

Appendix B
Traffic Counts
Ridership Projections

INTEROFFICE MEMORANDUM

TO: Dina Rybak, AICP
FROM: Haseeb Ahson
SUBJECT: HBLR Phase 3
DATE: July 10, 2012
CC:

Manual traffic counts were performed on May 22, 2012 between 7:00 AM and 10:00 AM and 4:00 PM and 7:00 PM. The counts were classified as autos, light and heavy vehicles. Bicycles and pedestrians activities were also observed.

Manual turning movement counts were performed at the following locations:

1. US Route 440 and Claremont Avenue / Shopping Center Driveway
2. Mallory Avenue (CR 611) and Claremont Avenue
3. South Side Driveway on Pollock Avenue and West Side Driveway on Mallory Avenue

The fifteen (15) minute interval traffic count data was compiled in electronic spreadsheet format. The spreadsheet also indicated peak the hour factors (PHF), and vehicle classification (volumes and percentages). The AM & PM Peak Hour and Peak Hour Volumes were determined individually at each intersection based on the total intersection traffic volume (e.g. all vehicles on all approaches).

The ATR continuous traffic counts were performed at two locations from May 21, 2012 to May 28, 2012. 7-day Automatic Traffic Recorder (ATR) counts (counts in fifteen minute intervals, summed hourly) were performed at the following locations:

1. NJ 440 NB, South of Claremont Avenue
2. NJ 440 SB, South of Claremont Avenue

The ATR data was summarized in 15 minute intervals that indicate peak hours, peak hour factors, directional splits, daily total volumes, and average volumes in 15 minute, hourly, and daily intervals.

TechniQuest Corporation

4105 US Route 1, Suite # 14
 Monmouth Junction, NJ 08852
 732.274.9500, Fax 732.274.9510

Location # 1
 Surveyor:
 ID: 5597/5460
 Weather: Clear

File Name : 042-01
 Site Code : 1
 Start Date : 5/22/2012
 Page No : 1

Groups Printed- Cars - Light Trucks - Heavy Trucks

Start Time	US Route 440 Southbound					Claremont Avenue Westbound					US Route 440 Northbound					Shopping Center Driveway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	0	350	8	0	358	0	3	25	0	28	0	453	14	0	467	0	0	0	0	0	853
07:15 AM	0	380	1	0	381	0	0	39	0	39	0	494	10	0	504	0	0	2	0	2	926
07:30 AM	0	408	2	0	410	0	0	47	0	47	0	473	27	0	500	0	0	0	0	0	957
07:45 AM	0	407	7	0	414	0	0	33	0	33	0	474	50	0	524	0	0	2	0	2	973
Total	0	1545	18	0	1563	0	3	144	0	147	0	1894	101	0	1995	0	0	4	0	4	3709
08:00 AM	0	364	8	0	372	0	0	39	0	39	0	495	40	0	535	0	0	3	0	3	949
08:15 AM	0	388	7	0	395	0	0	42	0	42	0	459	32	0	491	0	0	5	0	5	933
08:30 AM	0	372	12	0	384	0	0	35	0	35	0	432	24	0	456	0	0	8	0	8	883
08:45 AM	0	355	11	0	366	0	0	25	0	25	0	366	8	0	374	0	0	5	0	5	770
Total	0	1479	38	0	1517	0	0	141	0	141	0	1752	104	0	1856	0	0	21	0	21	3535
09:00 AM	0	337	11	0	348	0	0	32	0	32	0	321	13	0	334	0	0	9	0	9	723
09:15 AM	0	286	19	0	305	0	0	34	0	34	0	352	15	0	367	0	0	12	0	12	718
09:30 AM	0	298	13	0	311	0	0	23	0	23	0	295	18	0	313	0	0	13	0	13	660
09:45 AM	0	307	16	0	323	0	0	28	0	28	0	294	16	0	310	0	0	12	0	12	673
Total	0	1228	59	0	1287	0	0	117	0	117	0	1262	62	0	1324	0	0	46	0	46	2774
*** BREAK ***																					
04:00 PM	0	412	23	0	435	0	0	40	0	40	0	355	31	0	386	0	0	53	0	53	914
04:15 PM	0	442	27	0	469	0	0	47	0	47	0	365	17	0	382	0	0	56	0	56	954
04:30 PM	0	439	24	0	463	0	0	58	0	58	0	433	16	0	449	0	0	46	0	46	1016
04:45 PM	0	449	23	0	472	0	0	35	0	35	0	352	21	0	373	0	0	47	0	47	927
Total	0	1742	97	0	1839	0	0	180	0	180	0	1505	85	0	1590	0	0	202	0	202	3811
05:00 PM	0	430	20	0	450	0	0	48	0	48	0	438	13	0	451	0	0	58	0	58	1007
05:15 PM	0	462	23	0	485	0	0	44	0	44	0	531	15	0	546	0	0	60	0	60	1135
05:30 PM	0	451	27	0	478	0	0	42	0	42	0	488	11	0	499	0	0	58	0	58	1077
05:45 PM	0	441	35	0	476	0	0	38	0	38	0	442	15	0	457	0	0	64	0	64	1035
Total	0	1784	105	0	1889	0	0	172	0	172	0	1899	54	0	1953	0	0	240	0	240	4254
06:00 PM	0	458	32	0	490	0	0	38	0	38	0	391	13	0	404	0	0	62	0	62	994
06:15 PM	0	492	41	0	533	0	0	36	0	36	0	402	13	0	415	0	0	51	0	51	1035
06:30 PM	0	433	30	0	463	0	0	48	0	48	0	374	19	0	393	0	0	69	0	69	973
06:45 PM	0	400	23	0	423	0	0	35	0	35	0	451	15	0	466	0	0	40	0	40	964
Total	0	1783	126	0	1909	0	0	157	0	157	0	1618	60	0	1678	0	0	222	0	222	3966
Grand Total	0	9561	443	0	10004	0	3	911	0	914	0	9930	466	0	10396	0	0	735	0	735	22049
Apprch %	0	95.6	4.4	0		0	0.3	99.7	0		0	95.5	4.5	0		0	0	100	0		
Total %	0	43.4	2	0	45.4	0	0	4.1	0	4.1	0	45	2.1	0	47.1	0	0	3.3	0	3.3	
Cars	0	8647	427	0	9074	0	0	875	0	875	0	9076	411	0	9487	0	0	712	0	712	20148
% Cars	0	90.4	96.4	0	90.7	0	0	96	0	95.7	0	91.4	88.2	0	91.3	0	0	96.9	0	96.9	91.4

TechniQuest Corporation

4105 US Route 1, Suite # 14
 Monmouth Junction, NJ 08852
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Location # 1
 Surveyor:
 ID: 5597/5460
 Weather: Clear

