TITLE VI 2010 TRIP ANALYSIS

TA EXHIBIT

In compliance with Title VI regulations to evaluate service and fare changes (Circular FTA C 4702.1a, paragraph 4b, page V-7), we conducted a review of the minority and non-minority work trips via transit within SEPTA's five county region. We used a methodology outlined in the Circular FTA C 4702.1a, paragraph 5b, page V-7 and also outlined in Circular UMTA C 4702.1, Chapter 4, paragraph 2 (2), page IV-2. This method was used to comply with the requirement to monitor transit service using the current fare structure only. We are using the same method but with both current and proposed fare structures.

Using the 2000 Census Transportation Planning Package (CTPP) and a Geographical Information System (GIS), we selected a sample of minority and non-minority census tracts throughout the region which had both high overall populations and high rates of either minority or non-minority populations.

Overall we selected ten minority and ten non-minority census tracts, half coming from Philadelphia since it has a larger and more concentrated population than the suburban counties. Thus for Philadelphia, we selected five minority and five non-minority census tracts. For each of the remaining counties of Bucks, Chester, Delaware and Montgomery, we selected two minority and two nonminority tracts. For each of the selected census tracts we then identified the top three most-traveled to destinations.

Using a map and knowledge of the transit system, we identified the most likely trip path by transit from each census tract to each of the three most-traveled to destinations. For each trip path, we then calculated the straight-line distance, travel time by transit (does not include the time from origin to transit), number of transfers, and cost. To calculate the cost for each trip path for both the current and proposed fare structure, we used the average cost of each trip weighted by fare instrument - pass, cash, token, and transfers.

TITLE VI: 2010 TRIP ANALYSIS Non-Minority Work Trips Via Transit

					TRAVEL TIME					
				DIST.	Mir	Minutes		COST PER TRIP*		
COUNT		DESTINATION	TRIP PATH	Miles	Peak	Off-Peak	FERS	Cur. Prop.		Diff.
Phila.	331 Holmesburg	Center City	20 or 84 or 88 to MFL	10.8	45	55	1	\$1.27	\$1.41	11%
		NE Phila - Upper	20 or 88	4.4	13	13	0	\$1.03	\$1.09	6%
		NE Phila - Lower	70	2.6	10	10	0	\$1.03	\$1.09	6%
	180 Richmond	Center City	54 or 60 to MFL	5.9	30	39	1	\$1.27	\$1.41	11%
		West Phila	54 or 60 to MFL	7.8	37	45	1	\$1.27	\$1.41	11%
		North Phila - East	60	1.8	14	14	0	\$1.03	\$1.09	6%
	39.02 South Phila	Center City	BSL	2.5	10	10	0	\$1.03	\$1.09	6%
		West Phila	BSL to MFL	4.2	16	20	1	\$1.27	\$1.41	11%
		Airpott	37	6.9	39	39	0	\$1.03	\$1.09	6%
	210 Roxborough	Center City	27	7.6	26	26	0	\$1.03	\$1.09	6%
		West Phila	9	6.6	22	22	0	\$1.03	\$1.09	6%
		City Line Ave	65	2.4	17	17	0	\$1.03	\$1.09	6%
	355 Bustleton	Center City	14 to MFL	13.6	43	50	1	\$1.27	\$1.41	11%
	1	West Phila	14 to MFL	14.9	32	40	1	\$1.27	\$1.41	11%
		NE Phila	14	3.2	9	9	0	\$1.03	\$1.09	6%
Bucks	1002.06 Bensalem	Lower Street Road	130	1.4	15	15	0	\$1.38	\$1.44	4%
		Center City	14 to MFL	17.2	62	70	1	\$1.27	\$1.41	11%
		Franklin Mills Mall	130	3.8	29	29	0	\$1.38	\$1.44	4%
Chester	3001.06 Chesterbrk	Center City	124	17.5	67	67	0	\$2.73	\$2.77	1%
		Center City	124	17.5	67	67	0	\$2.73	\$2.77	1%
÷		Center City	124	17.5	67	67	0	\$2.73	\$2.77	1%
Delaware	4096.02 Radnor	Center City	100 to MFL	10.5	41	48	1	\$1.70	\$1.92	13%
		West Phila	100 to MFL	8.7	38	45	1	\$1.70	\$1.92	13%
		King of Prussia	124/125	5.9	14	14	0	\$1.38	\$1.44	4%
	4006 Highland Park	Center City	104 to MFL	6.5	29	39	1	\$1.54	\$1.71	11%
		West Phila	104 to MFL	5.3	23	34	1	\$1.54	\$1.71	11%
	0	Springfield Mall	110	6.4	9	9	0	\$1.26	\$1.33	6%
Nont.			55 to BSL	10.3	49	58	1	\$1.27	\$1.41	11%
			55	3.7	16	16	0	\$1.03	\$1.09	6%
		North Philadelphia	55	4.1	25	25	0	\$1.03	\$1.09	6%
Average	K.			7.7	30	34	0.4	\$1.38	\$1.48	7%

