



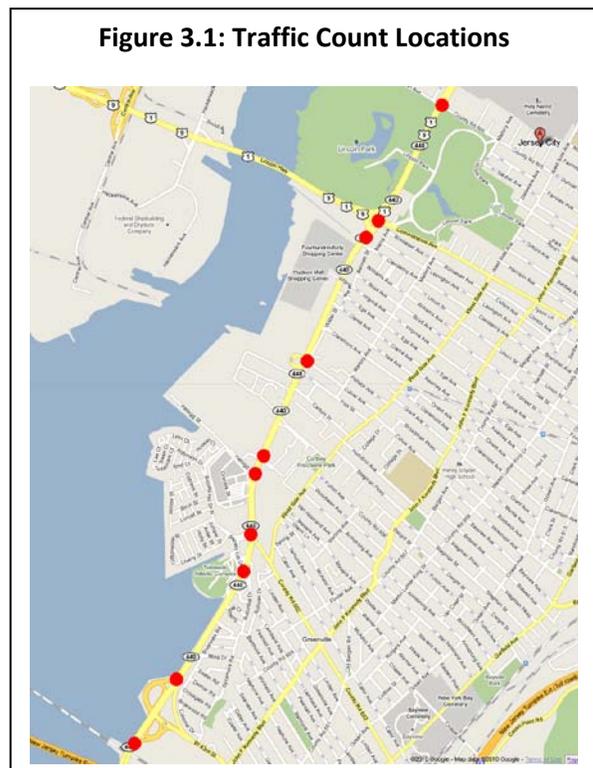
3. EXISTING CONDITIONS

Project alternatives were analyzed through the application of the North Jersey Regional Transportation Model - Enhanced (NJRTM-E), which projects traffic volumes and flows into the future by escalating existing traffic data by known growth factors. Proper calibration of the regional model to address local issues was a key step in modeling scenarios that accurately reflected the changes to circulation resulting from the implementation of project alternatives. Current traffic counts and origin and destination data were required to perform this calibration. A traffic data collection program was conducted including the recording of existing traffic volumes (section 3.1) and patterns (section 3.3) along the corridor, and assembly of traffic volume data assembled as part of other studies conducted along the corridor (section 3.2). Consideration of traffic volume impacts of the severe global economic recession that began in the United States in December 2007 and ended in June 2009 was taken into account.

Base mapping (section 3.4) was developed for the design and evaluation of corridor alternatives. The base mapping describes the existing corridor right-of-way and property lines and was based on a combination aerial survey, existing data research and new field work.

3.1 Traffic Count Program

Traffic counts were conducted at key locations (Figure 3.1) along the study corridor. The traffic count program consisted of manual turning movement counts, which involved visual observation, and recording of traffic flows and automatic traffic counts that used machines to record traffic volumes. Manual turning movement counts were collected on Tuesday, August 4, 2009 from 7:00 – 9:00AM and on Wednesday, August 26, 2009 from 4:00 – 6:00PM. Observed traffic flows were recorded in fifteen- minute intervals by movement and vehicle classification (passenger car, light truck,



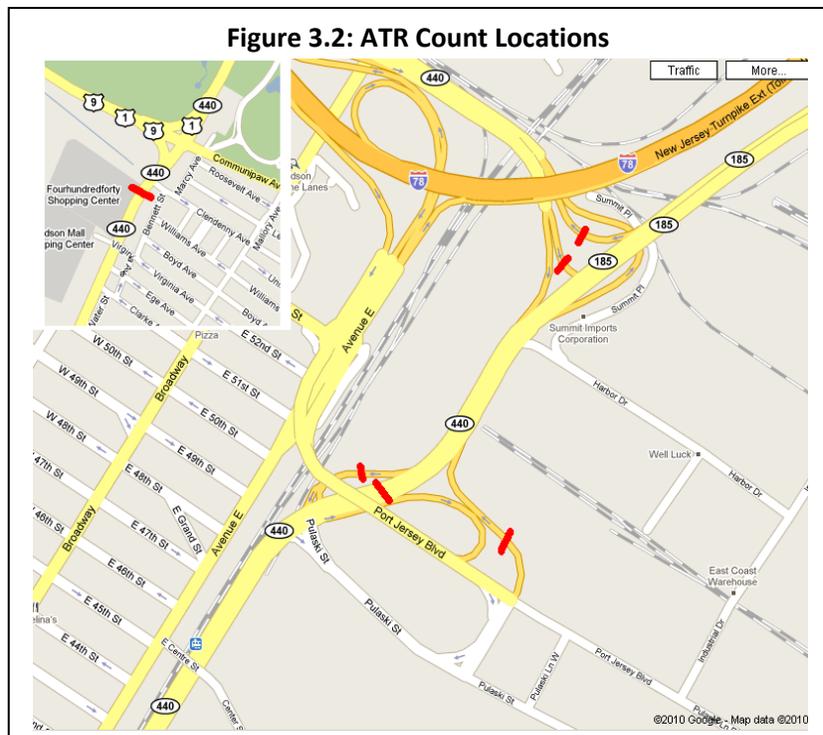


heavy truck). These counts were collected at the following intersections:

