

Madison Avenue Commuter Rail Corridor Study

Paterson/Hawthorne

Passaic County, NJ

Technical Memorandum #2

REGIONAL TRANSPORTATION SYSTEM PERFORMANCE

October, 2008

Prepared for:

Passaic County Planning Department

Prepared by:



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Introduction

Task 2: Regional Transportation System Performance

This draft technical memorandum documents the process undertaken to calibrate the transportation model to outline the baseline and projected traffic conditions which are inputs to evaluating the performance of the transportation system. The baseline and projected traffic conditions were developed from synthesis of traffic counts conducted in September 2008 and a review of the Passaic-Bergen Passenger Service Restoration Project EIS prepared by New Jersey Transit; the North Jersey Regional Transportation Model – Enhanced (NJRTM-E) maintained by the North Jersey Transportation Planning Authority (NJTPA); and the Passaic County Travel Forecasting Model (PCTFM) maintained by the Passaic County Department of Planning. Forecasts for future build conditions will be developed after the visioning process to identify alternate land uses in the core study area.

Once the visioning process is completed this draft memorandum will be updated to delineate key mobility issues within each analysis zone and the region as a whole. The update will include resulting future year study area travel patterns assigned to the proposed network and will provide output to the Synchro model in Task 4 for operational analysis. The updated memorandum will guide the discussion of the transportation enhancement strategies and implementation schemes and funding.

TRAFFIC DATA COLLECTION

A traffic count program was conducted in September 2008. Morning and evening peak period traffic counts were conducted at key locations and fifteen-minute spot counts were taken at other locations. Existing (2005) morning and evening peak hour traffic counts were also obtained from the Passaic-Bergen Passenger Service Restoration Project EIS. The list of count locations are shown in Table I below:

Table I
TRAFFIC COUNT LOCATIONS AND COUNT TIMES

Count Location	Count Type
East 18 th Street at 11 th Avenue	7:00-7:15 AM; 4:00-4:15 PM
East 18 th Street at 12 th Avenue	7:20-7:35 AM; 4:20-4:35 PM
East 18 th Street at Broadway	2005 EIS
East 18 th Street at Ellison Place	7:40-7:55 AM; 4:50-4:55 PM
East 18 th Street at Market Street	8:00-8:15 AM; 5:00-5:15 PM
Madison Avenue at 11 th	7:00-7:15 AM; 4:00-4:15 PM
Madison Avenue at 12 th	AM and PM Peak Period Count
Madison Avenue at Hamilton	7:20-7:35 AM; 4:20-4:35 PM
Madison Avenue at Broadway	2005 EIS
Madison Avenue at Ellison	7:40-7:55 AM; 4:50-4:55 PM
Madison Avenue at Park	8:00-8:15 AM; 5:00-5:15 PM
Madison Avenue at Market	AM and PM Peak Period Count
East 22nd Street at Broadway	8:40-8:55 AM; 5:40-5:55 PM
East 22nd Street at Park	2005 EIS
East 22nd Street at Market	8:20-8:35 AM; 5:20-5:35 PM

Factors were developed using the peak period counts to convert the fifteen-minute counts to peak-hour counts. The morning and evening peak hour were 7:30-8:30 AM and 4:15-5:15 PM, respectively. The factors were computed by dividing the peak hour volume by the fifteen minute count and are summarized in Table II below:

Table II
GROWTH FACTORS FOR 15-MINUTE COUNT DATA

Time	Growth Factor
7:00-7:15 AM	5.62
7:15-7:30 AM	4.96
7:30-7:45 AM	4.15
7:45-8:00 AM	3.90
8:00-8:15 AM	3.83
8:15-8:30 AM	4.13
8:30-8:45 AM	5.11
8:45-9:00 AM	5.90
4:00-4:15 PM	4.12
4:15-4:30 PM	3.87
4:30-4:45 PM	4.21
4:45-5:00 PM	3.87
5:00-5:15 PM	4.07
5:15-5:30 PM	4.23
5:30-5:45 PM	4.39
5:45-6:00 PM	4.86