File Name : 042-01
 Site Code : 1
 Start Date : 5/22/2012
 Page No : 2

Groups Printed- Cars - Light Trucks - Heavy Trucks

	US Route 440 Southbound					Claremont Avenue Westbound					US Route 440 Northbound					Shopping Center Driveway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Light Trucks	0	245	6	0	251	0	2	21	0	23	0	229	20	0	249	0	0	17	0	17	540
% Light Trucks	0	2.6	1.4	0	2.5	0	66.7	2.3	0	2.5	0	2.3	4.3	0	2.4	0	0	2.3	0	2.3	2.4
Heavy Trucks	0	669	10	0	679	0	1	15	0	16	0	625	35	0	660	0	0	6	0	6	1361
% Heavy Trucks	0	7	2.3	0	6.8	0	33.3	1.6	0	1.8	0	6.3	7.5	0	6.3	0	0	0.8	0	0.8	6.2

Start Time	US Route 440 Southbound					Claremont Avenue Westbound					US Route 440 Northbound					Shopping Center Driveway Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 10:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	408	2	0	410	0	0	47	0	47	0	473	27	0	500	0	0	0	0	0	957
07:45 AM	0	407	7	0	414	0	0	33	0	33	0	474	50	0	524	0	0	2	0	2	973
08:00 AM	0	364	8	0	372	0	0	39	0	39	0	495	40	0	535	0	0	3	0	3	949
08:15 AM	0	388	7	0	395	0	0	42	0	42	0	459	32	0	491	0	0	5	0	5	933
Total Volume	0	1567	24	0	1591	0	0	161	0	161	0	1901	149	0	2050	0	0	10	0	10	3812
% App. Total	0	98.5	1.5	0		0	0	100	0		0	92.7	7.3	0		0	0	100	0		
PHF	.000	.960	.750	.000	.961	.000	.000	.856	.000	.856	.000	.960	.745	.000	.958	.000	.000	.500	.000	.500	.979

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 05:00 PM

05:00 PM	0	430	20	0	450	0	0	48	0	48	0	438	13	0	451	0	0	58	0	58	1007
05:15 PM	0	462	23	0	485	0	0	44	0	44	0	531	15	0	546	0	0	60	0	60	1135
05:30 PM	0	451	27	0	478	0	0	42	0	42	0	488	11	0	499	0	0	58	0	58	1077
05:45 PM	0	441	35	0	476	0	0	38	0	38	0	442	15	0	457	0	0	64	0	64	1035
Total Volume	0	1784	105	0	1889	0	0	172	0	172	0	1899	54	0	1953	0	0	240	0	240	4254
% App. Total	0	94.4	5.6	0		0	0	100	0		0	97.2	2.8	0		0	0	100	0		
PHF	.000	.965	.750	.000	.974	.000	.000	.896	.000	.896	.000	.894	.900	.000	.894	.000	.000	.938	.000	.938	.937



TechniQuest Corporation

4105 US Route 1, Suite # 14
Monmouth Junction, NJ 08852
732.274.9500, Fax 732.274.9510

Site Code: 042-01
Station ID: 12150
NJ 440 NB
South of Claremont Avenue
Latitude: 0' 0.000 Undefined

Start Time	21-May-12		Tue		Wed		Thu		Fri		Sat		Sun		Average Day														
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.													
12:00	*	*	81	373	75	380	87	367	79	423	135	395	88	296	91	372													
12:15	*	*	49	385	51	381	77	358	69	489	106	362	55	306	68	380													
12:30	*	*	59	431	58	352	64	373	62	401	93	327	67	343	67	371													
12:45	*	357	38	418	59	336	48	376	72	436	85	317	42	332	57	367													
01:00	*	386	35	388	50	366	50	356	52	477	68	314	40	308	49	371													
01:15	*	360	29	403	50	400	40	384	48	448	67	334	36	320	45	378													
01:30	*	383	46	393	36	388	56	365	43	398	53	324	50	313	47	366													
01:45	*	371	26	381	42	370	47	378	43	457	60	373	28	303	41	376													
02:00	*	428	34	418	40	434	31	361	48	426	45	305	40	332	40	386													
02:15	*	350	29	391	42	389	41	384	57	479	57	315	38	311	44	374													
02:30	*	361	27	417	31	421	32	402	49	452	57	330	35	332	38	388													
02:45	*	378	35	438	48	371	39	382	48	485	44	357	42	348	43	394													
03:00	*	409	28	430	48	443	49	443	40	477	57	337	34	342	43	412													
03:15	*	386	54	407	54	426	52	439	54	469	46	325	59	324	53	397													
03:30	*	373	60	425	51	400	75	422	65	417	62	283	66	338	63	380													
03:45	*	324	52	386	69	374	67	415	61	346	34	382	59	307	57	362													
04:00	*	438	93	441	72	436	74	411	66	251	52	341	101	351	76	381													
04:15	*	391	75	425	93	425	94	402	77	354	64	303	84	338	81	377													
04:30	*	348	105	453	91	425	102	380	101	268	56	281	109	305	94	351													
04:45	*	322	116	389	129	414	102	351	107	319	56	350	121	309	105	351													
05:00	*	401	143	462	169	442	126	384	147	366	83	334	149	314	136	386													
05:15	*	383	178	552	186	420	200	431	171	386	85	269	185	369	168	401													
05:30	*	308	197	503	196	381	209	388	201	367	93	267	205	312	184	361													
05:45	*	306	200	467	238	356	248	362	207	337	71	251	209	273	196	336													
06:00	*	288	314	408	294	391	305	363	263	360	105	292	250	270	255	339													
06:15	*	335	349	411	345	365	346	353	332	399	146	262	277	300	299	346													
06:30	*	301	377	398	403	330	410	366	381	376	194	255	300	276	344	329													
06:45	*	292	406	435	428	310	398	310	324	366	149	255	323	242	338	316													
07:00	*	292	472	401	440	322	451	322	385	353	179	242	346	254	379	312													
07:15	*	277	501	308	485	292	477	291	457	347	178	265	377	231	412	287													
07:30	*	304	495	289	488	290	476	315	412	371	206	192	337	230	402	284													
07:45	*	220	514	236	448	293	473	281	425	364	196	210	352	188	401	256													
08:00	*	241	497	250	411	236	433	258	399	345	182	174	326	199	375	243													
08:15	*	199	490	253	450	227	388	302	399	325	245	177	327	202	383	241													
08:30	*	203	459	239	464	246	369	236	369	316	251	183	320	190	372	230													
08:45	*	210	384	218	407	224	393	218	365	287	274	169	271	173	349	214													
09:00	*	194	341	226	359	212	343	248	412	308	262	166	246	180	327	219													
09:15	*	190	369	200	322	240	329	234	400	251	277	157	285	159	330	204													
09:30	*	180	341	191	349	223	335	195	361	255	316	153	271	152	329	193													
09:45	*	176	316	174	362	197	370	208	336	223	357	128	252	139	332	178													
10:00	*	147	290	173	373	194	344	191	382	235	384	124	231	138	334	172													
10:15	*	142	319	174	364	178	337	182	436	227	338	146	254	139	341	170													
10:30	*	167	353	171	326	175	328	207	460	221	359	104	281	136	351	169													
10:45	*	119	366	134	359	145	275	125	486	171	384	98	291	107	360	128													
11:00	*	112	338	136	402	137	359	146	485	180	388	72	269	109	374	127													
11:15	*	82	333	113	357	122	332	114	499	154	400	68	264	90	364	106													
11:30	*	78	340	111	413	103	326	100	458	140	376	86	270	88	364	101													
11:45	*	99	394	86	353	70	345	117	469	148	354	0	314	68	372	84													
Total	0	12611	11147	15911	11380	15052	10952	14996	11662	16450	8129	11754	8976	11986	10373	14266													
Day Total	12611		27058		26432		25948		28112		19883		20962		24639														
% Splits	0.0%	100.0%	41.2%	58.8%	43.1%	56.9%	42.2%	57.8%	41.5%	58.5%	40.9%	59.1%	42.8%	57.2%	42.1%	57.9%													
Peak Vol.	02:45	1546	07:15	2007	05:00	1984	07:00	1861	04:15	1706	07:00	1877	03:00	1719	1930	1893	1548	1401	1412	1352	1594	1591							
P.H.F.	0.903		0.976		0.899		0.953		0.965		0.984		0.970		0.967		0.976		0.968		0.887		0.936		0.971		0.967		0.965



