

PURPOSE AND NEED STATEMENT

Route 17 Bottleneck Project, MP 10.19 to 12.04
Alternatives Analysis and Preliminary Engineering
Borough of Maywood, Township of Rochelle Park, and Borough of Paramus
Bergen County
March 2010

Project Purpose

The purpose of the Route 17 Bottleneck Project is to improve mobility, safety, and reliability of the infrastructure and operations along Route 17 between Milepost 10.19 (Essex Street interchange) and Milepost 12.04 (vicinity of the entry to Route 17 southbound from Garden State Plaza). This bottleneck section exists where the six-lane Route 17 Principal Arterial (three lanes in each direction) is reduced to four lanes (two in each direction) within these limits. The Route 17 Bottleneck section is a commercial corridor centrally located in Bergen County, with residential streets abutting Route 17 to the west.

Project Need

Four particular Project Needs have been identified:

- Alleviate traffic congestion and improve operational reliability along the Route 17 corridor between these limits;
- Restore the appropriate functional hierarchy and balance between Route 17 and parallel local and county streets;
- Improve safety in the project corridor, and;
- Improve the condition and reliability of the corridor infrastructure, including structures, pavements, drainage and related features, that are in an advanced state of deterioration, are functionally obsolete or structurally deficient, or fail to meet current design or environmental standards.

To attain the Purpose and Need for this project, this statement defines the manifestations of each Project Need, as identified by various documents, statistics and studies performed in the corridor to date. These elements are described below.

Alleviate Traffic Congestion and Improve Operational Reliability of the Route 17 Corridor

This section of Route 17, known as the Route 17 Bottleneck, is the recognized “weak link” in the northeastern New Jersey region’s north-south roadway network. As a key commuter route linking northern Bergen County and New York State to the New Jersey / New York metropolitan core, this section of Route 17 is heavily congested during weekday peak periods. This section of Route 17 also effectively serves as a northerly extension of the New Jersey Turnpike to the Garden State Parkway and the New York State Thruway. For trucks traveling between the Turnpike and the Thruway, Route 17 is the only available north-south through roadway between the Hudson River and the Route I-287 corridor. Additionally, the Route 17 corridor within Paramus has grown into the primary commercial corridor within northern New Jersey. That section of the Route 17 corridor, including the northerly portion of the bottleneck section, exhibits regular shopping-related congestion on Saturdays as well as during seasonal peaks and weekday PM peak periods.

In addition to the reduced number of through lanes in the bottleneck section, geometric limitations of the segment, include substandard shoulder widths, frequent and substandard access and egress driveways and inadequate speed change lanes. Together these factors create corridor turbulence that disrupts mainline operations.

As a result of high traffic demands, ongoing regional growth, and capacity constraints, this section of Route 17 has been the site of chronic delays during and beyond the traditional commuter peak periods. Route 17 and the surrounding highway network have been strained to create today's severely deficient conditions.

According to the New Jersey Department of Transportation's Bureau of System Planning, this section of Route 17 is within the single most congested commuter corridor within the entire state of New Jersey (based on Year 2006 volume data). The volume to capacity (V/C) ratio of 1.5 in the bottleneck section underscores the severity of these deficiencies and the magnitude of the actions needed to properly correct these deficiencies. The level of congestion in this section, according to the North Jersey Transportation Planning Authority (the Metropolitan Planning Organization for the thirteen counties of northern and north-central New Jersey) places this section of Route 17 in the top 1% of roadways within the agency's purview, and the section has been deemed to be a "High Priority" location for action by the NJDOT and the NJTPA.

Contributing factors to these concerns include:

- Over forty distinct points of access and/or egress along this short section of Route 17, with several driveways located within the speed change lanes for the Passaic Street and Farview Avenue interchanges;
- Seven current cross street intersections (five southbound) require sharp, low-speed turns from substandard width shoulders or from the right mainline travel lanes, and interfere with interchange movements at Passaic Street (northbound) and Essex Street (southbound).
- The use of Route 17 corridor in place of local street connections between areas north and south of the New York, Susquehanna and Western (NYS&W) Railroad.