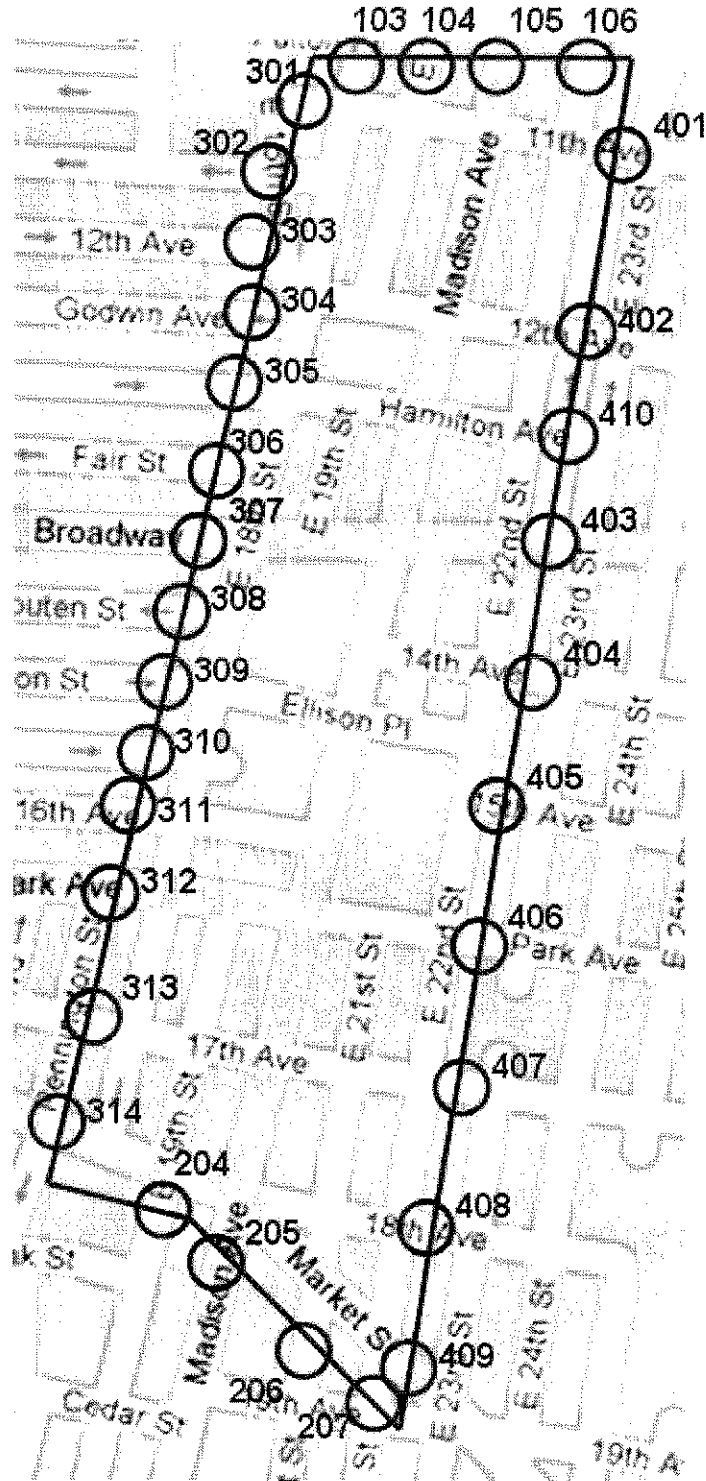
Study Area Network Model

The study area network was defined by 11th Avenue to the north; Market Street to the south; East 18th Street to the west; and East 22nd Street to the east. There are thirty-six intersections in the study area network. The study area network is shown in Figure 1. In developing the study area travel demand, it was assumed that all trips in the existing morning and evening peak hours were through trips i.e. had both origin and destination outside of the study area. A total of thirty one external zones were defined and are shown in Table III below and in Figure 1. Internal zones will be defined following the visioning process which will identify alternate land uses in the core study area.

Table III
EXTERNAL ZONES FOR STUDY AREA MODEL

Zone	Zone Description
103	East 18 th Street north of 11 th Avenue
104	East 19 th Street north of 11 th Avenue
105	Madison Avenue north of 11 th Avenue
106	East 22 nd Street north of 11 th Avenue
204	East 19 th Street south of Market Street
205	Madison Avenue south of Market Street
206	East 21 st Street south of Market Street
207	East 22 nd Street south of Market Street
301	11 th Avenue west of East 18 th Street
302	Governor Street west of East 18 th Street (Destination Only)
303	12 th Avenue west of East 18 th Street
304	Godwin Avenue west of East 18 th Street (Destination Only)
305	Hamilton Avenue west of East 18 th Street (Origin Only)
306	Fair Street west of East 18 th Street (Destination Only)
307	Broadway west of East 18 th Street
308	Van Houten Street west of East 18 th Street (Destination Only)
309	Ellison Street west of East 18 th Street (Origin Only)
310	Pearl Street west of East 18 th Street (Origin Only)
311	16 th Avenue west of East 18 th Street
312	Park Avenue west of East 18 th Street (Destination Only)
313	17 th Avenue west of East 18 th Street
314	Market Street west of East 18 th Street
401	11 th Avenue east of East 22 nd Street
402	12 th Avenue east of East 22 nd Street
410	Hamilton Avenue east of East 22 nd Street (Destination Only)
403	Broadway east of East 22 nd Street
404	14 th Avenue east of East 22 nd Street
405	15 th Avenue east of East 22 nd Street
406	Park Avenue east of East 22 nd Street
407	17 th Avenue east of East 22 nd Street
408	18 th Avenue east of East 22 nd Street
409	Market Street east of East 22 nd Street

Figure I
STUDY AREA NETWORK EXTERNAL ZONES



Existing Travel Patterns

Existing morning and evening peak hour travel patterns were synthesized by comparing the routing for each origin-destination pair with the existing traffic counts for each turning movement. The estimated traffic volume for each turning movement was computed as the sum of traffic demand associated with a unique set of origin-destination pairs. For each turning movement, the goal was to be within fifteen percent of the volume obtained from the September 2008 traffic count program or the 2005 EIS. With a few exceptions, this goal was reached. The total intersection estimated volumes are compared with the 15 intersections where traffic counts were obtained in the two tables below for the morning and evening peak hours, respectively. Appendix A contains the more detailed comparison for each individual intersection and includes each individual turning movement.

Table IV
SYNTHESIZED TRAFFIC DATA FOR MORNING (AM) PEAK HOUR

Intersection	AM Count	AM Estimate	Difference	% Difference	Comment
East 18 th St at 11 th Ave	641	676	35	5%	Add 25 veh -15 min count
East 18 th St at 12 th Ave	794	831	37	5%	Add 25 veh -15 min count
East 18 th St at Broadway	1,565	1,537	28	2%	
East 18 th St at Ellison Place	746	747	1	0%	
East 18 th St at Market St	540	585	45	8%	
Madison Ave at 11 th Ave	1,327	1,231	96	7%	Add 25 veh -15 min count
Madison Ave at 12 th Ave	1,286	1,277	9	1%	Add 100 veh-1hr count
Madison Ave at Hamilton	933	1,076	143	15%	
Madison Ave at Broadway	2,095	2,051	44	2%	
Madison Ave at Ellison Place	1,412	1,423	11	1%	
Madison Ave at Park Ave	1,876	1,764	112	6%	
Madison Ave at Market Ave	1,616	1,709	93	6%	Add 100 veh-1hr count
East 22nd St at Broadway	1,465	1,277	188	13%	
East 22nd St at Park Ave	750	742	8	1%	
East 22nd St at Market Ave	1,179	1,052	127	11%	
Total for All Intersections	18,225	17,978	247	1%	