- Routes 1&9T and Duncan Avenue
- Route 440 and Communipaw Avenue
- Route 440 and Lincoln Highway ramps
- Route 440 and Culver Avenue
- Route 440 and Kellogg Street (north)/Home Depot
- Route 440 and Kellogg Street (south)
- Route 440 and Society Hill Drive (north)
- Route 440 and Society Hill Drive (south)
- Route 440 and JFK Boulevard ramps

The collected traffic count data is presented in Appendix 3.1.

Automatic Traffic Recorders (ATRs) were installed along the Route 440/Routes 1&9T corridor. These ATRs recorded the volume of traffic along with the vehicle classifications. The ATR locations for which traffic volume data was collected as part of this study are depicted in Figure 3.2. The collected ATR data is presented in Appendix 3.1.



- Route 440 south of Clendenny Avenue
- Route 440 north of Port Jersey Boulevard
- Route 440 SB Ramp to Pulaski Street
- Port Jersey Boulevard Ramp to Route 440 NB
- Route 185 SB Ramp to Route 440 NB
- Route 440 SB Ramp to Route 185



The collected traffic count data were reviewed and validated by comparing the recorded manual intersection count volumes with the ATR volumes. Manually-recorded volumes at adjacent intersections were also compared to ensure that the traffic volumes recorded departing one intersection were consistent with the volume of traffic recorded as approaching the next downstream intersection.

Traffic volumes on any roadway fluctuate based upon the time of day, day of week and season of the year. Daily fluctuations are due to many factors ranging from minor influences such as the variation in people's daily schedules, to major influences such as an accident on the subject roadway (or a parallel route) which results in diversion of typical traffic patterns. To ensure that there were no major influences altering the traffic volumes along the corridor during the conduct of the traffic counts, the recorded traffic volumes were compared with the traffic volumes recorded by others as part of previous studies along the corridor.

The recorded data were found to be reflective of typical traffic patterns along the corridor. However, since the counts were conducted during a summer month when traffic volumes are typically low, the overall magnitude of the recorded traffic volumes were factored up based upon a comparison with traffic volume data from other studies that were conducted during non-summer months and prior to the start of the economic recession that has served to lower regional traffic volumes counts. Recorded traffic volumes were factored to reflect the levels that were typical in March 2008, when regional traffic volumes were at a peak.

3.2 Assembly of Existing Traffic Data

Data provided from four previous studies were reviewed in the process of calibrating the traffic model. The studies were conducted in 2005, 2006, 2007, and 2009, providing a range of years covering time before and during the recent major economic recession. Data for these studies was collected between March and August, providing a range of seasons against which to compare the results of the study.

3.2.1 New Jersey City University West Campus Mixed-Use Development Access Management Traffic Study- August 2005 and February 2009

Traffic counts were collected in April 2005 for the NJCU report. Manual turning movement counts were collected during the 6:00 – 9:00 AM and 4:00 – 7:00 PM commuter peak periods and Saturday midday 11:00 AM – 3:00 PM. Supplementary counts were conducted in February



2009. Upon a comparison of the two counts, it was noted that that the volumes collected in 2005 were greater than the volumes collected in 2009. After consultation with the NJDOT, it was determined that the earlier counts should be used as a baseline for the Route 440/Routes 1&9T study, as these represented a worst-case scenario. The study included intersections along Route 440, West Side Avenue and JFK Boulevard. The following intersections along Route 440 were included in the study:

- Route 440 and Communipaw Avenue
- Route 440 and Shopping Center
- Route 440 and Claremont Avenue
- Route 440 and Culver Avenue
- Route 440 and Fisk Street
- Route 440 and Carbon Place
- Route 440 and Kellogg Street (north)/Home Depot
- Route 440 and Kellogg Street (south)
- Route 440 and Society Hill Drive (north)/Danforth Avenue
- Route 440 and Society Hill Drive (south)

The intersection and ATR locations for which traffic volume data was assembled from the NJCU study are depicted in Figure 3.3. The assembled data is presented in Appendix 3.2.

