DRAFT

Travel Time and Travel Speed Survey

Prepared by

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(Consultant Planning Services for NYMTC – Contract C000779)

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1.0 Introduction

The New York Metropolitan Transportation Council (NYMTC) conducted a Travel Time and Travel Speed Study to update travel time and travel speed information on regional freeways, parkways, and arterials, for use in updating NYMTC's Best Practices Model (BPM) and to support NYMTC's planning activities. The objective of the project was to collect raw travel speed and travel time data along 129 routes spread over ten counties. Travel routes are shown in Figure 1 and listed in Table 1. Route maps and summary results are listed in Appendices A – J.

Figure 1: GPS Routes in the NYMTC Region

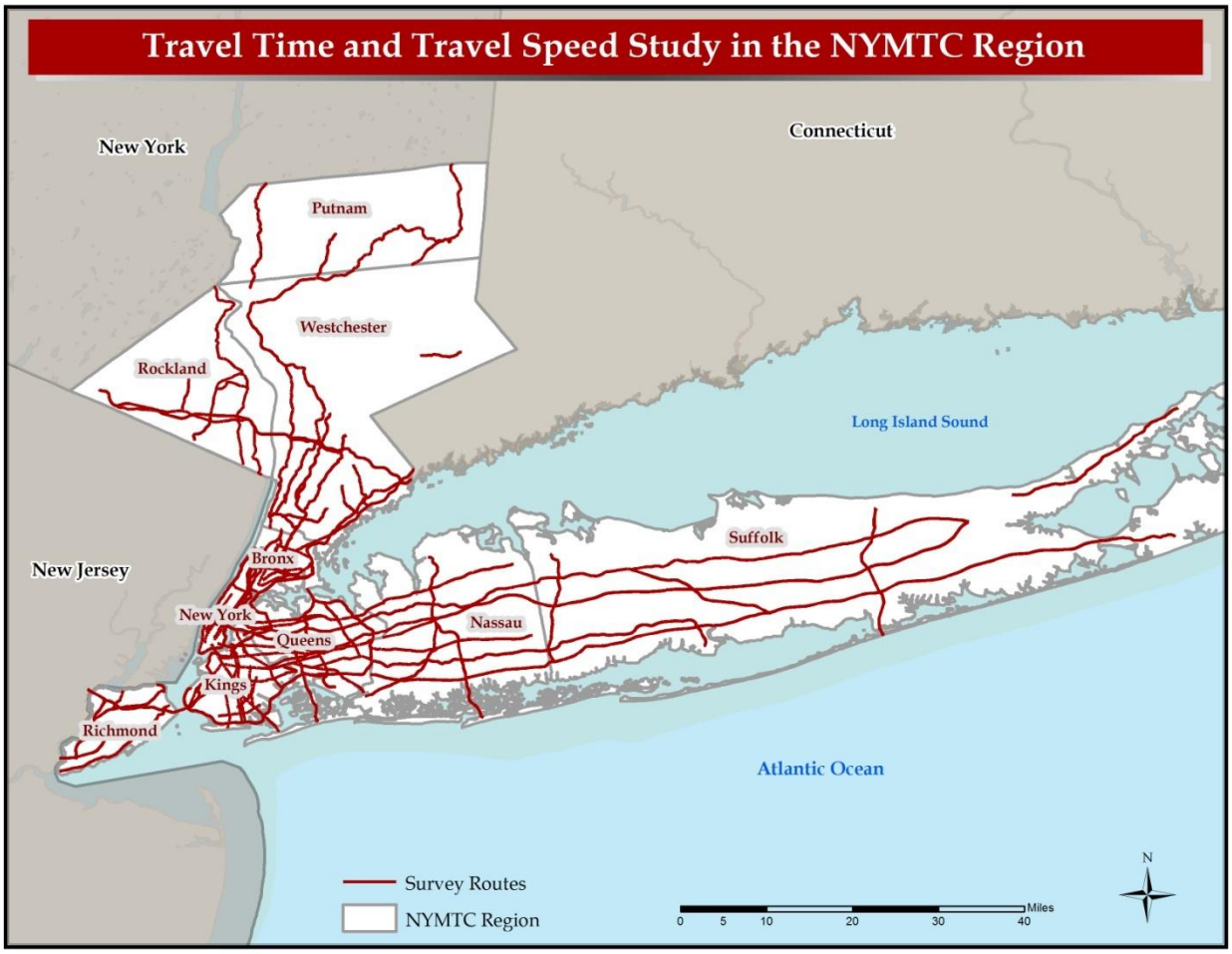


Table 1: Survey Routes

County	Corridor	From Street	To Street	Functional Class	Directional Mileage
Bronx	I-278	Triborough Bridge	I-95	11	11.3
	I-87	Westchester County Line	I-278	11	16.8
	I-95	New York County Line	Westchester County Line	11	21.2
	Bronx River Pkwy	I-278	Westchester County Line	12	10.9
	Boston Rd	Bronx River Pkwy	Ropes Ave	14	7.3
	Boston Rd	3rd Ave	E Tremont Ave	14	3.7
	Bruckner Blvd	I-87	Westchester Ave	14	15.1
	Edward L Grant Hwy/ Dr Martin L King Jr. Blvd/University Ave	Jerome Ave	W Kingsbridge Rd	14	5.2
	Fordham Rd	New York County Line	Boston Rd	14	5.1
	Grand Concourse	E 138th St	Mosholu Pkwy S	14	14.6
	Gun Hill Rd	Gun Hill Pkwy	I-95	14	6.8
	Jerome Ave/Central Park Ave	E 204th St	Westchester County Line	14	4.8
	Jerome Ave/Macombs Dam Bridge	W 169th St	New York County Line	14	2
	Tremont Ave	Sedgwick Ave	Williamsbridge Rd	14	5.8
	Webster Ave/Melrose Ave	3rd Ave	Westchester Ave	14	13.6
	Westchester Ave	3rd Ave	I-95	14	11.5
				Bronx Total Directional Mileage	**155.7**
Kings	I-278	Verrazano Bridge	Kosciuszko Bridge	11	25.8
	Atlantic Avenue	6th Ave	Queens County Line	12	11.6
	Belt Pkwy	I-278	Queens County Line	12	32.3
	Bushwick Ave	Maspeth Ave	Pennsylvania Ave	12	3.7
	Conduit Blvd	Atlantic Ave	Queens County Line	12	1.8
	State Hwy 27	I-278	Ocean Pkwy	12	3.7
	Williamsburg Bridge	I-278	Clinton St (Manhattan)	12	3.6
	Fort Hamilton Pkwy	Marine Ave	State Hwy 27	12,14	7.8
	4th Ave	Flatbush Ave	Shore Rd	14	11.9
	Avenue U	Stillwell Ave	Mill Ave	14	8.3
	Bedford Ave	Division Ave	Emmons Ave	14	15.3
	Flatbush Ave/Marine Pkwy Bridge	Manhattan Bridge	Rockaway Point Blvd	14	20.5

County	Corridor	From Street	To Street	Functional Class	Directional Mileage
	Humboldt St/ McGuinness Blvd	Flushing Ave	Pulaski Bridge/Queens County Line	14	5.5
	Jamaica Ave/East New York Ave	Atlantic Ave	Queens County Line	14	2.4
	Kings Hwy	E 98th St	Ocean Ave	14	12.2
	Linden Blvd	Flatbush Ave	Queens County Line	14	18.7
	Metropolitan Ave	Berry St	Queens County Line	14	3.9
	Myrtle Ave	Flatbush Ave	Queens County Line	14	7.6
	Nostrand Ave/Lee Ave	Division Ave	Emmons Ave	14	13.6
	Ocean Pkwy	Fort Hamilton Pkwy	Surf Ave	14	16.2
	Pennsylvania Ave	Jamaica Ave	Belt Pkwy	14	5.5
	Utica Ave	Fulton St	Flatbush Ave	14	9.2