**Table V
SYNTHESIZED TRAFFIC DATA FOR EVENING (PM) PEAK HOUR**

Intersection	PM Count	PM Estimate	Difference	% Difference	Comment
East 18 th St at 11 th Ave	738	765	27	4%	
East 18 th St at 12 th Ave	964	941	23	2%	
East 18 th St at Broadway	1,775	1,697	78	4%	
East 18 th St at Ellison Place	895	943	48	5%	Add 25 veh -15 min count
East 18 th St at Market St	399	459	60	15%	
Madison Ave at 11 th Ave	1,404	1,429	25	2%	
Madison Ave at 12 th Ave	1,457	1,395	62	4%	
Madison Ave at Hamilton	1,154	1,180	26	2%	
Madison Ave at Broadway	2,325	2,182	143	6%	
Madison Ave at Ellison Place	1,691	1,535	156	9%	
Madison Ave at Park Ave	1,849	1,792	57	3%	Add 10 veh -15 min count
Madison Ave at Market Ave	1,835	1,804	31	2%	Add 125veh -15 min
East 22nd St at Broadway	1,560	1,470	90	6%	
East 22nd St at Park Ave	915	780	135	15%	
East 22nd St at Market Ave	1,103	942	161	15%	
Total for All Intersections	20,064	19,314	750	4%	

Future Year No-Build Traffic Volumes

Future year no-build traffic volumes were estimated using several data sources: the Passaic-Bergen Passenger Service Restoration Project EIS prepared by New Jersey Transit; the North Jersey Regional Transportation Model – Enhanced (NJRTM-E) maintained by the North Jersey Transportation Planning Authority (NJTPA); and the Passaic County Travel Forecasting Model (PCTFM) maintained by the Passaic County Department of Planning. In reviewing the different data sources, the objective was to develop the most conservative (i.e. the largest projected traffic growth rates) of the three forecasts. By using the most conservative forecasts, the study team was confident that any projected congestion issue in the corridor would be addressed as part of the development of recommended improvements. It was found that the growth rates were modest for all of the data sources and that the two regional models included minimal, and in some cases negative growth in the corridor. The growth rates used in the EIS, 1.5% per year, while still modest, were the most conservative and were therefore used to project future no-build traffic volumes.

The following table illustrates total intersection volumes for three intersections where data was available for the different data sources for the morning and evening peak hours.

**Table VI
SYNTHESIZED TRAFFIC DATA & GROWTH RATES UTILIZING ALTERNATE MODELS**

Passaic-Bergen Passenger Service Restoration Project EIS				
Intersection	2005 AM	2025 AM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	1,570	2,134	35.90%	1.50%
Madison Ave at Broadway	2,095	2,848	35.90%	1.50%
Madison Ave at Park Ave	750	1,019	35.90%	1.50%
Intersection	2005 PM	2025 PM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	1,770	2,340	32.20%	1.40%
Madison Ave at Broadway	2,325	3,163	36.00%	1.50%
Madison Ave at Park Ave	915	1,240	35.50%	1.50%

North Jersey Regional Transportation Model – Enhanced (NJRTM-E)				
Intersection	2005 AM	2025 AM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	7,684	7,584	-1.30%	0.00%
Madison Ave at Broadway	8,158	8,722	6.90%	0.20%
Madison Ave at Park Ave	3,539	3,978	12.40%	0.40%
Intersection	2005 PM	2025 PM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	8,171	8,871	8.60%	0.30%
Madison Ave at Broadway	8,684	9,988	15.00%	0.50%
Madison Ave at Park Ave	4,482	5,453	21.70%	0.70%

Passaic County Subarea Model				
Intersection	2005 AM	2025 AM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	5,088	6,260	23.00%	0.70%
Madison Ave at Broadway	5,061	6,029	19.10%	0.60%
Madison Ave at Park Ave	2,023	2,664	31.70%	0.90%
Intersection	2005 PM	2025 PM	% Growth	% Annual Growth Difference
East 18 th St at Broadway	6,013	7,285	21.20%	0.60%
Madison Ave at Broadway	5,826	6,738	15.70%	0.50%
Madison Ave at Park Ave	2,648	3,545	33.90%	1.00%

As indicated above, the growth rates utilized within the EIS are more conservative. The traffic data within the EIS are generally similar to 2008 observed traffic volumes. As a result, the 1.5% growth factor utilized within the EIS is utilized to project no-build future traffic by compounding synthesized traffic data from both the EIS and the 2008 traffic counts.

Appendix B contains a detailed comparison for each individual turning movement or link volume for all the intersections in the study area.

Future Year Build Traffic Volumes

The future build condition traffic volumes will be developed based upon the output of the visioning process which will have established alternate land uses proximate to the train station.

Appendix A – Comparison of Morning and Evening Peak Hour Traffic Counts with Estimated Balanced Traffic Volumes

	2005 EIS		2005 EIS		Estimate		Estimate		Percent		Percent		2005	
	Counts		Counts		Existing		Existing		Difference		Difference		2005	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
East 18th St (County 653) at 11th Ave														
Nb Left	0	0	0	24	0	24	0	24	0%	0%	0	0	0	0
Nb Thru	242	227	278	193	177	193	177	34	73%	15%	43	55	43	55
Nb Right	22	33	25	38	3	38	3	5	14%	15%	4	8	4	8
Nb Approach	264	260	303	255	180	255	180	63	68%	24%	47	63	47	63
Wb Left	67	74	77	69	10	69	10	5	15%	7%	12	18	12	18
Wb Thru	45	82	38	70	7	70	7	12	16%	15%	8	20	8	20
Wb Right	45	91	43	105	2	105	2	14	4%	15%	8	22	8	22
Wb														
Approach	157	247	158	244	19	244	19	31	12%	13%	28	60	28	60
Sb Left	28	25	31	29	3	29	3	4	11%	16%	5	6	5	6
Sb Thru	152	132	130	152	22	152	22	20	14%	15%	27	32	27	32
Sb Right	0	0	13	0	13	0	13	0	0%	0%	0	0	0	0
Sb Approach	180	157	174	181	38	181	38	24	21%	15%	32	38	32	38
Eb Left	6	0	5	0	1	0	1	0	17%	0%	1	0	1	0
Eb Thru	28	74	31	85	3	85	3	11	11%	15%	5	18	5	18
Eb Right	6	0	5	0	1	0	1	0	17%	0%	1	0	1	0
Eb Approach	40	74	41	85	5	85	5	11	13%	15%	7	18	7	18
Total	641	738	676	765	242	765	242	129	38%	17%	114	179	114	179
												FACTORS	5.62	4.12
Madison Ave (County 649) at 11th Ave														

