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## TRAFFIC STUDY

Proposed FedEx Ground Hub

Industrial Park Road

Middletown, CT

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## EXECUTIVE SUMMARY

Expansion of a FedEx Hub along Industrial Park Road and Middle Street is proposed. The Site is part of the former Aetna Insurance Company division headquarters and is roughly bordered by Division Street to the north, Industrial Park Road to the east, Middle Street to the west and the Aetna data center to the south. Access to the Site will be provided for internal employee passenger cars on Middle Street and for trucks and truck drivers on Industrial Park Road.

This study investigated the traffic impact associated with the expansion of a FedEx Hub during the weekday morning and evening peak hours. Weekday morning and evening peak hour traffic volumes were obtained at key nearby intersections in November of 2020. Current peak hour traffic volumes were developed using 2014 counts by applying an annual growth factor of 1% to the balanced count profiles approved in the original 2015 "Aetna Subdivision Exp. / FedEx Ground Hub, OSTA Number: 082-1506-01" study. To stay conservative, traffic volumes at the driveway sites utilized forecasted volumes for "proposed current operation" as these volumes were higher than 2020 observed. For the proposed expansion, the FedEx Ground Hub is assumed to generate approximately 5,910 trips per day, and an additional 451 (82 enter, 369 exit) vehicle trips during the weekday morning peak hour, and 483 (327 enter, 156 exit) during the weekday evening peak hour by the year 2030.

This study also investigated the removal of the expansion to the satellite parking area on Industrial Park Road where it was previously proposed for truck drivers to leave their personal cars, pick up a tractor, and drive to the hub to get a trailer. This expansion of the satellite parking area is no longer proposed. However, an expansion of two existing trailer parking lots is proposed. The inbound trailer lot on the northwest corner of the property would expand by 52 trailer spaces and the outbound southeast trailer lot would expand by 42 trailer spaces. Access to both parking lots would remain via existing curb cut on Industrial Park Road.

The traffic operations at the intersections studied will remain essentially unchanged and for most locations at acceptable levels. Some existing issues that may be further exacerbated by the FedEx expansion project, or perceived to be, as well as other concerns identified in the details of the analyses are identified. While there are no large system level traffic improvements needed, there are observed, existing, or projected background, problem areas that should be addressed in the future by municipal or State agencies independent of the FedEx project. Moving forward, the following should be considered:

**By FedEx:**

1. The proposal must be submitted to the Office of State Traffic Administration (OSTA) to obtain a Certificate of Operation as a major traffic generator under Section 14-311 of the Connecticut General Statutes.
2. All large trucks should use the I-91 interchange at Route 372 (exit #21). Trucks oriented towards other regional expressways, I-84, Route 9 and Route 72 could legally use Route 372 to reach the Site, but we recommend that the large trucks stay on the expressway network to avoid mixing with local traffic.
3. Industrial Park Road at proposed Hub driveway – This “T” intersection was formally signalized and currently it operates with a warning sign flashing beacon. Based on the FedEx traffic volume projections, the traffic analysis shows the traffic signal is not warranted and under forecasted volumes the intersection will operate at LOS “A” and “C” during morning and evening peak hours.
4. Proposed third access point at Main Street helps the distribution of vehicular site generated traffic during peak hours. All three driveways perform at adequate LOS of “B” and “C”.

## By Municipal and / or State Agencies:

1. The all-way stop at Country Club Road at the I-91 NB off ramp (exit #20) has a background "F" level of service during the morning peak period, with the off-ramp at "F". While FedEx has a minimal impact here, the City of Middletown and CTDOT should consider further warrant analysis, as a traffic signal would provide benefit during the peak periods.
2. The all-way stop at Country Club Road at Middle Street and the I-91 SB on ramp (exit #20) has a background "F" level of service during both peak periods studies, with westbound Country Club Road or Middle Street at "F". While FedEx has a minimal impact here, similarly if warranted, a traffic signal would provide significant benefit. Providing additional travel lanes on Middle Street and westbound Country Club Road in conjunction with a traffic signal would be even more beneficial. While there is right of way available for geometric improvements, a pump station in the northeast corner limits the possibility of improvement.
3. The level of service at the stop controlled I-91 SB off ramp (exit #20) at Middle Street has a background "F" level of service during the evening peak period. While there may be an increase in delay for ramp traffic, there is still sufficient capacity for the movement. Vehicles turning right from the ramp may already bypass left turners, resulting in better than computed operation.
4. The Industrial Park Road (stop controlled) level of service at Smith Street during the evening peak period is projected to go from "E" to "F". While there may be an increase in delay for Industrial Park Road traffic, there is still sufficient capacity for the movement. Two possible options to improve traffic flow include implementation of an all-way stop, which would reduce the Industrial Park Road delays (at the expense of Smith Street). The second option would be to widen the Industrial Park Road to provide two lanes approaching Smith Street. There is sufficient right of way to provide two approaching lanes. This would require

restriping of Industrial Park Road from the former Aetna Site drive to Smith Street in the southbound direction.

5. Continued improvements along Route 372 as the pre-existing conditions indicate poor levels of service. Signal timing improvements have shown some improvements along the overall signalized intersections.

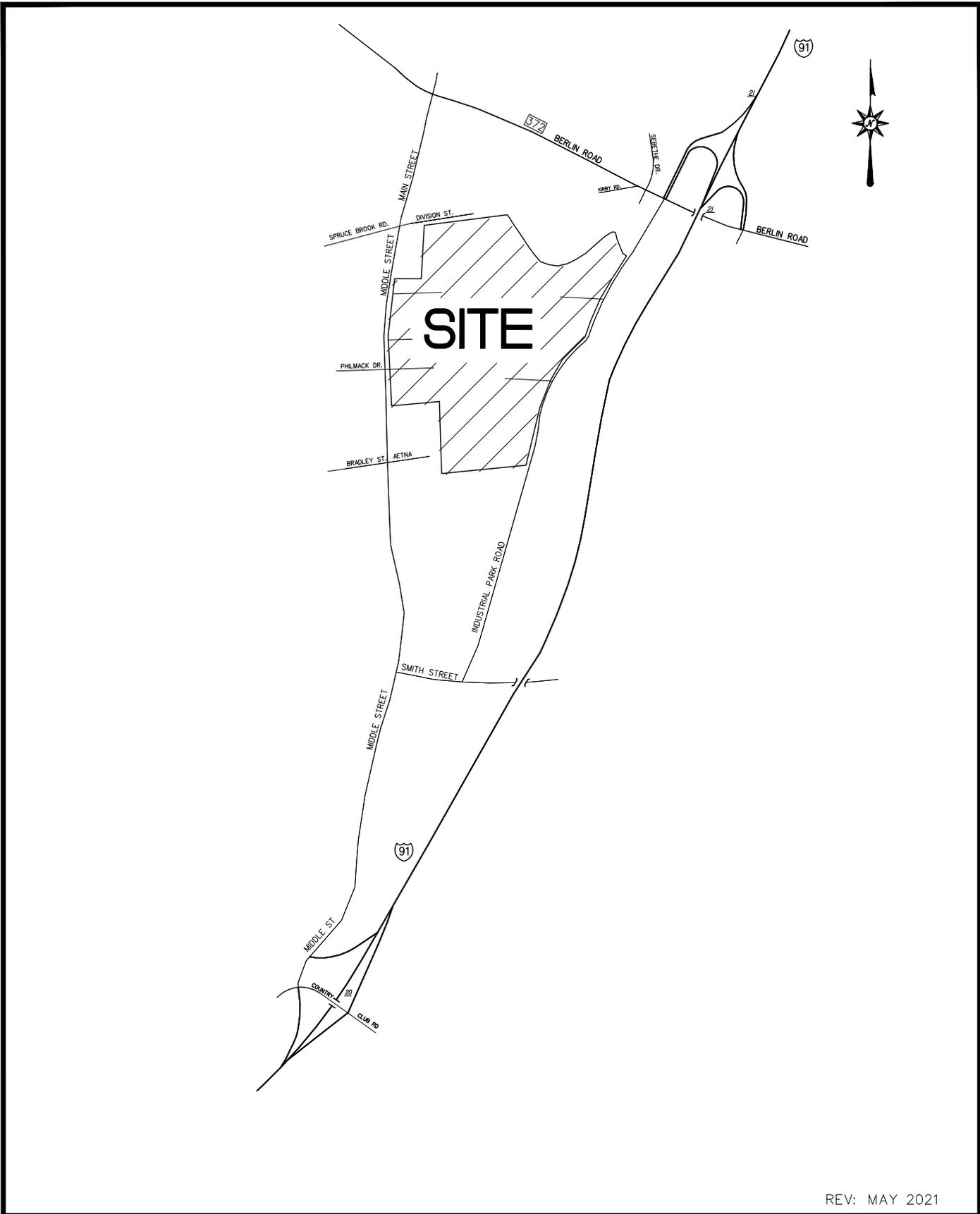
## I. INTRODUCTION

The expansion of the FedEx Ground Hub is located on a 239 +/- acre site and is roughly bordered by Division Street to the north, Middle Street to the west, Industrial Park Road to the east, and the Aetna data center to the south. **See Figure 1.** It was formerly the Site of a major Aetna Insurance Company facility. Originally constructed in 1983, the Aetna facility contained about 1.4 million square feet of floor area, with over 5,000 employees and 4,600 parking spaces. That facility, except for the data center, was vacated in 2010 and demolished in 2011.

The FedEx Ground Hub has a certain operational characteristic that impacts the way traffic utilizes the Site. There will be essentially two separate circulation and access networks. The parking area for the cars of internal employees (package handlers, etc.) will be accessible only from Middle Street and not connected for vehicular circulation to the truck parking areas at the hub, nor to Industrial Park Road. The truck parking areas at the hub will be accessible only from Industrial Park Road and similarly not connected circulation wise to the passenger car parking area or to Middle Street. The Industrial Park Road access for the main hub (trucks) is via the existing yellow warning traffic signalized Aetna entrance. A new access / egress point is proposed on Middle Street between two existing driveways to address queuing in the parking lot.

This study investigated the traffic impact associated with the proposed expansion of the FedEx Ground Hub development during the weekday morning and evening peak traffic periods. These represent the peak periods for traffic on the adjacent street system. The FedEx hub traffic may actually peak at times outside the commuter peak, but for a conservative worst-case analysis, it was assumed the two coincide. This study also investigated the removal of the expansion to the satellite parking area on Industrial Park Road where it was previously proposed for truck drivers to leave their personal cars, pick up a tractor, and drive to the hub to get a trailer. This expansion of the satellite parking area is no longer proposed. However, an expansion of two existing

trailer parking lots is proposed. The inbound trailer lot on the northwest corner of the property would expand by 52 trailer spaces and the outbound southeast trailer lot would expand by 42 trailer spaces. Access to both parking lots would remain via existing curb cut on Industrial Park Road.



REV: MAY 2021



**SITE LOCATION  
FEDEX HUB  
MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 1**

## II. EXISTING CONDITIONS

An investigation of the existing conditions on the adjacent roadway network formed the basis for assessing any traffic issues associated with a FedEx Ground Hub operation. This investigation included a field reconnaissance, field traffic counting, and research of pertinent planning and traffic data at local and State agencies.

### Access Network

The project study area consists of the signalized intersections at the following locations:

- Route 372 (Berlin Road) at I-91 SB ramps and Industrial Park Road
- Route 372 (Berlin Road) at I-91 NB ramps
- Route 372 (Mill Street) at Main Street
- Middle Street at Smith Street
- Middle Street at Aetna driveway and Bradley Street

Primary access roads in the Site vicinity include Interstate 91, Route 372 (Berlin Road / Mill Street), Country Club Road, Industrial Park Road and Middle Street. Other roads of potential interest include Main Street and Smith Street.

**Interstate 91** bisects the state as a limited access north-south expressway facility. In the vicinity of the Site, Interstate 91 is a six-lane highway. A split interchange (exit #20) exists with Country Club Road and Middle Street about 1.75 miles south of the Site, in the City of Middletown. The I-91 northbound ramps intersect Country Club Road about one quarter mile east of Middle Street. The I-91 southbound ramps are on Middle Street, the on ramp at the Middle Street / Country Club Road intersection, and the off ramp 500 feet to the north on Middle Street. A full interchange (exit #21) is found at Route 372 (Berlin Road) in the Town of Cromwell, about three quarters of a mile north of the Site. The southbound ramps intersect Route 372 (Berlin Road) directly opposite Industrial Park Road, and the northbound ramps are located about one quarter mile to the east.

**Route 372 (Berlin Road and Mill Street)** is an east-west oriented minor arterial, running through the Towns of Berlin and Cromwell near the Site. In the Town of Cromwell, Route 372 (Berlin Road) is a 4-6 lane facility. Abutting lands are heavily developed commercially with restaurants, retail stores, motels, etc. The roadway has a 40 mile per hour speed limit and is generally straight and flat with sporadic illumination. There are traffic signals at both I-91 ramp intersections and at Walmart to the west of the interchange. In the Town of Berlin, Route 372 (Mill Street) is a two-lane facility with a 40 mile per hour speed limit. Abutting lands are more developed. There is a traffic signal at the Main Street intersection.

**Country Club Road** is a two-lane City of Middletown roadway, classified as a minor arterial by CTDOT. The speed limit is 25 miles per hour. Abutting lands are residential east of I-91. Between I-91 and Middle Street, Country Club Road is on a downgrade. The roadway width is 40 feet. There is sporadic illumination and a sidewalk only across the I-91 bridge. There are all-way stops at both the I-91 NB off ramp and the Middle Street / I-91 SB on ramp intersections. In the immediate interchange area the most noticeable land use is the headquarters of the Connecticut Department of Emergency Services and Public Protection. There is also a park and ride lot adjacent to the southbound on ramp.

**Industrial Park Road** is a 1.6 mile long, north-south oriented facility running between Route 372 (Berlin Road) in the Town of Cromwell and Smith Street in the City of Middletown. It is classified as a collector by CTDOT. In the Site vicinity, between I-91 and the former Aetna driveway, once signalized, Industrial Park Road is a 52 feet wide, 3-4 lane roadway. One of the two southbound travel lanes, which we believe once continued all the way to the Aetna driveway, has been eliminated by pavement markings about one mile from Route 372 (Berlin Road). The speed limit is 35 miles per hour and Industrial Park Road has a gently rolling alignment. Illumination is provided.

There are a few commercial driveways near the Route 372 (Berlin Road) intersection and a park and ride lot. There are no other curb cuts between Route 372 (Berlin Road) and the former Aetna driveway. From the former Aetna driveway southerly to Smith Street, Industrial Park road is a two-lane facility 40'-48' in width. Abutting developed lands consist primarily of manufacturing and light industrial uses.

**Middle Street** is a two lane, north-south oriented City of Middletown roadway running between Country Club Road and Division Street / Spruce Brook Road. It is classified as a collector by CTDOT. The speed limit is 35 miles per hour and illumination is provided. Roadway widths vary from about 39'-40' between Country Club Road and Smith Street; 29'-30' between Smith Street and the Aetna driveway / Bradley Street intersection; and 39'-40' from that location north to Division Street.

### **Intersection Characteristics**

Several key intersections were reviewed in this study to determine if they would be impacted by the expected site traffic volumes. They are as follows:

- **Route 372 (Berlin Road) at I-91 SB ramps and Industrial Park Road** - This signalized intersection shares operations and traffic signal phasing with the Sebethe Drive intersection, located about 250 feet to the west. At the main intersection, both Route 372 (Berlin Road) approaches have a left turn lane, two through lanes and a right turn lane. The northbound approach, Industrial Park Road, has a left turn lane, a through lane and a channelized right turn lane. The I-91 SB off ramp has a left turn lane, two through lanes and a right turn lane. At the Sebethe Drive intersection, Route 372 (Berlin Road) eastbound has a left turn lane and two through lanes. The Route 372 (Berlin Road) approach has two through lanes. Sebethe Drive has a left turn lane, a left / through lane and a right turn lane. Directly opposite Sebethe Drive is an entrance only curb cut for McDonald's. The traffic signal phasing is complex due to the need to control both intersections

and includes protected only left turn phasing for Route 372 (Berlin Road) at the main intersection, internal clearances, protected / permitted left turn phasing for the off ramp and Industrial Park Road, as well as emergency vehicle pre-emption.

- **Route 372 (Berlin Road) at I-91 NB ramps** - This signalized intersection, located about a quarter of a mile east of the I-91 SB ramps is part of a CTDOT coordinated system along Route 372 (Berlin Road). Route 372 (Berlin Road) has two through lanes in each direction along with an eastbound left turn lane and a westbound right turn lane. The left turn is protected / permitted in the traffic signal sequence. The I-91 off ramp has three lanes, two for left turns and one for right turns. There is a walk phase to cross Route 372 (Berlin Road) on the east side of the intersection, as well as emergency vehicle pre-emption. From field observations and traffic counts, a westbound left turn was modeled as permitted for vehicles accessing development abutting the intersection.
- **Route 372 (Mill Street) at Main Street** - This signalized intersection is located about three quarters of a mile west of the I-91 SB ramps. There is another signalized intersection (Walmart) between the two. Route 372 (Mill Street) eastbound has a left / through lane and a right turn lane. Route 372 (Mill Street) westbound has a left turn lane and a through / right lane. The Main Street approaches to the intersection each have a single lane. The traffic signal provides simple two-phase operation.
- **Industrial Park Road at former Aetna driveway** – This formally signalized “T” type intersection is located about 0.8 miles south of Route 372 (Berlin Road). The traffic signal has been replaced with a warning sign flashing beacon. Northbound Industrial Park Road has two travel lanes. Southbound from Route 372 to the former Aetna driveway has two travel lanes with one turning into exclusive right

turn lane approximately 0.4 miles to the north. To the south of the intersection, Industrial Park Road currently has a single travel lane. The former Aetna driveway has two left turn lanes and a right turn lane at the intersection.

- **Industrial Park Road at Smith Street** - This unsignalized "T" intersection is located about 0.8 miles south of the former Aetna driveway. Industrial Park Road is stop controlled.
- **Middle Street at Smith Street** - This signalized "T" type intersection is located about one-fourth of a mile west of the Industrial Park Road intersection. All approaches are single lane. There is protected / permitted phasing for the Middle Street southbound approach. The traffic signal operation was very inefficient when observed during a morning period. A truck tire path has been worn off the pavement in southeast corner of the intersection.
- **Middle Street at Aetna driveway and Bradley Street** - This signalized intersection is located about two-thirds of a mile north of Smith Street. Northbound Middle Street has a left / through lane and a channelized right turn lane. Southbound Middle Street has a left turn lane and a through lane. Bradley Street has a single approach lane and the Aetna driveway, which services their data center, has a left / through lane and a channelized right turn lane. The traffic signal phasing provides protected / permitted southbound left turns.
- **Middle Street / Main Street at Division Street and Spruce Brook Road** - Located about 0.7 mile north of the existing signalized Aetna driveway, this all-way stop is at the Middletown / Berlin boundary. All approaches are one lane.
- **Middle Street at I-91 SB off ramp** - The off ramp is "Stop" controlled at this "T" intersection. All approaches are single lane.

- **Middle Street at Country Club Road and I-91 SB on ramp** - This intersection, located about 500 feet south of the I-91 SB off ramp is an all-way stop. All approaches are one lane.
- **Country Club Road and I-91 NB ramps** - This intersection, located about 1000 feet east of Middle Street is an all-way stop.