While there is an extensive network of bus service in the area, this segment of Route 17 is not widely used by transit because of the extreme levels of congestion and undependable travel times that buses would encounter if they did use it.

Restore the Appropriate Functional Hierarchy and Balance between Route 17 and Parallel Local and County Streets

The chronic and regular periods of congestion in this corridor, well known to local stakeholders and regular commuters, lead to diversions of regional through traffic to other routes not properly suited to meet these demands. Even at their lower speeds, county roadways such as Maywood Avenue, Rochelle Avenue / Farview Avenue and Saddle River Road are perceived by drivers as being quicker or more convenient for through or regional trips originating and/or destined to the north and south of the corridor. Conversely, the numerous driveway and minor cross street intersections (see attached table and Straight Line Diagram) along Route 17 provide local connectivity for short commercial-and residential-generated trips that are better suited to the county and other roadways, themselves congested by Route 17 overflows.

Consultations with local stakeholders and police traffic safety officers in the communities along the Route 17 corridor have long substantiated the concerns posed by traffic diversions into local

communities. Aerial photography obtained as a part of the Route 17 Concept Development / Feasibility Assessment Study performed for the NJDOT indicate and illustrate the issues of local congestion caused by the inadequacy of through capacity within this Route 17 Bottleneck section, and the lack of local connectivity between opportunities within and adjoining the Route 17 corridor.

Improve Safety in the Project Corridor

This section of the Route 17 corridor has long been cited as having crash rates and other measures of safety reflecting operations that are worse than statewide averages for comparable facilities. The local communities within this project corridor also perceive that diversions from the Route 17 bottleneck section into their communities adversely affect the crash history and safety of residential and downtown areas.

Current Bureau of Safety Programs data indicates that Route 17 MP 10.19 to 12.04, for the three-year period of January 1, 2005 to December 31, 2007, had an actual crash rate of 3.06 as compared to the 2007 statewide average of 1.98. As illustrated on the attached Collision Line Diagram, this section experienced 677 crashes in the three-year period which equates to more than 1 crash every other day. These frequent occurrences must be addressed by the local police and first responders placing a financial burden on the local municipalities. These particular concerns are consistent with arterial roadways lacking physical characteristics that meet current design standards. Incorporation of current design standards into the geometric and roadside design features of the Route 17 Bottleneck corridor is expected to reduce both the frequency and severity of crashes.

Improve the Condition and Reliability of the Corridor Infrastructure

The current (Year 2008) NJDOT Management System findings in these disciplines indicate:

- **Structures:** The six bridges carrying the Route 17 mainline over local and county roadways and railroad rights of way, as well as an abandoned industrial access road, and a seventh bridge carrying Farview Avenue over Route 17, have been determined by the NJDOT through its Biennial Inspection Program to be Structurally Deficient and/ or Functionally Obsolete. Six of these structures are nearly 80 years old with four of these having structural capacity ratings well below current NJDOT standard of an HS 45 rating. Five of the seven bridges appear on the NJDOT Structural Evaluation's "Project Recommendations 2007" lists for projects that should advance to CD/FA based on their high ranking in the Bridge Management System. Aside from the recently replaced Essex Street bridge at the southern end of the corridor, the only structure to have been replaced is the Farview Avenue bridge (in 1994).
- **Drainage:** A March 18, 2009 memorandum from the NJDOT Drainage Management Unit indicates that flooding has been reported on Route 17 from M.P. 10.19 to 12.50 in years 2007 and 2008. Flooding tabulations show that forty-two (42) individual flooding events occurred in a two-year period (2007 and 2008) between M.P. 10.19 and 12.04. A construction improvement project, Contract Number 010960211, for the reconstruction of the Essex Street interchange from M.P. 9.874 to 10.522 was awarded on June 26, 2007 and has been completed along Route 17. That project made drainage improvements in the southern portion of this project's limits. The flooding reports show that twenty one (21) of the 42 individual flooding events occurred from M.P. 10.6 to 11.9, outside the limits of Contract 010960211, and therefore these problems are believed to remain.