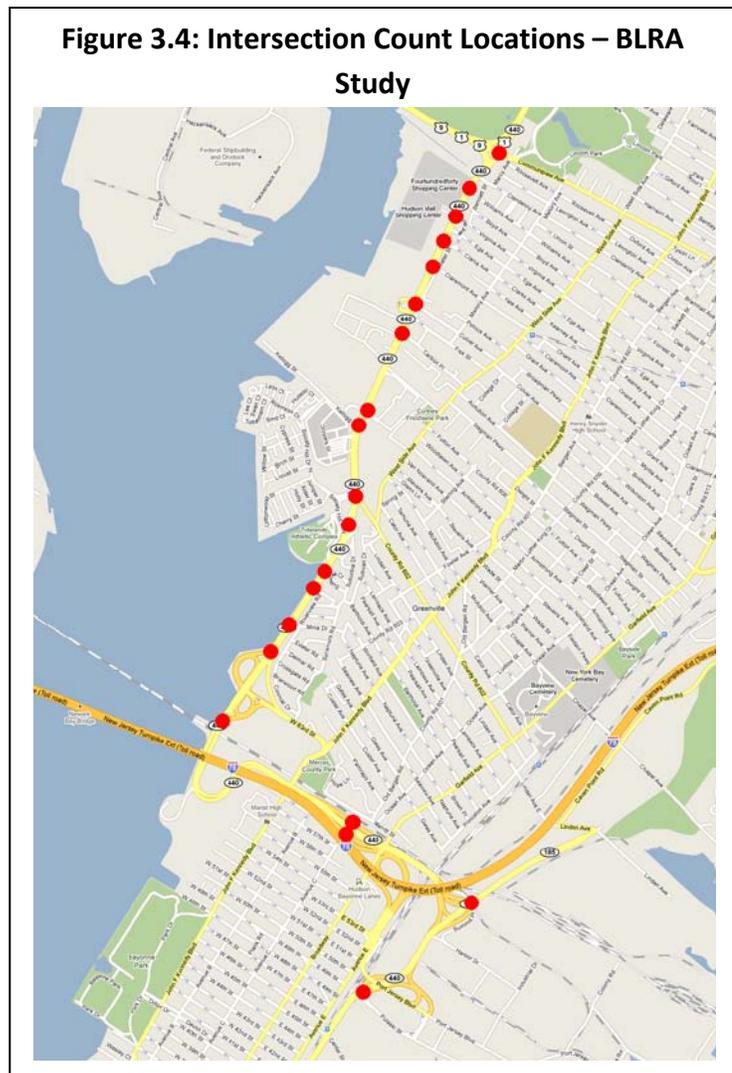




3.2.2 Bayonne Local Redevelopment Authority (BLRA)—June 2006

The BLRA data were collected in June 2006. Manual turning movement counts were collected during the 7:00 – 9:00 AM and 4:00 – 6:00 PM commuter peak periods. Counts were recorded in fifteen minute intervals by movement and vehicle classification (passenger car, truck, bus). These counts were collected at the following intersections.

- Route 440 and Communipaw Avenue
- Route 440 and Hudson Plaza Drive
- Route 440 and Virginia Avenue
- Route 440 and Clark Avenue
- Route 440 and Claremont Avenue
- Route 440 and Culver Avenue
- Route 440 and Carbon Place
- Route 440 and Kellogg Street (north)/Home Depot
- Route 440 and Kellogg Street (south)
- Route 440 and Society Hill Drive (north)/Danforth Avenue
- Route 440 and Society Hill Drive (south)
- Route 440 and Suburbia Terrace
- Route 440 and Pinecrest Road
- Route 440 and Mina Drive
- Route 440 and JFK Boulevard ramps
- Avenue C and Route 440 ramps
- Route 440 and Route 185
- Route 440 and Pulaski Street