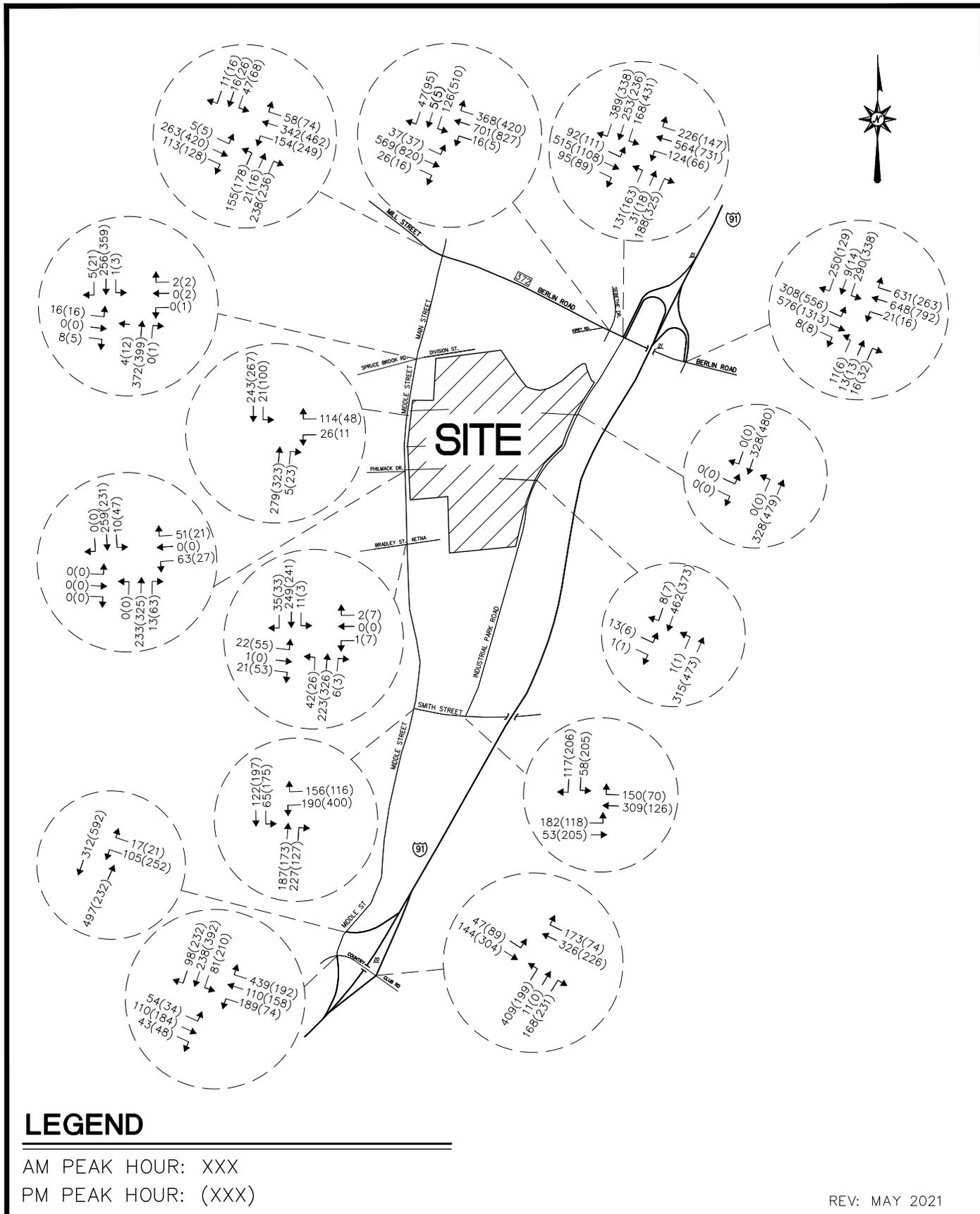
### **Existing Traffic Volumes**

Weekday morning and evening peak hour traffic volumes were obtained at the above intersections in November of 2014. In addition, turning count movements were obtained at the four access / egress points to the FedEx Ground Hub operation site. These counts were performed the week of November 16, 2020 and it should be noted that these counts are impacted by the COVID-19 Pandemic. CTDOT has published guidance concerning traffic count data regarding COVID-19.

Daily traffic volumes, while not used in capacity analyses, provide an indication of the roadway usage and function. Interstate 91 carries nearly 122,900 daily trips north of Exit 21 ramps. The Route 372 (Berlin Road) interchange (exit #21) handled over 20,500 daily trips. The corresponding I-91 interchange on Country Club Road / Middle Street (exit #20) handled approximately 11,900. Daily traffic volumes on Route 372 (Berlin Road) range from about 11,000 at the Berlin / Middletown line to just over 24,600 east of I-91. Industrial Park Road carried daily traffic volumes ranging from about 7,500 trips near Route 372 (Berlin Road) to 6,100 near Smith Street. Main Street in Berlin carried 5,100 daily trips, while Middle Street carried about 7,600 near Country Club Road. Country Club Road carried 5,300 daily trips east of I-91. Smith Street north of Miner Street T-intersection carries 2,800 daily trips.

The current peak hour traffic volumes were developed using 2014 counts by applying an annual growth factor of 1% to the balanced count profiles approved in the original

2015 "Aetna Subdivision Exp. / FedEx Ground Hub, OSTA Number: 082-1506-01" study. To stay conservative, traffic volumes at the driveway sites utilized forecasted volumes for "proposed current operation" as these volumes were higher than 2020 observed. The current peak hour traffic volumes for the intersections are illustrated in **Figure 2**.



**CURRENT (2020) TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHMATIC, NOT TO SCALE

**FIGURE 2**

### **Truck Restrictions**

In the traffic study area and surroundings, truck restrictions exist at selected roadways.

### **Through Trucks**

“Section 14-298 of the Connecticut General Statutes (CGS) grants authority to the Office of the State Traffic Administration (OSTA) to prohibit through truck traffic of streets and highways within the limits of and under the jurisdiction of any city, town or borough within Connecticut for the protection and safety of the public.” The decision is made based on consideration of many factors including: roadway width, whether the road is a logical one for through trucks, the number and severity of curves and grades, sight line restrictions, roadside character and development, number and character of intersecting roads, traffic control devices, traffic volume and density, bridge clearances, speed limits, and the adequacy of alternate routes. If an investigation shows that a road is inadequate for through trucks, a reasonable alternate route must be available and a requests for through truck prohibitions must be submitted from each Local Traffic Authority (LTA) from all municipalities along the requested route to the Executive Director of the OSTA for review and consideration. In Connecticut, a through truck is defined as one that passes through a town without having an origin or destination in that town. If a truck originates or has a scheduled stop within that town, it would not be affected by a through truck prohibition. Sections of roadway observed with such restriction include:

- The section of Main Street in the Town of Berlin, which acts as the continuation of Middle Street, from the intersection with Division Street / Spruce Brook Road to Route 372 (Mill Street) is signed for "No Through Trucks".
- Smith Street east of Industrial Park Road is similarly signed.

The "No Through Truck" regulations posted on Main Street in the Town of Berlin and on Smith Street in the City of Middletown were approved by the Office of State Traffic

Administration. Therefore, no FedEx trucks can use Main Street unless they have a scheduled stop in the Town of Berlin.

- **Certain Large Trucks** - These are trucks with 53' trailers or double trailers, often referred to by their AASHTO designations of WB-67 and WB-67D. Trucks in Connecticut are regulated under Sections 14-261, 261a, 264, 267a, 269 and 270 of the Connecticut General Statutes, consistent with the requirements of the Federal Surface Transportation Assistance Act (STAA) of 1982. Pursuant to State statutes, 53' semi-trailers, and 28' doubles with an overall length not exceeding 65', may travel the designated highway system. This system includes State numbered Routes I-399, 450, 476, 508, 695, 695; the Interstate highway system; and State and Local roads for up to one mile from those routes to access to terminals, etc. FedEx uses trucks of this type and they may use the I-91 interchange at Route 372 (exit #21), Route 372 (Berlin Road) and Industrial Park Road to reach the Site, which is less than one mile from Route 372 (Berlin Road). However, they may not use the I-91 interchange with Country Club Road (exit #20), Country Club Road, or other connecting streets to reach the Site, which is more than one mile away, unless the one mile limit is waived by the Commissioner of Transportation.

### **Crash Data Analysis**

As part of the existing conditions analysis, crash data for the most recent five-year period from January 1, 2015 through December 31, 2019, was obtained from the Connecticut Crash Data Repository.

Three hundred eighty-six (386) crashes in the study area were reviewed; the most common crashes were the front to rear at thirty-eight percent (38%) followed closely by angle crashes at thirty percent (30%). The majority of crashes resulted in "No Apparent Injury" at eighty percent (80%). There were no fatalities and only sixteen (16) crashes associated with "Suspected Serious Injury" in the corridor for the five-year period.

According to the crash records mentioned above, Route 372 between Cross Street and Coles Road experienced the majority of the crashes in the corridor at seventy-eight (78 %) percent. Below **Table 1** summaries the crash data.

Table 1 – Crash Data Summary

Proposed FedEx Ground Hub, Industrial Park Road, Middletown, CT						
	Middle Street / Main Street	Industrial Park Road	Route 372 / Berlin Road	Smith Street	Total	Percent
<b>Year</b>						
2015	7	13	68	4	92	24%
2016	5	5	63	1	74	19%
2017	7	6	80	1	94	24%
2018	9	3	43	3	58	15%
2019	15	4	46	3	68	18%
Total	43	31	300	12	386	100%
<b>Crash Type</b>						
Angle	7	4	99	4	114	30%
Front to Front	1	0	2	0	3	1%
Front to Rear	15	6	121	3	145	38%
Not Applicable	16	11	31	4	62	16%
Other	0	0	5	0	5	1%
Rear to Rear	0	0	3	0	3	1%
Rear to Side	0	1	0	0	1	0%
Sideswipe, Opposite Direction	1	1	5	0	7	2%
Sideswipe, Same Direction	3	8	34	1	46	12%
Total	43	31	300	12	386	100%
<b>Severity</b>						
Fatal Injury (K)	0	0	0	0	0	0%
Suspected Serious Injury (A)	2	0	6	0	8	2%
Suspected Minor Injury (B)	3	2	22	1	28	7%
Possible Injury (C)	5	3	32	2	42	11%
No Apparent Injury (O)	33	26	240	9	308	80%
Unknown	0	0	0	0	0	0%
Total	43	31	300	12	386	100%
<b>Note:</b> Data collected from the Connecticut Crash Data Repository						

### III. PROJECTED TRAFFIC CONDITIONS

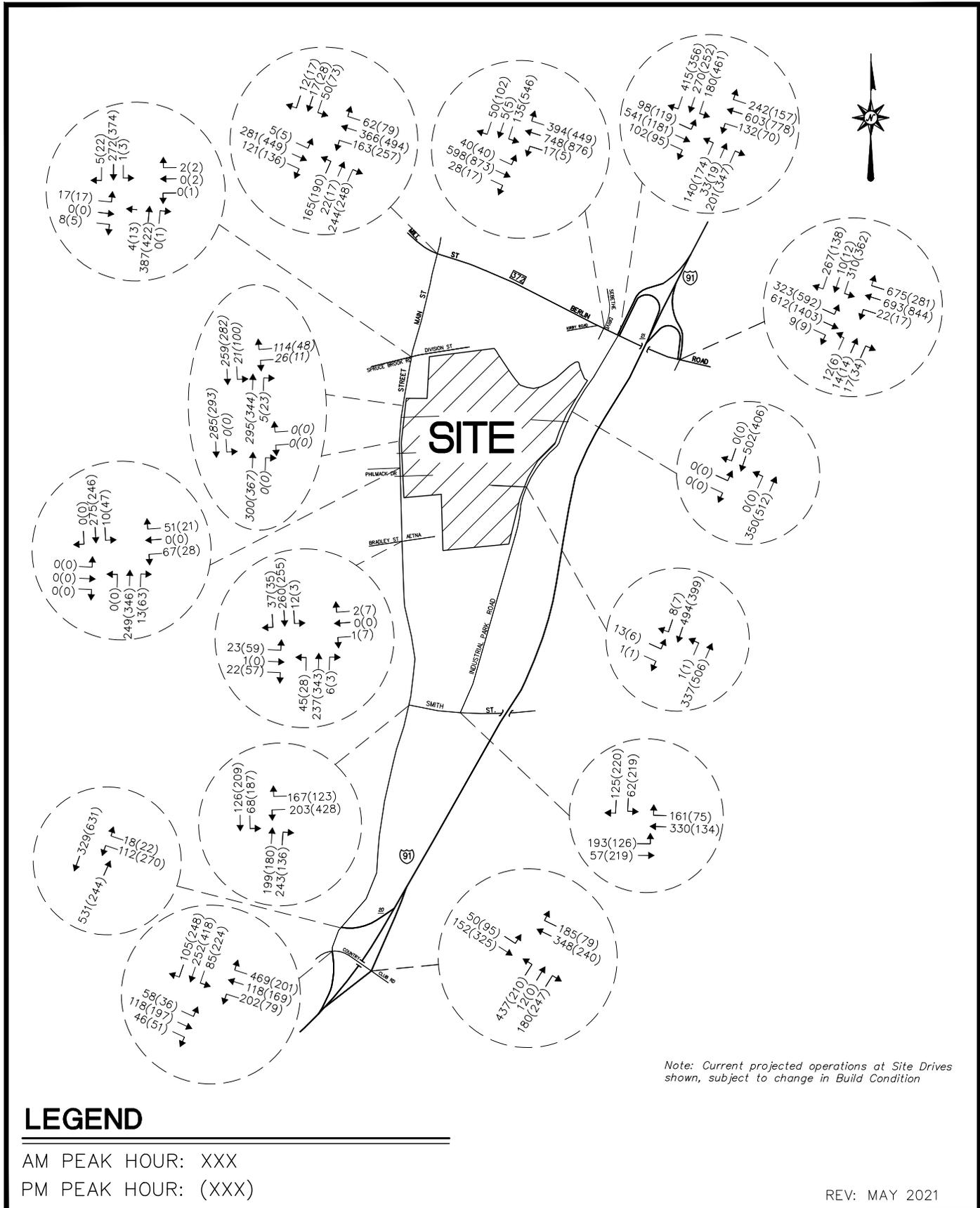
In order to evaluate traffic conditions when the proposed expansion is completed in 2030, future traffic volumes networks were forecast under the 2030 No Build Conditions (without the proposed expansion development) and under 2030 Build Conditions (with the proposed expansion development) were developed.

The projected traffic volumes on the roadway network under 2030 No Build conditions were assumed to include all existing traffic and new traffic resulting from background sources of traffic growth, including proposed current operation volumes at the proposed development. The project traffic volumes on the roadway network under 2030 Build conditions were assumed to include the anticipated project full expansion site-generated traffic volumes in addition to the assumed background traffic growth. A 1% annual growth rate was applied to the 2020 existing traffic volumes to develop the 2030 traffic volumes. The annual growth volumes were added to the Existing Traffic Volumes to determine the 2030 No Build Conditions (without the proposed expansion of a FedEx Hub) and under 2030 Build Conditions (with the proposed expansion development).

#### **No Build Traffic Volumes**

In addition to applying a growth rate, any approved or pending developments in the area that may add substantial traffic volume to the study intersections were considered. In discussions with Connecticut Department of Transportation and the town of Middletown there were no additional developments in the vicinity of the project.

**Figure 3** graphically illustrates the No Build Traffic Volumes.



# BACKGROUND 2030 TRAFFIC VOLUMES FEDEX HUB MIDDLETOWN, CONNECTICUT

SCHEMATIC, NOT TO SCALE

FIGURE 3

### **Trip Generation**

The distribution of anticipated site traffic onto the roadway network was based on the Site-specific operation and access characteristics, an estimate of the origin of employees based on journey to work data and anticipated large truck patterns from FedEx. As noted, the Site is designed for the majority of employees to park in the Middle Street lots and trucks to use Industrial Park Road.

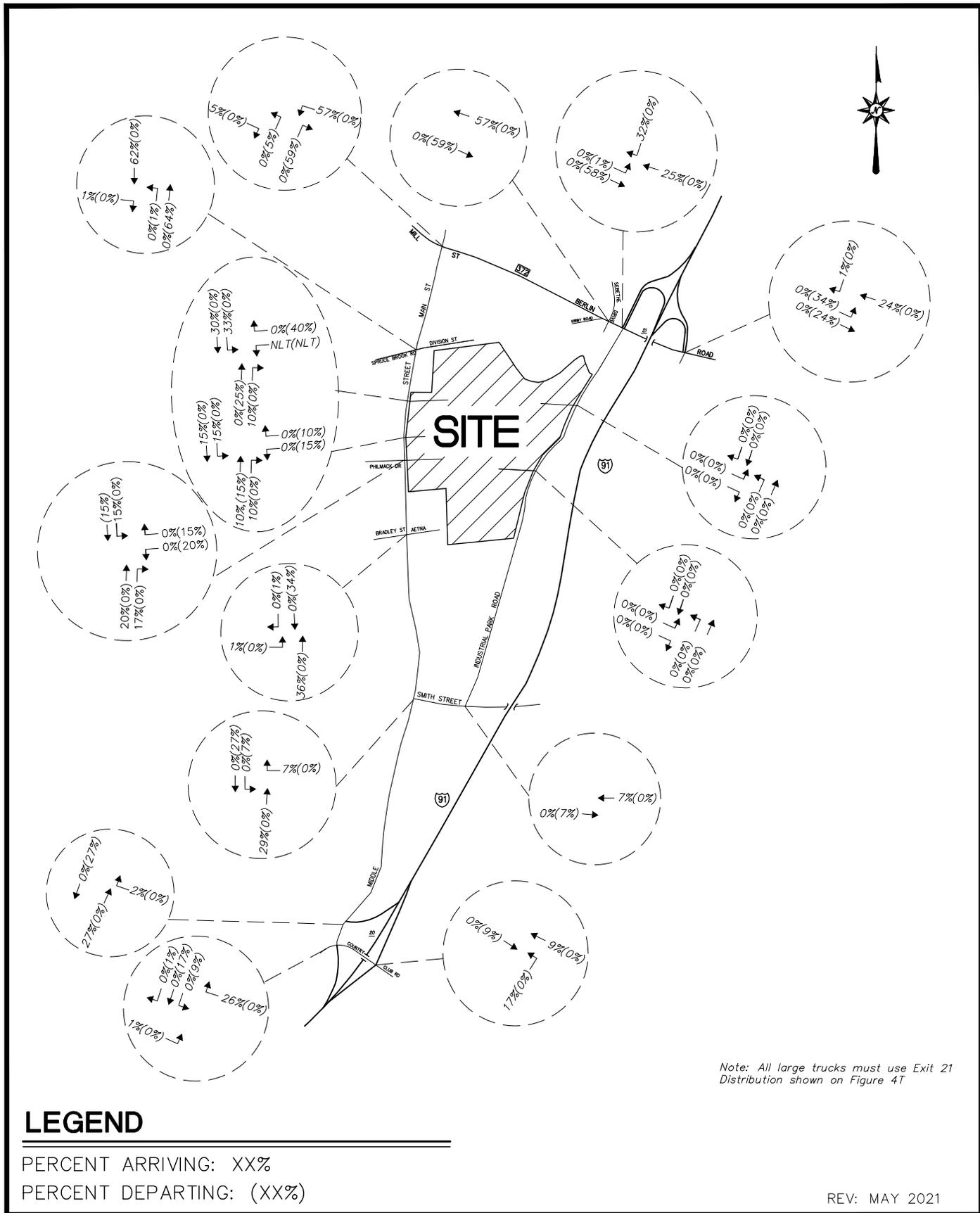
The level of traffic likely generated by the proposed expansion of a FedEx Hub station has been estimated by the tenant to aid in determining the potential traffic impact on the study intersections. The tenant completed a detailed analysis determining the number and time of site traffic arrivals and departures at the Site, which is a function of the delivery area population and business density. Approximately 35 percent of the daily traffic volume will consist of trucks. The proposed expansion to the Site is anticipated to generate a total of approximately 5,910 trips per day; the majority of which are off-peak hours. All of the large trucks will use I-91 interchange exit #21 at Route 372 (Berlin Road), primarily oriented to / from the north, per the FedEx service area. The anticipated trip distribution of passenger car traffic and large truck traffic are depicted in **Figure 4** and **Figure 5**. A summary of the peak hour trip generation projections for the proposed distribution station is presented in **Table 2**. As indicated in this table, the proposed expansion is projected to generate an additional 451 (82 enter, 369 exit) vehicle trips, during the weekday morning peak hour and 483 (327 enter, 156 exit) during the weekday evening peak hour by the year 2030. In the **Appendix**, table with 2015 originally proposed current operation peak hour trip generation projections can be found.