			Kings Total Directional Mileage		**241.1**
Nassau	Long Island Expressway	Queens County Line	Suffolk County Line	11	31.4
	Meadowbrook State Pkwy	Northern State Pkwy	Bay Pkwy	12	25
	Southern State Pkwy	Belt Pkwy/Cross Island Pkwy	Broadway	12	33.9
	Glen Cove Rd/Clinton Rd	Long Island Expressway	Jerusalem Avenue (Henry St)	14	10.7
	Glen Cove Rd/Pratt Blvd	Glen Cove Ave (Pratt Blvd)	Long Island Expressway	14	12.5
	Hempstead Tpke	Cross Island Parkway	Merrits Rd	14	29
	Hillside Avenue	Little Neck Pkwy	Jericho Turnpike	14	11.3
	Jericho Tpke	Queens County Line	Suffolk County Line	14	27.2
	Northern Blvd (N Hempstead Turnpike)	Little Neck Pkwy	Cove Rd	14	29
	Peninsula Blvd (Bay Blvd)	Nassau Expressway	Fulton Ave	14	18.3
	Sunrise Highway	Belt Pkwy	Broadway	14	35.3
			Nassau Total Directional Mileage		**263.6**
New York	State Hwy 9A/Henry Hudson Pkwy	Henry Hudson Bridge	W 55th St	12	17
	W 34th St	12th Ave	5th Ave	12	2.5
	South Street Viaduct/FDR Drive/Harlem River Drive	Battery Pl	Dyckman St	12,14	27.5
	125th St/Martin Luther King Jr. Blvd	Marginal St	1st Ave	14	4
	12th Ave/11th Ave/ West St	W 55th St	Battery Pl	14	9.5
	23rd St	FDR	12th Ave	14	4

County	Corridor	From Street	To Street	Functional Class	Directional Mileage
	2nd Ave	E Houston St	E 128th St	14	6.6
	3rd Ave	Cooper Sq/Bowery	E 128th St	14	6.3
	42nd St	FDR	12th Ave	14	4.2
	57th St	2nd Ave	State Hwy 9A	14	3.4
	7th Ave/Varick St	Central Park South	Leonard St	14	3.7
	8th Ave	Bleecker St	Columbus Circle	14	2.5
	9th Ave/Columbus Ave	W 14th St	W 110th St	14	4.8
	Houston St	FDR	Washington St	14	3.9
	Lexington Ave	E 23rd St	E 130th St	14	5.4
	Manhattan Bridge	Canal St	Flatbush Ave	14	2.7
	Queensboro Bridge	Queens Blvd	Manhattan Ramps	14	2.5
			New York Total Directional Mileage		**110.5**
Putnam	Taconic State Pkwy	Westchester County Line	Peekskill Hollow Rd	12	10.3
	Route 6	Westchester County Line	Route 22	14	27.3
	Route 9	Westchester County Line	Walmer Lane	14	21
	Route 22	Westchester County Line	Dutchess County Line	14	32.7
			Putnam Total Directional Mileage		**91.3**
Queens	Cross Island Pkwy	I-678	Southern State Pkwy	11	21
	I-278	Triborough Bridge	Kosciuszko Bridge/ Kings County Border	11	14.1
	I-495	Midtown Tunnel Manhattan Entrance	Nassau County Line	11	29.1
	I-678	Whitestone Bridge	JFK	11	25.2
	Belt Pkwy	Kings County Border	Southern State Pkwy	12	16.6
	Nassau Expressway	S Conduit Ave	I-678	12	4.9
	Atlantic Ave	Eldert Lane	I 678	14	5.9
	Francis Lewis Blvd	Springfield Blvd	Cross Island Pkwy	14	15
	Greenpoint Ave/Roosevelt Ave	Kings County Border	Northern Blvd	14	15.2
	Hillside Ave	I 678	Nassau County Line	14	14.9
	Jamaica Ave	Eldert Lane	225th St	14	11
	Linden Blvd	Rockaway Blvd	Cross Island Pkwy	14	11.2
	Metropolitan Ave	Kings County Border	Jamaica Ave	14	11.9
	Myrtle Ave	Kings County Border	Lefferts Blvd	14	8.5
	Northern Blvd	Queens Blvd	Nassau County Line	14	22.8
	Queens Blvd	Queensboro Bridge	Hillside Ave	14	20.3
	Rockaway Blvd	Atlantic Ave	Nassau County Line	14	15.4
	Roosevelt Ave	Queens Blvd	Northern Blvd	14	11.7
	Woodhaven	Queens Blvd	Beach Channel Dr	14	25