- Substandard Design Features: The Route 17 Bottleneck section has numerous substandard design features that have been shown to affect corridor operations and/or safety, including:
 - Substandard Lane Width
 - Substandard Median Shoulder Width
 - Substandard Right (Outer) Shoulder Width
 - Substandard Ramp Radius
 - Substandard Stopping Sight Distance (Horizontal)
 - Substandard Stopping Sight Distance (Vertical)
 - Substandard Auxiliary / Speed Change Lane Length
 - Substandard Vertical Clearance (Cross Street / Railroad)
 - Substandard Bridge Width
 - Substandard Structural Capacity

The structural ratings and controlling substandard design elements are summarized in the attached table.

Project Goals and Objectives

A series of Goals and Objectives that will be considered in addressing the Project Purpose and Need is provided below.

- *Promote complementary transportation facilities and services* – Improvements to Route 17 not only will seek to serve peak hour commuter needs and alleviate congestion, but also will improve service to shoppers accessing the extensive commercial facilities in the corridor; to trucks carrying freight locally, regionally and nationally; and to transit both by providing on-highway travel time reductions and dependability for buses, and by facilitating access to car pool, bus, and rail park-and-rides and stations.
- *Enhance regional economic development* - Consideration of redevelopment plans will support the success of the redevelopment, enhancing local and county employment and ratable opportunities. In addition to traditional weekday commuter peaks, improved corridor operational reliability during Saturday and seasonal peak shopping periods will benefit existing commercial activities.
- *Improve “Quality of Life” issues within the study corridor related to the deficiencies of the Route 17 Bottleneck Section* - Improvements will help to reduce noise levels and improve air quality on local roads, and to enhance safety and mobility for bicyclists and pedestrians across the corridor and within the project area.
- *Reduce exposure of local residential and commercial areas to regional Route 17 traffic* - Opportunities to combine or upgrade existing driveways or to modify access to utilize local streets will be examined, in order to improve safety and operational efficiency.
- *Avoid, minimize, and mitigate environmental impacts.*

Route 17 Bottleneck M.P. 10.19 to M.P. 12.04
Summary of Access Points, Structural Ratings,
and Controlling Substandard Design Elements

Access Points

Direction	Driveways	Local Streets	Interchange Ramps	Total Access Points
Rt. 17 NB	22	2	5	29
Rt. 17 SB	18	5	7	30
Total NB+SB	40	7	12	59

Structural Ratings

Structure No.	Name	M.P.	Yr. Built	Sufficiency Rating	Structure. Def. (S.D.) / Func. Obs. (F.O.)
0214-153	NJ Route 17 over Abandoned Industrial Access Road	10.76	1932	52.0	F.O.
0214-157	Route NJ 17 over NYS & W RR (spur)	10.83	1932	43.7	F.O.
0214-158	NJ Route 17 over NYS & W RR	10.84	1931	51.0	F.O.
0214-159	NJ Route 17 over Central Avenue	10.91	1931	48.9	S.D. / F.O.
0214-160	NJ Route 17 over East Passaic Street (CR 109)	11.46	1931	48.4	F.O.
0214-161	NJ Route 17 over Pleasant Avenue	11.55	1932	53.8	F.O.
0214-162	Farview Avenue (CR 111) over NJ Route 17	11.82	1994	74.4	F.O.

Controlling Substandard Design Elements (Roadway and Structural)

Lane Width (Outer Lane)

Mile Post	Dir.	Description	Existing	Required
10.68 – 10.86	NB	Rt. 17	11.5' w/o Shld.	12.0' w/Shld.
10.89 – 10.96	NB	Rt. 17	11.5' w/o Shld.	12.0' w/Shld.
11.30 – 11.36	NB	Rt. 17 deceleration lane to Passaic Street exit	10' w/o Shld.	13'
10.68 – 10.86	SB	Rt. 17	11.5' w/o Shld.	12.0' w/Shld.
10.89 – 10.96	SB	Rt. 17	11.5' w/o Shld.	12.0' w/Shld.
11.30 – 11.42	SB	Rt. 17 acceleration lane from Passaic Street entrance	10' w/o Shld.	13'
11.61 – 11.72	SB	Rt. 17 acceleration lane from Farview Avenue entrance	10' w/o Shld.	13'