**Table 2 – Peak Hour Trip Generation**

Trips By	Trips					
	AM Peak Hour			PM Peak Hour		
	Total	In	Out	Total	In	Out
Autos	395	61	334	448	308	140
Trailer Trucks	56	21	35	35	19	16
Vans	0	0	0	0	0	0
<b>Net New Trips</b>	<b>451</b>	<b>82</b>	<b>369</b>	<b>483</b>	<b>327</b>	<b>156</b>
Ref: Trip Generation developed by Tenant 11/15/2020						

**Trip Distribution**

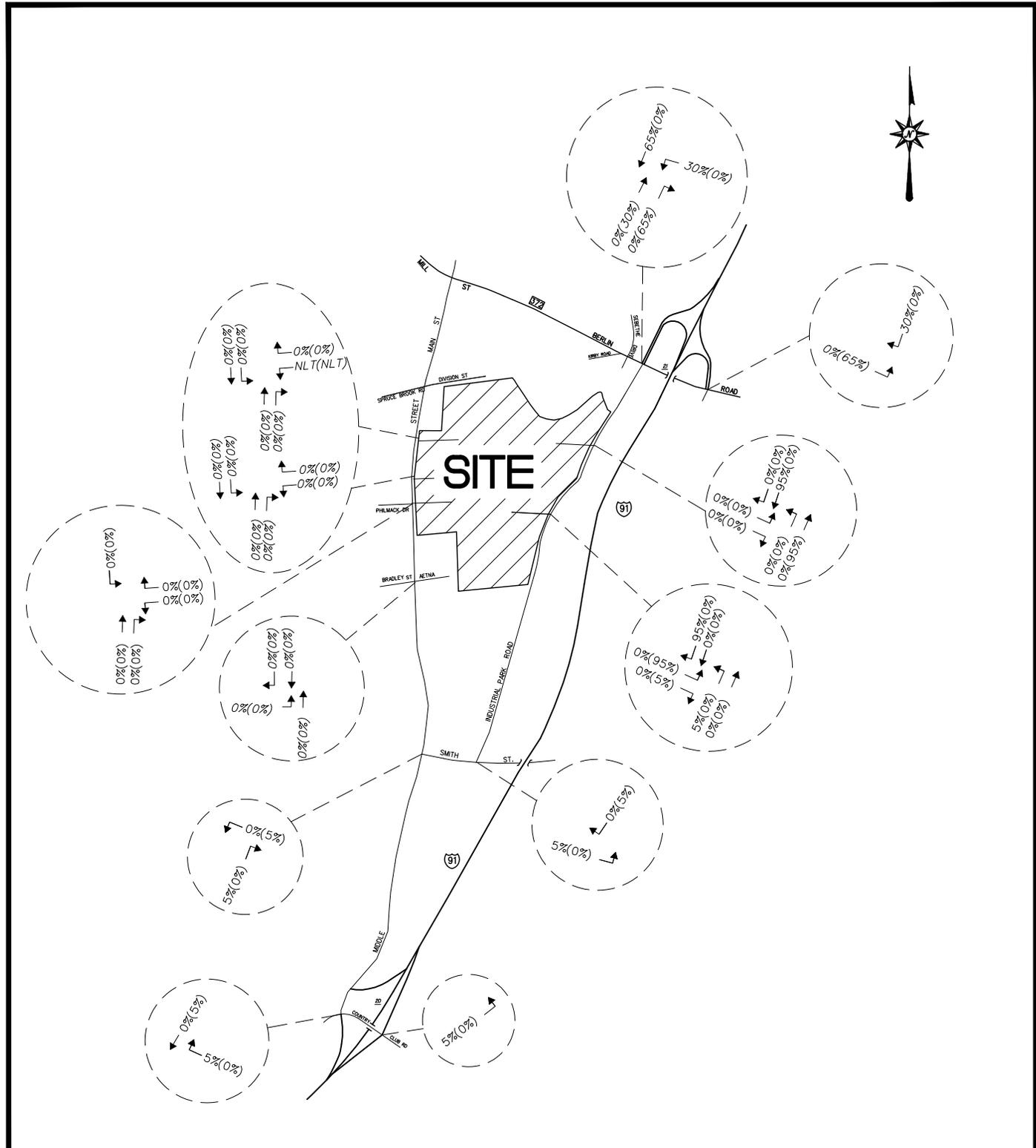
The directional distribution of traffic is typically a function of population densities, competing opportunities, existing travel patterns adjacent to the Site, and the efficiency and limitations of the existing roadway system. The distribution of specific operation site traffic onto the roadway network was based on the Site on journey to work data and anticipated large truck patterns from FedEx. Based upon the Site's close proximity to Interstate 91, it is anticipated that the majority of employees / delivery vehicles will utilize I-91 for access and egress from the Site. Approximately 35 percent of the daily traffic volume will consist of trucks. However, the peak hour traffic volume percentage will be much lower. All of the large trucks will use the I-91 interchange exit #21 at Route 372 (Berlin Road), primarily oriented to / from the north, per the FedEx service area. The distribution of the anticipated traffic volumes was based on arrival / departure patterns shown in **Figure 4** and **Figure 5** for vehicular and truck traffic respectively.



**TRIP DISTRIBUTION-AUTOMOBILES  
FEDEX HUB  
MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 4**



**LEGEND**

PERCENT ARRIVING: XX%  
 PERCENT DEPARTING: (XX%)

REV: MAY 2021



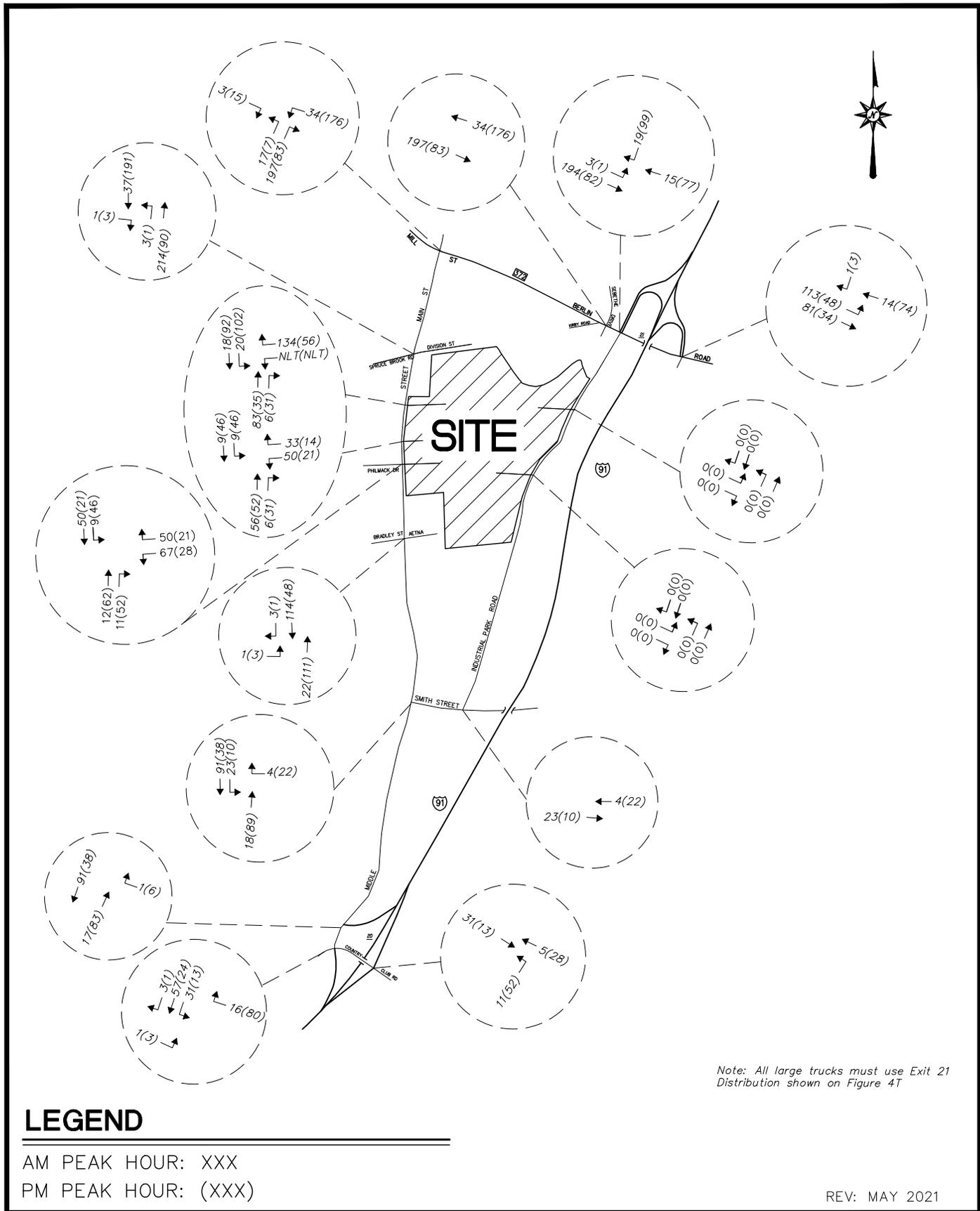
**TRIP DISTRIBUTION-TRUCKS  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHMATIC, NOT TO SCALE

**FIGURE 5**

### **Assigned Site Generated Traffic Volumes**

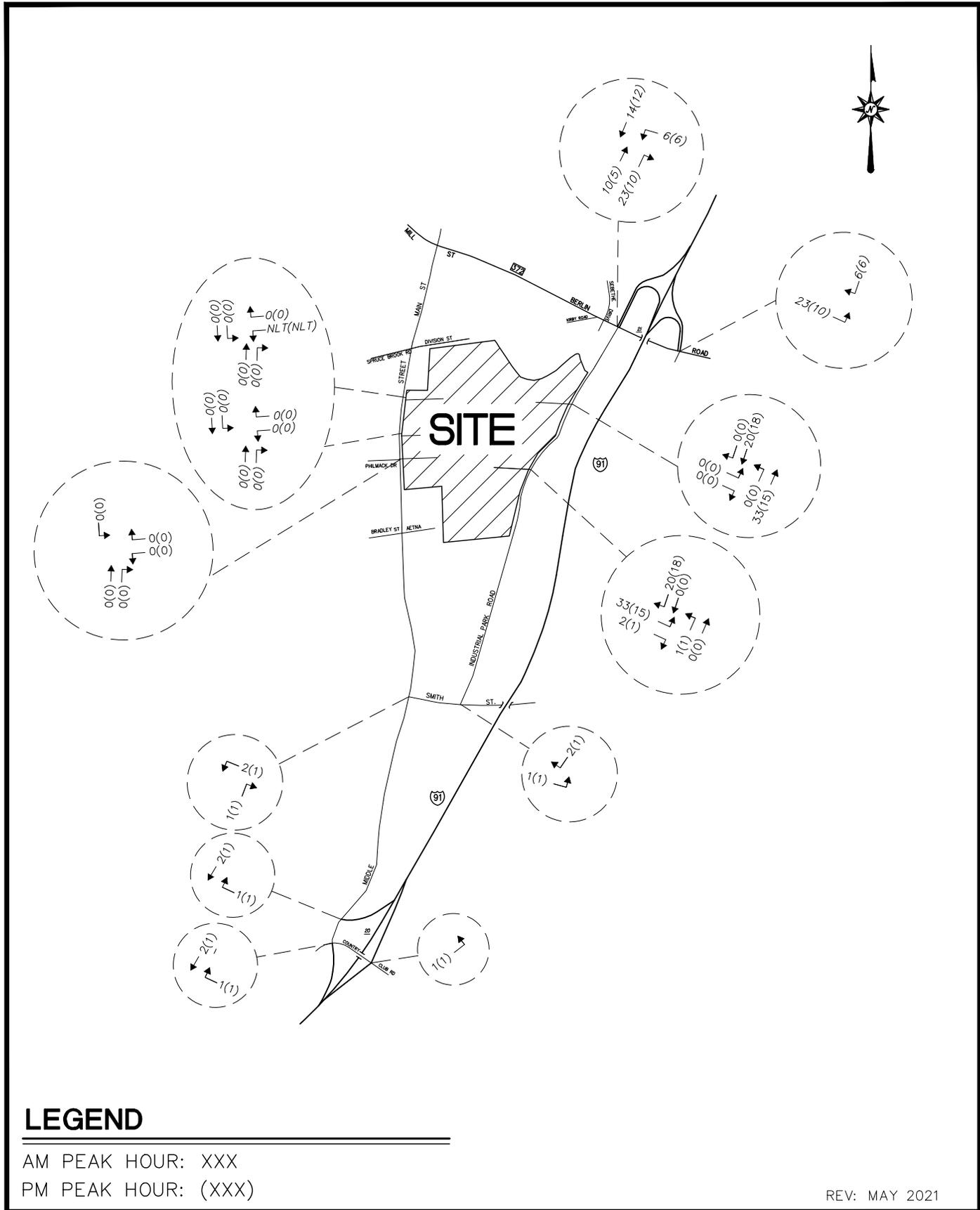
The generated trips are multiplied by the corresponding proportions to ascertain the site-generated traffic volumes. **Figure 6** shows the site-generated peak hour vehicular traffic generated by the Site to the nearby roadway network. **Figure 7** illustrates the site-generated peak hour truck traffic generated by the Site and assigned to the nearby roadway network.



**NEW SITE AUTOMOBILE TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 6**



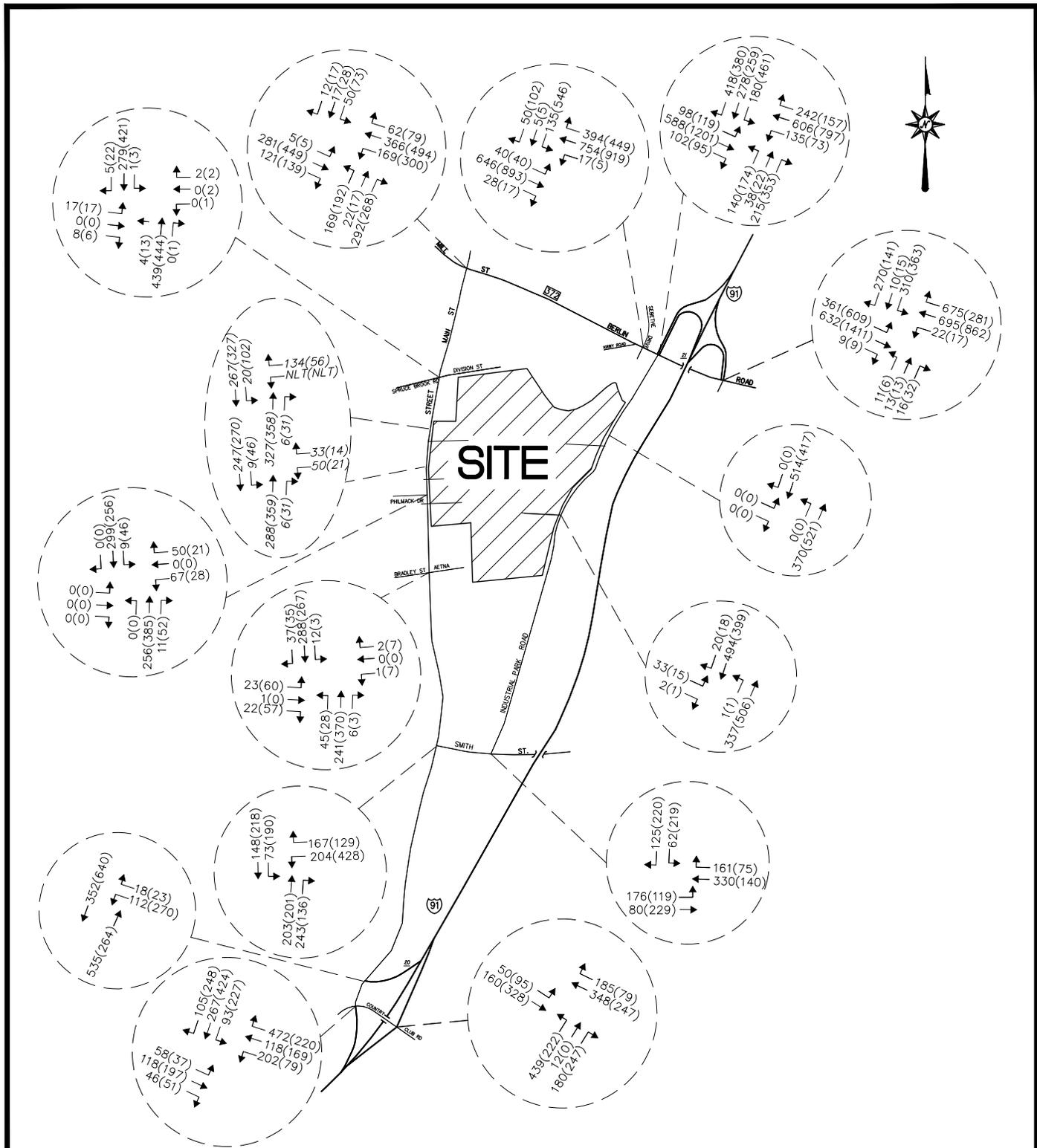
**NEW SITE TRUCK TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHMATIC, NOT TO SCALE

**FIGURE 7**

### **Build Traffic Volumes**

The assigned site-generated traffic volumes were superimposed onto the 2030 No Build Traffic volumes to establish the future 2030 Build Traffic volumes, as illustrated in **Figure 8**.



**LEGEND**

AM PEAK HOUR: XXX  
 PM PEAK HOUR: (XXX)

REV: MAY 2021



**BUILD (2030) TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 8**

#### IV. ROADWAY ADEQUACY

The intersection capacity analyses were prepared using the methodology described in the Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB) for the Existing and Build traffic volume scenarios to simulate the traffic impact of a proposed development on the adjacent roadway network. As documented in the HCM, intersection performance is influenced by several factors, including traffic demand; lane configurations; lane widths; turning restrictions; roadway grades; and signal phasing. The existing physical roadway characteristics and signal phasing and timing settings were determined by observing conditions in the field and reviewing the current traffic control signal plans provided by the Connecticut Department of Transportation.