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Nb Left	6	37	5	31	1	6	17%	16%	1	9
Nb Thru	455	482	480	489	166	7	36%	1%	81	117
Nb Right	45	62	38	53	7	9	16%	15%	8	15
Nb Approach	506	581	523	573	174	22	34%	4%	90	141
Wb Left	17	58	14	49	3	9	18%	16%	3	14
Wb Thru	180	185	153	201	27	16	15%	9%	32	45
Wb Right	56	41	48	47	8	6	14%	15%	10	10
Wb										
Approach	253	284	215	297	38	31	15%	11%	45	69
Sb Left	17	25	20	29	3	4	18%	16%	3	6
Sb Thru	433	276	370	317	63	41	15%	15%	77	67
Sb Right	0	37	0	43	0	6	0%	16%	0	9
Sb Approach	450	338	390	389	66	51	15%	15%	80	82
Eb Left	11	12	9	10	2	2	18%	17%	2	3
Eb Thru	96	144	85	122	11	22	11%	15%	17	35
Eb Right	11	45	9	38	2	7	18%	16%	2	11
Eb Approach	118	201	103	170	15	31	13%	15%	21	49
Total	1327	1404	1231	1429	293	135	22%	10%	236	341
								FACTORS	4.96	3.87
East 18th St (County 653) at 12th Ave										
Nb Left	10	35	12	30	2	5	20%	14%	2	9
Nb Thru	253	228	288	235	159	7	63%	3%	51	59
Nb Right	5	12	10	10	5	2	100%	17%	1	3
Nb Approach	268	275	310	275	166	14	62%	5%	54	71
Wb Left	50	97	58	82	8	15	16%	15%	10	25
Wb Thru	74	101	85	86	11	15	15%	15%	15	26
Wb Right	64	31	64	36	0	5	0%	16%	13	8
Wb										
Approach	188	229	207	204	19	35	10%	15%	38	59

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Sb Left	15	19	17	22	2	3	13%	16%	3	5
Sb Thru	184	194	156	182	28	12	15%	6%	37	50
Sb Right	15	15	13	17	2	2	13%	13%	3	4
Sb Approach	214	228	186	221	32	17	15%	7%	43	59
Eb Left	0	0	0	0	0	0	0%	0%	0	0
Eb Thru	74	143	85	139	11	4	15%	3%	15	37
Eb Right	50	89	43	102	7	13	14%	15%	10	23
Eb Approach	124	232	128	241	18	17	15%	7%	25	60
Total	794	964	831	941	235	83	30%	9%	160	249
									FACTORS	1
										1
Madison Ave (County 649) at 12th Ave										
Nb Left	55	48	49	43	6	5	11%	10%	55	48
Nb Thru	429	454	475	522	146	68	34%	15%	429	454
Nb Right	25	28	27	24	2	4	8%	14%	25	28
Nb Approach	509	530	551	589	154	77	30%	15%	509	530
Wb Left	41	34	26	29	15	5	37%	15%	41	34
Wb Thru	175	195	149	166	26	29	15%	15%	175	195
Wb Right	40	31	46	36	6	5	15%	16%	40	31
Wb										
Approach	256	260	221	231	47	39	18%	15%	256	260
Sb Left	13	30	15	26	2	4	15%	13%	13	30
Sb Thru	348	418	365	358	17	60	5%	14%	348	418
Sb Right	15	23	13	20	2	3	13%	13%	15	23
Sb Approach	376	471	393	404	21	67	6%	14%	376	471
Eb Left	2	13	2	15	0	2	0%	15%	2	13
Eb Thru	115	141	86	120	29	21	25%	15%	115	141
Eb Right	28	42	24	36	4	6	14%	14%	28	42
Eb Approach	145	196	112	171	33	29	23%	15%	145	196

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Total	1286	1457	1277	1395	255	212	20%	15%	FACTORS	1286	1457	
Madison Ave (County 649) at Hamilton Ave												
Nb Left	0	0	0	0	0	0	0%	0%		0	0	
Nb Thru	461	480	530	552	69	72	15%	15%		93	124	
Nb Right	25	27	29	31	4	4	16%	15%		5	7	
Nb Approach	486	507	559	583	73	76	15%	15%		98	131	
Wb Left	0	0	0	0	0	0	0%	0%		0	0	
Wb Thru	0	0	0	0	0	0	0%	0%		0	0	
Wb Right	0	0	0	0	0	0	0%	0%		0	0	
Wb												
Approach	0	0	0	0	0	0	0%	0%		0	0	
Sb Left	0	19	10	16	10	3	0%	16%		0	5	
Sb Thru	352	449	405	407	53	42	15%	9%		71	116	
Sb Right	0	0	0	0	0	0	0%	0%		0	0	
Sb Approach	352	468	415	423	63	45	18%	10%		71	121	
Eb Left	25	43	21	37	4	6	16%	14%		5	11	
Eb Thru	25	70	29	81	4	11	16%	16%		5	18	
Eb Right	45	66	52	56	7	10	16%	15%		9	17	
Eb Approach	95	179	102	174	15	27	16%	15%		19	46	
Total	933	1154	1076	1180	151	148	16%	13%		188	298	
									FACTORS	1	1	
East 18th St (County 653) at Broadway Ave												
Nb Left	5	5	10	4	5	1	100%	20%		5	5	
Nb Thru	295	225	251	199	44	26	15%	12%		295	225	
Nb Right	35	60	40	51	5	9	14%	15%		35	60	
Nb Approach	335	290	301	254	54	36	16%	12%		335	290	
Wb Left	5	60	4	51	1	9	20%	15%		5	60	