Route 17 Bottleneck M.P. 10.19 to M.P. 12.04
Summary of Access Points, Structural Ratings,
and Controlling Substandard Design Elements

Shoulder Width Inside

Mile Post	Dir.	Description	Existing	Required
10.50 – 11.88	NB	Rt. 17	Var. 1' – 2'	3' Min. 5' Desirable
10.50 – 11.88	SB	Rt. 17	Var. 1' – 2'	3' Min. 5' Desirable

Shoulder Width Outside

Mile Post	Dir.	Description	Existing	Required
10.68 – 10.86	NB	Rt. 17	None	10' Min. 12' Desired
10.89 – 10.96	NB	Rt. 17	None	10' Min. 12' Desired
11.29 – 11.31	NB	Rt. 17 from Prospect Street to north of Passaic Street	None	10' Min. 12' Desired
11.35 – 11.82	NB	Rt. 17 from south of Pleasant Avenue to Farview Avenue	None	10' Min. 12' Desired
10.68 – 10.86	SB	Rt. 17	None	10' Min. 12' Desired
10.89 – 10.96	SB	Rt. 17	None	10' Min. 12' Desired
11.29 – 11.31	SB	Rt. 17 from Prospect Street to north of Passaic Street	None	10' Min. 12' Desired
11.35 – 11.82	SB	Rt. 17 from south of Pleasant Avenue to Farview Avenue	None	10' Min. 12' Desired

Ramp Radius

Mile Post	Dir.	Description	Existing	Required
11.82	SB	Ramp from Rt. 17 to Farview Avenue	35'	150'

Horizontal Stopping Sight Distance

Mile Post	Dir.	Description	Existing	Required
10.68 – 10.82	NB	Rt. 17 Right Lane	414'	495'
11.52 – 11.82	NB	Rt. 17 Left Lane	389'	495'
10.64 – 10.82	SB	Rt. 17 Left Lane	313'	495'

Route 17 Bottleneck M.P. 10.19 to M.P. 12.04
Summary of Access Points, Structural Ratings,
and Controlling Substandard Design Elements

Vertical Curve Stopping Sight Distance

Mile Post	Dir.	Description	Existing	Required
10.74 – 10.94	NB/SB	Rt. 17 Crest Curve over NYS&W RR and Central Avenue	470'	495'
10.96 – 11.06	NB/SB	Rt. 17 Sag Curve north of Central Ave.	407'	495'

Acceleration Lane Length

Mile Post	Dir.	Description	Existing	Required
11.61 – 11.72	SB	Rt. 17 from Farview Avenue entrance	570'	785'

Vertical Clearance

Structure No.	Mile Post	Description	Existing	Required
0214-158	10.84	Rt. 17 over NYS&W RR	21'	23'
0214-160	11.46	Rt. 17 over East Passaic Street	13.9'	14'-6"
0214-162	11.82	Farview Ave. over Rt. 17	16.2'	16'-6"

Bridge Width

Structure No.	Mile Post	Description	Existing	Required
0214-153	10.76	Rt. 17 over Abandoned Industrial Access Road	46'	50'
0214-157	10.83	Rt. 17 over NYS&W RR Spur	48'	50'
0214-158	10.84	Rt. 17 over NYS&W RR	46'	50'
0214-159	10.91	Rt. 17 over Central Avenue	46'	50'
0214-160	11.46	Rt. 17 over Passaic Street	46'	50'
0214-161	11.55	Rt. 17 over Pleasant Avenue	45.8'	50'