Assumptions

Transfer time is half of the peak or off-peak headway, then averaged for both directions.

Assumes no time from origin to boarding.

Notes

* Average weighted cost of trip. Weighted fares include: cash, token, pass, and transfers.

Source

2000 US Census Transportation Planning Package - top three destinations chosen for each selected census tract.

SEPTA Fare Model

Proposed Fares Token: \$1.55

transfer: \$1.00

Cash trip: \$2.00

Zone Change: \$.50

TITLE VI: TRIP ANALYSIS Minority Work Trips Via Transit

					TRAVEL TIME Minutes					
	S			DIST.			TRANS-	COST PER TRIP*		
COUNTY	CENSUS TRACT	DESTINATION	TRIP PATH	Miles	Peak	Off-Peak	FERS			Diff.
Phila.	172 Swampoodle	Center City	33	3.5	16	16	0	\$1.03	\$1.09	6%
	Aler Alexandress	West Phila	33 to MFL	4.3	29	33	1	\$1.27	\$1.41	11%
	CHORN GROUP	NE Phila - Lower	R	4.2	16	16	0	\$1.03	\$1.09	6%
	81 Sherwood	Center City	13	4.4	20	20	0	\$1.03	\$1.09	6%
	polymon fill state	West Phila	13	2.1	10	10	0	\$1.03	\$1.09	6%
		NE Phila - Upper	G to MFL to 14	17.2	41	44	2	\$1.50	\$1.73	15%
	31 Grays Ferry	Center City	17	1.9	19	19	0	\$1.03	\$1.09	6%
	lach round than	West Phila	17 to 21/42	2.4	22	24	1	\$1.27	\$1.41	11%
	GEO, INCA CEA	Airport	17 to 37	6.8	28	34	1	\$1.27	\$1.41	11%
	259 Cedarbrook	Center City	18 to BSL	10.5	48	51	1	\$1.27	\$1.41	11%
		Willow Grove Mall	22	5.5	20	20	0	\$1.03	\$1.09	6%
	and the second	Horsham	80	7.2	30	30	0	\$1.03	\$1.09	6%
	278 Fern Rock	Center City	BSL	6.1	27	27	0	\$1.03	\$1.09	6%
	The the Haller was	West Phila	BSL to MSL	7.4	33	36	1	\$1.27	\$1.41	11%
	and state freedow	Willow Grove Mall	55	8.1	35	35	0	\$1.03	\$1.09	6%
Bucks	1001.04 Eddington	Neshaminy Mall	130	3.4	15	15	0	\$1.38	\$1.44	4%
	GGS Initiality we	Upper NE Phila.	67	2.7	18	18	0	\$1.03	\$1.09	6%
	revaled .07 for Ci	Center City	20 to MFL	14.4	60	63	1	\$1.27	\$1.41	11%
Chester	3026 West Chester	Exton Mall	92	5.2	37	37	0	\$1.38	\$1.44	4%
	Reutes • about t	East Goshen	314	3.2	20	20	0	\$1.38	\$1.44	4%
	tafenox cista we	Paoli	92	6.8	61	61	0	\$1.38	\$1.44	4%
Delaware	40 <mark>2</mark> 3 Darby	Center City	13	5.1	33	33	0	\$1.03	\$1.09	6%
	CARNER MURIE EST	West Phila	13	3.7	24	24	0	\$1.03	\$1.09	6%
		Ardmore	115	5.9	24	24	0	\$1.26	\$1.33	6%
	4052 Chester	Center City	37 to BSL	15.9	75	82	1	\$1.27	\$1.41	11%
	and the second second	Airport	37	7.1	20	20	0	\$1.03	\$1.09	6%
		Granite Run Mall	117	7.4	26	26	0	\$1.26	\$1.33	6%
Nont.	2039.01 Norristown	King of Prussia	99	3.6	20	20	0	\$1.38	\$1.44	4%
	perventy, 16 dal	Harmonville	97	3.2	12	12	0	\$1.38	\$1.44	4%
	a second a second	Conshohocken	97	5.3	26	26	0	\$1.38	\$1.44	4%
verage	1 P.			6.2	29	30	0.3	\$1.20	\$1.28	7%