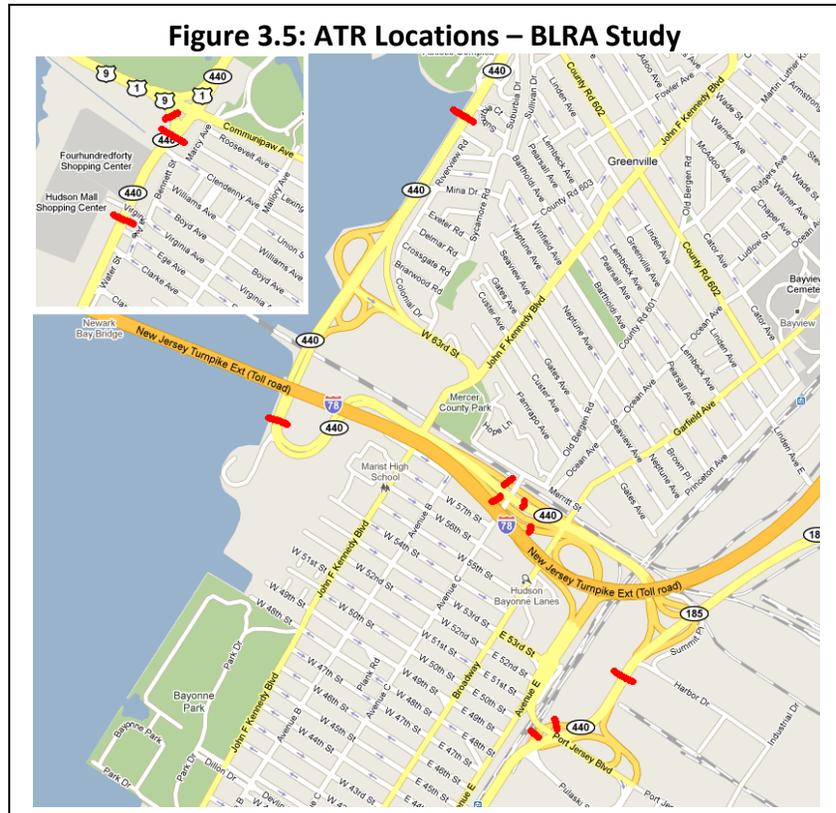




The intersection locations for which traffic volume data was assembled from the BLRA study are depicted in Figure 3.3. The assembled data is presented in Appendix 3.3.

Automatic Traffic Recorders (ATR) were also installed along the Route 440 corridor. These ATRs recorded the volume of traffic for a five-day period in fifteen-minute intervals. ATRs were installed in the following locations.

- Route 440 south of Communipaw Avenue
- Route 1&9 Ramp to Route 440 SB
- Route 440 south of Virginia Avenue
- Route 440 north of Pinecrest Road
- Route 440 south of I-78
- Route 440 Ramp to/from Avenue C
- Route 440 south of Harbor Drive
- Route 440 SB Ramp to Pulaski Street



The ATR locations for which traffic volume data was assembled from the BLRA study are depicted in Figure 3.5. The assembled data is presented in Appendix 3.3.