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Wb Thru	465	510	496	579	31	69	7%	14%	465	510
Wb Right	60	10	69	9	9	1	15%	10%	60	10
Wb										
Approach	530	580	569	639	41	79	8%	14%	530	580
Sb Left	5	10	10	9	5	1	100%	10%	5	10
Sb Thru	205	275	165	234	40	41	20%	15%	205	275
Sb Right	10	45	12	52	2	7	20%	16%	10	45
Sb Approach	220	330	187	295	47	49	21%	15%	220	330
Eb Left	45	10	38	12	7	2	16%	20%	45	10
Eb Thru	365	490	382	411	17	79	5%	16%	365	490
Eb Right	70	75	60	86	10	11	14%	15%	70	75
Eb Approach	480	575	480	509	34	92	7%	16%	480	575
Total	1565	1775	1537	1697	176	256	11%	14%	1565	1775
									1	1
Madison Avenue at Broadway Avenue										
Nb Left	75	95	64	109	11	14	15%	15%	75	95
Nb Thru	530	495	394	431	136	64	26%	13%	530	495
Nb Right	70	145	81	123	11	22	16%	15%	70	145
Nb Approach	675	735	539	663	158	100	23%	14%	675	735
Wb Left	110	80	127	68	17	12	15%	15%	110	80
Wb Thru	395	405	454	466	59	61	15%	15%	395	405
Wb Right	45	60	42	51	3	9	7%	15%	45	60
Wb										
Approach	550	545	623	585	79	82	14%	15%	550	545
Sb Left	35	55	30	47	5	8	14%	15%	35	55
Sb Thru	365	400	376	352	11	48	3%	12%	365	400
Sb Right	60	75	51	64	9	11	15%	15%	60	75
Sb Approach	460	530	457	463	25	67	5%	13%	460	530
Eb Left	145	105	123	89	22	16	15%	15%	145	105

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Eb Thru	260	375	299	352	39	23	15%	6%	260	375
Eb Right	5	35	10	30	5	5	100%	14%	5	35
Eb Approach	410	515	432	471	66	44	16%	9%	410	515
Total	2095	2325	2051	2182	328	293	16%	13%	2095	2325
									5.9	4.86
East 22nd St at Broadway Ave										
Nb Left	53	34	45	39	8	5	15%	15%	9	7
Nb Thru	53	117	45	135	8	18	15%	15%	9	24
Nb Right	30	44	35	51	5	7	17%	16%	5	9
Nb Approach	136	195	125	225	21	30	15%	15%	23	40
Wb Left	47	19	47	22	0	3	0%	16%	8	4
Wb Thru	602	637	502	472	100	165	17%	26%	102	131
Wb Right	12	10	14	12	2	2	17%	20%	2	2
Wb										
Approach	661	666	563	506	102	170	15%	26%	112	137
Sb Left	30	24	35	28	5	4	17%	17%	5	5
Sb Thru	59	126	68	115	9	11	15%	9%	10	26
Sb Right	89	87	76	74	13	13	15%	15%	15	18
Sb Approach	178	237	179	217	27	28	15%	12%	30	49
Eb Left	6	10	5	12	1	2	17%	20%	1	2
Eb Thru	466	418	390	481	76	63	16%	15%	79	86
Eb Right	18	34	15	29	3	5	17%	15%	3	7
Eb Approach	490	462	410	522	80	70	16%	15%	83	95
Total	1465	1560	1277	1470	230	298	16%	19%	248	321
									3.9	3.87
East 18th St (County 653) at Ellison St										
Nb Left	0	0	0	0	0	0	0%	0%	0	0
Nb Thru	164	128	147	147	17	19	10%	15%	42	33

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Nb Right	55	85	53	98	2	13	4%	15%	14	22
Nb Approach	219	213	200	245	19	32	9%	15%	56	55
Wb Left	27	43	31	49	4	6	15%	14%	7	11
Wb Thru	0	0	0	0	0	0	0%	0%	0	0
Wb Right	137	124	121	111	16	13	12%	10%	35	32
Wb										
Approach	164	167	152	160	20	19	12%	11%	42	43
Sb Left	20	35	23	32	3	3	15%	9%	5	9
Sb Thru	140	213	161	245	21	129	15%	61%	36	55
Sb Right	0	0	0	0	0	0	0%	0%	0	0
Sb Approach	160	248	184	277	24	132	15%	53%	41	64
Eb Left	74	58	63	52	11	6	15%	10%	19	15
Eb Thru	109	190	125	193	16	3	15%	2%	28	49
Eb Right	20	19	23	16	3	3	15%	16%	5	5
Eb Approach	203	267	211	261	30	12	15%	4%	52	69
Total	746	895	747	943	93	195	12%	22%	191	231
									3.9	3.87
Madison Ave (County 649) at Ellison St										
Nb Left	35	66	30	56	5	10	14%	15%	9	17
Nb Thru	437	519	503	536	66	17	15%	3%	112	134
Nb Right	23	35	26	30	3	5	13%	14%	6	9
Nb Approach	495	620	559	622	74	32	15%	5%	127	160
Wb Left	31	27	26	23	5	4	16%	15%	8	7
Wb Thru	125	97	49	39	76	58	61%	60%	32	25
Wb Right	0	15	0	13	0	2	0%	13%	0	4
Wb										
Approach	156	139	75	75	81	64	52%	46%	40	36
Sb Left	0	0	0	0	0	0	0%	0%	0	0
Sb Thru	464	418	515	450	51	32	11%	8%	119	108

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Sb Right	86	77	73	65	13	12	15%	16%	22	20
Sb Approach	550	495	588	515	64	44	12%	9%	141	128
Eb Left	20	85	23	72	3	13	15%	15%	5	22
Eb Thru	140	236	119	152	21	84	15%	36%	36	61
Eb Right	51	116	59	99	8	17	16%	15%	13	30
Eb Approach	211	437	201	323	32	114	15%	26%	54	113
Total	1412	1691	1423	1535	251	254	18%	15%	4	4
									3.83	4.07
Madison Ave (County 649) at Park Ave										
Nb Left	138	134	159	154	21	20	15%	15%	36	33
Nb Thru	498	570	546	602	48	73	10%	13%	130	140
Nb Right	15	90	17	81	2	9	13%	10%	4	22
Nb Approach	651	794	722	837	71	102	11%	13%	170	195
Wb Left	46	33	39	28	7	5	15%	15%	12	8
Wb Thru	398	228	338	259	60	31	15%	14%	104	56
Wb Right	42	49	36	42	6	7	14%	14%	11	12
Wb										
Approach	486	310	413	329	73	43	15%	14%	127	76
Sb Left	73	53	62	45	11	8	15%	15%	19	13
Sb Thru	417	464	349	388	68	76	16%	16%	109	114
Sb Right	222	106	189	90	33	16	15%	15%	58	26
Sb Approach	712	623	600	523	112	100	16%	16%	186	153
Eb Left	0	37	0	31	0	6	0%	16%	0	9
Eb Thru	23	61	26	52	3	9	13%	15%	6	15
Eb Right	4	24	3	20	1	4	25%	17%	1	6
Eb Approach	27	122	29	103	4	19	15%	16%	7	30
Total	1876	1849	1764	1792	260	264	14%	14%	490	454
									1	1