Structural Capacity

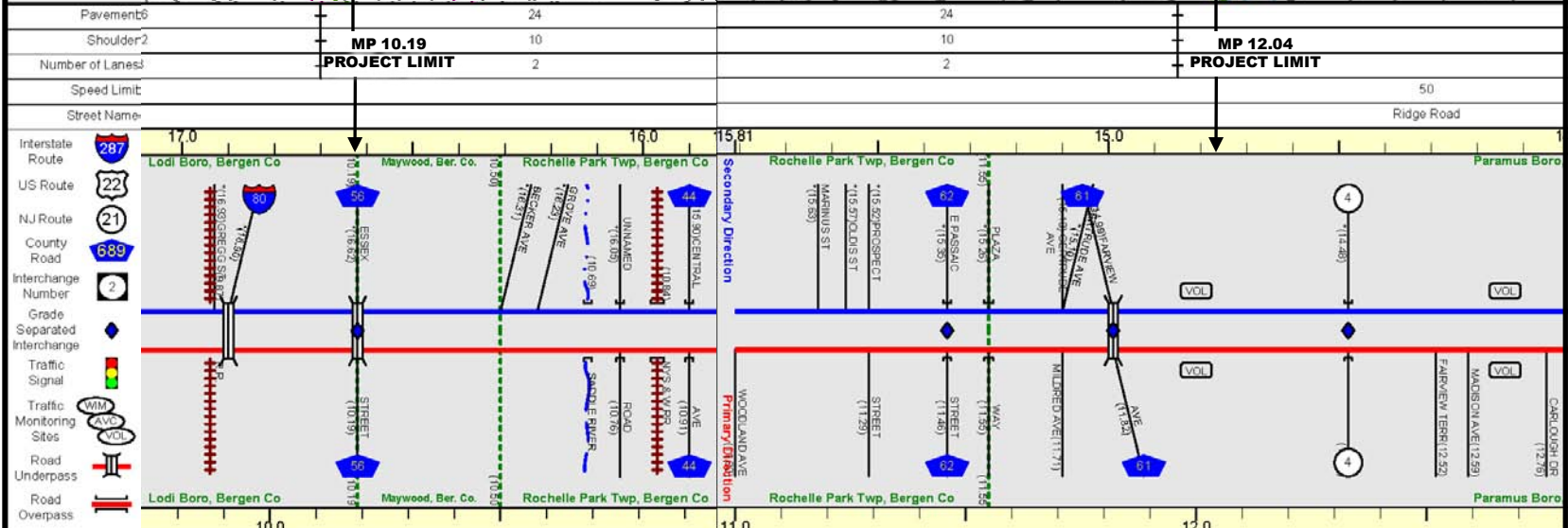
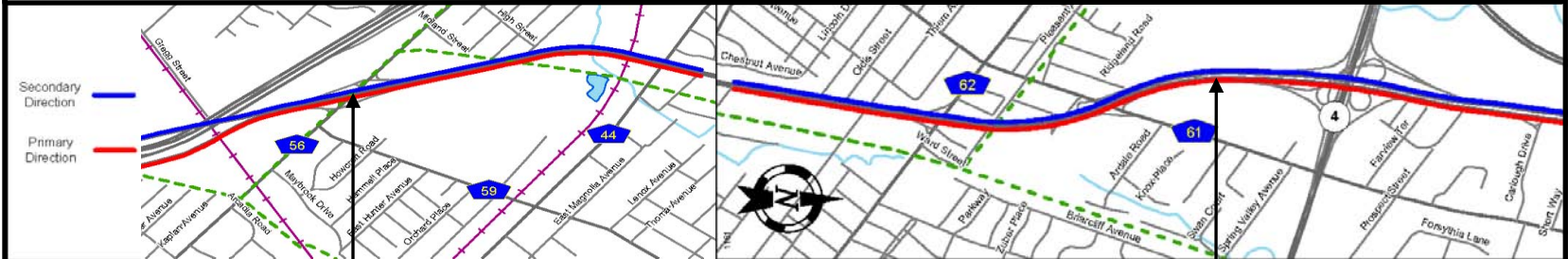
Structure No.	Mile Post	Description	Existing	Required
0214-157	10.83	Rt. 17 over NYS&W RR Spur	HS19	HS45
0214-158	10.84	Rt. 17 over NYS&W RR	HS38	HS45
0214-159	10.91	Rt. 17 over Central Avenue	HS34	HS45
0214-160	11.46	Rt. 17 over Passaic Street	HS32	HS45

NOTES:

1. Driveways and local streets have not been evaluated for intersection sight distance.
2. Cross slopes and superelevation have not been evaluated for highway lanes.