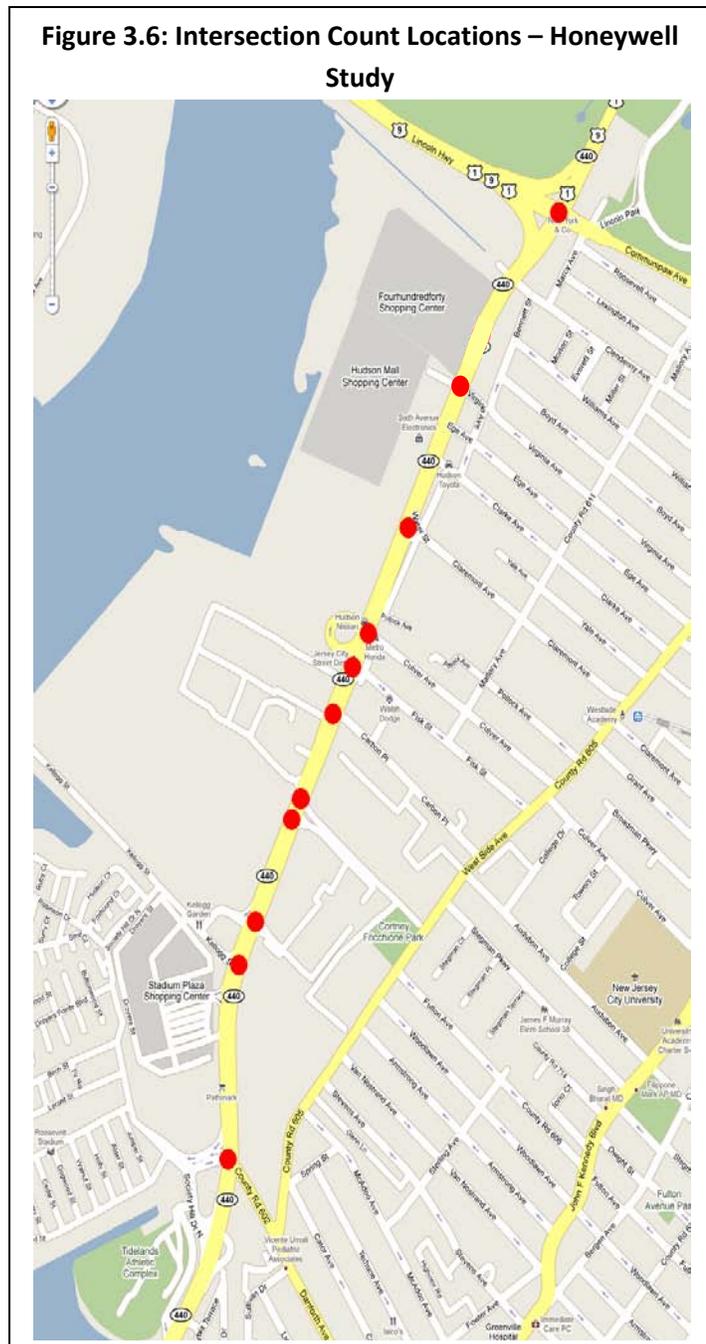


3.2.3 Honeywell Corporation Route 440 Mixed-Use Development Access Management Traffic Study—June 2007

The Honeywell report includes weekday commuter peak (AM and PM) and Saturday midday counts at study intersections along the Route 440 corridor. Volumes for the following intersections were included in the study.

- Route 440 and Communipaw Avenue
- Route 440 and Virginia Ave
- Route 440 and Claremont Avenue
- Route 440 and Culver Avenue
- Route 440 and Fisk Street
- Route 440 and Carbon Place
- Route 440 and Stegman Street
- Route 440 and South Road
- Route 440 and Kellogg Street (north)/Home Depot
- Route 440 and Kellogg Street (south)
- Route 440 and Society Hill Drive (north)/Danforth Avenue

The intersection locations for which traffic volume data was assembled from the Honeywell (Bayfront) study are depicted in Figure 3.6. The assembled data is presented in Appendix 3.4.

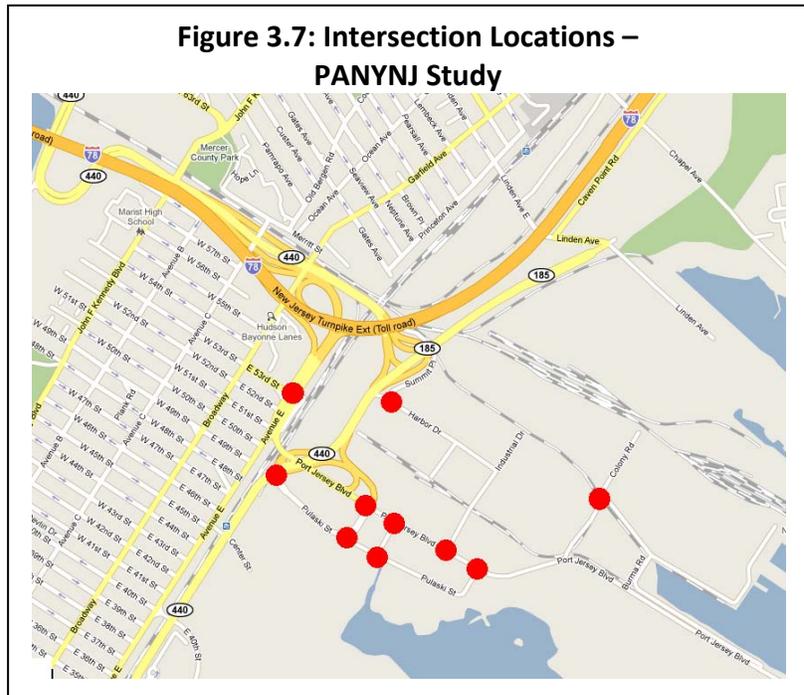




3.2.4 Port Authority of New York and New Jersey—March 2008

The PANYNJ data were collected in March 2008. Turning movement counts were collected for a fourteen hour period from 5:00 AM to 7:00 PM. Counts were recorded in fifteen-minute intervals by movement and vehicle classification (passenger car, truck, bus). These counts were collected at the following intersections (Figure 3.7).