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East 22nd St at Park Ave												
Nb Left	25	35	10	30	15	5	60%	14%	25	35		
Nb Thru	85	90	73	77	12	13	14%	14%	85	90		
Nb Right	20	35	17	30	3	5	15%	14%	20	35		
Nb Approach	130	160	100	137	30	23	23%	14%	130	160		
Wb Left	15	15	13	13	2	2	13%	13%	15	15		
Wb Thru	285	280	328	239	43	41	15%	15%	285	280		
Wb Right	25	40	29	34	4	6	16%	15%	25	40		
Wb												
Approach	325	335	370	286	49	49	15%	15%	325	335		
Sb Left	15	30	17	26	2	4	13%	13%	15	30		
Sb Thru	55	105	63	89	8	16	15%	15%	55	105		
Sb Right	65	45	55	38	10	7	15%	16%	65	45		
Sb Approach	135	180	135	153	20	27	15%	15%	135	180		
Eb Left	20	25	17	21	3	4	15%	16%	20	25		
Eb Thru	130	195	111	166	19	29	15%	15%	130	195		
Eb Right	10	20	9	17	1	3	10%	15%	10	20		
Eb Approach	160	240	137	204	23	36	14%	15%	160	240		
Total	750	915	742	780	122	135	16%	15%	750	915		
									3.83	4.07		
East 18th St at Market St												
Sb Left	119	179	101	206	18	27	15%	15%	31	44		
Sb Thru	0	0	0	0	0	0	0%	0%	0	0		
Sb Right	0	0	0	0	0	0	0%	0%	0	0		
Sb Approach	119	179	101	206	18	27	15%	15%	31	44		
Eb Left	0	0	0	0	0	0	0%	0%	0	0		
Eb Thru	421	220	484	253	63	33	15%	15%	110	54		
Eb Right	0	0	0	0	0	0	0%	0%	0	0		

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Eb Approach	421	220	484	253	63	33	15%	15%	110	54
Total	540	399	585	459	81	60	15%	15%	141	98
									FACTORS	1 1
Madison Ave at Market Street / 18th Ave										
Nb Left	0	0	0	0	0	0	0%	0%	0	0
Nb Thru	434	529	448	541	64	112	15%	15%	434	529
Nb Right	50	66	58	76	8	10	16%	15%	50	66
Nb Approach	484	595	506	617	72	122	15%	21%	484	595
Wb Left	56	50	64	58	8	33	14%	66%	56	50
Wb Thru	0	0	0	0	0	0	0%	0%	0	0
Wb Right	211	238	237	204	26	34	12%	14%	211	238
Wb										
Approach	267	288	301	262	34	67	13%	23%	267	288
Sb Left	89	46	74	53	15	7	17%	15%	89	46
Sb Thru	320	331	317	381	47	100	15%	30%	320	331
Sb Right	0	0	0	0	0	0	0%	0%	0	0
Sb Approach	409	377	391	434	62	107	15%	28%	409	377
Eb Left	44	108	37	92	7	16	16%	15%	44	108
Eb Thru	324	398	373	340	49	58	15%	15%	324	398
Eb Right	88	69	101	59	13	10	15%	14%	88	69
Eb Approach	456	575	511	491	69	84	15%	15%	456	575
Total	1616	1835	1709	1804	237	380	15%	21%	1616	1835
									4.13	4.23
East 22nd Street at Market St										
Nb Left	0	13	0	11	0	2	0%	15%	0	3
Nb Thru	8	42	10	36	2	6	25%	14%	2	10
Nb Right	107	8	122	10	15	2	14%	25%	26	2
Nb Approach	115	63	132	57	17	10	15%	16%	28	15

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Wb Left	66	17	76	20	10	3	15%	18%	16	4
Wb Thru	339	326	288	254	51	72	15%	22%	82	77
Wb Right	17	59	20	68	3	9	18%	15%	4	14
Wb Approach	422	402	384	342	64	84	15%	21%	102	95
Sb Left	25	25	29	29	4	4	16%	16%	6	6
Sb Thru	21	8	20	10	1	2	5%	25%	5	2
Sb Right	17	30	14	26	3	4	18%	13%	4	7
Sb Approach	63	63	63	65	8	10	13%	16%	15	15
Eb Left	17	21	14	18	3	3	18%	14%	4	5
Eb Thru	545	520	445	431	100	89	18%	17%	132	123
Eb Right	17	34	14	29	3	5	18%	15%	4	8
Eb Approach	579	575	473	478	106	97	18%	17%	140	136
Total	1179	1103	1052	942	195	201	17%	18%	285	261

Appendix B-1 – Summary of Travel Demand Forecasting Model Traffic Volumes – Passaic-Bergen Restoration Project EIS