Assumptions

Transfer time is half of the peak or off-peak headway, then averaged for both directions.

Assumes no time from origin to boarding.

Notes

* Average weighted cost of trip. Weighted fares include: cash, token, pass, and transfers.

Source

2000 US Census Transportation Planning Package - top three destinations chosen for each selected census tract.

SEPTA Fare Model

Proposed Fares

Token: \$1.55 transfer: \$1.00

Cash trip: \$2.00

Zone Change: \$.50

Minority

Using Title VI guidelines from Circulars UMTA 4702.1 and FTA C 4702.1A, we categorized SEPTA's transit routes as either minority or non-minority. To do this we first identified the minority census tracts according to the FTA definition of minority areas - where the proportion of minority persons residing in that area exceeds the average proportion of minority persons in the recipient's service area (29%).

To categorize the routes as either minority or non-minority, we first calculated the percent of each route that traversed minority census tracts using a Geographical Information System (GIS). Then using a methodology from Circular UMTA 4702.1, we categorized the routes as "minority" if more than 1/3 of the route traversed minority areas and "non-minority" if less than 1/3 of the route traversed minority areas. We then correlated the percentage of each route that traverses minority areas (Minority %) with the percentage of passengers that use paper transfers on each route (Transfer %).

For the daily number of passengers and the daily number of adult paper transfers by route, we used data from SEPTA Farebox Recovery System which does not include data for the Broad Street or Market Frankford Lines. For these lines we estimated the paper transfer rate to be .065. Initially we estimated the rate to be higher at .08, which is higher than the average transfer rate of .07 for City Division. We then reduced this rate by .015 due to the amount of free paper transfers between the Broad Street Line and the Market Frankford Line and the subway surface Routes - about 60,000 per day or 20% of highspeed passengers. Also missing from the initial farebox data were Contract Routes 204, 205, 306, 310, 314, and Lucy (316) which we estimated based on other routes comparable in route structure and geography. Due to cross routing in the SEPTA schedule system, there were five instances of when the farebox system applied one transfer/token number for two linked routes. In these cases, we separated the routes and applied the same transfer/token rate to each route.

Poverty

Similarly to the method above, we categorized SEPTA's transit routes as either poverty or nonpoverty. To do this, we first identified poverty census tracts as those where the poverty rate exceeds the average proportion of poverty persons in the recipient's service area (12%).