- Avenue E/53rd Street and NJTP
- Route 440 and Pulaski Street
- Pulaski Street and AZ Container Road
- Port Jersey Boulevard and Route 440 ramps
- Pulaski Street and Pulaski Lane West
- Port Jersey Boulevard and Pulaski Lane West
- Port Jersey Boulevard and Industrial Drive
- Port Jersey Boulevard and Pulaski Street
- Port Jersey Boulevard and Colony Road
- Port Jersey Boulevard and Global Exit/Employee Lot
- Port Jersey Boulevard and Global Exit/2905 Guard Booth
- Port Jersey Boulevard and Global Exit/NEAT Employee Lot
- Port Jersey Boulevard and NEAT Chrysler RS
- Port Jersey Boulevard and Car Chute at NEAT
- Port Jersey Boulevard and NEAT Gate 2 – BMW Access Road
- Port Jersey Boulevard and NEAT Employee Lot
- Harbor Drive and Summit Place



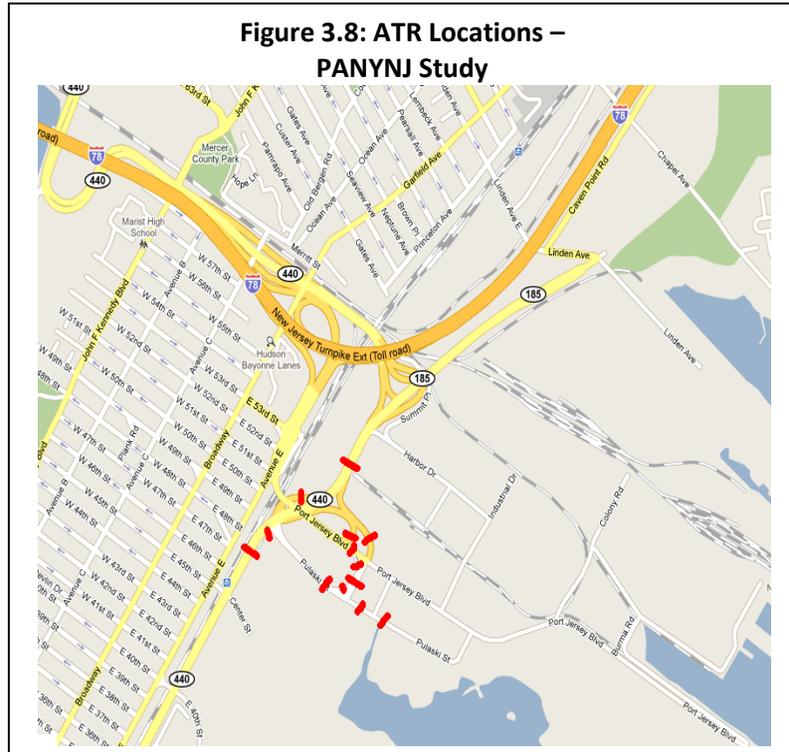
The assembled data is presented in Appendix 3.5.

ATRs were also installed along roadways south of the study corridor by the PANYNJ. While not located along the subject study corridor or within the primary study area, these locations



(Figure 3.8) are included in the regional travel demand models being developed for this study. These ATRs recorded the volume of traffic for a seven-day period in fifteen-minute intervals at the following locations.

- Port Jersey Boulevard on Approach to the Overpass Above Route 440
- Route 440 South of Pulaski Street
- Route 440 north of Port Jersey Boulevard ramps
- Route 440 Jughandle to Pulaski Street
- Pulaski Street between AZ Connector Roadway and Pulaski Lane West
- Port Jersey Boulevard Off Ramp to Route 440 NB
- Pulaski Street east of Route 440
- AZ Connector Roadway between Pulaski Street and Port Jersey Boulevard
- Pulaski Street east of Pulaski Lane West
- Route 440 Northbound Off Ramp
- Port Jersey Boulevard eastbound Off Ramp
- Port Jersey Boulevard east of Pulaski Street
- Industrial Drive north of Port Jersey Boulevard
- Port Jersey Boulevard and Auto Marine Terminal
- Port Jersey Boulevard and Neat Terminal
- Port Jersey Boulevard between AZ Connector



The assembled data is presented in Appendix 3.5.

3.3 Aerial Vehicle Origin / Destination (O-D) Survey

An aerial origin and destination (O-D) survey was used to provide inputs to the regional transportation model (RTM), enhancing the macro-scale model with accurate micro-scale data. The increase in accuracy resulted in more realistic modeling of the effects of the potential Route 440/Routes 1&9T alternatives.