Synchro™ software (Version 10) was used to model the study intersections based on the parameters mentioned above. The Synchro software is widely utilized by the traffic engineering industry and is consistent with the procedures in the HCM.

### **Signalized Intersections**

Signalized intersections are analyzed in terms of vehicle capacity and motorist delay. Capacity is the maximum rate of vehicle flow through an intersection given typical operating conditions. The number of vehicles traveling through an intersection is divided by the capacity of the intersection to determine an overall volume to capacity ratio ( $v/c$ ). A  $v/c$  value under 1.00 indicates that the number of vehicles traveling through an intersection is less than capacity.

As stated in the HCM, level of service for signalized intersections is defined in terms of control delay. Control delay measures the increase in delay a motorist experiences while encountering a traffic control signal. These factors include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. This delay is measured per vehicle for a 15-minute analysis period and is associated with the levels of service, which are summarized in **Table 3** below:

**Table 3 – Signalized Intersection – Level of Service**

<u>Level of Service<sup>1</sup></u>	<u>Average Control Delay (seconds per vehicle)</u>
A	$\leq 10$
B	$> 10$ and $\leq 20$
C	$> 20$ and $\leq 35$
D	$> 35$ and $\leq 55$
E	$> 55$ and $\leq 80$
F	$> 80$

<sup>1</sup>If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

Level of Service A represents the optimum level where most motorists arrive at the subject intersection during the green phase and thus experience virtually no delay. Conversely, Level of Service F indicates that motorists are delayed over 80 seconds while traveling through the intersection and can often imply a complete breakdown of

that location. Level of Service D is generally considered the limit of acceptable motorist delay.

### **Unsignalized Intersections**

Unsignalized intersections are generally evaluated in terms of average side street delay, as well as the capacity of the roadway approach. This analysis is based on the random arrival of vehicles and the associated gaps generated by this random arrival within the traffic stream. There is no overall level of service for unsignalized intersections. The relationship between levels of service and average side street delay are summarized in **Table 4** below:

**Table 4 – Unsignalized Intersection – Level of Service**

<u>Level of Service</u> <sup>1</sup>	<u>Average Control Delay</u> (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

<sup>1</sup>If volume-to-capacity ratio is over 1.0 for a lane group, LOS F. Intersection and approach-based LOS is based solely on control delay.

It should be noted that unsignalized levels of service do not correspond to those for signalized intersections, nor do they constitute warrants for the installation of traffic control signals. It is also recognized that the methodology is overly conservative and that computations can indicate operations at poor levels of service (E or F) with even very low side street volumes, although they often function without serious problems in the real world.

**Table 5** shows the levels of service (LOS) at the subject intersections. A more detailed table is included in the Appendix.

**Table 5 – Peak Hour Levels of Service**

<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Route 372 (Berlin Road) at Main Street</b>	<b>B/14.7</b>	<b>B/15.9</b>	<b>B/17.1</b>	<b>C/20.9</b>	<b>C/23.7</b>	<b>C/26.5</b>
Route 372 EB Thru / Left	B/0.39/145	B/0.41/150	B/0.43/150	B/0.53/230	B/0.55/250	B/0.52/250
Route 372 EB Right	A/0.17/30	A/0.18/30	A/0.19/30	A/0.17/30	A/0.18/30	A/0.17/30
Route 372 WB Left	B/0.38/95	B/0.42/105	B/0.47/110	C/0.77/#225	D/0.85/#265	D/0.91/#325
Route 372 WB Thru / Right	B/0.58/220	B/0.62/235	B/0.64/235	B/0.67/#310	B/0.71/340	B/0.66/340
Main St NB Left / Thru / Right	B/0.72/210	C/0.74/245	C/0.76/#285	C/0.82/#350	C/0.84/#390	D/0.88/#410
Main St SB Left / Thru / Right	B/0.16/50	B/0.17/55	B/0.16/55	C/0.28/90	C/0.30/95	C/0.32/95
<b>Route 372 (Berlin Rd) at Sebethe Drive <sup>1</sup></b>	<b>B/18.4</b>	<b>B/17.1</b>	<b>B/17.6</b>	<b>F/150.3</b>	<b>F/176.5</b>	<b>F/168.4</b>
Route 372 EB Left	C/0.24/60	C/0.27/70	C/0.27/75	F/0.95/#135	F/1.02/#145	F/1.02/#145
Route 372 EB Thru / Right	C/0.39/300	C/0.39/325	C/0.41/370	F/1.81/#935	F/1.92/#1010	F/1.97/#1035
Route 372 WB Left / Thru/ Right	A/0.43/100	A/0.46/105	A/0.46/105	C/0.60/m135	C/0.61/m150	C/0.63/m160
Sebethe Drive SB Left	F/0.55/140	F/0.55/145	F/0.55/145	E/0.65/#590	F/0.79/#690	F/0.79/#695
Sebethe Drive SB Thru	F/0.54/140	F/0.55/145	F/0.55/145	E/0.67/#605	F/0.80/#710	F/0.81/#710
Sebethe Drive SB Right	A/0.19/25	A/0.20/25	A/0.20/25	A/0.20/25	A/0.24/25	A/0.24/25

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Route 372 at I-91SB Ext 21 at Industrial Park Road <sup>1</sup></b>	<b>C/34.5</b>	<b>C/33.9</b>	<b>C/32.5</b>	<b>F/96.5</b>	<b>F/104.3</b>	<b>F/107.8</b>
Route 372 EB Left	F/0.73/165	F/0.74/175	F/0.74/180	E/0.27/m90	E/0.33/m85	F/0.33/m85
Route 372 EB Thru	A/0.28/80	A/0.30/85	A/0.34/85	E/0.85/m225	E/0.98/m#640	E/1.00/m#650
Route 372 EB Right	A/0.07/25	A/0.07/25	A/0.07/25	A/0.06/m25	A/0.07/m25	A/0.07/m25
Route 372 WB Left	F/0.77/220	F/0.76/235	F/0.76/235	F/0.65/135	F/0.67/145	F/0.68/145
Route 372 WB Thru	C/0.37/285	C/0.37/315	C/0.37/330	F/1.58/#790	F/1.68/#855	F/1.72/#880
Route 372 WB Right	C/0.47/190	C/0.50/215	C/0.50/230	B/0.47/100	C/0.50/115	C/0.50/115
Main St NB Left	E/0.56/190	E/0.60/200	E/0.56/195	C/0.36/140	C/0.36/140	C/0.36/140
Main St NB Thru	E/0.16/70	E/0.16/75	E/0.16/80	C/0.03/35	C/0.03/35	C/0.04/35
Main St NB Right	A/0.13/25	A/0.14/25	A/0.15/25	A/0.23/25	A/0.24/25	A/0.24/25
Ext21 Off-Ramp SB Left	E/0.55/240	E/0.57/255	E/0.54/245	D/0.77/405	D/0.77/415	D/0.77/410
Ext21 Off-Ramp SB Thru	E/0.67/200	E/0.67/215	E/0.61/210	D/0.23/130	D/0.23/130	D/0.24/135
Ext21 Off-Ramp SB Right	B/0.76/115	B/0.76/120	B/0.74/115	A/0.49/65	A/0.49/65	A/0.51/65
<b>Route 372 (Berlin Road) at I-91NB Exit 21 <sup>1</sup></b>	<b>B/10.3</b>	<b>B/11.1</b>	<b>B/11.4</b>	<b>B/20.8</b>	<b>C/23.6</b>	<b>C/24.8</b>
Route 372 EB Left	A/0.57/80	A/0.63/85	B/0.69/100	C/0.80/415	C/0.85/#520	D/0.87/#610
Route 372 EB Thru / Right	A/0.23/70	A/0.24/75	A/0.25/75	A/0.51/250	A/0.55/295	A/0.55/300
Route 372 WB Thru	A/0.32/150	A/0.34/170	B/0.35/175	C/0.57/405	D/0.66/435	D/0.70/450
Route 372 WB Right	A/0.55/50	A/0.59/60	A/0.59/70	A/0.34/75	A/0.39/90	A/0.40/95
Ext21 Off-Ramp SB Left	D/0.70/130	D/0.72/135	D/0.72/135	E/0.79/195	E/0.80/205	E/0.80/210
Ext21 Off-Ramp SB Right	B/0.50/100	B/0.53/120	B/0.53/120	B/0.18/70	B/0.18/75	B/0.18/80

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Industrial Park Road at Satellite Driveway <sup>2</sup></b>	-	-	-	-	-	-
Satellite Driveway EB Left / Right	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Industrial Park Rd NB Left / Thru	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Industrial Park Rd SB Thru / Right	-	-	-	-	-	-
<b>Industrial Park Road at Site Truck Driveway <sup>2</sup></b>	-	-	-	-	-	-
Site Truck Driveway EB Left	C/0.04/25	C/0.04/25	C/0.12/25	C/0.03/25	C/0.03/25	C/0.07/25
Site Truck Driveway EB Right	C/0.02/25	C/0.02/25	C/0.06/25	B/0.00/25	B/0.00/25	B/0.01/25
Industrial Park Rd NB Left / Thru	A/0.13/25	A/0.14/25	A/0.14/25	A/0.00/25	B/0.00/25	B/0.00/25
Industrial Park Rd SB Thru	C/0.30/55	C/0.32/25	C/0.32/25	A/0.00/25	A/0.00/25	A/0.00/25
Industrial Park Rd SB Thru / Right	A/0.01/25	A/0.01/25	A/0.01/25	A/0.00/25	A/0.00/25	A/0.00/25

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Industrial Park Road at Smith Street <sup>2</sup></b>	-	-	-	-	-	-
Smith St EB Right / Thru / Left	A/0.19/25	A/0.20/25	A/0.19/25	A/0.10/25	A/0.10/25	A/0.10/25
Smith St WB Right / Thru / Left	A/0.00/25	A/0.31/25	A/0.31/25	A/0.00/25	A/0.00/25	A/0.00/25
Industrial Park Rd SB Right / Left	C/0.44/55	C/0.51/70	C/0.50/75	E/0.84/220	F/0.95/295	F/0.95/310
<b>Middle St. / Main St. at Division Street / Spruce Brook Rd. <sup>2</sup></b>	-	-	-	-	-	-
Spruce Brook Rd EB Right / Thru / Left	A/0.04/25	A/0.04/25	A/0.04/25	A/0.04/25	A/0.04/25	A/0.04/25
Division St WB Right / Thru / Left	A/0.00/25	A/0.00/25	A/0.00/25	A/0.01/25	A/0.01/25	A/0.01/25
Middle St NB Right / Thru / Left	B/0.49/70	B/0.51/75	B/0.58/95	B/0.55/85	B/0.59/100	B/0.63/115
Main St SB Right / Thru / Left	A/0.35/40	B/0.37/45	B/0.39/45	B/0.51/75	B/0.54/85	B/0.61/105

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Middle St. / Main Street at Northern Site Driveway<sup>2</sup></b>	-	-	-	-	-	-
Northern Access Point Left	B/0.23/25	B/0.24/25	B/0.21/25	B/0.12/25	B/0.12/25	B/0.09/25
Northern Access Point Right	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Middle St NB Right/Thru	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Main St SB Thru/ Left	A/0.02/25	A/0.02/25	A/0.02/25	A/0.09/25	A/0.09/25	A/0.10/25
<b>Middle Street at Newly Proposed Site Driveway<sup>2</sup></b>	-	-	-	-	-	-
Newly Proposed Site Driveway Left	-	-	B/0.12/25	-	-	C/0.07/25
Newly Proposed Site Driveway Right	-	-	B/0.05/25	-	-	B/0.02/25
Middle St NB Right / Thru	A/0.00/25	A/0.00/25	A/0.01/25	A/0.00/25	A/0.00/25	A/0.00/25
Middle St SB Thru / Left	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.04/25

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Middle Street at Southern Site Driveway <sup>2</sup></b>	-	-	-	-	-	-
Southern Site Driveway Left	B/0.21/25	B/0.22/25	B/0.24/25	B/0.12/25	B/0.12/25	C/0.13/25
Southern Site Driveway Right	-	-	-	-	-	-
Middle St NB Right / Thru	A/0.00/25	A/0.00/25	A/0.01/25	A/0.00/25	A/0.00/25	A/0.00/25
Middle St SB Thru / Left	A/0.01/25	A/0.01/25	A/0.01/25	A/0.05/25	A/0.05/25	A/0.05/25
<b>Middle Street at Bradley Street / Aetna Drive <sup>1</sup></b>	<b>A/3.4</b>	<b>A/3.4</b>	<b>A/3.4</b>	<b>A/6.5</b>	<b>A/6.7</b>	<b>A/6.9</b>
Aetna Drive Left / Thru / Right	A/0.12/25	A/0.12/25	A/0.12/25	A/0.30/35	A/0.31/40	A/0.32/40
Bradley St Left / Thru	B/0.00/25	B/0.00/25	B/0.00/25	B/0.02/25	B/0.03/25	B/0.03/25
Bradley St Right	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.01/25	A/0.01/25
Middle St NB Left / Thru	A/0.19/100	A/0.21/110	A/0.21/110	A/0.35/140	A/0.37/150	A/0.40/165
Middle St NB Right	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25	A/0.00/25
Middle St SB Left	A/0.10/25	A/0.01/25	A/0.01/25	A/0.00/25	A/0.00/25	A/0.01/25

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>Middle Street at Smith Street <sup>1</sup></b>	<b>B/18.5</b>	<b>C/20.2</b>	<b>C/20.3</b>	<b>C/29.5</b>	<b>D/35.6</b>	<b>D/38.7</b>
Smith Street WB Right / Left	C/0.69/205	C/0.72/240	C/0.72/240	D/0.86/#475	D/0.91/#525	D/0.92/#535
Middle Street NB Right / Thru	B/0.70/230	C/0.73/265	C/0.74/275	B/0.49/180	B/0.50/190	B/0.51/210
Middle Street SB Thru / Left	A/0.29/85	B/0.32/95	B/0.38/110	C/0.80/#230	D/0.87/#280	D/0.91/#315
<b>Middle Street at I-91 SB Off Exit 20 <sup>2</sup></b>	-	-	-	-	-	-
I-91 SB Off Exit 20 WB Right / Left	C/0.39/45	D/0.45/55	D/0.47/60	F/0.91/230	F/1.05/300	F/1.10/325
Middle Street NB Thru	-	-	-	-	-	-
Middle Street SB Thru	-	-	-	-	-	-
<b>Middle Street at I-91 SB On Exit 20 at Country Club Road <sup>2</sup></b>	-	-	-	-	-	-
Country Club Road EB Left / Thru / Right	B/0.42/50	C/0.47/55	C/0.49/60	C/0.64/25	C/0.72/90	C/0.73/90
Country Club Road WB Left / Thru / Right	F/1.23/750	F/1.35/935	F/1.37/975	D/0.95/25	E/1.05/210	E/1.11/230
I-91 SB On Exit 20 SB Right / Left	D/0.83/175	D/0.92/205	E/0.97/235	F/1.49/50	F/1.64/1390	F/1.67/1435

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**

**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



<u>Intersection</u>	<u>AM</u>			<u>PM</u>		
	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build	2020 Existing	2030 Background w/ proposed current operation Vols	2030 Full Build
<b>I-91 NB Exit 20 at Country Club Road <sup>2</sup></b>	-	-	-	-	-	-
Country Club Road EB Left / Thru	C/0.42/50	C/0.47/55	C/0.49/55	C/0.71/145	D/0.80/195	D/0.81/205
Country Club Road WB Thru / Right	E/0.95/285	F/1.06/340	F/1.06/345	C/0.55/85	C/0.61/105	C/0.63/110
I-91 SB On Exit 20 NB Left / Thru / Right	F/1.09/480	F/1.19/630	F/1.19/640	C/0.76/170	D/0.83/225	E/0.86/245

**Overall Intersection – X/XX.X - Level of Service/Intersection Signal Delay in sec**  
**Approaches - X/X.XX/XXX – Level of Service/Volume to Capacity Ratio/95% Queue Length in ft**

<sup>1</sup> – Signalized Intersection

<sup>2</sup> – Unsignalized Intersections, data populated from the model.

# – 95th percentile volume exceeds capacity, queue may be longer. Queue shown is maximum after two cycles.

m – Volume for 95th percentile queue is metered by upstream signal.



As illustrated in **Table 5**, the morning and evening peak hour existing scenario traffic operations were analyzed as the base conditions for comparison with the Build Scenarios. In both Existing Scenarios and the No Build Scenarios, several intersections and approaches are projected to operate at undesirable levels of service. Specific movements that experience Levels of Service (LOS) E or F in the Existing and 2030 No Build Scenarios during the morning and evening peak Hours are as follows:

- Route 372 (Berlin Road) at McDonald's / Sebeth Drive
  - Route 372 EB Left
  - Route 372 EB Thru / Right
  - Sebeth Drive SB Left
  - Sebeth Drive SB Thru
- Route 372 (Berlin Road) at I-91SB Exit 21 at Industrial Park Road
  - Route 372 EB Left
  - Route 372 EB Thru
  - Route 372 WB Left
  - Route 372 WB Thru
  - Main Street NB Left
  - Main Street NB Thru
  - I-91 SB Off Exit 21 SB Left
  - I-91 SB Off Exit 21 SB Thru
- Route 372 (Berlin Road) at I-91 NB Off (Exit 21)
  - I-91 SB Off Exit 21 SB Left
- Industrial Park Road at Smith Street
  - Industrial Park Road SB Right / Left
- Middle Street at I-91 SB Off (Exit 20)
  - I-91 SB Off Exit 20 WB Right / Left
- Middle Street at I-91 SB On (Exit 20) at Country Club Road
  - Country Club Road WB Left / Thru / Right

- I-91 SB On Exit 20 SB Right / Left
- I-91 NB Exit 20 at Country Club Road
  - Country Club Road WB Left / Thru
  - I-91 SB On Exit 20 NB Left / Thru / Right

The primary existing problems areas are the unsignalized I-91 ramp intersections at exit #20, Country Club Road, Middle Street, and Smith Street. The overall levels of service for the two all-way stop controlled intersections along Country Club Road are "F" under background conditions, with one or more traffic movements having a volume to capacity ratio greater than one (1) and "F" level of service. In addition, LOS "E" and "F" were also observed along Route 372 signalized intersections, for eastbound and westbound left turns between all scenarios; however, the proposed development is not expected to have significant impact to the network.

## V. CONCLUSIONS AND RECOMMENDATIONS

This study investigated the traffic impact associated with the expansion of a FedEx Hub during the weekday morning and evening peak hours. Expansion of a FedEx Hub along Industrial Park Road and Middle Street is proposed. The Site is part of the former Aetna Insurance Company division headquarters and is roughly bordered by Division Street to the north, Industrial Park Road to the east, Middle Street to the west and the Aetna data center to the south. The focus of this study was to evaluate the traffic flows and operating conditions on the roadways and intersections projected to be used by motorists traveling to and from the proposed development and to quantify the potential traffic impacts on these roadways and intersections. After analyses of the Existing, No Build, and Build Scenarios of the morning and evening peak hours, it should be noted that there is no notable deterioration from the other proposed developments in the vicinity of this development where those traffic volumes have been included in the No Build scenarios. Some existing issues that may be further exacerbated by the FedEx project, or perceived to be, as well as other concerns identified in the details of the analyses are identified. While there are no large system level traffic improvements needed, there are observed existing and projected background problem areas that should be addressed in the future by municipal or State agencies independent of the FedEx project. Moving forward, the following should be considered:

### **By FedEx:**

1. The proposal must be submitted to the Office of State Traffic Administration (OSTA) to obtain a Certificate of Operation as a major traffic generator under Section 14-311 of the Connecticut General Statutes.
2. All large trucks should use the I-91 interchange at Route 372 (exit #21). Trucks oriented towards other regional expressways, I-84, Route 9 and Route 72 could legally use Route 372 to reach the Site, but we recommend that the large trucks stay on the expressway network to avoid mixing with local traffic.