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Site Code: 042-01
Station ID: 12150
NJ 440 NB
South of Claremont Avenue
Latitude: 0' 0.000 Undefined

Start Time	28-May-12		Tue		Wed		Thu		Fri		Sat		Sun		Average Day	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	52	265	*	*	*	*	*	*	*	*	*	*	*	*	52	265
12:15	35	266	*	*	*	*	*	*	*	*	*	*	*	*	35	266
12:30	40	245	*	*	*	*	*	*	*	*	*	*	*	*	40	245
12:45	41	234	*	*	*	*	*	*	*	*	*	*	*	*	41	234
01:00	35	255	*	*	*	*	*	*	*	*	*	*	*	*	35	255
01:15	35	*	*	*	*	*	*	*	*	*	*	*	*	*	35	*
01:30	25	*	*	*	*	*	*	*	*	*	*	*	*	*	25	*
01:45	30	*	*	*	*	*	*	*	*	*	*	*	*	*	30	*
02:00	28	*	*	*	*	*	*	*	*	*	*	*	*	*	28	*
02:15	30	*	*	*	*	*	*	*	*	*	*	*	*	*	30	*
02:30	22	*	*	*	*	*	*	*	*	*	*	*	*	*	22	*
02:45	33	*	*	*	*	*	*	*	*	*	*	*	*	*	33	*
03:00	33	*	*	*	*	*	*	*	*	*	*	*	*	*	33	*
03:15	38	*	*	*	*	*	*	*	*	*	*	*	*	*	38	*
03:30	35	*	*	*	*	*	*	*	*	*	*	*	*	*	35	*
03:45	48	*	*	*	*	*	*	*	*	*	*	*	*	*	48	*
04:00	50	*	*	*	*	*	*	*	*	*	*	*	*	*	50	*
04:15	65	*	*	*	*	*	*	*	*	*	*	*	*	*	65	*
04:30	63	*	*	*	*	*	*	*	*	*	*	*	*	*	63	*
04:45	89	*	*	*	*	*	*	*	*	*	*	*	*	*	89	*
05:00	117	*	*	*	*	*	*	*	*	*	*	*	*	*	117	*
05:15	130	*	*	*	*	*	*	*	*	*	*	*	*	*	130	*
05:30	137	*	*	*	*	*	*	*	*	*	*	*	*	*	137	*
05:45	167	*	*	*	*	*	*	*	*	*	*	*	*	*	167	*
06:00	204	*	*	*	*	*	*	*	*	*	*	*	*	*	204	*
06:15	241	*	*	*	*	*	*	*	*	*	*	*	*	*	241	*
06:30	280	*	*	*	*	*	*	*	*	*	*	*	*	*	280	*
06:45	298	*	*	*	*	*	*	*	*	*	*	*	*	*	298	*
07:00	307	*	*	*	*	*	*	*	*	*	*	*	*	*	307	*
07:15	287	*	*	*	*	*	*	*	*	*	*	*	*	*	287	*
07:30	291	*	*	*	*	*	*	*	*	*	*	*	*	*	291	*
07:45	301	*	*	*	*	*	*	*	*	*	*	*	*	*	301	*
08:00	286	*	*	*	*	*	*	*	*	*	*	*	*	*	286	*
08:15	277	*	*	*	*	*	*	*	*	*	*	*	*	*	277	*
08:30	294	*	*	*	*	*	*	*	*	*	*	*	*	*	294	*
08:45	284	*	*	*	*	*	*	*	*	*	*	*	*	*	284	*
09:00	250	*	*	*	*	*	*	*	*	*	*	*	*	*	250	*
09:15	224	*	*	*	*	*	*	*	*	*	*	*	*	*	224	*
09:30	243	*	*	*	*	*	*	*	*	*	*	*	*	*	243	*
09:45	252	*	*	*	*	*	*	*	*	*	*	*	*	*	252	*
10:00	259	*	*	*	*	*	*	*	*	*	*	*	*	*	259	*
10:15	253	*	*	*	*	*	*	*	*	*	*	*	*	*	253	*
10:30	227	*	*	*	*	*	*	*	*	*	*	*	*	*	227	*
10:45	250	*	*	*	*	*	*	*	*	*	*	*	*	*	250	*
11:00	280	*	*	*	*	*	*	*	*	*	*	*	*	*	280	*
11:15	249	*	*	*	*	*	*	*	*	*	*	*	*	*	249	*
11:30	287	*	*	*	*	*	*	*	*	*	*	*	*	*	287	*
11:45	246	*	*	*	*	*	*	*	*	*	*	*	*	*	246	*
Total	7748	1265	0	0	0	0	0	0	0	0	0	0	0	0	7748	1265
Day Total	9013		0		0		0		0		0		0		9013	
% Splits	86.0%	14.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	86.0%	14.0%
Peak	07:00	12:00														
Vol.	1186	1010														
P.H.F.	0.966	0.949														