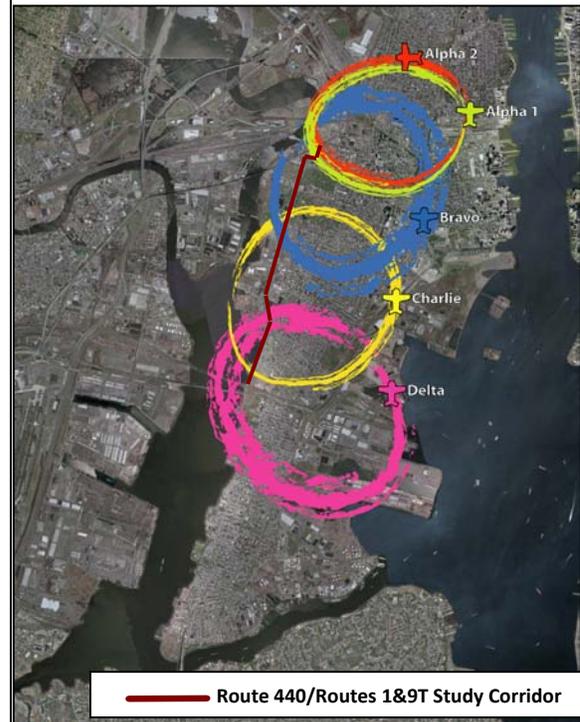
The aerial O-D survey involved two steps: aerial photography with supplemental ground-mounted photography and data reduction. The aerial photography portion photographed the corridor, while the data reduction phase analyzed voluminous data, and distilled the results into useable input quantities for the regional model.

3.3.1 Aerial Photography and Ground-Mounted Photography

In order to quantify Origin and Destination (O&D) pairs for heavy truck and general traffic traveling along Route 440 and Routes 1&9T within the study corridor, the survey area included the primary study corridor, and also extended southward along Route 440 corridor to the intersection with Pulaski Street in the City of Bayonne, and northward along Routes 1&9T to the intersection with Tonnelle Avenue. This survey utilized multiple airplanes and ground-mounted cameras at key locations along the corridor to photograph vehicles and track their movements through the study area roadway network. The morning peak period survey was conducted on Tuesday, August 4, 2009 from 7:00 a.m. to 9:00 a.m. The evening peak period survey was conducted on Wednesday, August 26, 2009 from 4:00 p.m. to 6:00 p.m.

During the survey periods, five (5) Cessna airplanes were flown simultaneously in fixed patterns designated as Alpha, Bravo, Charlie and Delta circling specific overlapping areas along the corridor (Figure 3.9). A single plane was assigned to flight patterns Bravo, Charlie and Delta. Two

Figure 3.9: Overlapping Fields-of-View Flown by the Cessna Aircraft





airplanes, Alpha 1 and Alpha 2, were assigned to the same area that covered the complex intersection of Route 440/Routes 1&9T, Route 7, and the Pulaski Skyway.

Still photographs of each field of view were taken every two seconds as the aircraft traveled in a circular path between 8,000 and 10,000 feet above their assigned field-of-view. The two-second interval was used to ensure that specific vehicles could be identified with certainty from one photograph or field-of-view to the next. The cameras onboard each aircraft were fixed on the assigned field of view such that the photography was consistent in its extent and scale regardless of the position of the aircraft in its assigned loop.

3.3.2 Aerial O-D Data Reduction and Analysis

The analysis portion of the aerial O-D survey included both manual and automated analysis of the aerial photographs taken during the two peak period flight sessions. Multiple vehicle trip origin and destination points were defined at the primary roadways entering/exiting the study area, and at the driveways to major vehicle trip generators along the corridor. Vehicle origin and destination points were selected based upon a review of the area roadway network and existing traffic volume data assembled for other studies in the area. All significant roadways providing access to or from the study corridor were included in the O-D survey. Minor driveways and street intersections with low levels of existing vehicular activity were excluded from the survey.

Each photograph taken during each two-hour flight was numerically tagged for use in sequencing the photographs. Data analysts then identified and marked each red or white vehicle and all trucks beginning at one of the origin points along the corridor. 150 red or white cars (including SUVs) and all tractor-trailers were selected at each origin point. The red and white cars provided an adequate sample size, and selecting only two colors of vehicles helped to ensure that the same vehicle was tracked from one photograph to the next. Vehicles entering the survey area were tracked until reaching a defined destination.

Using a marker, vehicles were identified in subsequent photos as they traveled through the survey area. Each time the vehicle was marked, a record was written to a table that included the vehicle ID, vehicle type, location of the vehicle (pixel x, y address), and photo name. After vehicles were successfully tracked to one of the destinations, the information was recorded in the proprietary software SkyTracker2™. Output tables from the software provide calculated origin and destination percentages for each location within the corridor. Tables from the SkyTracker2 software were then exported into spreadsheets for use in the calibration of the



roadway network traffic assignment model developed for this study (Section 5.1). Appendix 3.6 contains origin and destination definitions and origin and destination percentage tables.