3. Industrial Park Road at proposed Hub driveway – This “T” intersection was formally signalized and currently it operates with a warning sign flashing beacon. Based on the FedEx traffic volume projections, the traffic analysis shows traffic signal is not warranted and under forecasted volumes the intersection will operate at LOS “A” and “C” during morning and evening peak hours.
4. Proposed third access point at Main Street helps the distribution of vehicular site generated traffic during peak hours. All three driveways perform at adequate LOS of “B” and “C”.

**By Municipal and / or State Agencies:**

1. The all-way stop at Country Club Road at the I-91 NB off ramp (exit #20) has a background “F” level of service during the morning peak period, with the off-ramp at “F”. While FedEx has a minimal impact here, the City of Middletown and CTDOT should consider further warrant analysis, a traffic signal would provide benefit during the peak periods.
2. The all-way stop at Country Club Road at Middle Street and the I-91 SB on ramp (exit #20) has a background “F” level of service during both peak periods studies, with westbound Country Club Road or Middle Street at “F”. While FedEx has a minimal impact here, similarly if warranted, a traffic signal would provide significant benefit. Providing additional travel lanes on Middle Street and westbound Country Club Road in conjunction with a traffic signal would be even more beneficial. While there is right of way available for geometric improvements, a pump station in the northeast corner limits the possibility of improvement.
3. The level of service at the stop controlled I-91 SB off ramp (exit #20) at Middle Street has a background “F” level of service during the evening peak period. While there may be an increase in delay for ramp traffic, there is still sufficient

- capacity for the movement. Vehicles turning right from the ramp may already bypass left turners, resulting in better than computed operation.
4. The Industrial Park Road (stop controlled) level of service at Smith Street during the evening peak period is projected "F". While there may be an increase in delay for Industrial Park Road traffic, there is still sufficient capacity for the movement. Two possible options to improve traffic flow include implementation of an all-way stop, which would reduce the Industrial Park Road delays (at the expense of Smith Street). The second option would be to widen the Industrial Park Road to provide two lanes approaching Smith Street. There is sufficient right of way to provide two approaching lanes. This would require restriping of Industrial Park Road from former Aetna Site drive to Smith Street in southbound direction.
  5. Continued improvements along Route 372 as the pre-existing conditions indicate poor levels of service. Signal timing improvements have shown some improvements along the overall signalized intersections.

# APPENDIX

**2015 ORIGINAL OSTA APPROVED DEVELOPMENT**



# **Traffic Study FedEx Ground – Hartford, CT II CY18 New Hub Middletown, Connecticut**

Prepared for:



**Facilities & Material Handling Project Management  
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**June 2015: Rev; August 2015**

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## APPENDIX

Traffic Operations Summary  
Capacity Analyses

## EXECUTIVE SUMMARY

Development of a FedEx Hub along Industrial Park Road and Middle Street in Middletown, Connecticut is proposed. The site (a portion of 930 Middle Street) is part of the former Aetna Insurance Company division headquarters and is roughly bordered by Division Street to the north, Industrial Park Road to the east, Middle Street to the west and the Aetna data center/vacant land to the south. Access to the site will be provided for internal employee passenger cars on Middle Street and for trucks and truck drivers at a satellite lot on Industrial Park Road. The project was approved by the Middletown Planning and Zoning commission on August 11, 2015.

This study investigated the traffic impact associated with the development of a FedEx Hub during the weekday morning and afternoon peak hours. Weekday morning and afternoon peak hour traffic volumes were obtained at key nearby intersections in Middletown, Cromwell and Berlin in November of 2014.

The FedEx Ground Hub, assumed to be a 52.5K Full Phase (without local city activity) is projected to generate 3,860 daily, 260 morning and 325 afternoon peak hour trips. These traffic volumes are significantly lower than those generated when Aetna occupied the site. There is no local delivery from this hub, so all truck traffic is highway oriented.

Overall levels of service at the studied intersections studied remain unchanged, or within the acceptable range, with two exceptions: the I-91 NB off ramp at Country Club Road, where the morning peak period level of service for left turns is projected to be "E", and the Industrial Park

Road approach to Smith Street, where an “E” level of service is projected for the afternoon peak period.

While the FedEx traffic impact may be small and no large system level traffic improvements needed, there are observed, existing, or projected background, problem areas that should be addressed in the future by municipal or State agencies independent of the FedEx project. Moving forward, the following should be considered:

**By FedEx**

1. The proposal must to be submitted to the Office of State Traffic Administration (OSTA) to obtain a Certificate of Operation as a major traffic generator under Section 14-311 of the Connecticut General Statutes.
2. All large trucks should use the I-91 interchange at Route 372 (#21). Trucks oriented towards other regional expressways, I-84, Route 9 and Route 72 could legally use Route 372 to reach the site. While these may be shorter routes, it is recommended that the large trucks stay on the expressway network to avoid mixing with local traffic.
3. Industrial Park Road at proposed Hub driveway – Reactivation of the existing traffic signal would require an inspection of the installation, which has been out of operation for a few years. It appears that a traffic signal is not warranted based on the FedEx traffic volume projections and in a preliminary meeting, the Office of State Traffic Administration indicated they would not be supportive of reactivating an unwarranted traffic signal. Maintaining the signal in its current flashing mode may be beneficial to provide advance warning of this significant intersection, the first major access point one sees along Industrial Park Road traveling south from Route 372. The former southbound Industrial Park Road southbound right turn lane into Aetna was painted

out when Aetna closed. That lane should be reinstated in conjunction with other pavement marking changes, see below.

4. Industrial Park Road at proposed satellite parking lot. The availability of adequate intersection sight distance, based on truck needs, should be provided. In addition, it appears that the curb cut is in the transition area from two southbound Industrial Park Road lanes to one. This is an undesirable situation and some pavement marking and signing adjustments should be made.
5. It is believed that Industrial Park Road once had two southbound travel lanes from Route 372 to the Aetna driveway. The second southbound lane became the right turn lane into Aetna. With the closure of the Aetna complex, that second lane was closed and a transition to one lane made to the north. It is recommended that the two lane southbound arrangement be reinstated.
6. Route 372 (Mill Street) at Main Street – the existing 100'± long westbound Route 372 left turn lane should be lengthened to 240'± at this intersection in Berlin. This will require a minor widening along Route 372. There is sufficient right of way available for this improvement.
7. Route 372 (Berlin Road) at I-91 NB ramps – the afternoon peak period eastbound Route 372 (Berlin Road) left turn onto I-91 north is projected to be at LOS "E", over capacity, and the queue nearing the end of the left turn lane under the build condition at this intersection in Cromwell. The three other nearby development projects also contribute to this potential problem. Modification of the traffic signal to reallocate more time to the left turn movement would nearly replicate the background condition.

### **By Municipal and/or State Agencies**

1. Country Club Road at the I-91 NB off ramp (exit #20) - this all-way stop has a projected “E” level of service during the morning peak period, with left turns from the off-ramp and Middle Street westbound traffic nearing capacity. FedEx has a minimal impact here, and field observations do not suggest a current problem. If warranted, a traffic signal could provide benefit during the morning peak period, but much less so during other times.
2. Country Club Road at Middle Street and the I-91 SB on ramp (exit #20) - this all-way stop has a background “E” level of service during both peak periods studied, with westbound Country Club Road or Middle Street at “F”. Significant queueing was observed on Middle Street during the afternoon peak period, and on westbound Country Club Road during the morning period. If warranted, a traffic signal would provide some level of improvement, but queues would still be substantial. Providing additional travel lanes on Middle Street and westbound Country Club Road (right turn lane) in conjunction with a traffic signal would be more beneficial. A partial 2-lane roundabout could be workable, but right of way acquisition would be necessary. While there is right of way available for geometric improvements (the State owns the property on three of the corners), a pump station in the northeast corner may limit the possibility of improvement.
3. Middle Street at Smith Street - the traffic volumes at this signalized intersection do not suggest a problem, but field observations revealed that the traffic signal is operating very inefficiently. The traffic signal is not responsive to traffic volumes, that is, it has no vehicle detection and timing is the same regardless of traffic. This is not an effective type of operation for a location such as this.
4. Smith Street at Industrial Park Road - the Industrial Park Road (stop controlled) level of service during the afternoon peak period is projected to go from “D” to “E”, although the

increase in average delay is only about 4 seconds per vehicle. There will still be sufficient capacity for the movement. As development continues along Industrial Park Road, a minor (3'-4') widening of Industrial Park Road to provide two lanes approaching Smith Street could prove beneficial.

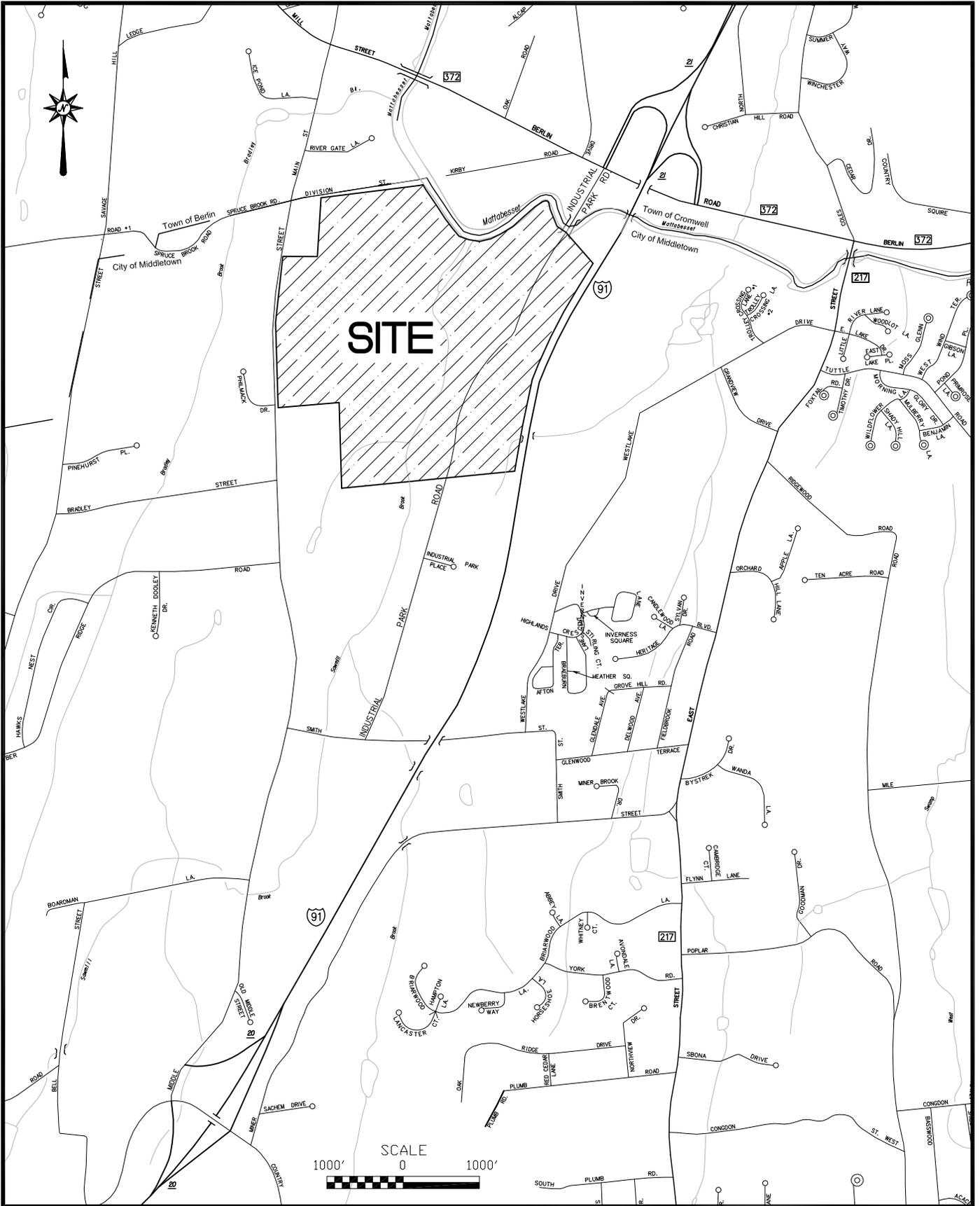
5. Route 372 (Berlin Road) at Sebeth Drive – the intersection is projected to operate at an overall “E” level of service, with several individual traffic movements at “F” and over capacity under afternoon peak period background conditions. A recently approved 88,000 square foot development project on Sebeth Drive, a dead end road, directly impacts this intersection. Afternoon peak hour traffic volumes on Sebeth Drive alone are expected to reach nearly 1,200 vehicles. The FedEx project is projected to have minimal impact on this intersection. This location is controlled jointly with the I-91 SB ramps and Industrial Park Road intersection, 250'± to the east with complex traffic signal phasing. The Town of Cromwell should investigate options to provide additional access to Sebeth Drive to relieve the traffic pressure. Other possible improvements include constructing a third eastbound Route 372 through lane from the vicinity of Kirby Road to the intersection. Beyond Sebeth Drive it would become the right turn lane at Industrial Park Road. A Route 372 westbound right turn lane could be constructed between the I-91 ramps and Sebeth Drive, but might impact the commuter parking lot fronting Route 372.

## I. INTRODUCTION

The development of a FedEx Ground Hub on portions of the former Aetna Insurance Company site on Industrial Park Road and Middle Street in Middletown, CT is proposed.

The 239± acre site is roughly bordered by Division Street to the north, Middle Street to the west, Industrial Park Road to the east, and the Aetna data center to the south (See Figure 1). It was formerly the site of a major Aetna Insurance Company facility. Originally constructed in 1983, the Aetna facility contained about 1.4 million square feet of floor area, with over 5,000 employees and 4,600 parking spaces. That facility, except for the data center, was vacated in 2010 and demolished in 2011.

The FedEx Ground Hub will have certain operational characteristics that impact the way traffic utilizes the site. There will be essentially two separate circulation and access networks. The parking area for the cars of internal employees (package handlers, etc.) will be accessible only from Middle Street and not connected for vehicular circulation to the truck parking areas at the hub, nor to Industrial Park Road. The truck parking areas at the hub will be accessible only from Industrial Park Road and similarly not connected circulation wise to the passenger car parking area or to Middle Street. In addition, there will be a satellite parking area on Industrial Park Road where truck drivers leave their personal cars, pick up a tractor, and drive to the hub to get a trailer.



LOCATION MAP  
 FEDEX GROUND HUB  
 MIDDLETOWN, CT

FIGURE 1

The Industrial Park Road access for the main hub (trucks) will be via the existing signalized Aetna entrance (currently closed). Access for the primary satellite lot along Industrial Park Road will be located about 1,200 feet north of the main hub access.

This study investigated the traffic impact associated with the proposed FedEx Ground Hub development during the weekday morning and afternoon peak traffic periods. These represent the peak periods for traffic on the adjacent street system. The FedEx Hub business day traffic may actually peak at times slightly outside the commuter peak, but for a conservative worst case analysis, it was assumed the two coincide.

The project was approved by the Middletown Planning and Zoning commission on August 11, 2015

## II. EXISTING CONDITIONS

An investigation of the existing conditions on the adjacent roadway network formed the basis for assessing any traffic issues associated with a FedEx Ground Hub operation. This investigation included a field reconnaissance, field traffic counting, and research of pertinent planning and traffic data at local and State agencies.

### Access Network

Primary access roads in the site vicinity include Interstate Route 91, Route 372 (Berlin Road/Mill Street), Country Club Road, Industrial Park Road and Middle Street. Other roads of potential interest include Main Street and Smith Street.

**Interstate Route 91** bisects the state as a limited access north-south expressway facility. In the vicinity of the site, Interstate Route 91 is a six lane highway. A split interchange (#20) exists with Country Club Road and Middle Street about 1.75 miles south of the site, in the City of Middletown. The I-91 northbound ramps intersect Country Club Road about one quarter mile east of Middle Street. The I-91 southbound ramps are on Middle Street, the on ramp at the Middle Street/Country Club Road intersection, and the off ramp 500'± to the north on Middle Street. A full interchange (#21) is found at Route 372 (Berlin Road) in the Town of Cromwell, about three quarters of a mile north of the site. The southbound ramps intersect Route 372 (Berlin Road) directly opposite Industrial Park Road, and the northbound ramps are located about one quarter mile to the east.

**Route 372 (Berlin Road and Mill Street)** is an east-west oriented minor arterial, running through the Towns of Berlin and Cromwell near the site. In the Town of Cromwell, Route 372 (Berlin Road) is a 4-6 lane facility. Abutting lands are heavily developed commercially with restaurants, retail stores, motels, etc. The roadway has a 40 mile per hour speed limit and is generally straight and flat with sporadic illumination. There are traffic signals at both I-91 ramp intersections and at Wal\*Mart to the west of the interchange. In the Town of Berlin, Route 372 (Mill Street) is a two lane facility with a 40 mile per hour speed limit. Abutting lands are much more lightly developed. There is a traffic signal at the Main Street intersection.



**Country Club Road** is a two lane City of Middletown roadway, classified as a minor arterial by CTDOT. The speed limit is 25 miles per hour. Abutting lands are residential east of I-91. Between I-91 and Middle Street, Country Club Road is on a downgrade. The roadway width is 40'±. There is sporadic illumination and a sidewalk only across the I-91 bridge. There are all-way stops at both the I-91 NB off ramp and the Middle Street/I-91 SB on ramp intersections. In the immediate interchange area the most noticeable land use is the headquarters of the

Connecticut Department of Emergency Services and Public Protection. There is also a park and ride lot adjacent to the southbound on ramp.

**Industrial Park Road** is a 1.6 mile long, north-south oriented municipal facility running between Route 372 (Berlin Road) in the Town of Cromwell and Smith Street in the City of Middletown. It is

classified as a collector by CTDOT. In the site vicinity, between I-91 and the former Aetna driveway, once signalized, Industrial Park Road is a 52' wide, 3-4 lane roadway. One of the two southbound travel lanes, which we believe once continued all the way to the Aetna driveway, has been eliminated by pavement markings about ½ mile from Route 372 (Berlin Road). The speed limit is 35 miles per hour and Industrial Park Road has a gently rolling alignment. Illumination is provided. There are no sidewalks. There are a few commercial driveways near the Route 372 (Berlin Road) intersection and a park and ride lot. There are no other curb cuts between Route 372 (Berlin Road) and the former Aetna driveway. From the former Aetna driveway southerly to Smith Street, Industrial Park Road is a two lane facility 40'-48' in width. Abutting developed lands consist primarily of manufacturing and light industrial uses.