County	Corridor	From Street	To Street	Functional Class	Directional Mileage
	Blvd/Cross Bay Blvd				
	Queens Total Directional Mileage				**299.7**
Richmond	I-278	Goethals Bridge	Verrazano Bridge	11	19.5
	Korean War Veterans Pkwy	Outerbridge Crossing	Drumgoole Rd W	12	9.9
	State Hwy 440	Korean War Veterans Pkwy	I-278	12	15.1
	Hylan Blvd	Satterlee St	Edgewater St	14	27.7
	Richmond Ave/ Morningstar Rd	Victory Blvd	Richmond Terrace	14	3.1
	Richmond Terrace/Bay St	St Peters Pl	Hannah St	14	2.4
	Victory Blvd	Wild Ave	Bay St	14	15.5
	Richmond Total Directional Mileage				**93.2**
Rockland	I-87	Orange County Line	Tappan Zee Bridge	11	41.1
	State Hwy 304	Central Ave	I-87	12	6.1
	Congers Rd/Lake Rd	Main St	Route 303	14	7
	Route 303	Route 9W	Washington St	14	21.3
	Route 304	Route 59	Route 9W	14	17.8
	Route 45	Route 59	Route 202	14	11.3
	Route 59	Orange County Line	Route 9W	14	25.1
	Route 9W	Route 303	Orange County Line	14	28
	Route 9W	New Jersey State Line	Route 59	14	13.8
	Rockland Total Directional Mileage				**171.5**
Suffolk	Long Island Expressway	Broadhollow Rd	W Main St/END	11	78.1
	Middle Rd	Northville Tpke	Main St	2,14	37.5
	Southern State Pkwy	Broadway	Heckscher State Park Loop/END	12	41.6
	Sunrise Hwy	Broadway	Montauk Hwy	12	117
	William Floyd Pkwy	Route 25A	Fire Island Beach Rd	12	30.9
	Route 110	Merrick Rd	Broadway	14	25.8
	Route 25	Walt Whitman Rd	Old Country Rd	14	75.1
	Veterans Memorial Hwy	Jericho Tpke	Sunrise Hwy	14	27.6
	Suffolk Total Directional Mileage				**433.6**
Westchester	I-287	I-87	I-95	11	21.4
	I-95	Bronx County Line	Connecticut State Line	11	22.9
	Bronx River Pkwy	Bronx County Line	Taconic State Pkwy	12	26.7
	Cross County Pkwy	Saw Mill River Pkwy	Hutchinson River Pkwy	12	9.2
	Sprain Brook Pkwy	Bronx River Pkwy	Taconic State Pkwy	12	25.4

County	Corridor	From Street	To Street	Functional Class	Directional Mileage
	US Hwy 9	State Hwy 9A	Main St	12	17
	Mamaroneck Ave	Bryant Ave	Boston Post Rd	14	10.7
	Nepperhan Ave	Executive Blvd	Broadway	14	8.7
	Pound Ridge Rd	Old Post Rd	Westchester Ave	14	7.9
	Route 6	US Hwy 9	State Hwy 118	14	21
	Route 9A	US Hwy 9	Saw Mill River Pkwy	14	15.6
	State Hwy 119	US Hwy 9	I-287	14	11.3
	State Hwy 125	Heathcote Rd	Boston Post Rd	14	9.5
	US Hwy 1	Bronx County Line	Westchester State Line	14	26.7
	US Hwy 9	Bronx County Line	State Hwy 9A	14	46
	Yonkers Ave	Nepperhan Ave	Bronx River Pkwy	14	6.5
	Westchester Total Directional Mileage				286.5
OVERALL TOTAL DIRECTIONAL MILEAGE					**2,147**

2.0 Disclaimer

Travel speeds and travel times measured on any route will vary by time of day, day of week, and month of year. In general, weekday peak hour traffic volumes and travel times will be higher, and travel speeds lower, than those measured during midday periods or on weekends. Similarly, summer traffic volumes and travel times tend to be lower, and speeds higher, than those measured in the fall or spring. Mondays and Fridays tend to exhibit more variability than Tuesdays, Wednesdays or Thursdays. As always there are exceptions to these observations, particularly in areas with concentrations of retail or recreational uses which generate off-peak travel.