3.4 Base Mapping / Survey

Accurate base mapping is essential in the design and evaluation of corridor alternatives, as the base map describes the existing limits of right-of-way and property lines and is essential in establishing new right-of-way, setback or build-to lines. Development of the land survey was based on a combination of existing data research and new field work.

3.4.1 Existing Data Research

The New Jersey Department of Transportation (NJDOT) and the City of Jersey City were contacted to obtain and verify existing data. NJDOT Geodetic Survey was contacted to determine the availability of survey control in the project area. This data referenced previous survey markers establishing horizontal and vertical control points that would be used to develop the ground field survey as well as the aerial survey.

Current tax maps were obtained from the City of Jersey City Tax Assessor. The tax maps were used in establishing the existing graphic right-of-way for the project. Unfortunately, the Tax Assessor indicated that in many areas the current tax maps are not coincident with the actual status of lot and block designations and ownerships throughout the project area, creating a number of inconsistencies between property owner record listings and the tax maps. The City of Jersey City is in the process of updating the tax maps, but the process is complex and will take more time than is available to complete the survey for the Route 440/Routes 1&9T study. As a result, some inconsistencies found could not be resolved during this survey effort.

For the following locations, the property owner information was not available based upon a search of the existing tax maps. These parcels are possibly owned now or formerly by the Lehigh Valley Railroad:

- At intersection of Carbon Place & Route 440: Lot 1 – no Block shown on tax map.
- At intersection of Fisk Avenue & Route 440: Block 1292.1 Lot 3
- At intersection of Culver Avenue & Route 440: Block 1292.1 no Lot shown on tax map.
- At intersection of Claremont Street & Route 440: Lot 11Q - no Block shown on tax map
- At intersection of Clarke Avenue & Route 440: Lot 11O- no Block shown on tax map



At the following locations, access was granted for the street through an easement shown on the General Property Parcel Map. However, the easements are not identified on the tax maps:

- Ege Avenue intersection at Lot 11M – Block not shown on tax map
- Virginia Avenue intersection at Lot 11M – Block not shown on tax map
- Jug handle @ Virginia Avenue at Block 1746.5 Lot 4

Ownership information could not be obtained for the following parcels. They are possibly owned now or formerly by Lehigh Valley Railroad.

- Block 1289.5 Lot 1
- Block 1292.1 Lot 4
- Block 1292.1 Lot 5

The owner(s) of the following parcels along the eastern side of Route 440 from Culver Avenue to approximately 250feet south of Clendenny Avenue could not be firmly identified. No Block number was provided on the tax map. They are possibly owned now or formerly by Lehigh Valley Railroad, however that could not be confirmed.

- Block ?? Lot 11P
- Block ?? Lot 11E
- Block ?? Lot 11N
- Block ?? Lot 11K
- Block ?? Lot 11M
- Block ?? Lot 11L
- Block ?? Lot 11D
- Block ?? Lot 11C



3.4.2 Field and Aerial Survey

Cooper Aerial performed an aerial survey of the study corridor using the control points provided by NJDOT Geodetic Survey. The aerial mapping plots were reviewed and finalized by survey technicians to verify standards and prepare field edit plots for the ground survey crews. The ground survey crews performed a detailed field verification of edits of the aerial mapping plots, noting and field locating any discrepancies. The assembled data were in the NJ State Planar Coordinate system and were utilized to develop base mapping of the study corridor with spot elevations at 1-foot intervals.

3.4.3 Annotation of Basemap

The tax map data provided by the tax assessment office of the City of Jersey City was scanned, scaled, and vectorized so that the data could be overlain on the base map. Placing the tax data on the surveyed base map required the use of property markers, of which there were only a few, as well as fence lines, curb lines, and other landmarks. As described above, inconsistencies in the tax map data were expected, and as a result, the annotation of property owner data on the base map is incomplete in some areas. Where data was available, the base map was updated to reflect current ownership information. Utilizing recent survey data developed as part of other on-going initiatives along the study corridor, adjustments were made to the assembled property line data for use in the study. These adjustments were generally located on the section of Routes 1&9T between Communipaw Avenue and Duncan Avenue, and along Route 440 between Kellogg Street and Carbon Place.

The annotated base map was integrated into the CAD system for development and presentation of alternative boulevard concepts. The existing right-of-way along the corridor was superimposed upon the aerial base map and is presented in Appendix 3.7.