**Middle Street** is a two lane, north-south oriented City of Middletown roadway running between Country Club Road and Division Street/Spruce Brook Road. It is classified as a collector by CTDOT. The speed limit is 35 miles per hour and illumination is provided. Roadway widths vary from about 39'-40' between Country Club Road and Smith Street; 29'-30' between Smith Street and the Aetna data center driveway/Bradley Street intersection; and 39'-40' from that location north to Division Street. Abutting lands include light industrial and manufacturing uses and some residential properties at the northerly end. The Aetna complex has frontage along Middle Street from Bradley Street to about 1000' feet south of



Division Street, portions of which will become the FedEx site. The West Lake Pedestrian Bikeway runs along the easterly side of Middle Street from Smith Street to a point south of the Aetna data center. There are traffic control signals at Smith Street and at the Bradley Street/Aetna data center driveway. There are all-way stops at Country Club Road/I-91 SB on ramp, Boardman Lane and Division Street/Spruce Brook Road.

**Main Street** is a two lane Town of Berlin facility, which is the extension of Middle Street from Division Street/Spruce Brook Road to Route 372 (Mill Street). It is classified as a collector by CTDOT. Abutting lands are primarily residential properties. Main Street is on a downgrade in the northbound direction and is 24'-32' in width. The speed limit is 25 miles per hour and illumination is provided. Sidewalks are found sporadically. Main Street is signed for "No Through Trucks" at both ends and for "No Trucks" southbound.

**Smith Street** is a two lane east-west oriented Middletown collector, connecting Middle Street with Route 217 (East Street). Abutting lands west of West Lake Drive include an Army Reserve center and light industrial or manufacturing uses. Residential uses are found east of West Lake Drive. Smith Street is 36'± wide between Middle Street and Industrial Park Road. The speed limit is 25 miles per hour and illumination is



provided. The West Lake Pedestrian Bikeway runs along the northerly side to Middle Street.

## Intersection Geometry and Control

Several key intersections were reviewed in this study to determine if they would be impacted by the expected site traffic volumes.

- **Route 372 (Berlin Road) at I-91 SB ramps and Industrial Park Road** – This signalized intersection shares operations and traffic signal phasing with the Sebeth Drive intersection, located about 250 feet to the west. At the main intersection, both Route 372 (Berlin Road) approaches have a left turn lane, two through lanes and a right turn lane. The northbound approach, Industrial Park Road, has a left turn lane, a through lane and a channelized right turn lane. The I-91 SB off ramp has a left turn lane, two through lanes and a right turn lane. At the Sebeth Drive intersection, Route 372 (Berlin Road) eastbound has a left turn lane and two through lanes. The Route 372 (Berlin Road) approach has two through lanes. Sebeth Drive has a left turn lane, a left/through lane and a right turn lane. Directly opposite Sebeth Drive is an entrance only curb cut for McDonald's. The traffic signal phasing is complex due to the need to control both intersections and includes protected only left turn phasing for Route 372 (Berlin Road) at the main intersection, internal clearances, protected/permitted left turn phasing for the off ramp and Industrial Park Road, as well as emergency vehicle pre-emption.



- **Route 372 (Berlin Road) at I-91 NB ramps** - This signalized intersection, located about ¼ mile east of the I-91 SB ramps is part of a CTDOT coordinated system along Route 372 (Berlin Road). Route 372 (Berlin Road) has two through lanes in each direction along with an eastbound left turn lane and a westbound right turn lane. The left turn is protected/permitted in the traffic signal sequence. The I-91 off ramp has three lanes, two for left turns and one for right turns. There is a walk phase to cross Route 372 (Berlin Road) on the east side of the intersection, as well as emergency vehicle pre-emption.



- **Route 372 (Mill Street) at Main Street**– This signalized intersection is located about three quarters of a mile west of the I-91 SB ramps. There is another signalized intersection (Wal\*Mart) between the two. Route 372 (Mill Street) eastbound has a left/through lane and a right turn lane. Route 372 (Mill Street) westbound has a left turn lane and a through/right lane. The Main Street approaches to the intersection each have a single lane. The traffic signal provides simple two phase operation.
- **Industrial Park Road at former Aetna driveway** – This formerly signalized “T” type intersection is located about 0.8 miles south of Route 372 (Berlin Road). The traffic signal is currently on flash as the former Aetna driveway is inactive. A traffic

signal head is missing. Northbound Industrial Park Road has two travel lanes. Southbound Industrial Park Road currently has a single travel lane. When Aetna was in operation, it is believed a southbound right turn lane (currently painted over) was provided. The former Aetna driveway has two left turn lanes and a right turn lane at the intersection. Protected/permitted left turn traffic signal phasing was provided for northbound Industrial Park Road.



- **Industrial Park Road at Smith Street**– This unsignalized “T” intersection is located about 0.8 miles south of the former Aetna driveway. Industrial Park Road is stop controlled.

- **Middle Street at Smith Street**– This signalized “T” type intersection is located about 1/4 mile west of the Industrial Park Road intersection. All approaches are single lane. There is protected/permitted phasing for the Middle Street southbound approach. The traffic signal operation was very inefficient when observed during a morning period. It is believe the operation does not provide for any vehicle detection or responsiveness to traffic volumes.



- **Middle Street at Aetna data center driveway and Bradley Street**– This signalized intersection is located about

2/3rds of a mile north of Smith Street.

Northbound Middle Street has a left/through lane and a channelized

right turn lane. Southbound Middle Street has a left turn lane and a through



lane. Bradley Street has a single approach lane and the Aetna driveway, which services their data center, has a left/through lane and a channelized right turn lane.

The traffic signal phasing provides protected/permitted southbound left turns.

- **Middle Street/Main Street at Division Street and Spruce Brook Road**– Located about 0.7 mile north of the existing signalized Aetna data center driveway, this all-way stop is at the Middletown/Berlin boundary. All approaches are one lane.

- **Middle Street at I-91 SB (Exit #20) off ramp**– The off ramp is “Stop” controlled at this “T” intersection. All approaches are single lane.

- **Middle Street at Country Club Road and I-91 SB on ramp**– This intersection, located about 500’ south of the I-91 SB off ramp is an all-way stop. All approaches are one lane. There is a commuter parking lot on the SW corner of this intersection.

- **Country Club Road and I-91 NB ramps** – This intersection, located about 1000’ east of Middle Street is an all-way stop. All approaches are one lane, although

right turning off ramp traffic uses the shoulder during peak periods to bypass those turning left.

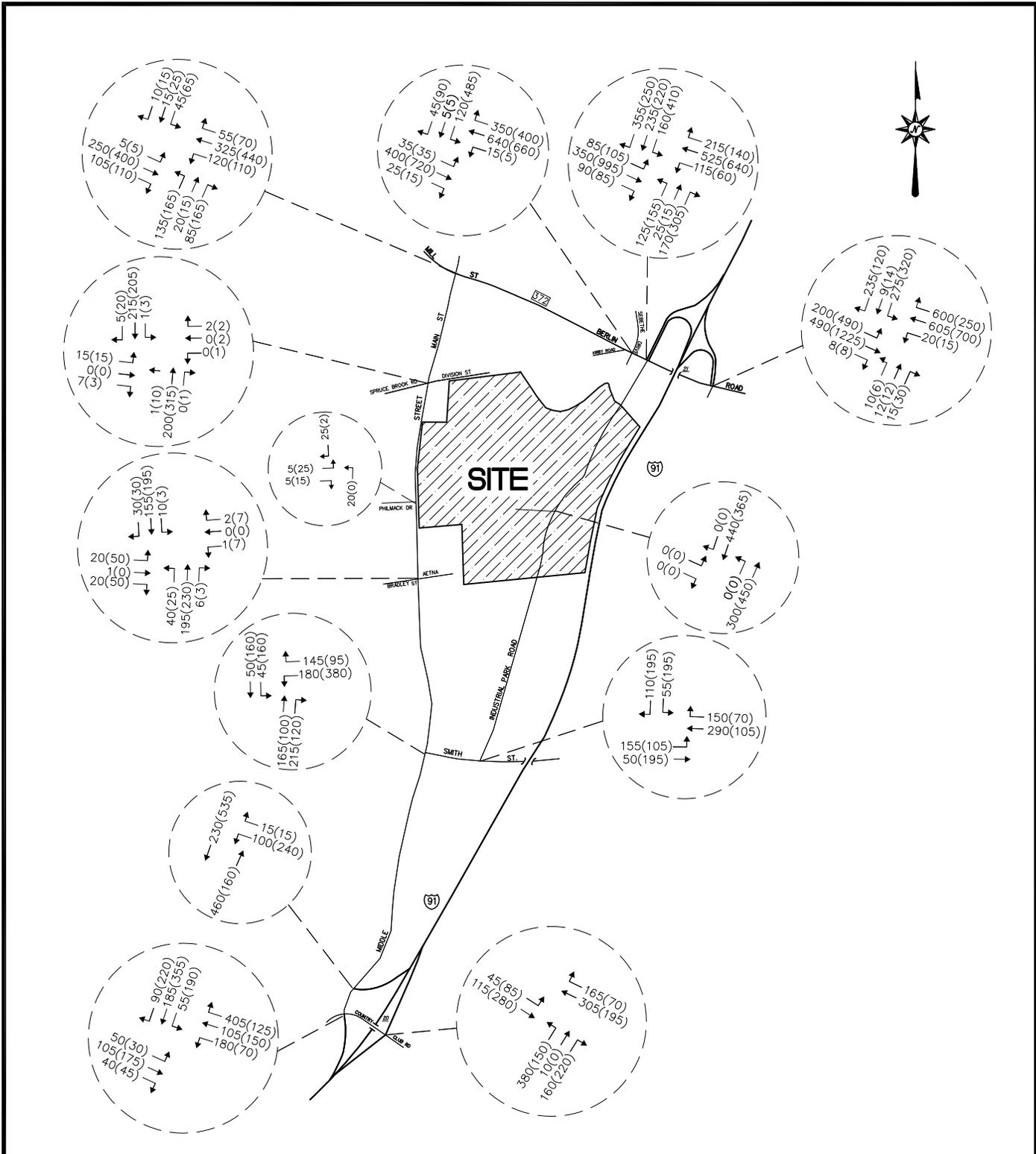
### **Current Traffic Volumes**

Weekday morning and afternoon peak hour traffic volumes were obtained at the above intersections in November of 2014. The current peak hour traffic volumes for the intersections are illustrated in Figure 2. All traffic volumes in this report were approved by the CTDOT Bureau of Policy and Planning. Subsequently, minor modifications were made to add Philmack Drive, opposite the southerly Middle Street site driveway, and to prohibit left turns from the northerly driveway.

Daily traffic volumes, while not used in capacity analyses, provide an indication of the roadway usage and function. Interstate Route 91 carries nearly 114,000 daily trips past the site. The Route 372 (Berlin Road) interchange (#21) handled over 23,000 daily trips. The corresponding I-91 interchange on Country Club Road/Middle Street (#20) handled approximately 12,000. Daily traffic volumes on Route 372 (Berlin Road) range from about 11,000 at the Berlin/Middletown line to just over 22,000 east of I-91. Industrial Park Road carried daily traffic volumes ranging from about 6,700 trips near Route 372 (Berlin Road) to 5,200 near Smith Street. Main Street in Berlin carried 5,100 daily trips, while Middle Street carried about 6,400 near Country Club Road. Country Club Road carried 5,300 daily trips east of I-91.

### **Crash Data**

The most recent available crash data was obtained from the Connecticut Department of Transportation for Route 372 (Mill Street and Berlin Road) for the three year 2011-2013 period



## LEGEND

AM PEAK HOUR: XXX  
 PM PEAK HOUR: (XXX)

REV: JULY 2015



# CURRENT (2014) TRAFFIC VOLUMES FEDEX HUB MIDDLETOWN, CONNECTICUT

SCHEMATIC, NOT TO SCALE

FIGURE 2

along the 1.2 mile section from the east of the I-91 interchange to the intersection with Main Street in Berlin. The data, which may have issues with changes to milepost designation, showed 150 recorded crashes, including one fatality. The most prevalent (69) type was the rear end collision. As might be expected, the largest clusters of crashes occurred at the I-91 ramp intersections. Forty-eight (48) accidents were reported at the combined Sebeth Drive/Industrial Park Road/I-91 SB ramp intersection. Twenty two (22) accidents were recorded at the I-91 NB ramp intersection. Both those ramp intersections are on CTDOT's 2010-2012 SLOSSS list<sup>1</sup>. Other locations with an identifiable number of crashes reported during the 2011-13 period included:

- Gas station opposite the I-91 NB ramps – 14
- Kirby Road – 10
- Main Street – 9
- Convenience store west of I-91 NB ramps – 7

The most recent available crash data was obtained for the three year 2011-2013 period from the University of Connecticut Crash Data repository for the local roads in the vicinity of the site. There was one crash recorded on Middle Street, near the I-91 SB off ramp and three accidents on Industrial Park Road.

<sup>1</sup>-Pursuant to Title 23, US Code Section 409, this data is not admissible and not discoverable for any other purpose in any action for damages arising from an occurrence at a location addressed in this report.

### **Public Transportation**

The roads fronting the site are partially served by three Middletown Area Transit (MAT) routes. The "M Link" runs northbound along Middle Street at about a one hour headway between downtown Meriden and downtown Middletown. The "E" route runs northbound along Industrial Park Road at about a one hour headway between downtown Middletown and the shopping areas on Route 372. The Route I-North route provides limited evening service between downtown Middletown and the shopping areas on Route 372 using Industrial Park Road in the northbound

direction. Finally, CT Transit runs the 906 Route - Cromwell Express from the park and ride lot on Industrial Park Road to downtown Hartford.

### **Truck Restrictions**

FedEx is aware of certain truck restrictions that will impact the allowable routing of their trucks. Specifically, there are restrictions on through trucks and certain large trucks.

Through Trucks - The section of Main Street in the Town of Berlin, which acts as the continuation of Middle Street, from the intersection with Division Street/Spruce Brook Road to Route 372 (Mill Street) is signed for “No Through Trucks”. In addition, Smith Street east of Industrial Park Road is similarly signed. In Connecticut, a through truck is defined as one that passes through a town without having an origin or destination in that town. If a truck originates or has a scheduled stop within that town, it would not be affected by a through truck prohibition.

Section 14-298 of the General Statutes of Connecticut grants authority to the Office of the State Traffic Administration (OSTA) to make regulations, in cooperation and agreement with local traffic authorities, regarding through truck traffic within the limits of any municipality in this state. The “No Through Truck” regulations posted on Main Street in the Town of Berlin and on Smith Street in the City of Middletown were approved by the Office of State Traffic Administration. Therefore, no FedEx trucks can use Main Street unless they have a scheduled stop in the Town of Berlin.

Certain Large Trucks – These are trucks with 53’ trailers or double trailers, often referred to by their AASHTO designations of WB-67 and WB-67D. Trucks in Connecticut are regulated under Sections 14-261, 261a, 264, 267a, 269 and 270 of the Connecticut General Statutes, consistent with the requirements of the Federal Surface Transportation Assistance Act (STAA) of 1982. Pursuant to State statutes, 53’ semi-trailers, and 28’ doubles with an overall length not exceeding 65’, may travel the designated highway system. This system includes State numbered Routes 1-399, 450, 476, 508, 695, 695; the Interstate highway system; and State and Local roads for up to one mile from those routes to access to terminals, etc. FedEx uses trucks of this type and they may use the I-91 interchange at Route 372 (#21), Route 372 (Berlin Road) and Industrial Park Road to reach the site, which is less than one mile from Route 372 (Berlin Road). However, they may not use the I-91 interchange with Country Club Road (#20), Country Club Road, or other connecting streets to reach the site, which is more than one mile away, unless the one mile limit is waived by the Commissioner of Transportation.



### **III. PROJECTED TRAFFIC CONDITIONS**

The intersections cited above were tested against future traffic demand. Future traffic volumes were estimated to determine if any traffic issues would result from a proposed FedEx Ground Hub development. Estimated site traffic volumes were determined, assigned to the critical roadway network, and superimposed onto anticipated year 2019 background traffic volumes.

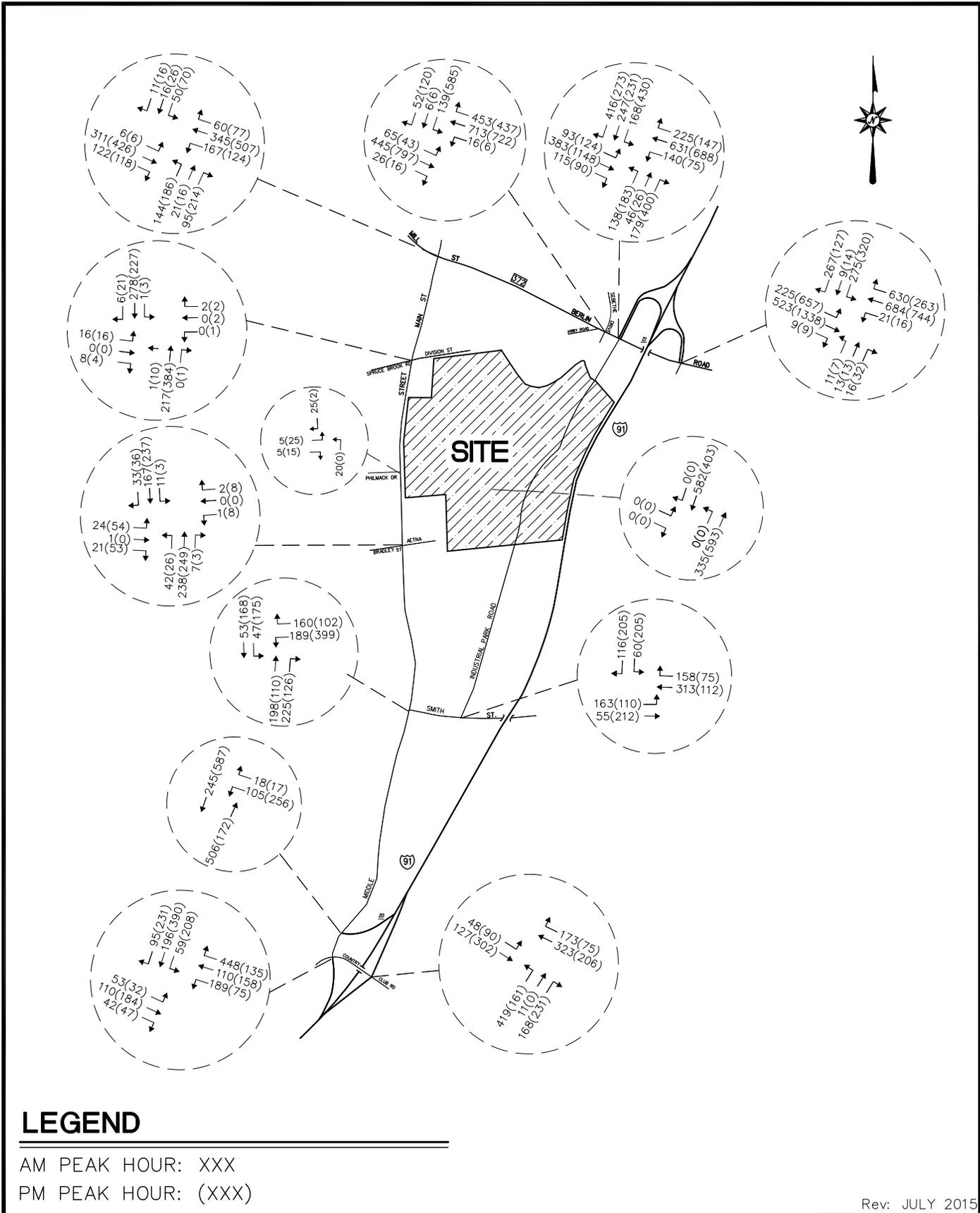
#### **Background Traffic Volumes**

##### **Local Growth**

The existing through traffic volumes were grown at a rate of 1 percent per year (based on historical data since 1990, the actual increase has been less) to the year 2019 to account for “normal” growth in the corridor, occupancy of currently vacant buildings, etc. In addition, traffic projections from three other nearby approved developments were incorporated into the analysis: the remaining CenterPoint office development along Industrial Park Road; a recently approved 55,000 square foot office building on Middle Street, across from and just north of the FedEx site; and a recently approved 88,000 square foot office/warehouse development on Sebeth Drive in Cromwell. Those three developments, if constructed, will potentially add 370± peak hour trips to the nearby street network. The year 2019 background traffic volumes are illustrated in Figure 3.