Intersection and Approach	NJ Transit Passaic-Bergen Passenger Service Restoration Project EIS (2005 Count and 2025 Forecast)										
	2005					2025					
	AM Pk Hour	AM Pk Hour	Total % Growth	Annual % Growth	PM Pk Hour	PM Pk Hour	Total % Growth	Annual % Growth	PM Pk Hour	Annual % Growth	
<u>Madison Avenue at Park Ave</u>											
Madison Ave Nb	130	176	35.4%	1.5%	160	216	35.0%	1.5%	216	35.0%	1.5%
Madison Ave Sb	135	183	35.6%	1.5%	180	244	35.6%	1.5%	244	35.6%	1.5%
Park Ave Wb	325	442	36.0%	1.5%	335	454	35.5%	1.5%	454	35.5%	1.5%
Park Ave Eb	160	218	36.3%	1.6%	240	326	35.8%	1.5%	326	35.8%	1.5%
Total	750	1,019	35.9%	1.5%	915	1,240	35.5%	1.5%	1,240	35.5%	1.5%
<u>Madison Avenue at Broadway</u>											
Madison Ave Nb	675	917	35.9%	1.5%	735	999	35.9%	1.5%	999	35.9%	1.5%
Madison Ave Sb	460	626	36.1%	1.6%	530	721	36.0%	1.6%	721	36.0%	1.6%
Broadway Wb	550	748	36.0%	1.5%	545	742	36.1%	1.6%	742	36.1%	1.6%
Broadway Eb	410	557	35.9%	1.5%	515	701	36.1%	1.6%	701	36.1%	1.6%
Total	2,095	2,848	35.9%	1.5%	2,325	3,163	36.0%	1.6%	3,163	36.0%	1.6%
<u>East 18th Street at Broadway</u>											
18th Street Nb	335	456	36.1%	1.6%	290	395	36.2%	1.6%	395	36.2%	1.6%
18th Street Sb	225	305	35.6%	1.5%	325	442	36.0%	1.5%	442	36.0%	1.5%
Broadway Wb	530	721	36.0%	1.6%	580	790	36.2%	1.6%	790	36.2%	1.6%
Broadway Eb	480	652	35.8%	1.5%	575	713	24.0%	1.1%	713	24.0%	1.1%
Total	1,570	2,134	35.9%	1.5%	1,770	2,340	32.2%	1.4%	2,340	32.2%	1.4%

Appendix B-2 – Summary of Travel Demand Forecasting Model Traffic Volumes – North Jersey Regional Transportation Model – Enhanced

North Jersey Regional Transportation Model - Enhanced (NJRTIME)

Intersection and Approach	2000		2030		2000		2030		Annual % Growth	Total % Growth	Pk Period	Annual % Growth	Pk Period	Total % Growth	Annual % Growth
	AM Pk Period	AM Pk Period	AM Pk Period	AM Pk Period	PM Pk Period	PM Pk Period	PM Pk Period	PM Pk Period							
<u>Madison Avenue at Market Street</u>															
Madison Ave Nb	1,475	1,765	1,765	1,765	1,897	1,897	2,123	2,123	0.6%	19.7%	1,897	0.6%	2,123	11.9%	0.4%
Madison Ave Sb	1,318	1,597	1,597	1,597	1,304	1,304	1,491	1,491	0.6%	21.2%	1,304	0.6%	1,491	14.3%	0.4%
Market St Wb	714	502	502	502	1,156	1,156	1,830	1,830	-1.2%	-29.7%	1,156	-1.2%	1,830	58.3%	1.5%
Market St Eb	1,306	1,593	1,593	1,593	1,538	1,538	1,373	1,373	0.7%	22.0%	1,538	0.7%	1,373	-10.7%	-0.4%
Total	4,813	5,457	5,457	5,457	5,895	5,895	6,817	6,817	0.4%	13.4%	5,895	0.4%	6,817	15.6%	0.5%
<u>East 18th Street at Market Street</u>															
18th Street Sb	1,092	824	824	824	996	996	1,154	1,154	-0.9%	-24.5%	996	-0.9%	1,154	15.9%	0.5%
Market St Wb	1,090	1,047	1,047	1,047	1,271	1,271	1,405	1,405	-0.1%	-3.9%	1,271	-0.1%	1,405	10.5%	0.3%
Market St Eb	840	927	927	927	1,094	1,094	1,027	1,027	0.3%	10.4%	1,094	0.3%	1,027	-6.1%	-0.2%
Total	3,022	2,798	2,798	2,798	3,361	3,361	3,586	3,586	-0.3%	-7.4%	3,361	-0.3%	3,586	6.7%	0.2%
<u>Madison Avenue at Park Ave</u>															
Madison Ave Nb	1,101	1,221	1,221	1,221	1,779	1,779	2,548	2,548	0.3%	10.9%	1,779	0.3%	2,548	43.2%	1.2%
Madison Ave Sb	1,383	1,618	1,618	1,618	1,330	1,330	1,465	1,465	0.5%	17.0%	1,330	0.5%	1,465	10.2%	0.3%
Park Ave Wb	596	691	691	691	803	803	813	813	0.5%	15.9%	803	0.5%	813	1.2%	0.0%
Park Ave Eb	459	448	448	448	570	570	627	627	-0.1%	-2.4%	570	-0.1%	627	10.0%	0.3%
Total	3,539	3,978	3,978	3,978	4,482	4,482	5,453	5,453	0.4%	12.4%	4,482	0.4%	5,453	21.7%	0.7%
<u>East 18th Street at Park Ave</u>															
18th Street Nb	913	642	642	642	917	917	1,315	1,315	-1.2%	-29.7%	917	-1.2%	1,315	43.4%	1.2%
18th Street Sb	1,134	762	762	762	1,327	1,327	1,115	1,115	-1.3%	-32.8%	1,327	-1.3%	1,115	-16.0%	-0.6%
Park Ave Wb	244	283	283	283	1,199	1,199	1,063	1,063	0.5%	16.0%	1,199	0.5%	1,063	-11.3%	-0.4%