ADT ADT 24,187 AADT 24,187

TechniQuest Corporation

4105 US Route 1, Suite # 14
 Monmouth Junction, NJ 08852
 732.274.9500, Fax 732.274.9510

Location # 2
 Surveyor:
 ID: 5605
 Weather: Clear

File Name : 042-02
 Site Code : 2
 Start Date : 5/22/2012
 Page No : 1

Groups Printed- Cars - Light Trucks - Heavy Trucks

Start Time	Mallory Avenue (CR 611) Southbound					Claremont Avenue Westbound					Mallory Avenue (CR 611) Northbound					Claremont Avenue Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	25	34	2	0	61	1	14	8	0	23	12	38	11	0	61	1	11	1	0	13	158
07:15 AM	37	26	4	0	67	0	15	8	0	23	27	58	14	0	99	1	9	2	0	12	201
07:30 AM	33	43	2	0	78	1	25	15	0	41	20	72	15	0	107	11	16	1	0	28	254
07:45 AM	36	25	5	0	66	5	10	17	0	32	20	82	13	0	115	22	13	2	1	38	251
Total	131	128	13	0	272	7	64	48	0	119	79	250	53	0	382	35	49	6	1	91	864
08:00 AM	29	41	5	0	75	6	17	18	0	41	14	71	19	2	106	20	24	2	0	46	268
08:15 AM	23	44	2	0	69	5	15	22	0	42	17	57	21	1	96	12	16	0	0	28	235
08:30 AM	23	30	8	0	61	6	15	10	0	31	6	33	27	1	67	5	15	1	0	21	180
08:45 AM	19	41	4	0	64	6	17	22	0	45	9	60	16	1	86	1	9	0	0	10	205
Total	94	156	19	0	269	23	64	72	0	159	46	221	83	5	355	38	64	3	0	105	888
09:00 AM	11	40	5	0	56	6	17	8	0	31	14	41	12	0	67	3	11	0	0	14	168
09:15 AM	7	27	1	0	35	3	13	10	0	26	13	29	7	0	49	0	13	0	0	13	123
09:30 AM	15	34	5	0	54	3	14	6	0	23	3	30	9	0	42	4	10	3	0	17	136
09:45 AM	18	33	2	0	53	3	13	6	0	22	9	14	4	0	27	3	5	4	0	12	114
Total	51	134	13	0	198	15	57	30	0	102	39	114	32	0	185	10	39	7	0	56	541
*** BREAK ***																					
04:00 PM	25	51	1	0	77	2	31	14	0	47	13	41	9	0	63	4	14	4	0	22	209
04:15 PM	26	75	3	0	104	2	35	21	0	58	15	31	4	0	50	5	7	3	0	15	227
04:30 PM	28	56	7	0	91	3	32	22	0	57	21	54	5	0	80	5	5	2	0	12	240
04:45 PM	31	65	6	0	102	7	21	17	0	45	10	45	14	0	69	1	12	4	0	17	233
Total	110	247	17	0	374	14	119	74	0	207	59	171	32	0	262	15	38	13	0	66	909
05:00 PM	37	76	4	0	117	10	33	19	0	62	12	57	5	0	74	4	6	2	0	12	265
05:15 PM	24	75	8	0	107	5	22	13	0	40	11	50	4	0	65	4	10	1	0	15	227
05:30 PM	37	63	6	0	106	6	24	14	0	44	13	38	8	0	59	2	7	3	0	12	221
05:45 PM	29	62	5	0	96	4	26	21	0	51	10	52	6	0	68	4	5	4	0	13	228
Total	127	276	23	0	426	25	105	67	0	197	46	197	23	0	266	14	28	10	0	52	941
06:00 PM	26	72	9	0	107	5	26	19	0	50	8	37	7	0	52	3	8	1	0	12	221
06:15 PM	17	65	3	0	85	7	23	11	0	41	7	32	4	0	43	4	8	2	0	14	183
06:30 PM	28	60	6	0	94	5	28	21	0	54	5	28	6	0	39	5	7	7	0	19	206
06:45 PM	25	48	4	0	77	3	20	15	0	38	9	26	1	0	36	3	9	0	0	12	163
Total	96	245	22	0	363	20	97	66	0	183	29	123	18	0	170	15	32	10	0	57	773
Grand Total	609	1186	107	0	1902	104	506	357	0	967	298	1076	241	5	1620	127	250	49	1	427	4916
Apprch %	32	62.4	5.6	0		10.8	52.3	36.9	0		18.4	66.4	14.9	0.3		29.7	58.5	11.5	0.2		
Total %	12.4	24.1	2.2	0	38.7	2.1	10.3	7.3	0	19.7	6.1	21.9	4.9	0.1	33	2.6	5.1	1	0	8.7	
Cars	599	1148	103	0	1850	100	489	337	0	926	293	1058	235	0	1586	123	229	47	0	399	4761
% Cars	98.4	96.8	96.3	0	97.3	96.2	96.6	94.4	0	95.8	98.3	98.3	97.5	0	97.9	96.9	91.6	95.9	0	93.4	96.8

TechniQuest Corporation

4105 US Route 1, Suite # 14
 Monmouth Junction, NJ 08852
 732.274.9500, Fax 732.274.9510

Location # 2
 Surveyor:
 ID: 5605
 Weather: Clear

File Name : 042-02
 Site Code : 2
 Start Date : 5/22/2012
 Page No : 2

Groups Printed- Cars - Light Trucks - Heavy Trucks

	Mallory Avenue (CR 611) Southbound					Claremont Avenue Westbound					Mallory Avenue (CR 611) Northbound					Claremont Avenue Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Light Trucks	10	35	2	0	47	3	13	20	0	36	3	18	6	0	27	3	16	2	1	22	132
% Light Trucks	1.6	3	1.9	0	2.5	2.9	2.6	5.6	0	3.7	1	1.7	2.5	0	1.7	2.4	6.4	4.1	100	5.2	2.7
Heavy Trucks	0	3	2	0	5	1	4	0	0	5	2	0	0	5	7	1	5	0	0	6	23
% Heavy Trucks	0	0.3	1.9	0	0.3	1	0.8	0	0	0.5	0.7	0	0	100	0.4	0.8	2	0	0	1.4	0.5