In order to record "average" or "typical" travel times and speeds, a minimum of two speed runs was collected on each route during the morning, midday and evening peak periods on "typical weekdays" (i.e. Tuesdays, Wednesdays and Thursdays) in the spring and fall. Holidays and vacation periods were avoided as were routes with long term construction projects, and days with poor weather conditions forecasted. In instances where traffic accidents or other delays could not be avoided, these runs were noted.

The reader should therefore be aware that the data summarized in this report is based on a limited number of speed runs and represents typical conditions during the survey period. Travel times and speeds presented herein are intended for Best Practice Model calibration and planning purposes, and will vary from those measured at other times.

3.0 Methodology

3.1. Data Collection

Prior to the start of data collection, a review of roadway construction programs was conducted including projects programmed by the New York State Department of Transportation (NYSDOT), New York City Department of Transportation (NYCDOT) and the five non-New York City counties and other DOTs. Following that review, a list of roadway construction projects that could affect survey results was generated. The results of this review were used to modify the data collection program to avoid routes with projected atypical conditions.

An Overall Survey Plan was prepared to guide the study and monitor progress. The plan included the following:

- The sequence of counties to be surveyed;
- Field survey record sheets to be completed at the start and end of each run (including route, date, time period and run number, start and end time, unusual conditions observed during run);
- Field data sheets to be used for manual survey in Manhattan (indicating checkpoints plus other reporting items listed above); and
- Survey crew logistics, coordination and communication methods.

Data collection utilized Global Positioning System (GPS) loggers as well as stopwatches and clipboards for data collection in Manhattan where street canyons can interfere with GPS operation. All GPS loggers were tested daily before use in the field. After a survey, GPS loggers were returned to the office for charging while another set of GPS loggers was distributed for use. This rotation allowed ensured that each GPS logger was properly cleared and charged. In Manhattan, travel time and speed data was recorded using GPS loggers and/or manually with stopwatches. This was necessary because tall buildings can interfere with GPS operation (i.e., the canyon effect).

Survey teams were trained in the floating car method prior to data collection. Drivers followed the following guidelines:

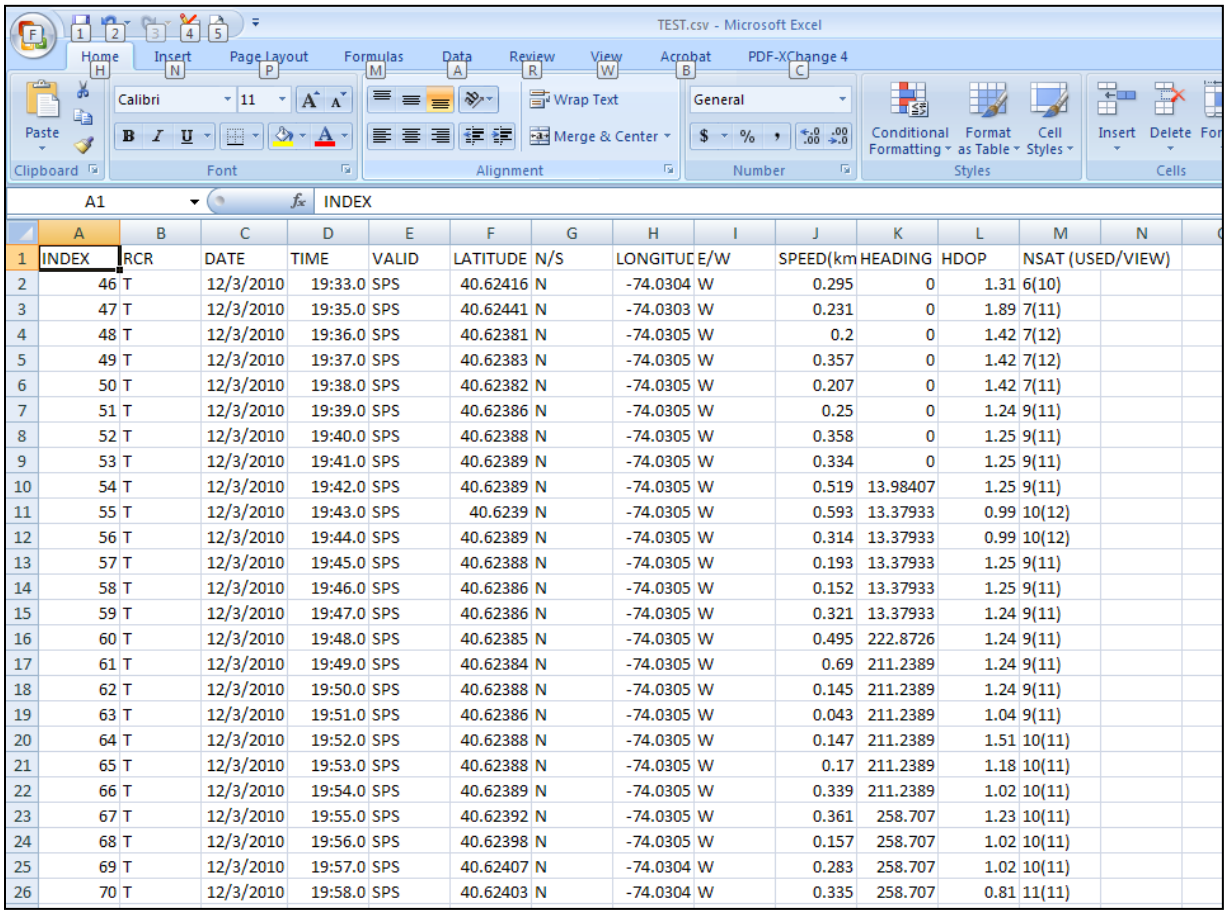
- Drivers should travel at a speed that matches the flow of traffic.
- For roadways with two or more lanes, drivers should travel in the second lane (numbered from left to right from the driver's viewpoint).
- Drivers shall avoid traveling in fire lanes.