To categorize the routes as either poverty or non-poverty, we first calculated the percent of each route that traversed poverty census tracts using a Geographical Information System (GIS). Then, we categorized the routes as "poverty" if more than 1/3 of the route traversed poverty areas and "non-poverty" if less than 1/3 of the route traversed poverty areas. We then correlated the percentage of each route that traverses poverty areas (Poverty %) with the percentage of passengers that use paper transfers on each route (Transfer %),

For the daily number of passengers and the daily number of adult paper transfers by route, we used data from SEPTA Farebox Recovery System which does not include data for the Broad Street or Market Frankford Lines. For these lines we estimated the paper transfer rate to be .065. Initially we estimated the rate to be higher at .08, which is higher than the average transfer rate of .07 for City Division. We then reduced this rate by .015 due to the amount of free paper transfers between the Broad Street Line and the Market Frankford Line and the subway surface

Routes - about 60,000 per day or 20% of highspeed passengers. Also missing from the initial farebox data were Contract Routes 204, 205, 306, 310, 314, and Lucy (316) which we estimated based on other routes comparable in route structure and geography.

Due to cross routing in the SEPTA schedule system, there were five instances of when the farebox system applied one transfer/token number for two linked routes. In these cases, we separated the routes and applied the same transfer/token rate to each route.

Results

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First, the average transfer rate for non-minority routes is 6.9% and for minority routes it is 4.9%. The average transfer rate for non-poverty routes is 7.0% and for poverty routes it is 4.8%

Second, there is a negative relation between the percentage of each route that is minority and the percentage of each route using transfers (-0.387), thus as percent minority increases, percent of transfers decreases. Also, there is a negative relation between the percentage of each route that is poverty and the percentage of each route using transfers (-0.488), thus as percent poverty increases, percent of transfers decreases.

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ROUT		POVERTY	PSGRS	ADLT_TRANS	MINORITY% ¹	POVERTY% ²	TRANSFERS%
1	YES	YES	4,480	305	0.547	0.535	0.068
2	YES	YES	6,005	172	0.663	0.829	0.029
3	YES	YES	10,296	476	1.000	0.996	0.046
5	YES	YES	4,460	281	0.754	0.826	0.063
6	YES	YES	7,371	540	1.000	0.931	0.073
7	YES	YES	5,301	231	0.488	0.652	0.044
8	YES	YES	3,275	136	0.983	0.999	0.042
9	NO	NO	5,009	174	0.074	0.249	0.035
10	YES	YES	8,764	196	0.794	0.965	0.022
11	YES	YES	9,193	285	0.819	0.960	0.031
12	YES	YES	2,551	89	0.586	0.711	0.035
13	YES	YES	8,155	139	0.837	0.859	0.017
14	NO	NO	9,128	795	0.277	0.185	0.087
15	YES	YES	11,168	631	0.667	0.934	0.057
17	YES	YES	12,220	457	0.386	0.523	0.037
18	YES	YES	18,345	1,167	0.842	0.569	0.064
19	YES	YES	3,226	200	0.336	0.335	0.062
20	NO	NO	9,128	795	0.250	0.269	0.087
21	YES	YES	10,028	232	0.669	0.788	0.023
22	YES	NO	4,794	180	0.593	0.296	0.038
23	YES	YES	21,565	785	0.710	0.779	0.036
24	NO	NO	2,504	205	0.129	0.151	0.082
25	NO	YES	4,358	367	0.230	0.591	0.084
26	YES	YES	11,393	619	0.790	0.727	0.054
27	NO	NO	4,192	114	0.102	0.213	0.027
28	NO	NO	2,158	243	0.213	0.124	0.113
29	YES	YES	5,376	241	0.816	0.887	0.045
30	YES	YES	1,619	41	0.911	0.648	0.025
31	YES	YES	3,945	129	0.850	0.819	0.033
32	YES	YES	5,206	142	0.504	0.744	0.027
33	YES	YES	14,433	756	0.675	0.846	0.052
34	YES	YES	8,402	359	0.757	0.959	0.043
35	NO	YES	211	4	0.000	0.622	0.019
36	YES	YES	8,278	101	0.762	0.781	0.012
37	YES	NO	4,191	315	0.337	0.199	0.075
38	YES	YES	2,542	48	0.621	0.742	0.019
39	YES	YES	3,013	90	0.855	0.997	0.030
40	YES	YES	5,418	133	0.694	0.838	0.025
42	YES	YES	10,028	232	0.661	0.743	0.023
43	YES	YES	3,647	121	0.620	0.787	0.033
44	NO	NO	4,115	152	0.054	0.106	0.037
46	YES	YES	6,073	286	1.000	0.997	0.047
47	YES	YES	20,299	838	0.889	0.994	0.041
48	YES	YES	8,099	264	0.517	0.720	0.033
50	YES	YES	1,456	97	0.386	0.414	0.067
52	YES	YES	15,685	578	0.474	0.474	0.037
53	YES	YES	2,463	107	0.996	0.863	0.043
54	YES	YES	9,877	515	0.740	0.999	0.052
55	NO	NO	4,762	223	0.121	0.054	0.047
56	YES	YES	11,531	656	0.716	0.763	0.057
57	YES	YES	10,673	425	0.688	0.775	0.040
58	NO	NO	10,392	699	0.047	0.175	0.067
59	YES	NO	5,310	519	0.517	0.317	0.098
60	YES	YES	13,072	691	0.504	0.999	0.053