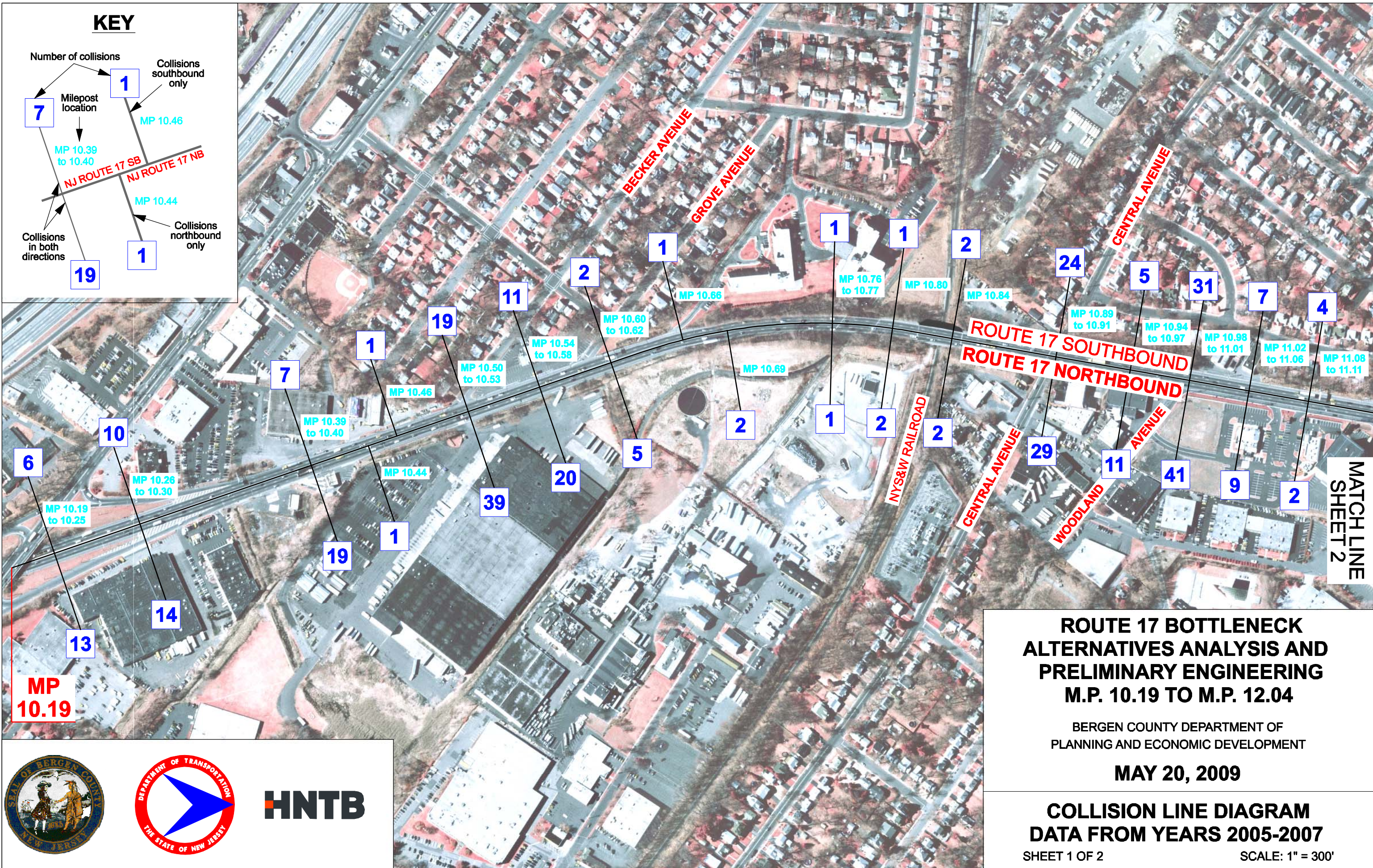
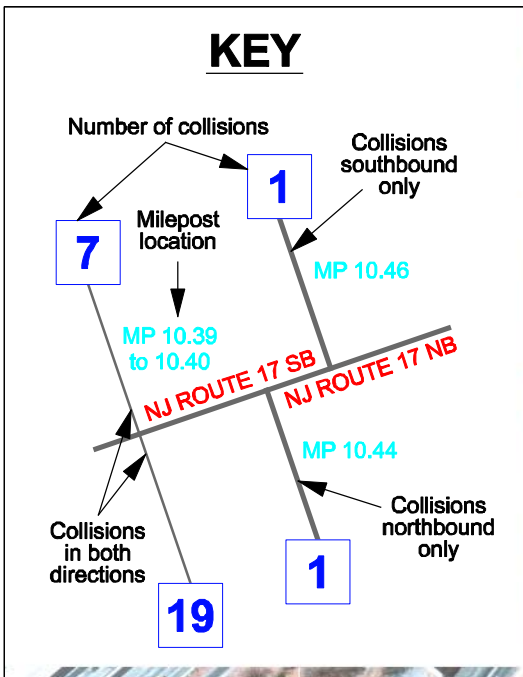
NJ 17 (South to North)