Route maps were prepared showing the start and the end points, as well as turnaround locations. GPS units, pre-programmed with start and end points, were provided to each driver, along with the GPS logger. Each day, drivers and supervisors met at a pre-determined location at least 30 minutes prior to the run start time. The supervisor confirmed that all GPS loggers were connected to the vehicle's lighter for continuous charging and working properly by powering them up and testing the reception (through its LED light). The supervisor stayed on the site with extra GPS loggers on hand in case of emergencies.

Drivers were given a field survey record sheets to be completed at the start and end of each run (including route, date, time period and run number, start and end time, unusual conditions observed during run). At the end of the day, drivers and supervisors met at to the pre-determined location to collect equipment.

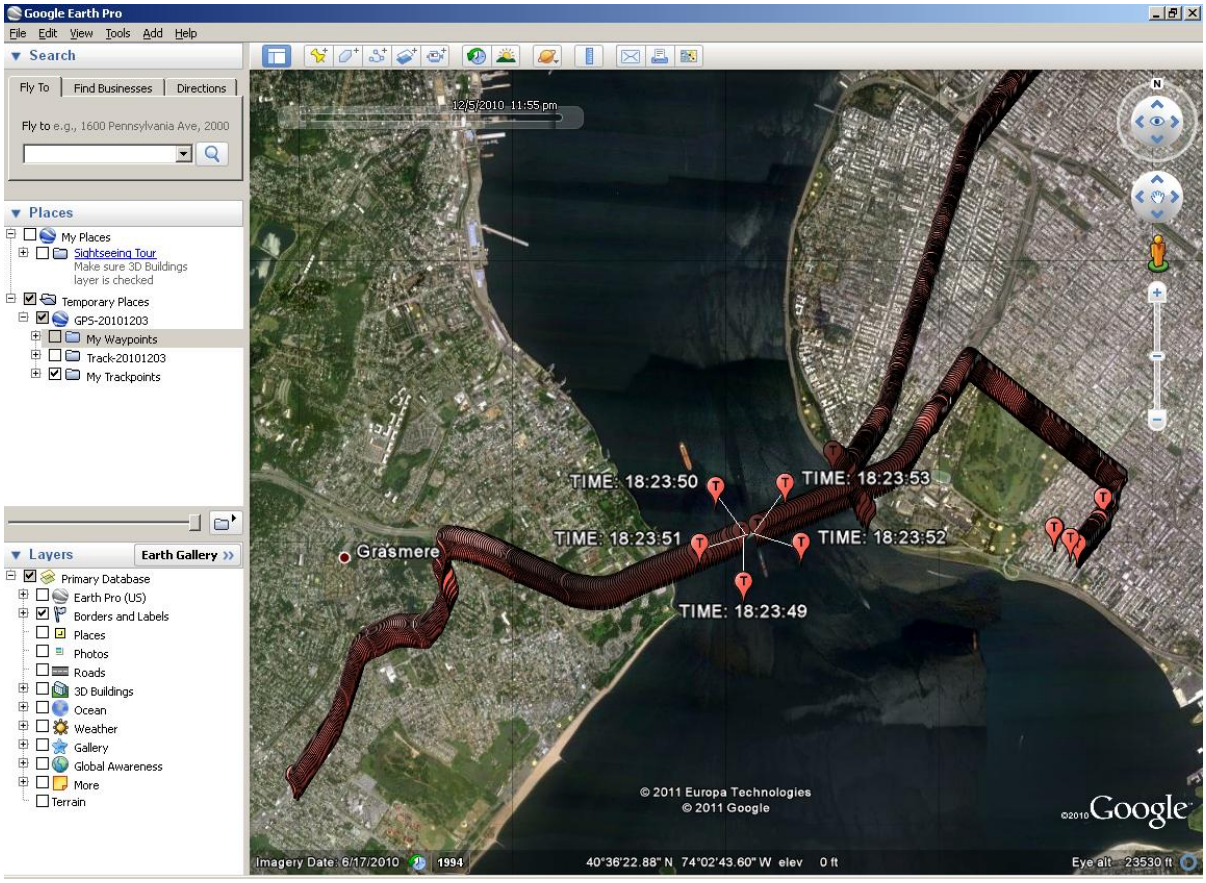
Travel time surveys were conducted in New York City's five boroughs (i.e., Brooklyn (Kings), the Bronx, Manhattan (New York), Queens and Staten Island (Richmond)), on Long Island (i.e., Nassau and Suffolk Counties), and the Lower Hudson Valley (i.e., Putnam, Westchester, and Rockland Counties) from 6:00 AM to 7:00 PM. Along each directional route, two runs were conducted for each hour so that 26 runs were conducted per directional route. Some routes proved to be too long to support the requirement of two complete round trips per peak hour. In these cases, supplemental survey runs were conducted. Surveys were conducted midweek (e.g., Tuesday, Wednesday, and Thursday) avoiding holidays and foul weather days. No surveys were conducted between June 8 and August 31.
Data was reviewed on screen in tabular form (see Figure 2) and using the aerial view (see Figure 3). Data was uploaded to the file transfer protocol (FTP) site.