1 of 3

ROUTE	MINORITY	POVERTY	PSGRS	ADLT_TRANS	MINORITY% ¹	POVERTY% ²	TRANSFERS%
61	YES	YES	4,341	131	0.519	0.648	0.030
62	NO	NO	521	26	0.066	0.197	0.050
64	YES	YES	5,354	333	0.903	0.891	0.062
65	YES	NO	8,987	428	0.397	0.210	0.048
66	NO	NO	10,993	980	0.117	0.178	0.089
67	NO	YES	3,226	200	0.309	0.374	0.062
68	NO	NO	680	56	0.253	0.196	0.082
70	YES	YES	9,230	623	0.384	0.380	0.067
71	NO	NO	239	11	0.147	0.151	0.046
73	YES	YES	2,865	188	0.360	0.785	0.066
75	YES	YES	3,673	176	1.000	1.000	0.048
77	NO	NO	781	33	0.224	0.048	0.042
79	YES	YES	6,386	321	0.489	0.820	0.050
80	YES	NO	793	38	0.510	0.265	0.048
84	NO	NO	3,956	332	0.294	0.178	0.084
88	NO	NO	2,975	196	0.044	0.125	0.066
89	YES	YES	1,887	48	0.749	0.926	0.025
90	NO	YES	522	40	0.194	0.415	0.077
91	YES	NO	463	46	0.341	0.101	0.099
92	NO	NO	465	31	0.019	0.027	0.067
93	NO	NO	1,298	96	0.177	0.268	0.074
94	NO	NO	618	36	0.000	0.046	0.058
95 96	NO	NO	259	17	0.000	0.000	0.066
96 07	NO	NO	1,647	63	0.153	0.098	0.038
97	NO	NO	558	37	0.142	0.142	0.066
98 99	NO	NO	1,030	85	0.256	0.090	0.083
99 100	NO	NO	1,220	94	0.015	0.015	0.077
101	NO	NO	10,049	1,110	0.010	0.093	0.110
101	NO	NO	3,832	442	0.147	0.001	0.115
102	NO NO	NO	3,832	442	0.239	0.002	0.115
104	NO	NO	556	69	0.165	0.000	0.124
104	NO	NO NO	2,888	218	0.055	0.059	0.075
106	NO	NO	1,827	164	0.116	0.074	0.090
107	NO	NO	437	33	0.310	0.000	0.076
108	YES	NO	814	78	0.119	0.045	0.096
109	NO	NO	5,292 4,094	464	0.467	0.263	0.088
110	NO	NO	4,094 1,679	400	0.237	0.216	0.098
111	NO	NO	1,364	132	0.017	0.001	0.079
112	NO	NO	1,511	123	0.014	0.001	0.090
113	YES	YES	6,049	111 551	0.018	0.001	0.073
114	NO	YES	1,600	128	0.368	0.341	0.091
115	NO	NO	861	58	0.271	0.344	0.080
116	YES	YES	252	18	0.234 0.839	0.135	0.067
117	YES	YES	1,981	146	0.346	0.451	0.071
118	NO	NO	574	51	0.206	0.400	0.074
119	NO	YES	508	35	0.200	0.207	0.089
120	NO	NO	447	38	0.274	0.351	0.069
123	NO	NO	1,001	69	0.063	0.063	0.085
124	NO	NO	1,468	89	0.013	0.001	0.069
125	NO	NO	1,406	92	0.018	0.062	0.061
127	NO	NO	373	23	0.023	0.064	0.065
128	NO	NO	271	10	0.256	0.000	0.062
129	NO	NO	750	49	0.283	0.206	0.037
			,00		0.200	0.250	0.065