Mile Posts: 9.7 – 12.8



Street Name					Ridge Road			
Jurisdiction					N.J.D.O.T.			
Functional Class					Urban Principal Arterial			
Federal Aid - NHS Sy					NHS			
Control Section	0214				0214			
Speed Limit					50			
Number of Lanes	2				2			
Med. Type	Positive				Positive			
Med. Width	8				4			
Pavement	24				24			
Shoulder 2	10				10			
Traffic Volume					151,266 (2006)			
Traffic Sta. ID					2-1033			
Structure No.	0226150,151	0214152	0214153	0214158	0214160	0214161	0214162	0214150
Enlarged Views	NA							

SOURCE: NJDOT STRAIGHT LINE DIAGRAMS, STATE ROUTE 17, JANUARY 2007



**ROUTE 17 BOTTLENECK
ALTERNATIVES ANALYSIS AND
PRELIMINARY ENGINEERING
M.P. 10.19 TO M.P. 12.04**

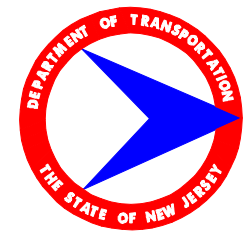
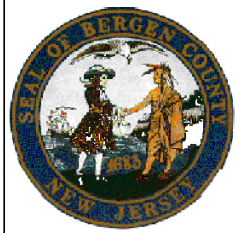
BERGEN COUNTY DEPARTMENT OF
PLANNING AND ECONOMIC DEVELOPMENT