Start Time	Mallory Avenue (CR 611) Southbound					Claremont Avenue Westbound					Mallory Avenue (CR 611) Northbound					Claremont Avenue Eastbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 10:00 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	33	43	2	0	78	1	25	15	0	41	20	72	15	0	107	11	16	1	0	28	254
07:45 AM	36	25	5	0	66	5	10	17	0	32	20	82	13	0	115	22	13	2	1	38	251
08:00 AM	29	41	5	0	75	6	17	18	0	41	14	71	19	2	106	20	24	2	0	46	268
08:15 AM	23	44	2	0	69	5	15	22	0	42	17	57	21	1	96	12	16	0	0	28	235
Total Volume	121	153	14	0	288	17	67	72	0	156	71	282	68	3	424	65	69	5	1	140	1008
% App. Total	42	53.1	4.9	0		10.9	42.9	46.2	0		16.7	66.5	16	0.7		46.4	49.3	3.6	0.7		
PHF	.840	.869	.700	.000	.923	.708	.670	.818	.000	.929	.888	.860	.810	.375	.922	.739	.719	.625	.250	.761	.940

Peak Hour Analysis From 04:00 PM to 06:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:15 PM

04:15 PM	26	75	3	0	104	2	35	21	0	58	15	31	4	0	50	5	7	3	0	15	227
04:30 PM	28	56	7	0	91	3	32	22	0	57	21	54	5	0	80	5	5	2	0	12	240
04:45 PM	31	65	6	0	102	7	21	17	0	45	10	45	14	0	69	1	12	4	0	17	233
05:00 PM	37	76	4	0	117	10	33	19	0	62	12	57	5	0	74	4	6	2	0	12	265
Total Volume	122	272	20	0	414	22	121	79	0	222	58	187	28	0	273	15	30	11	0	56	965
% App. Total	29.5	65.7	4.8	0		9.9	54.5	35.6	0		21.2	68.5	10.3	0		26.8	53.6	19.6	0		
PHF	.824	.895	.714	.000	.885	.550	.864	.898	.000	.895	.690	.820	.500	.000	.853	.750	.625	.688	.000	.824	.910



TechniQuest Corporation

4105 US Route 1, Suite # 14
Monmouth Junction, NJ 08852
732.274.9500, Fax 732.274.9510

Site Code: 042-02
Station ID: 05750
NJ 440 SB

South of Claremont Avenue
Latitude: 0' 0.000 Undefined

Start Time	21-May-12		Tue		Wed		Thu		Fri		Sat		Sun		Average Day	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	*	*	108	356	146	362	151	427	128	451	199	312	128	239	143	358
12:15	*	*	88	469	147	478	153	365	115	470	192	411	94	315	132	418
12:30	*	381	83	442	110	450	117	298	103	520	157	387	87	296	110	396
12:45	*	394	75	412	129	419	137	430	95	523	111	361	64	276	102	402
01:00	*	333	64	333	98	339	107	405	84	450	93	292	56	223	84	339
01:15	*	345	56	399	74	404	82	350	75	554	117	349	49	267	76	381
01:30	*	380	54	426	91	432	98	423	54	534	98	373	47	285	74	408
01:45	*	390	51	531	62	538	68	409	64	549	73	465	45	356	60	463
02:00	*	360	45	413	62	421	69	382	52	490	82	362	39	277	58	386
02:15	*	380	47	451	53	453	61	373	63	561	71	552	41	423	56	456
02:30	*	394	46	475	51	482	54	425	60	595	78	523	40	400	55	471
02:45	*	402	41	447	47	453	55	428	56	632	65	613	36	469	50	492
03:00	*	359	30	430	37	435	46	423	55	584	72	578	26	442	44	464
03:15	*	395	40	462	42	466	50	420	47	620	69	631	35	483	47	497
03:30	*	389	35	472	38	475	45	401	56	603	63	678	31	519	45	505
03:45	*	437	60	445	66	448	72	449	61	556	52	665	53	509	61	501
04:00	*	397	47	487	52	491	57	421	52	582	58	606	41	464	51	493
04:15	*	416	77	471	81	476	85	444	61	603	59	594	67	455	72	494
04:30	*	450	88	462	91	468	94	466	94	592	47	661	77	506	82	515
04:45	*	449	123	478	127	485	130	461	110	550	65	668	108	511	110	515
05:00	*	416	123	495	128	503	132	435	127	567	46	682	108	522	111	517
05:15	*	449	173	501	175	510	180	457	184	565	70	760	151	582	156	546
05:30	*	445	226	512	233	520	239	460	201	565	69	716	198	548	194	538
05:45	*	445	270	493	272	500	279	492	202	493	82	650	236	498	224	510
06:00	*	457	297	537	299	543	307	466	264	523	101	665	260	509	255	529
06:15	*	425	353	559	361	564	370	438	262	484	103	652	309	499	293	517
06:30	*	410	356	401	358	405	366	389	342	519	130	575	312	440	311	448
06:45	*	415	366	466	372	469	379	422	348	515	125	570	320	436	318	470
07:00	*	365	364	442	366	446	372	406	328	416	143	533	319	408	315	431
07:15	*	356	439	511	443	516	448	351	390	451	171	501	384	383	379	438
07:30	*	327	462	539	465	495	469	352	342	426	183	472	404	361	388	425
07:45	*	320	486	470	490	475	493	330	370	430	191	411	425	315	409	393
08:00	*	289	408	428	413	432	417	329	341	374	182	375	357	287	353	359
08:15	*	296	416	458	422	461	427	355	371	351	210	401	364	307	368	376
08:30	*	301	401	496	408	499	414	376	380	385	239	434	351	332	366	403
08:45	*	277	397	425	405	429	412	289	385	354	231	372	348	285	363	347
09:00	*	237	376	408	379	413	387	343	322	347	218	357	329	273	335	340
09:15	*	295	315	380	309	386	318	295	330	319	298	333	269	255	306	323
09:30	*	244	341	349	346	356	348	254	366	267	299	306	229	234	322	287
09:45	*	211	377	334	383	342	386	263	358	286	330	292	253	223	348	279
10:00	*	199	323	320	330	329	334	232	377	288	283	280	217	214	311	266
10:15	*	207	363	321	369	329	374	221	361	245	318	281	243	189	338	256
10:30	*	155	370	295	378	302	384	172	348	267	324	258	248	167	342	231
10:45	*	159	364	290	368	296	375	198	390	267	319	254	244	159	343	232
11:00	*	172	348	246	353	251	361	190	456	238	305	215	233	137	343	207
11:15	*	164	381	205	388	209	395	199	520	248	334	179	256	105	379	187
11:30	*	142	351	225	355	228	374	187	476	240	307	197	235	94	350	188
11:45	*	119	352	231	354	235	385	155	508	209	308	202	236	87	357	177
Total	0	15348	11056	20198	11526	20418	11856	17256	11134	21658	7740	22004	9002	16564	10389	19174
Day Total	15348		31254		31944		29112		32792		29744		25566		29563	
% Splits	0.0%	100.0%	35.4%	64.6%	36.1%	63.9%	40.7%	59.3%	34.0%	66.0%	26.0%	74.0%	35.2%	64.8%	35.1%	64.9%
Peak Vol.		05:15	07:15	05:30	07:15	05:30	07:15	05:15	11:00	02:45	10:30	04:45	07:15	04:45	07:15	05:15
P.H.F.		0.982	0.923	0.940	0.924	0.943	0.926	0.953	0.942	0.965	0.960	0.930	0.924	0.929	0.935	0.972