2 of 3

ROUTE	MINORITY	POVERTY	PSGRS	ADLT_TRANS	MINORITY% ¹	POVERTY% ²	TRANSFERS%
130	NO	NO	577	35	0.133	0.145	0.061
131	NO	NO	429	28	0.225	0.225	0.065
132	NO	NO	356	19	0.000	0.000	0.053
134	NO	NO	204	14	0.000	0.042	0.069
139	NO	NO	334	39	0.000	0.015	0.117
150	NO	NO	216	7	0.028	0.072	0.032
201	NO	NO	221	2	0.000	0.000	0.009
204	NO	NO	172	5	0.000	0.000	0.029
205	NO	NO	90	4	0.000	0.000	0.044
206	NO	NO	147	3	0.000	0.000	0.020
304	NO	NO	122	5	0.132	0.094	0.041
306	NO	NO	469	42	0.037	0.050	0.090
310	NO	NO	330	30	0.265	0.000	0.091
314	NO	NO	67	6	0.203	0.145	0.090
47m	YES	YES	2,095	84	0.607	1.000	0.040
BSO	YES	YES	1,687	95	0.607	0.754	0.056
BSS	YES	YES	136,650	8,882	0.673	0.817	0.065
С	YES	YES	13,668	568	0.791	0.870	0.042
G	YES	YES	12,615	613	0.573	0.603	0.049
Н	YES	YES	4,975	173	0.986	0.440	0.035
J	YES	YES	3,368	180	0.853	0.907	0.053
к	YES	YES	8,366	396	0.910	0.923	0.047
L .	YES	NO	6,123	290	0.376	0.252	0.047
LUCY	YES	YES	1,258	113	0.892	0.733	0.090
MFL	YES	YES	180,060	11,704	0.697	0.726	0.065
MFO	YES	YES	2,064	85	0.675	0.803	0.041
R	YES	YES	8,175	576	0.846	0.989	0.070
ХН	YES	YES	4,975	173	1.000	0.795	0.035
TOTAL			919,676	52,553			
TOTAL A	VERAGE				0.413	0.433	0.059
NON-MIN	ORITY AVEF	RAGE	0.124		0.069		
MINORITY AVERAGE					0.678		0.049
NON-PO	/ERTY AVER	AGE		0.111	0.070		
POVERTY AVERAGE						0.745	0.048
CORRELATION COEFFICENT					-0.387	-0.488	

SOURCES:

FY 2009 Route Operating Ratio report Farebox Recovery System SEPTA GIS

1 - percent of route operating through minority areas.

Definition of minority areas: where the proportion of minority persons residing in that area exceeds the average proportion of minority persons in the recipient's service area (40.97%).

2 - percent of route operating through poverty areas.

Definition of poverty areas: where the proportion of poverty persons residing in that area exceeds the average proportion of poverty persons in the recipient's service area (43.3%).