Figure 2: GPS Data Sample Screen Shot



	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	INDEX	RCR	DATE	TIME	VALID	LATITUDE	N/S	LONGITUD	E/W	SPEED(km	HEADING	HDOP	NSAT (USED/VIEW)	
2	46	T	12/3/2010	19:33.0	SPS	40.62416	N	-74.0304	W	0.295	0	1.31	6(10)	
3	47	T	12/3/2010	19:35.0	SPS	40.62441	N	-74.0303	W	0.231	0	1.89	7(11)	
4	48	T	12/3/2010	19:36.0	SPS	40.62381	N	-74.0305	W	0.2	0	1.42	7(12)	
5	49	T	12/3/2010	19:37.0	SPS	40.62383	N	-74.0305	W	0.357	0	1.42	7(12)	
6	50	T	12/3/2010	19:38.0	SPS	40.62382	N	-74.0305	W	0.207	0	1.42	7(11)	
7	51	T	12/3/2010	19:39.0	SPS	40.62386	N	-74.0305	W	0.25	0	1.24	9(11)	
8	52	T	12/3/2010	19:40.0	SPS	40.62388	N	-74.0305	W	0.358	0	1.25	9(11)	
9	53	T	12/3/2010	19:41.0	SPS	40.62389	N	-74.0305	W	0.334	0	1.25	9(11)	
10	54	T	12/3/2010	19:42.0	SPS	40.62389	N	-74.0305	W	0.519	13.98407	1.25	9(11)	
11	55	T	12/3/2010	19:43.0	SPS	40.6239	N	-74.0305	W	0.593	13.37933	0.99	10(12)	
12	56	T	12/3/2010	19:44.0	SPS	40.62389	N	-74.0305	W	0.314	13.37933	0.99	10(12)	
13	57	T	12/3/2010	19:45.0	SPS	40.62388	N	-74.0305	W	0.193	13.37933	1.25	9(11)	
14	58	T	12/3/2010	19:46.0	SPS	40.62386	N	-74.0305	W	0.152	13.37933	1.25	9(11)	
15	59	T	12/3/2010	19:47.0	SPS	40.62386	N	-74.0305	W	0.321	13.37933	1.24	9(11)	
16	60	T	12/3/2010	19:48.0	SPS	40.62385	N	-74.0305	W	0.495	222.8726	1.24	9(11)	
17	61	T	12/3/2010	19:49.0	SPS	40.62384	N	-74.0305	W	0.69	211.2389	1.24	9(11)	
18	62	T	12/3/2010	19:50.0	SPS	40.62388	N	-74.0305	W	0.145	211.2389	1.24	9(11)	
19	63	T	12/3/2010	19:51.0	SPS	40.62386	N	-74.0305	W	0.043	211.2389	1.04	9(11)	
20	64	T	12/3/2010	19:52.0	SPS	40.62388	N	-74.0305	W	0.147	211.2389	1.51	10(11)	
21	65	T	12/3/2010	19:53.0	SPS	40.62388	N	-74.0305	W	0.17	211.2389	1.18	10(11)	
22	66	T	12/3/2010	19:54.0	SPS	40.62389	N	-74.0305	W	0.339	211.2389	1.02	10(11)	
23	67	T	12/3/2010	19:55.0	SPS	40.62392	N	-74.0305	W	0.361	258.707	1.23	10(11)	
24	68	T	12/3/2010	19:56.0	SPS	40.62398	N	-74.0305	W	0.157	258.707	1.02	10(11)	
25	69	T	12/3/2010	19:57.0	SPS	40.62407	N	-74.0304	W	0.283	258.707	1.02	10(11)	
26	70	T	12/3/2010	19:58.0	SPS	40.62403	N	-74.0304	W	0.335	258.707	0.81	11(11)	

Figure 3: GPS Sample Aerial Map Screen Shot



3.2. Data Processing

The data processing was broken up into two stages. In the first stage GPS data were cleaned, analyzed, and conflated the Best Practice Model (BPM) network. In the second stage average hourly travel speeds were calculated for the entire corridor.

Stage 1 of data processing analyzed the completion of the runs and undertook a process of conflating the GPS spot speeds to the links in the BPM network. Having these real-time speeds present on the BPM network are important for the validation stage in the BPM model development process.

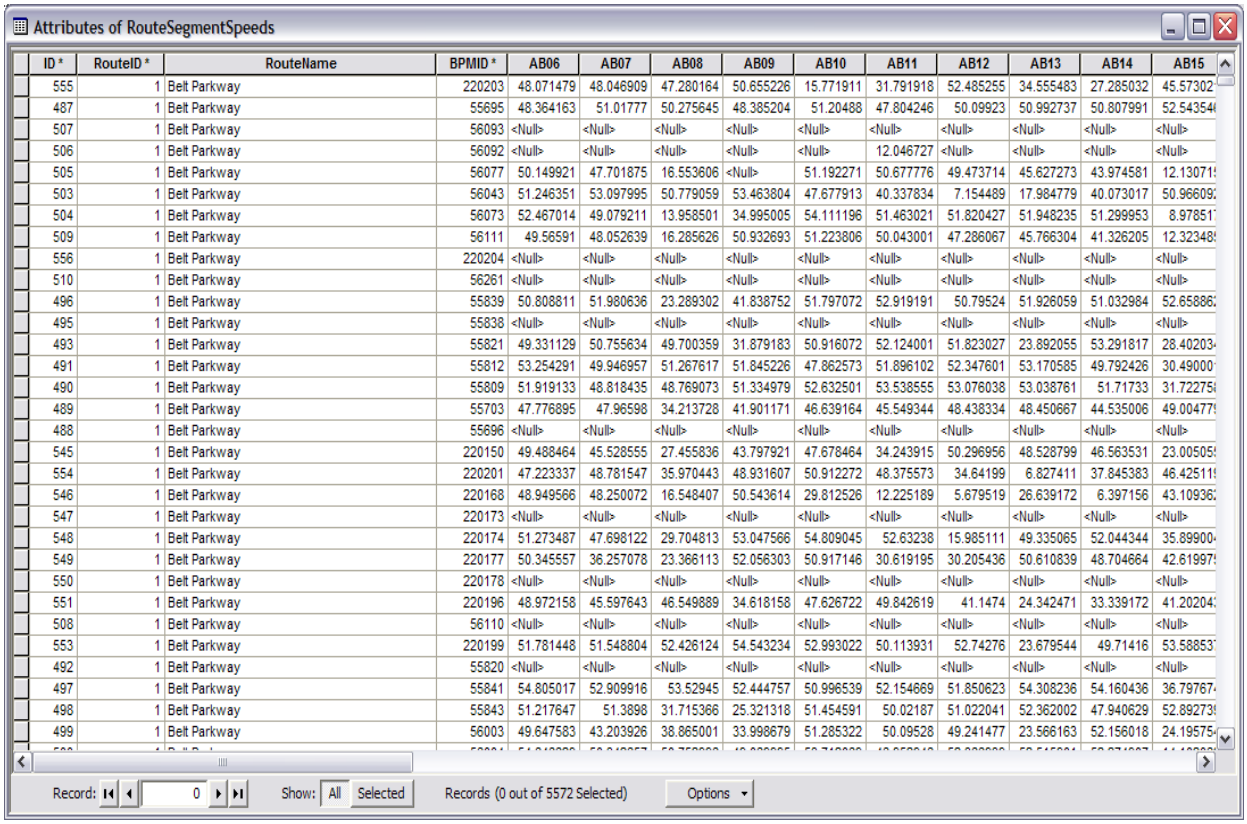
The data processing included the following steps:

- Verifying the GPS points cover the entire length of the survey routes/corridors
- Verifying that each of the survey routes were covered at-least once
- Calculating the average speeds from the GPS spot speeds for all the links in the route, for every hour and assigning these speeds as attributes to the links
- Depending on the topological direction of the links (1,0,-1), storing the speeds in AB_06, AB_07,…AB_18 or BA_06, BA_07,…BA_18 where AB or BA indicate the relation of travel

direction with the topographical direction and the numbers indicate the hour in which the speed was recorded.

- The processing was done using a combination of manual and GIS based software tools. The output of this first stage is shown in Figure 4.

Figure 4: Stage 1 Output of Data Processing



Attributes of RouteSegmentSpeeds

ID *	RouteID *	RouteName	BPMID *	AB06	AB07	AB08	AB09	AB10	AB11	AB12	AB13	AB14	AB15
555	1	Belt Parkway	220203	48.071479	48.046909	47.280164	50.655226	15.771911	31.791918	52.485255	34.555483	27.285032	45.57302
487	1	Belt Parkway	55695	48.364163	51.01777	50.275645	48.385204	51.20488	47.804246	50.09923	50.992737	50.807991	52.54354
507	1	Belt Parkway	56093	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
506	1	Belt Parkway	56092	<Null>	<Null>	<Null>	<Null>	<Null>	12.046727	<Null>	<Null>	<Null>	<Null>
505	1	Belt Parkway	56077	50.149921	47.701875	16.553606	<Null>	51.192271	50.677776	49.473714	45.627273	43.974581	12.13071
503	1	Belt Parkway	56043	51.246351	53.097995	50.779059	53.463804	47.677913	40.337834	7.154489	17.984779	40.073017	50.96609
504	1	Belt Parkway	56073	52.467014	49.079211	13.958501	34.995005	54.111196	51.463021	51.820427	51.948235	51.299953	8.97851
509	1	Belt Parkway	56111	49.56591	48.052639	16.285626	50.932693	51.223806	50.043001	47.286067	45.766304	41.326205	12.32348
556	1	Belt Parkway	220204	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
510	1	Belt Parkway	56261	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
496	1	Belt Parkway	55839	50.808811	51.980636	23.289302	41.838752	51.797072	52.919191	50.79524	51.926059	51.032984	52.65886
495	1	Belt Parkway	55838	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
493	1	Belt Parkway	55821	49.331129	50.755634	49.700359	31.879183	50.916072	52.124001	51.823027	23.892055	53.291817	28.40203
491	1	Belt Parkway	55812	53.254291	49.946957	51.267617	51.845226	47.862573	51.896102	52.347601	53.170585	49.792426	30.49000
490	1	Belt Parkway	55809	51.919133	48.818435	48.769073	51.334979	52.632501	53.538555	53.076038	53.038761	51.71733	31.72275
489	1	Belt Parkway	55703	47.776895	47.96598	34.213728	41.901171	46.639164	45.549344	48.438334	48.450667	44.535006	49.00477
488	1	Belt Parkway	55696	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
545	1	Belt Parkway	220150	49.488464	45.528555	27.455836	43.797921	47.678464	34.243915	50.296956	48.528799	46.563531	23.00505
554	1	Belt Parkway	220201	47.223337	48.781547	35.970443	48.931607	50.912272	48.375573	34.64199	6.827411	37.845383	46.42511
546	1	Belt Parkway	220168	48.949566	48.250072	16.548407	50.543614	29.812526	12.225189	5.679519	26.639172	6.397156	43.10936
547	1	Belt Parkway	220173	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
548	1	Belt Parkway	220174	51.273487	47.698122	29.704813	53.047566	54.809045	52.63238	15.985111	49.335065	52.044344	35.89900
549	1	Belt Parkway	220177	50.345557	36.257078	23.366113	52.056303	50.917146	30.619195	30.205436	50.610839	48.704664	42.61997
550	1	Belt Parkway	220178	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
551	1	Belt Parkway	220196	48.972158	45.597643	46.549889	34.618158	47.626722	49.842619	41.1474	24.342471	33.339172	41.20204
508	1	Belt Parkway	56110	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
553	1	Belt Parkway	220199	51.781448	51.548804	52.426124	54.543234	52.993022	50.113931	52.74276	23.679544	49.71416	53.58853
492	1	Belt Parkway	55820	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>	<Null>
497	1	Belt Parkway	55841	54.805017	52.909916	53.52945	52.444757	50.996539	52.154669	51.850623	54.308236	54.160436	36.79767
498	1	Belt Parkway	55843	51.217647	51.3898	31.715366	25.321318	51.454591	50.02187	51.022041	52.362002	47.940629	52.89273
499	1	Belt Parkway	56003	49.647583	43.203926	38.865001	33.998679	51.285322	50.09528	49.241477	23.566163	52.156018	24.19575