TechniQuest Corporation

4105 US Route 1, Suite # 14
Monmouth Junction, NJ 08852
732.274.9500, Fax 732.274.9510

Site Code: 042-02
Station ID: 05750
NJ 440 SB

South of Claremont Avenue
Latitude: 0' 0.000 Undefined

Start Time	28-May-12		Tue		Wed		Thu		Fri		Sat		Sun		Average Day	
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
12:00	64	161	*	*	*	*	*	*	*	*	*	*	*	*	64	161
12:15	52	213	*	*	*	*	*	*	*	*	*	*	*	*	52	213
12:30	49	200	*	*	*	*	*	*	*	*	*	*	*	*	49	200
12:45	45	186	*	*	*	*	*	*	*	*	*	*	*	*	45	186
01:00	38	151	*	*	*	*	*	*	*	*	*	*	*	*	38	151
01:15	33	148	*	*	*	*	*	*	*	*	*	*	*	*	33	148
01:30	32	159	*	*	*	*	*	*	*	*	*	*	*	*	32	159
01:45	30	163	*	*	*	*	*	*	*	*	*	*	*	*	30	163
02:00	26	*	*	*	*	*	*	*	*	*	*	*	*	*	26	*
02:15	28	*	*	*	*	*	*	*	*	*	*	*	*	*	28	*
02:30	27	*	*	*	*	*	*	*	*	*	*	*	*	*	27	*
02:45	24	*	*	*	*	*	*	*	*	*	*	*	*	*	24	*
03:00	18	*	*	*	*	*	*	*	*	*	*	*	*	*	18	*
03:15	24	*	*	*	*	*	*	*	*	*	*	*	*	*	24	*
03:30	21	*	*	*	*	*	*	*	*	*	*	*	*	*	21	*
03:45	36	*	*	*	*	*	*	*	*	*	*	*	*	*	36	*
04:00	28	*	*	*	*	*	*	*	*	*	*	*	*	*	28	*
04:15	45	*	*	*	*	*	*	*	*	*	*	*	*	*	45	*
04:30	52	*	*	*	*	*	*	*	*	*	*	*	*	*	52	*
04:45	73	*	*	*	*	*	*	*	*	*	*	*	*	*	73	*
05:00	73	*	*	*	*	*	*	*	*	*	*	*	*	*	73	*
05:15	102	*	*	*	*	*	*	*	*	*	*	*	*	*	102	*
05:30	134	*	*	*	*	*	*	*	*	*	*	*	*	*	134	*
05:45	159	*	*	*	*	*	*	*	*	*	*	*	*	*	159	*
06:00	176	*	*	*	*	*	*	*	*	*	*	*	*	*	176	*
06:15	209	*	*	*	*	*	*	*	*	*	*	*	*	*	209	*
06:30	211	*	*	*	*	*	*	*	*	*	*	*	*	*	211	*
06:45	216	*	*	*	*	*	*	*	*	*	*	*	*	*	216	*
07:00	215	*	*	*	*	*	*	*	*	*	*	*	*	*	215	*
07:15	259	*	*	*	*	*	*	*	*	*	*	*	*	*	259	*
07:30	273	*	*	*	*	*	*	*	*	*	*	*	*	*	273	*
07:45	287	*	*	*	*	*	*	*	*	*	*	*	*	*	287	*
08:00	241	*	*	*	*	*	*	*	*	*	*	*	*	*	241	*
08:15	246	*	*	*	*	*	*	*	*	*	*	*	*	*	246	*
08:30	237	*	*	*	*	*	*	*	*	*	*	*	*	*	237	*
08:45	235	*	*	*	*	*	*	*	*	*	*	*	*	*	235	*
09:00	222	*	*	*	*	*	*	*	*	*	*	*	*	*	222	*
09:15	182	*	*	*	*	*	*	*	*	*	*	*	*	*	182	*
09:30	155	*	*	*	*	*	*	*	*	*	*	*	*	*	155	*
09:45	171	*	*	*	*	*	*	*	*	*	*	*	*	*	171	*
10:00	147	*	*	*	*	*	*	*	*	*	*	*	*	*	147	*
10:15	164	*	*	*	*	*	*	*	*	*	*	*	*	*	164	*
10:30	167	*	*	*	*	*	*	*	*	*	*	*	*	*	167	*
10:45	165	*	*	*	*	*	*	*	*	*	*	*	*	*	165	*
11:00	157	*	*	*	*	*	*	*	*	*	*	*	*	*	157	*
11:15	173	*	*	*	*	*	*	*	*	*	*	*	*	*	173	*
11:30	159	*	*	*	*	*	*	*	*	*	*	*	*	*	159	*
11:45	159	*	*	*	*	*	*	*	*	*	*	*	*	*	159	*
Total	6039	1381	0	0	0	0	0	0	0	0	0	0	0	0	6039	1381
Day Total	7420		0		0		0		0		0		0		7420	
% Splits	81.4%	18.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	81.4%	18.6%
Peak	07:15	12:00														
Vol.	1060	760														
P.H.F.	0.923	0.892														

