fares)					Funds Generated for Vehicle Replacement	
2019	\$136,800	\$29,400	\$28,200	\$194,400	\$0	
2020	\$185,200	\$39,800	\$38,300	\$263,300	\$16,500	
2021	\$190,800	\$41,100	\$39,500	\$271,400	\$67,300	
2022	\$242,300	\$52,100	\$50,200	\$344,600	\$191,300	
2023	\$249,300	\$53,300	\$51,700	\$354,300	\$325,000	
2024	\$304,200	\$64,800	\$63,000	\$432,000	\$536,400	
2025	\$313,500	\$67,100	\$64,400	\$445,000	\$760,800	

Note: All figures assume 3 percent background growth in ridership

TABLE F: Ridership and Revenue Analysis: Option D -- 50% Increase in 2019 and 50% Increase in 2023

- Does Not Apply to Route 41
 - Does not Apply to NPS or Aramark employees, commuters, seniors, disabled or Veterans
 - Does not apply to Amtrak passengers on Route 140

	140 Route	120/395 Route	120 West Route	Total	Change from Option A	
					#	%
Annual Ridership						
2019	57,400	12,300	11,900	81,600	-6,300	-7%
2020	59,100	12,700	12,300	84,100	-6,500	-7%
2021	60,900	13,100	12,600	86,600	-6,700	-7%
2022	61,900	13,300	12,800	88,000	-8,100	-8%
2023	60,900	13,000	12,600	86,500	-12,400	-13%
2024	62,700	13,400	12,900	89,000	-12,800	-13%
2025	64,700	13,800	13,300	91,800	-13,100	-12%
					Funds Generated for Vehicle Replacement	
Annual Additional Fare Revenues (Over 2018 at Current Fares)						
2019	\$221,500	\$47,500	\$45,900	\$314,900	\$0	
2020	\$228,100	\$49,000	\$47,500	\$324,600	\$198,300	
2021	\$235,000	\$50,600	\$48,600	\$334,200	\$311,900	
2022	\$286,600	\$61,600	\$59,300	\$407,500	\$498,800	
2023	\$470,000	\$100,300	\$97,200	\$667,500	\$945,700	
2024	\$483,900	\$103,400	\$99,600	\$686,900	\$1,412,000	
2025	\$499,300	\$106,500	\$102,600	\$708,400	\$1,899,800	

Note: All figures assume 3 percent background growth in ridership

TABLE G: Ridership and Revenue Analysis: Option E -- 30% Increases in 2019 and 2020 and 10% Increase in 2021

- Does Not Apply to Route 41
 - Does not Apply to NPS or Aramark employees, commuters, seniors, disabled or Veterans
 - Does not apply to Amtrak passengers on Route 140

	140 Route	120/395 Route	120 West Route	Total	Change from Option A	
					#	%
Annual Ridership						
2019	59,100	12,700	12,200	84,000	-3,900	-4%
2020	58,400	12,600	12,100	83,100	-7,500	-8%
2021	59,000	12,700	12,200	83,900	-9,400	-10%
2022	59,800	12,800	12,400	85,000	-11,100	-12%
2023	61,500	13,200	12,700	87,400	-11,500	-12%
2024	63,400	13,500	13,100	90,000	-11,800	-12%
2025	65,300	14,000	13,400	92,700	-12,200	-12%
					Funds Generated for Vehicle Replacement	
Annual Additional Fare Revenues (Over 2018 at Current Fares)						
2019	\$136,800	\$29,400	\$28,200	\$194,400	\$0	
2020	\$270,400	\$58,300	\$56,000	\$384,700	\$137,900	
2021	\$341,500	\$73,500	\$70,600	\$485,600	\$402,900	
2022	\$415,400	\$88,900	\$86,100	\$590,400	\$772,700	
2023	\$427,200	\$91,700	\$88,200	\$607,100	\$1,159,200	
2024	\$440,400	\$93,800	\$91,000	\$625,200	\$1,563,800	
2025	\$453,600	\$97,200	\$93,100	\$643,900	\$1,987,100	

Note: All figures assume 3 percent background growth in ridership