##### **Trip Distribution**

The distribution of the anticipated site traffic onto the roadway network was based on the site specific operational and access characteristics, an estimate of the origin of employees based on journey to work data, and anticipated large truck patterns from FedEx. As noted, the site is designed for internal employees to park in the Middle Street lot and trucks to use Industrial Park



**BACKGROUND (2019) TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHMATIC, NOT TO SCALE

**FIGURE 3**

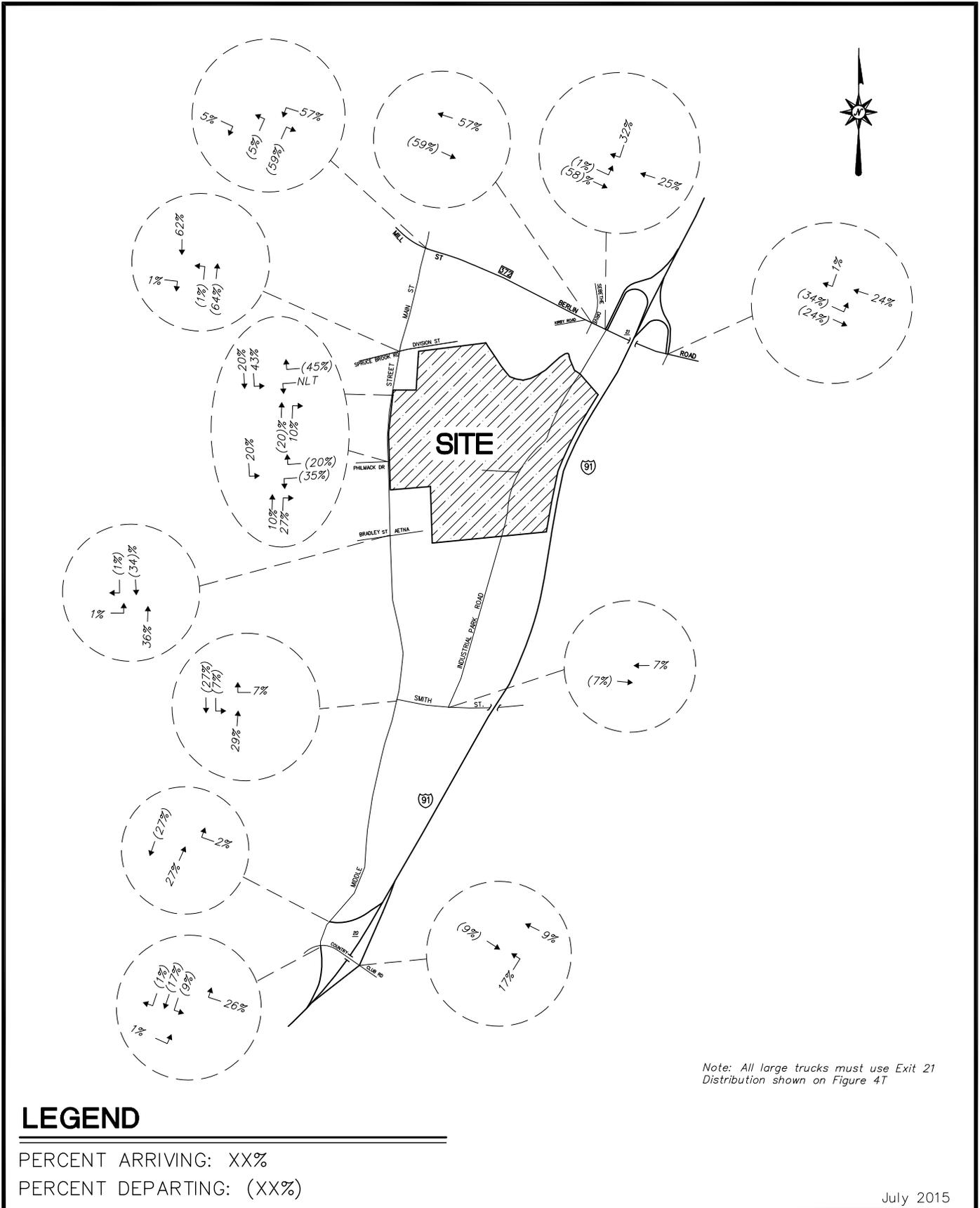
Road. Approximately 25% of the daily traffic volume will consist of trucks. However, the peak hour traffic volume percentage will be much lower. All of the large trucks will use I-91 interchange #21 at Route 372 (Berlin Road), primarily oriented to/from the north, per the FedEx service area. The anticipated trip distribution of truck traffic is shown in Figure 4T. There will be no local delivery from this hub. The anticipated trip distribution of passenger car traffic is depicted in Figure 4 and is heavily oriented towards I-91 and Middle Street. Since the large majority of the traffic consists of employees, much of the generated traffic is oriented to Middle Street, where they must park.

### **Site Traffic Volumes**

Trip generation defines the number of trips oriented to and from a particular land use. Typically, trip generation rates quantify the relationship of a specific land use with the number of vehicles per unit of time. These rates, often determined from studies of similar facilities, form the basis for estimating the number of vehicles generated by future development.

The rates found in the most utilized source, the Institute of Transportation Engineers (ITE) Trip Generation, 9<sup>th</sup> edition, are based on studies of actual facilities. However, the closest ITE land uses to the proposed FedEx facility, “Warehousing” or “High-Cube Warehouse/Distribution Center”, may not accurately represent the level of traffic, or the specific pattern of flow, found in high volume package processing facilities.

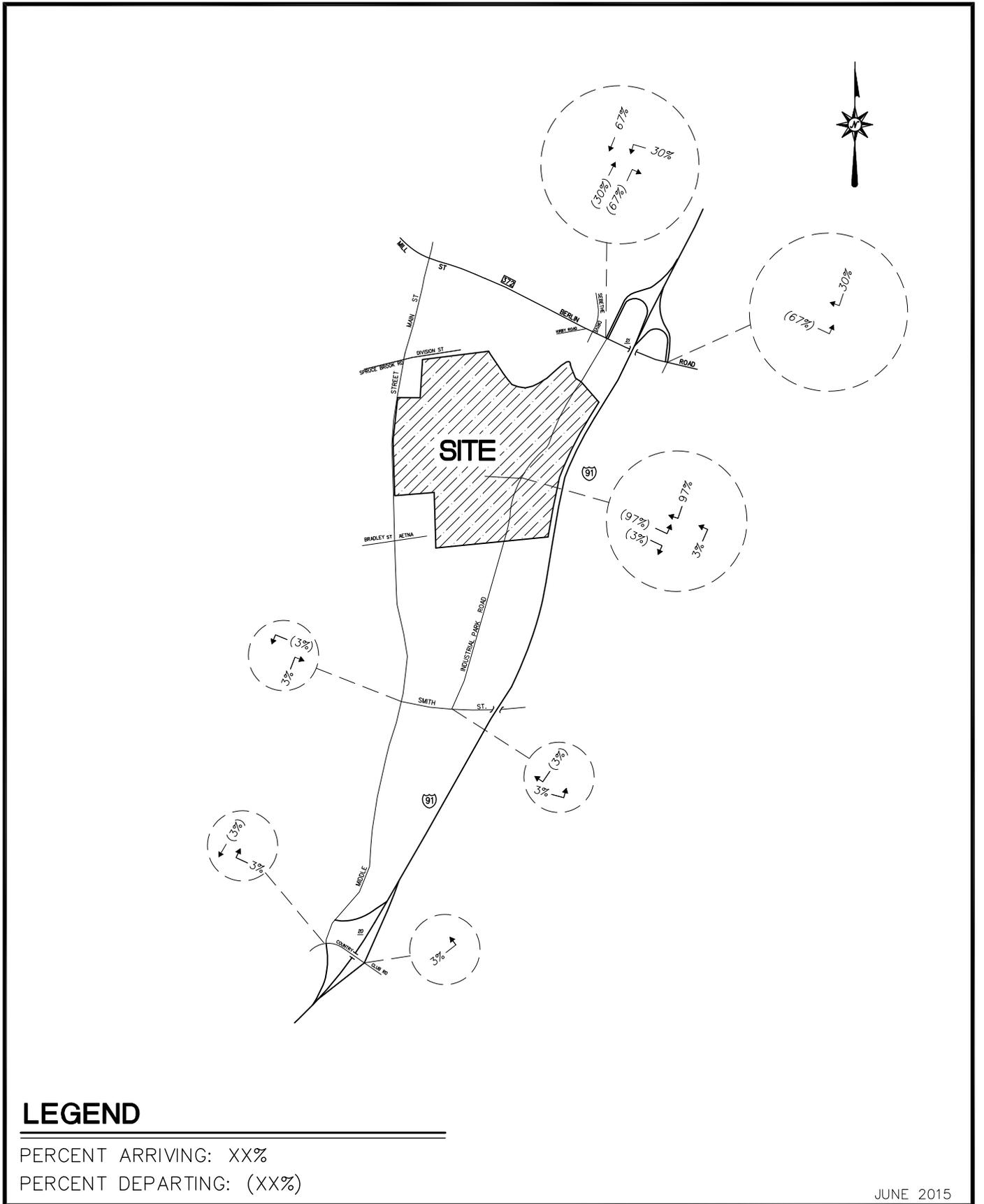
The trip generation estimates for this study were based on the typical package sorting operations anticipated at a 52.5K Full Phase (no local city operations) FedEx hub, as provided by FedEx. It also assumes the full capacity of the facility, although that will not be reached until several years



**TRIP DISTRIBUTION-AUTOMOBILES  
FEDEX HUB  
MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 4**



**LEGEND**

PERCENT ARRIVING: XX%  
 PERCENT DEPARTING: (XX%)

JUNE 2015



**TRIP DISTRIBUTION-TRUCKS  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 4T**

after the 2019 opening. Note that a different type facility, with local city delivery for example, would exhibit its own traffic pattern.

In addition, while the morning and afternoon peak traffic hours for the FedEx facility may fall slightly outside the commuter peak traffic periods along the adjacent roadway network, for a conservative analysis, since that characteristic cannot be guaranteed, it was also assumed that the site and street traffic peaks coincide. Table 1 shows the anticipated morning and afternoon peak hour trip generation for the hub. On a daily basis, the FedEx hub is anticipated to generate 3,860± trips (1930 in, 1930 out). Of those, about 75% are passenger cars and 25% trucks. The highest truck volumes are expected to occur during the 8 PM - 5 AM time period. As a result, the morning peak hour truck percentage is about 8% trucks, while the afternoon is 15%. The large majority of trucks will be either “doubles” or “large singles”. Morning and afternoon peak hour trip generation is anticipated to be 260 and 325 trips respectively. As noted, these may not exactly coincide with the commuter peak periods along the nearby roadway system.

**Table 1**  
**FedEx Hub Trip Generation**

	Cars	Trucks	Total
Daily	1455/1455(2910)	475/475(950)	1930/1930(3860)
AM Peak Hour	45/195(240)	8/12(20)	53/207(260)
PM Peak Hour	230/45(275)	30/20(50)	260/65(325)

00/00(000) – trips in/out (total)

By comparison, using ITE rates, a generic warehouse of the same size (580,000± s.f.) would be expected to generate 2,230 daily, 215 morning and 185 afternoon peak hour trips, respectively. Similarly a high-cube warehouse/distribution center of that size would be expected to generate 990 daily, 65 morning and 75 afternoon peak hour trips, respectively. When at full operation, the

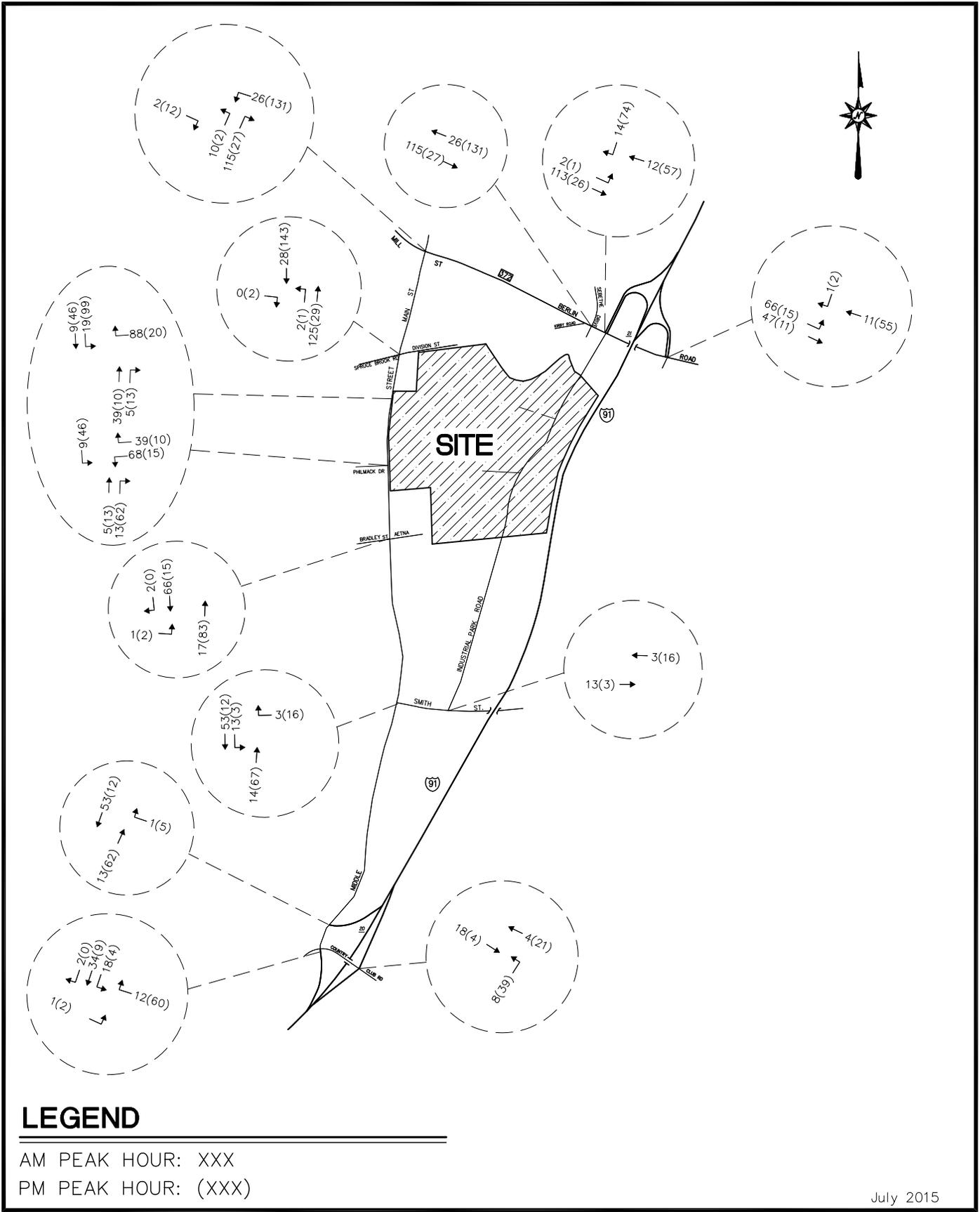
former Aetna division headquarters appeared to generate over 2,000 peak hour trips. As noted under Local Growth, the three developments included in the background traffic volumes could potentially add 370± peak hour trips, a higher total than the FedEx site.

Figures 5 and 5T show the site generated peak hour automobile and truck traffic for the hub, assigned to the nearby street system.

It is not anticipated that there will be any pedestrian traffic generated by this facility. The Industrial Park Road access is secured and for trucks only. Pedestrians or bicycles are not permitted. FedEx is providing a parking rack for 9 bicycles in the Middle Street lot.

### **Build Traffic Volumes**

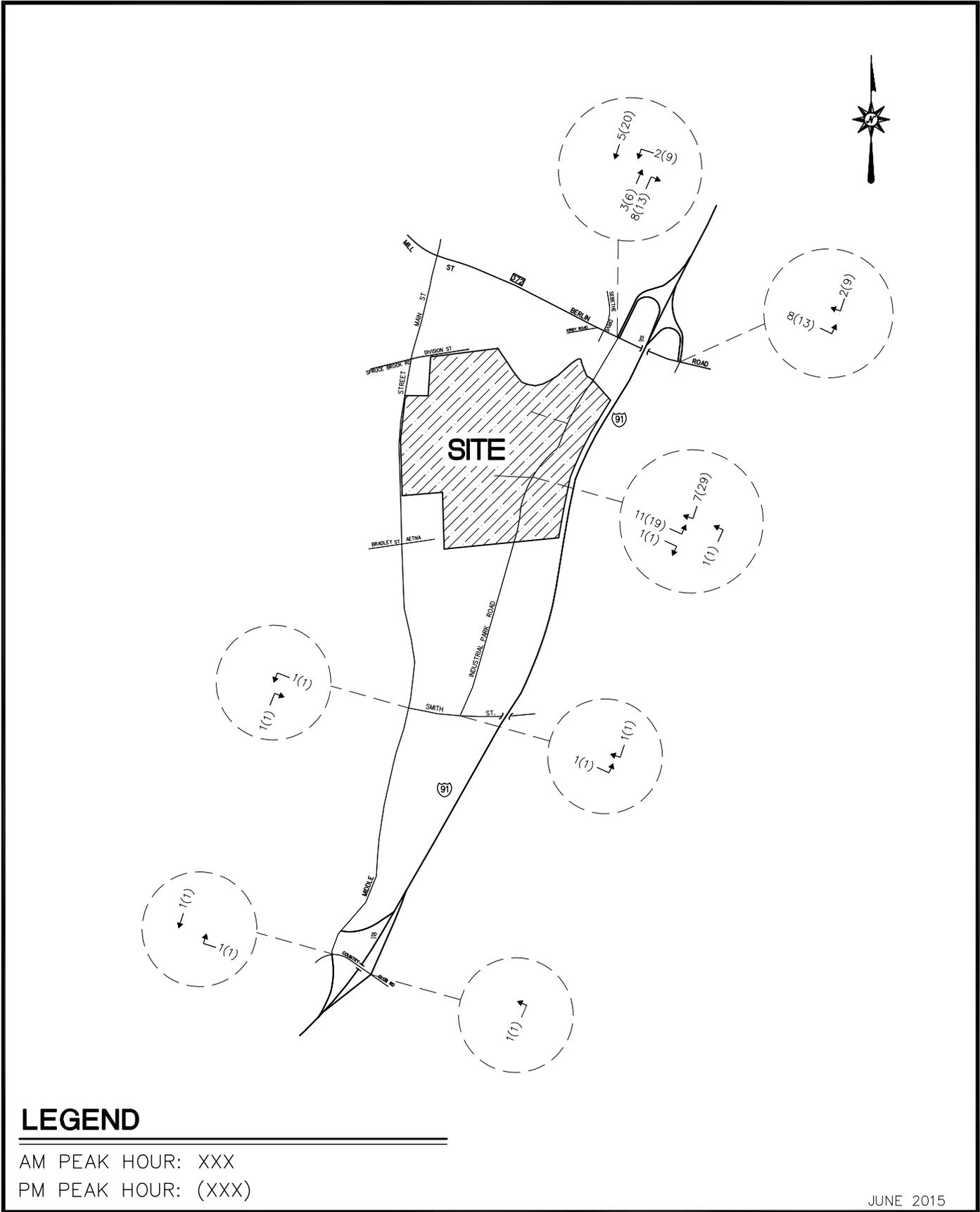
The anticipated traffic volumes generated by the FedEx Ground Hub development were superimposed onto the background traffic volumes to establish the build traffic volumes, as illustrated in Figure 6.