ADT ADT 28,709 AADT 28,709

TechniQuest Corporation

4105 US Route 1, Suite # 14
 Monmouth Junction, NJ 08852
 732.274.9500, Fax 732.274.9510

Location # 3
 Surveyor:
 ID: 5607
 Weather: Clear

File Name : 042-03
 Site Code : 3
 Start Date : 5/22/2012
 Page No : 1

Groups Printed- Cars - Light Trucks - Heavy Trucks

Start Time	South Side Driveway on Pollock Avenue Southbound					West Side Driveway on Mallory Avenue Westbound					North Side Driveway on Claremont Avenue Northbound					Eastbound					Int. Total
	In from Pollock Ave.	Out to Pollock Ave.	Right	Peds	App. Total	Left	Thru	Out to Mallory Ave.	Peds	App. Total	LT In from Claremont Ave.	RT In from Claremont Ave.	RT Out to Claremont Ave.	LT Out to Claremont Ave.	App. Total	Left	Thru	Right	Peds	App. Total	
07:00 AM	5	1	0	0	6	0	0	0	0	0	3	2	0	0	5	0	0	0	0	0	11
07:15 AM	7	0	0	0	7	0	0	0	0	0	7	3	0	0	10	0	0	0	0	0	17
07:30 AM	3	2	0	0	5	0	0	1	0	1	5	4	0	1	10	0	0	0	0	0	16
07:45 AM	5	1	0	0	6	0	0	0	0	0	10	6	0	1	17	0	0	0	0	0	23
Total	20	4	0	0	24	0	0	1	0	1	25	15	0	2	42	0	0	0	0	0	67
08:00 AM	4	0	0	0	4	0	0	0	0	0	6	3	0	0	9	0	0	0	0	0	13
08:15 AM	3	1	0	0	4	0	0	1	0	1	6	2	1	1	10	0	0	0	0	0	15
08:30 AM	6	1	0	0	7	0	0	0	0	0	13	6	1	1	21	0	0	0	0	0	28
08:45 AM	2	0	0	0	2	0	0	0	0	0	7	2	1	0	10	0	0	0	0	0	12
Total	15	2	0	0	17	0	0	1	0	1	32	13	3	2	50	0	0	0	0	0	68
09:00 AM	1	2	0	0	3	0	0	0	0	0	5	1	0	0	6	0	0	0	0	0	9
09:15 AM	3	1	0	0	4	0	0	1	0	1	1	2	0	0	3	0	0	0	0	0	8
09:30 AM	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
09:45 AM	2	1	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	4
Total	9	4	0	0	13	0	0	1	0	1	7	3	1	0	11	0	0	0	0	0	25
*** BREAK ***																					
04:00 PM	0	4	0	0	4	0	0	1	0	1	2	2	0	1	5	0	0	0	0	0	10
04:15 PM	0	0	0	0	0	0	0	2	0	2	0	0	1	6	7	0	0	0	0	0	9
04:30 PM	0	3	0	0	3	0	0	0	0	0	0	3	0	2	5	0	0	0	0	0	8
04:45 PM	4	3	0	0	7	0	0	3	0	3	1	1	5	3	10	0	0	0	0	0	20
Total	4	10	0	0	14	0	0	6	0	6	3	6	6	12	27	0	0	0	0	0	47
05:00 PM	0	3	0	0	3	0	0	3	0	3	2	3	9	6	20	0	0	0	0	0	26
05:15 PM	1	4	0	0	5	0	0	0	0	0	2	0	5	4	11	0	0	0	0	0	16
05:30 PM	1	7	0	0	8	0	0	1	0	1	2	1	3	9	15	0	0	0	0	0	24
05:45 PM	1	4	0	0	5	0	0	4	0	4	0	1	6	4	11	0	0	0	0	0	20
Total	3	18	0	0	21	0	0	8	0	8	6	5	23	23	57	0	0	0	0	0	86
06:00 PM	5	7	0	0	12	0	0	2	0	2	2	0	12	5	19	0	0	0	0	0	33
06:15 PM	1	3	0	0	4	0	0	0	0	0	1	0	3	4	8	0	0	0	0	0	12
06:30 PM	0	3	0	0	3	0	0	0	0	0	1	0	1	2	4	0	0	0	0	0	7
06:45 PM	1	9	0	0	10	0	0	3	0	3	1	2	6	9	18	0	0	0	0	0	31
Total	7	22	0	0	29	0	0	5	0	5	5	2	22	20	49	0	0	0	0	0	83
Grand Total	58	60	0	0	118	0	0	22	0	22	78	44	55	59	236	0	0	0	0	0	376
Apprch %	49.2	50.8	0	0		0	0	100	0		33.1	18.6	23.3	25		0	0	0	0		
Total %	15.4	16	0	0	31.4	0	0	5.9	0	5.9	20.7	11.7	14.6	15.7	62.8	0	0	0	0	0	



TECHNICAL MEMORANDUM

To: Jeremy Colangelo-Bryan
From: Christopher M. Calvert, AICP
Date: December 21, 2010
Re: **Hudson-Bergen Light Rail (HBLR) Route 440 Extension Alternatives Analysis: Ridership Forecasts**
cc: Julie Cowing (AKRF)

1 INTRODUCTION

The North Jersey Transit Demand Forecasting Model (NJTDFM) was used to estimate ridership that would be generated as a result of a proposed extension of the Hudson-Bergen Light Rail (HBLR). Two proposed developments are anticipated to generate new riders to the system—Bayfront and the New Jersey City University (NJCU) West Campus. Ridership from Bayfront would board and alight the HBLR at a new Bayfront Station (Alternatives 1A and 1C), a new Route 440 East Station (Alternative 1D), or the existing West Side Avenue Station (Baseline and TSM Alternatives), depending on the alternative being considered. Estimates of new HBLR riders resulting from the construction of the NJCU West Campus were generated using off-model procedures. In the latter case, although there are expected to be some new HBLR riders at West Side Avenue Station, only the riders that would board at the new Route 440 East Station (Alternatives 1C and 1D) were estimated.

2 METHODOLOGY

2.1 OVERVIEW OF THE MODEL

The NJTDFM is a modified 4-step model with 3,011 traffic analysis zones (TAZs). The model includes the (12) NJTPA counties, Mercer, Ocean, Burlington and Atlantic Counties in New Jersey, the five boroughs of New York City, and Rockland and Orange Counties in New York State, and Bucks and other counties in northeastern Pennsylvania.

The TAZs are similar to the to the North Jersey Transportation Planning Agency's (NJTPA's) model, but there is more zonal detail in the Hudson County waterfront area. The model also uses the NJTPA's highway and transit networks.

In this model Steps 1 and 2 (Trip Generation and Distribution) have been replaced by a process that develops the person trip table from survey and model-derived data including:

- Trans-Hudson survey data for all modes;
- New Jersey Transit on-board transit survey data (intra-New Jersey transit travel); and
- NJDOT/NJTPA North Jersey Regional Travel Model (intra-New Jersey auto person trips).

This person trip table includes estimates of the total number of trips for each zone-to-zone combination in the modeling area. Separate tables are prepared for two time periods—peak and off-peak—and for four commuter market trip purposes—home-based work, home-based shop,

home-based other, and non-home based. The version of the model used to produce these estimates has been updated to a 2005 base year.

Regional demographic forecasts of population and employment prepared by the New York Metropolitan Transportation Council (NYMTC) and the NJTPA were used to grow the base year (2005) trip table to year 2035. For Jersey City, the 2035 trip tables were developed by disaggregating the municipal total into seven (7) super districts: Downtown, Heights, Journal Square, Marion, Bergen, Greenville and Lafayette.