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Park Ave Eb	889	1,028	15.6%	0.5%	880	992	12.7%	0.4%
Total	3,180	2,715	-14.6%	-0.5%	4,323	4,485	3.7%	0.1%
<u>Madison Avenue at Broadway</u>								
Madison Ave Nb	1,082	1,076	-0.6%	0.0%	1,081	2,127	96.8%	2.3%
Madison Ave Sb	1,341	1,507	12.4%	0.4%	1,473	1,413	-4.1%	-0.1%
Broadway Wb	3,010	3,087	2.6%	0.1%	3,279	3,454	5.3%	0.2%
Broadway Eb	2,725	3,052	12.0%	0.4%	2,851	2,994	5.0%	0.2%
Total	8,158	8,722	6.9%	0.2%	8,684	9,988	15.0%	0.5%
<u>East 18th Street at Broadway</u>								
18th Street Nb	1,047	767	-26.7%	-1.0%	1,764	1,450	-17.8%	-0.7%
18th Street Sb	1,277	1,287	0.8%	0.0%	1,156	1,529	32.3%	0.9%
Broadway Wb	2,938	2,881	-1.9%	-0.1%	2,468	3,193	29.4%	0.9%
Broadway Eb	2,422	2,649	9.4%	0.3%	2,783	2,699	-3.0%	-0.1%
Total	7,684	7,584	-1.3%	0.0%	8,171	8,871	8.6%	0.3%
<u>Madison Avenue at 10th Avenue</u>								
Madison Ave Nb	1,090	1,130	3.7%	0.1%	2,062	2,450	18.8%	0.6%
Madison Ave Sb	1,776	2,198	23.8%	0.7%	1,578	1,940	22.9%	0.7%
10th Avenue Wb	585	476	-18.6%	-0.7%	1,598	1,636	2.4%	0.1%
10th Avenue Eb	819	836	2.1%	0.1%	1,445	1,616	11.8%	0.4%
Total	4,270	4,640	8.7%	0.3%	6,683	7,642	14.3%	0.4%
<u>East 18th Street at 10th Avenue</u>								
18th Street Nb	1,065	856	-19.6%	-0.7%	1,697	1,808	6.5%	0.2%
18th Street Sb	1,411	1,418	0.5%	0.0%	1,322	1,450	9.7%	0.3%
10th Avenue Wb	1,175	1,114	-5.2%	-0.2%	1,311	1,637	24.9%	0.7%
10th Avenue Eb	792	1,029	29.9%	0.9%	1,210	1,294	6.9%	0.2%
Total	4,443	4,417	-0.6%	0.0%	5,540	6,189	11.7%	0.4%

Appendix B-3 – Summary of Travel Demand Forecasting Model Traffic Volumes – Passaic County Subarea Model

Intersection and Approach	Passaic County Subarea Model						
	2000			2025			
	AM Pk Period	Total % Growth	Annual % Growth	PM Pk Period	Total % Growth	Annual % Growth	
<u>Madison Avenue at Market Street</u>							
Madison Ave Nb	425	38.4%	1.3%	484	890	83.9%	2.5%
Madison Ave Sb	541	26.2%	0.9%	893	973	9.0%	0.3%
Market St Wb	1,570	18.3%	0.7%	2,194	2,338	6.6%	0.3%
Market St Eb	-	-	-	-	-	-	-
Total	2,536	23.4%	0.8%	3,571	4,201	17.6%	0.7%
<u>East 18th Street at Market Street</u>							
18th Street Sb	567	-8.3%	-0.3%	589	641	8.8%	0.3%
Market St Wb	848	31.3%	1.1%	803	1,182	47.2%	1.6%
Market St Eb	861	35.2%	1.2%	1,161	1,343	15.7%	0.6%
Total	2,276	22.9%	0.8%	2,553	3,166	24.0%	0.9%
<u>Madison Avenue at Park Ave</u>							
Madison Ave Nb	706	19.1%	0.7%	720	803	11.5%	0.4%
Madison Ave Sb	484	36.8%	1.3%	685	876	27.9%	1.0%
Park Ave Wb	464	51.9%	1.7%	943	1,252	32.8%	1.1%
Park Ave Eb	369	23.6%	0.9%	300	614	104.7%	2.9%
Total	2,023	31.7%	1.1%	2,648	3,545	33.9%	1.2%
<u>East 18th Street at Park Ave</u>							
18th Street Nb	477	23.9%	0.9%	627	666	6.2%	0.2%
18th Street Sb	236	75.0%	2.3%	333	494	48.3%	1.6%
Park Ave Wb	334	58.4%	1.9%	335	588	75.5%	2.3%
Park Ave Eb	-	-	-	253	663	162.1%	3.9%

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Total	1,047	1,571	50.0%	1.6%	1,548	2,411	55.7%	1.8%
<u>Madison Avenue at Broadway</u>								
Madison Ave Nb	530	710	34.0%	1.2%	580	753	29.8%	1.0%
Madison Ave Sb	440	539	22.5%	0.8%	264	333	26.1%	0.9%
Broadway Wb	1,896	2,266	19.5%	0.7%	2,521	2,797	10.9%	0.4%
Broadway Eb	2,195	2,514	14.5%	0.5%	2,461	2,855	16.0%	0.6%
Total	5,061	6,029	19.1%	0.7%	5,826	6,738	15.7%	0.6%
<u>East 18th Street at Broadway</u>								
18th Street Nb	376	471	25.3%	0.9%	311	501	61.1%	1.9%
18th Street Sb	753	900	19.5%	0.7%	472	657	39.2%	1.3%
Broadway Wb	2,117	2,530	19.5%	0.7%	2,577	2,968	15.2%	0.6%
Broadway Eb	1,842	2,359	28.1%	1.0%	2,653	3,159	19.1%	0.7%
Total	5,088	6,260	23.0%	0.8%	6,013	7,285	21.2%	0.8%
<u>Madison Avenue at 10th Avenue</u>								
Madison Ave Nb	207	227	9.7%	0.4%	446	512	14.8%	0.6%
Madison Ave Sb	65	149	129.2%	3.4%	99	128	29.3%	1.0%
10th Avenue Wb	909	1,084	19.3%	0.7%	1,146	1,301	13.5%	0.5%
10th Avenue Eb	771	929	20.5%	0.7%	748	934	24.9%	0.9%
Total	1,952	2,389	22.4%	0.8%	2,439	2,875	17.9%	0.7%
<u>East 18th Street at 10th Avenue</u>								
18th Street Nb	396	543	37.1%	1.3%	427	617	44.5%	1.5%
18th Street Sb	286	420	46.9%	1.5%	393	520	32.3%	1.1%
10th Avenue Wb	601	748	24.5%	0.9%	882	1,071	21.4%	0.8%
10th Avenue Eb	966	1,170	21.1%	0.8%	783	998	27.5%	1.0%
Total	2,249	2,881	28.1%	1.0%	2,485	3,206	29.0%	1.0%