Record: 0 Show: All Selected Records (0 out of 5572 Selected) Options

Stage 2 of the data processing averages the speeds, which were conflated to the BPM links, over the entire routes/corridors to calculate average corridor travel speeds. The output gives the hourly speeds as shown in Figure 5

Figure 5: Stage 2 Output of Data Processing – Corridor Travel Speeds

RouteID	RouteName	RouteLength	S1_06	S1_07	S1_08	S1_09	S1_10	S1_11	S1_12	S1_13	S1_14	S1_15
50	Queens - Cross Island Parkway	10.81	43.8684902	33.6388334	31.7772363	42.3436974	27.8902655	57.2322855	58.0794667	62.2198184	56.3799678	55.2127772
51	Queens - Greenpoint/ Roosevelt Ave	13.3	12.3703095	10.149332	7.90744003	9.05967954	9.31987276	8.38129449	9.01907811	9.13726461	9.93052882	9.41664431
52	Queens - I 278	7.965	29.2843111	21.0421041	25.7451344	28.5013235	32.8653861	33.0697314	21.2264203	31.1158134	36.0100216	33.6634293
53	Queens - Metropolitan Ave	5.59	8.6396146	9.21105757	10.1853845	10.2965278	9.09600263	13.2370953	11.6345637	8.5615942	7.57677384	8.68833906
54	Queens - Queens Blvd	8.31	8.14845203	7.00227317	7.68041681	4.91273702	6.51880907	8.28847132	9.95200037	11.2096761	8.39322088	6.37686675
55	Queens - Myrtle Ave	4.32	14.4994998	12.735384	11.5432496	12.5819678	13.4694333	7.40470233	12.0260586	12.238378	10.4633459	7.44088998
56	Queens - Rockaway Blvd	7.65	21.3912252	17.9120962	15.7255872	15.9475263	16.9406057	19.5514984	20.4013261	21.5373186	18.4134321	15.4443651
57	Queens - Francis Lewis Blvd	7.47	21.9747862	19.3284425	16.4867037	22.1305218	21.0326204	21.9687438	21.8587984	20.3635834	19.7731002	18.8212617
58	Queens - Atlantic Ave	3.55	11.6297078	12.358864	8.67070921	12.3073297	12.9734456	12.9808578	9.92187702	16.9082464	12.2666608	10.0103986
59	Queens - Linden Blvd	5.6	13.875073	11.9626317	15.3941143	15.107331	15.4639063	15.1401346	15.3565744	9.8790753	13.9318548	13.6074959
60	Queens - Hillside Ave	6.72	19.384516	18.2096986	14.255974	19.4258233	20.2459551	21.1803551	16.4633243	20.2228835	19.093923	18.4943536
61	Queens - Woodhaven Blvd	10.97	31.68114	21.0523807	16.9451722	24.0668496	27.4080172	23.1039323	20.4614438	20.4468178	20.238069	17.9375208
62	Queens - I495	14.145	38.0254406	27.5960176	21.4110199	21.6436247	32.2835589	35.0047433	33.9683608	32.6685329	23.2511459	14.609677
63	Queens - Jamaica Ave	7.98	13.2914295	12.4523218	10.4791939	11.9553604	13.4380345	12.8386404	10.5960602	12.159965	11.2282227	12.8288209
64	Queens - I678	10.03	33.993719	23.3043893	18.0693409	26.8220967	35.0352102	32.8912733	36.4362437	33.9822167	24.1327468	19.0541296
65	Queens - Northern Blvd	11.375	11.6089667	15.6458736	10.159086	14.6050692	3.41084056	17.0899295	15.9836836	13.5462306	13.8463731	17.7306369
66	Queens - Nassau Expy	1.21	18.3969839	18.4240521	17.6670732	16.7148504	16.9578789	18.969536	16.9545489	15.7239384	16.862536	14.499053
67	Queens - Belt Parkway	8.46	52.1510725	47.4701645	48.0619754	52.5384784	36.1816586	54.7275909	52.9805637	52.4311988	46.70828	26.4357218
68	Queens - Roosevelt Ave	11.74	12.2236952	10.1156319	7.56616657	8.68731772	9.24846243	8.13287557	8.74648621	8.97793518	9.6489454	9.53533575

4.0 Results

Corridor level average speed data are summarized and represented in the following separate documents:

- Table of Contents
- Appendix A: Bronx County Route Maps
- Appendix B: Kings County (Brooklyn) Route Maps
- Appendix C: Nassau County Route Maps
- Appendix D: New York County Route Maps
- Appendix E: Putnam County Route Maps
- Appendix F: Queens County Route Maps
- Appendix G: Richmond County Route Maps
- Appendix H: Rockland County Route Maps
- Appendix I: Suffolk County Route Maps
- Appendix J: Westchester County Route Maps