Step 3, Mode Choice, estimates the share of travel occurring on each mode for each zone-to-zone combination in each trip table. The mode choice model uses a nested logit structure and was estimated from a combination of stated-preference and revealed-preference surveys. The model subdivides trips into the following modes:

- Auto
- Drive-Alone
- Share-Ride, 2 occupants
- Share-Ride, 3 occupants
- Share-Ride, 4 or more occupants
- Transit
- Walk Access
- Commuter Rail
- Light Rail Transit (e.g., Hudson Bergen LRT)
- PATH
- Bus
- Ferry
- Long Distance Ferry
- Drive Access
- Commuter Rail
- Light Rail Transit (e.g., Hudson Bergen LRT)
- PATH
- Bus
- Ferry
- Long Distance Ferry

The mode choice model computes the share of travel occurring on each mode based on the travel characteristics (time, cost, etc.), the socioeconomic characteristics of the travelers, and on the characteristics of the origin and destination pair. The level-of-analysis is at the zone level and the total demand for travel and the travel characteristic information (time and cost) are separately analyzed for each zone-to-zone combination.

In Step 4, Assignment, the zone-to-zone person trip tables are assigned to the best (shortest) path consistent with the travel mode determined in mode choice. Assignment uses network representations of the highway and transit networks. A complementary network analysis process reads these same networks prior to mode choice to develop level-of-service matrices (e.g., time and cost) to characterize each mode for each zone-to-zone combination. These level-of-service matrices are frequently referred to as skim matrices.

A critical component of the model development process is to validate its performance and develop confidence that the forecasts, in fact, match observed ridership levels. The NJTDFM has been validated against comprehensive 2005 counts (the most recent available). The validation analysis establishes that:

- Total commuter rail ridership is estimated to within 8 percent for every rail line. Midtown Manhattan activity is predicted to within 2 percent.
- Total PATH ridership is over-estimated by roughly 4 percent and the distribution of travel between the North and South tubes is properly replicated.
- Trans-Hudson bus ridership is underestimated by 2 percent.
- Total Newark City Subway ridership is over-estimated by 2 percent.
- Total HBLR ridership is over-estimated by 8 percent.

2.2 MODEL ENHANCEMENTS FOR THE HBLR ROUTE 440 ALTERNATIVES ANALYSIS

Several additional enhancements were embedded in the NJTDFM specifically to address the HBLR Route 440 Extension Alternatives Analysis.

- Two additional TAZs were created to represent the northern and southern sections of the proposed Bayfront Development and a roadway network was added within the development.
- The 2035 trip tables were re-estimated to account for the full build out of Bayfront by redistributing population and employment growth from other parts of Jersey City, including Downtown and Journal Square.
- Institute for Transportation Engineers (ITE) person trip generation rates were used as the basis to estimate the total trips that would be generated into and out of the development based on the proposed land use. Data from the NJTPA Home Interview survey and 2000 Census data were also incorporated to develop these trip generation rates by land use type and trip purpose. These trips were then distributed using Census 2000 Journey to Work patterns for similar areas in Jersey City; and
- A capacity restraint was placed on parking capacity at the West Side Avenue Station and Liberty State Park Station to ensure that the demand at those stations did not exceed the supply of parking spaces.

Finally, an off-model estimate was prepared for additional ridership that resulting from the NJCU West Campus. ITE trip rates were used to estimate the trips that would be generated by the various land uses proposed. Estimated HBLR mode shares were then applied to individual trip purposes to project the total trips that would use the proposed HBLR Route 440 Station.

3 RIDERSHIP FORECASTS

Table 1 shows the 2035 ridership forecasts at the West Side Avenue Station and two potential new stations for each of the alternatives under study. The projected total ridership (including current riders) for each alternative is as follows:

- No Action Alternative: 4,400;
- Transportation System Management (TSM) Alternative: 4,785;
- Alternative 1A (Bayfront Station only): 9,100;
- Alternative 1C (Bayfront and Route 440 Station): 9,380; and
- Alternative 1D (Route 440 Station only): 6,360.

Table 1
2035 Daily Ridership Forecasts

Station	Existing (October 2010)	No Action Alternative	TSM Alternative	Alternative 1A	Alternative 1C	Alternative 1D
West Side Ave.	1,686	4,400	4,785	2,800	2,735	3,600
Route 440 East	-	-	-	-	515	2,760
Bayfront	-	-	-	6,300	6,130	-
TOTAL	1,686	4,400	4,785	9,100	9,380	6,360
Total Increase over No Action	--	--	385	4,700	4,980	1,960

Note: The 2035 forecast includes off-model estimate of 200 additional riders from NJCU West Campus.

The TSM Alternative includes two modes of transit (HBLR and circulator bus service). The numbers shown in **Table 1** reflect only the new ridership on HBLR. As shown, the TSM Alternative results in a net increase of 385 HBLR riders as compared to the No Action Alternative. The model also projects 1,095 daily boardings on the bus service. These bus users are comprised of the 385 additional HBLR riders predicted for the TSM Alternative and 710 riders projected for the No Action Alternative that would use the circulator bus instead of walking or driving to the West Side Avenue Station.

Table 2 shows the projected peak hour capacity ratios for the maximum load link (Liberty State Park Station to Jersey Avenue Station) and the West Side Avenue Branch (Garfield Avenue Station to Liberty State Park Station).

Table 2
2035 AM Peak Hour (Northbound) Capacity Analysis

	Baseline	TSM	Alternative 1A	Alternative 1C	Alternative 1D
Maximum Load Link - Liberty State Park to Jersey Avenue					
Total Daily Riders	14,750	15,095	17,695	17,710	16,050
Peak Hour Maximum Load ^{1,2}	3,095	3,170	3,715	3,760	3,415
Peak Hour Capacity Ratio³	0.69	0.70	0.83	0.84	0.76
West Side Avenue Branch - Garfield Avenue to Liberty State Park					
Total Daily Riders	5,240	5,600	8,405	8,420	6,620
Peak Hour Maximum Load ^{2,4}	945	1,010	1,515	1,560	1,235
Peak Hour Capacity Ratio⁵	0.53	0.56	0.84	0.87	0.69

Notes:

- Assumes a peak hour daily max load ratio of 0.21, based on June 08 data
- Includes off model estimate of 42 additional peak hour riders from NJCU development
- Assumes 15 trains per hour, 300 maximum riders per train
- Assumes a peak hour:daily max load ratio of 0.18, based on June 08 data
- Assumes 6 trains per hour, 300 maximum riders per train

The projected peak hour capacity ratios for each alternative are as follows:

- Baseline: 0.69 (maximum load link) and 0.53 (West Side Avenue Branch);
- TSM: 0.70 (maximum load link) and 0.56 (West Side Avenue Branch);
- Alternative 1A: 0.83 (maximum load link) and 0.84 (West Side Avenue Branch);
- Alternative 1C: 0.84 (maximum load link) and 0.87 (West Side Avenue Branch); and

- Alternative 1D: 0.76 (maximum load link) and 0.69 (West Side Avenue t Branch).

These forecasts are the basis for the operations planning and station designs for the proposed HBLR extension, which are described in separate documentation.