MAY 20, 2009

**COLLISION LINE DIAGRAM
DATA FROM YEARS 2005-2007**

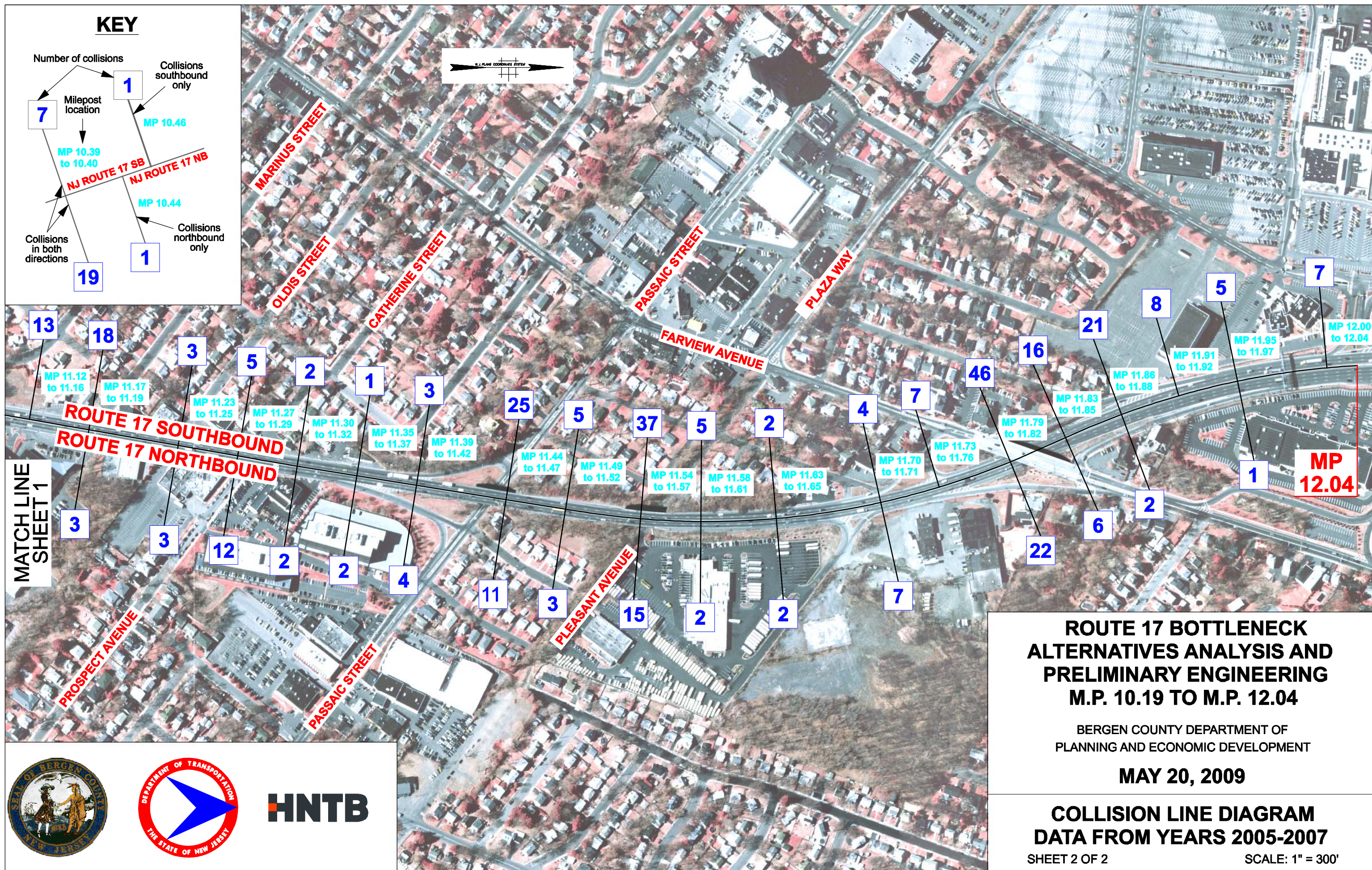
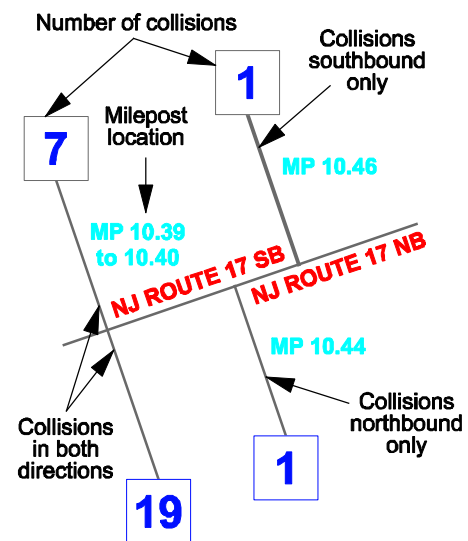
SHEET 1 OF 2

SCALE: 1" = 300'



HNTB

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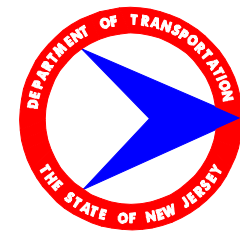
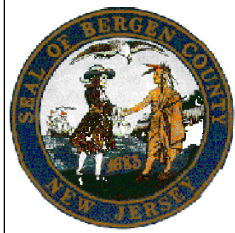


**ROUTE 17 BOTTLENECK
ALTERNATIVES ANALYSIS AND
PRELIMINARY ENGINEERING
M.P. 10.19 TO M.P. 12.04**

BERGEN COUNTY DEPARTMENT OF
PLANNING AND ECONOMIC DEVELOPMENT

MAY 20, 2009

**COLLISION LINE DIAGRAM
DATA FROM YEARS 2005-2007**



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