**NEW SITE AUTOMOBILE TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHMATIC, NOT TO SCALE

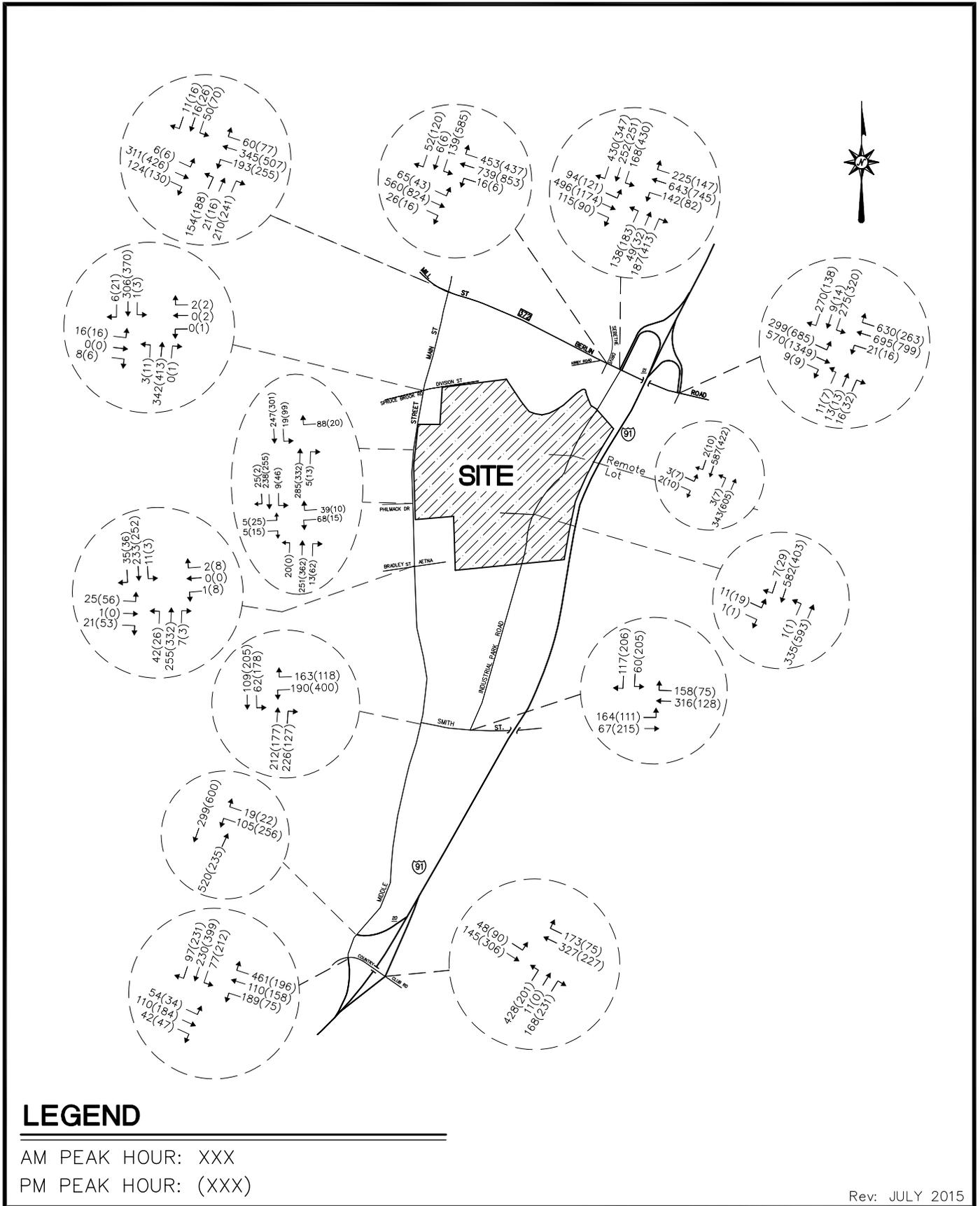
**FIGURE 5**



**NEW SITE TRUCK TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

SCHEMATIC, NOT TO SCALE

**FIGURE 5T**



**BUILD (2019) TRAFFIC VOLUMES  
 FEDEX HUB  
 MIDDLETOWN, CONNECTICUT**

Companies

SCHMATIC, NOT TO SCALE

FIGURE 6

## IV. ROADWAY ADEQUACY

Capacity analyses were prepared using the methodology described in the Highway Capacity Manual (HCM), published by the Transportation Research Board (TRB) for the background and build traffic volume scenarios to simulate the traffic impact of a FedEx Hub development on the adjacent roadway network.

### **Signalized Intersections**

Signalized intersections are analyzed in terms of vehicle capacity and motorist delay. Capacity is the maximum rate of vehicle flow through an intersection given typical operating conditions. The number of vehicles traveling through an intersection is divided by the capacity of the intersection to determine an overall volume to capacity ratio (v/c). A v/c value under 1.00 indicates that the number of vehicles traveling through an intersection is less than capacity.

As stated in the HCM, level of service for signalized intersections is defined in terms of control delay. Control delay measures the increase in delay a motorist experiences while encountering a traffic control signal. These factors include initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. This delay is measured per vehicle for a 15-minute analysis period and is associated with the levels of service, which are summarized in Table 2 below:

**Table 2**  
**Signalized Intersection - Level of Service**

<u>Level of Service</u>	<u>Control Delay per Vehicle (seconds)</u>
A	< 10
B	> 10 and ≤ 20
C	> 20 and ≤ 35
D	> 35 and ≤ 55
E	> 55 and ≤ 80
F	> 80

Level of service A represents the optimum level where most motorists arrive at the subject intersection during the green phase and thus experience virtually no delay. Conversely, level of service F indicates that motorists are delayed over 80 seconds while traveling through the intersection, and can often imply a complete breakdown of that location. Level of service D is generally considered the limit of acceptable motorist delay.

**Unsignalized Intersections**

Unsignalized intersections are generally evaluated in terms of average side street delay, as well as the capacity of the roadway approach. This analysis is based on the random arrival of vehicles and the associated gaps generated by this random arrival within the traffic stream. There is no overall level of service for unsignalized intersections. The relationship between levels of service and average side street delay are summarized in Table 3 below:

**Table 3**  
**Unsignalized Intersection – Level of Service**

<u>Level of Service</u>	<u>Delay Range (seconds)</u>
A	< 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	> 50

It should be noted that unsignalized levels of service do not correspond to those for signalized intersections, nor do they constitute warrants for the installation of traffic control signals. It is also recognized that the methodology is overly conservative and that computations can indicate operations at poor levels of service (E or F) with even very low side street volumes, although they often function without serious problems in the real world.

Table 4 shows the levels of service (LOS) at the subject intersections. A more detailed Table is included in the Appendix.

**Table 4  
Peak Hour Levels of Service**

Intersection	Peak Hour			
	Background		Build	
	AM	PM	AM	PM
Route 372 at Main St <sup>2</sup>	B	B	B	C
Route 372 at Sebethe Drive <sup>2</sup>	B	E	B	E
Route 372 at I-91 SB Ramps/ Industrial Park Rd <sup>2</sup>	C	C	C	D
Route 372 at I-91 NB Ramps <sup>2</sup>	B	C	B	C
Industrial Park Rd at Hub driveway <sup>1</sup>	-	-	C	C
Industrial Park Road at Satellite lot	-	-	C	C
Industrial Park Rd at Smith St <sup>1</sup>	C	D	C	E
Middle St at Division St/Spruce Brook Rd <sup>3</sup>	A	A	B	B
Middle Street at north site driveway	-	-	B	B
Middle Street at south site driveway	-	-	B	B
Middle St at Aetna driveway/Bradley St <sup>2</sup>	A	A	A	A
Middle St at Smith St <sup>2</sup>	B	C	B	C
Middle St at I-91 SB off ramp <sup>1</sup>	C	F	C	F
Middle St at Country Club Rd/I-91 SB On Ramp <sup>3</sup>	E	E	E	E
Country Club Rd at I-91 NB Off ramp <sup>3</sup>	D	C	E	C

- 1- Unsignalized, LOS for controlled traffic only
- 2- Signalized, overall intersection LOS
- 3- All way Stop, overall intersection LOS

Levels of Service at the intersections studied remain unchanged, or within the acceptable range, with two exceptions: the I-91 NB off ramp at Country Club Road, where the morning peak period level of service for left turns is projected to be “E”, and the Industrial Park Road approach to Smith Street, where an “E” level of service is projected for the afternoon peak period.

While the FedEx impact may be small, there are observed, existing, or projected background, problem areas that may have to be addressed in the future by municipal or State agencies independent of the FedEx project. The computed overall levels of service do not completely describe the state of traffic operations at several locations. Those are discussed in the next section of this report.

## V. CONCLUSIONS AND RECOMMENDATIONS

This study investigated the potential traffic operational issues associated with a FedEx Ground Hub development during the weekday morning and afternoon peak traffic periods. The proposed FedEx Ground Hub is projected to generate 3,860 daily, 260 morning and 325 afternoon peak hour trips.

With two exceptions, overall traffic operations at the intersections studied will remain essentially unchanged, or remain at acceptable levels post FedEx. A more detailed evaluation identified some existing, or background operational issues that deserve attention. While there are no large system level traffic improvements needed, various individual intersections or traffic movements can be improved. Moving forward, the following should be considered:

### **By FedEx**

1. The proposal must to be submitted to the Office of State Traffic Administration (OSTA) to obtain a Certificate of Operation as a major traffic generator under Section 14-311 of the Connecticut General Statutes.
2. All large trucks should use the I-91 interchange at Route 372 (#21). Trucks oriented towards other regional expressways, I-84, Route 9 and Route 72 could legally use Route 372 to reach the site. While these may be shorter routes, it is recommended that the large trucks stay on the expressway network to avoid mixing with local traffic.

3. Industrial Park Road at proposed Hub driveway – Reactivation of the existing traffic signal would require an inspection of the installation, which has been out of operation for a few years. It is clear that there is at least one traffic signal head missing and perhaps other components have been cannibalized or stolen. It also appears that a traffic signal is not warranted based on the FedEx traffic volume projections and in a preliminary meeting, the Office of State Traffic Administration indicated they would not be supportive of reactivating an unwarranted traffic signal. Maintaining the signal in its current flashing mode may be beneficial to provide advance warning of this significant intersection, the first major access point one sees along Industrial Park Road traveling south from Route 372. The driveway can be reduced from its current three lane exit to two lanes. The former southbound Industrial Park Road southbound right turn lane into Aetna was painted out when Aetna closed. That lane should be reinstated in conjunction with other pavement marking changes, see below.
4. Industrial Park Road at proposed satellite parking lot. The availability of adequate intersection sight distance, based on truck needs is necessary at this location. In addition, it appears that the curb cut is in the transition area from two southbound Industrial Park Road lanes to one. This is an undesirable situation and some pavement marking and signing adjustments should be made.
5. It is believed that Industrial Park Road once had two southbound travel lanes from Route 372 to the Aetna driveway. The second southbound lane became the right turn lane into Aetna. With the closure of the Aetna complex, that second lane was closed and a transition to one lane made to the north. It is recommended that the two lane southbound arrangement be reinstated.

6. Route 372 (Mill Street) at Main Street – the existing 100'± long westbound Route 372 left turn lane should be lengthened to 240'± at this intersection in Berlin. This will require a minor widening along Route 372. There is sufficient right of way available for this improvement.
7. Route 372 (Berlin Road) at I-91 NB ramps – the afternoon peak period eastbound Route 372 (Berlin Road) left turn onto I-91 north is projected to be at LOS “E”, capacity, and the queue nearing the end of the left turn lane under the build condition at this intersection in Cromwell. The three other nearby development projects also contribute to this potential problem. Modification of the traffic signal to reallocate more time to the left turn movement would nearly replicate the background condition.

#### **By Municipal and/or State Agencies**

There are observed, existing, or projected background, problem areas that may have to be addressed in the future by municipal or State agencies independent of the FedEx project.

1. Country Club Road at the I-91 NB off ramp (exit #20) - this all-way stop has a projected “E” level of service during the morning peak period, with left turns from the off-ramp and Middle Street westbound traffic currently nearing capacity. FedEx has a minimal impact here. If warranted, a traffic signal could provide benefit during the morning peak period, but much less so during other times.
2. Country Club Road at Middle Street and the I-91 SB on ramp (exit #20) - this all-way stop has a background “E” level of service during both peak periods studied, with westbound Country Club Road or Middle Street at “F”. Significant queueing was observed on Middle Street during the afternoon peak period, and on westbound Country Club Road during the

morning period. If warranted, a traffic signal would provide some level of improvement, but queues would still be substantial. Providing additional travel lanes on Middle Street and westbound Country Club Road (right turn lane) in conjunction with a traffic signal would be more beneficial. A partial 2-lane roundabout could be workable, but right of way acquisition could be necessary. While there is right of way available for geometric improvements (the State owns the property on three of the corners), a pump station in the northeast corner may limit the possibility of improvement.

3. Middle Street at Smith Street - the traffic volumes at this signalized intersection do not suggest a problem, but field observations revealed that the traffic signal is operating very inefficiently, with long queues on Smith Street. The traffic signal is not responsive to traffic volumes, that is, it has no vehicle detection and timing is the same regardless of traffic. This is not an effective type of operation for a location such as this.
4. Smith Street at Industrial Park Road - the Industrial Park Road (stop controlled) level of service during the afternoon peak period is projected to go from “D” to “E”, although the increase in average delay is only about 4 seconds per vehicle. There will still be sufficient capacity for the movement. As development continues along Industrial Park Road, a minor (3'-4') widening of Industrial Park Road to provide two lanes approaching Smith Street could prove beneficial.
5. Route 372 (Berlin Road) at Sebeth Drive – the intersection is projected to operate at an overall “E” level of service, with several individual traffic movements at “F” and over capacity under afternoon peak period background conditions. A recently approved 88,000 square foot development project on Sebeth Drive, a dead end road, directly impacts this intersection. Afternoon peak hour traffic volumes on Sebeth Drive alone are expected to reach nearly 1200 vehicles. The FedEx project is projected to have minimal impact on

this intersection. This location is controlled jointly with the I-91 SB ramps and Industrial Park Road intersection, 250'± to the east and the complex traffic signal phasing is very difficult to model. The Town of Cromwell should investigate options to provide additional access to Sebethe Drive to relieve the traffic pressure. Other possible improvements include constructing a third eastbound Route 372 through lane from the vicinity of Kirby Road to the intersection. Available right of way would limit the length of this lane to perhaps 175'. Beyond Sebethe Drive it would become the right turn lane at Industrial Park Road. This would limit its effectiveness, but still provide some improvement. A Route 372 westbound right turn lane could be constructed between the I-91 ramps and Sebethe Drive, but might impact the commuter parking lot fronting Route 372.

**2020 PROPOSED CURRENT OPERATION VOLUMES**  
**PEAK HOUR TRIP GENERATION AND**  
**TRIP DISTRIBUTION SUMMARIES**

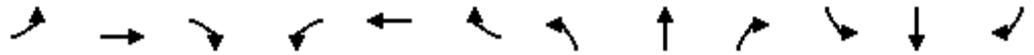
**Table A**  
**Mid-Growth Peak Hour Trip Generation**  
12/18/2020

	<b>Trips</b>					
<b>Trips By</b>	<b>AM Peak Hour</b>			<b>PM Peak Hour</b>		
		300	48	252	340	233
Autos	21	8	13	13	7	6
Trailer Trucks	0	0	0	0	0	0
Vans	321	56	265	353	240	113
<b>Net New Trips</b>	300	48	252	340	233	107

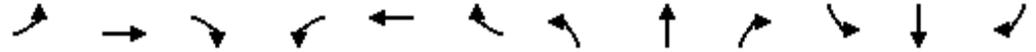
Ref: Trip Generation developed by Tenant  
11/15/2020

**CAPACITY ANALYSES**

**EXISTING**



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	263	113	154	342	58	155	16	238	47	16	11
Future Volume (vph)	5	263	113	154	342	58	155	16	238	47	16	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.978			0.921			0.980	
Flt Protected		0.999		0.950				0.981			0.969	
Satd. Flow (prot)	0	1861	1583	1770	1822	0	0	1851	0	0	1946	0
Flt Permitted		0.992		0.582				0.841			0.690	
Satd. Flow (perm)	0	1848	1583	1084	1822	0	0	1587	0	0	1386	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			123		15			90				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	286	123	167	372	63	168	17	259	51	17	12
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	291	123	167	435	0	0	444	0	0	80	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		19.5	19.5	19.5	19.5			16.9			16.9	
Actuated g/C Ratio		0.41	0.41	0.41	0.41			0.35			0.35	
v/c Ratio		0.39	0.17	0.38	0.58			0.72			0.16	
Control Delay		13.1	3.5	14.7	15.5			18.6			12.3	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		13.1	3.5	14.7	15.5			18.6			12.3	
LOS		B	A	B	B			B			B	
Approach Delay		10.2			15.3			18.6			12.3	



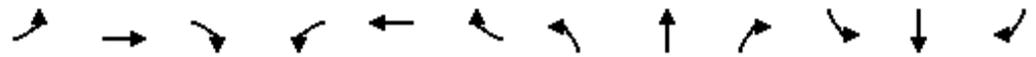
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			B			B	
Queue Length 50th (ft)		49	0	28	77			66			12	
Queue Length 95th (ft)		141	27	94	217			206			46	
Internal Link Dist (ft)		795			2226			1941			499	
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1653	1429	970	1631			1083			920	
Starvation Cap Reductn		0	0	0	0			0			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.18	0.09	0.17	0.27			0.41			0.09	

**Intersection Summary**

Area Type:	Other
Cycle Length:	86
Actuated Cycle Length:	48.1
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	14.7
Intersection LOS:	B
Intersection Capacity Utilization:	74.4%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 101: Main & Rte 372





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖					↖	↗	↖
Traffic Volume (vph)	37	569	26	16	701	368	0	0	0	126	5	47
Future Volume (vph)	37	569	26	16	701	368	0	0	0	126	5	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.993			0.949							0.850
Flt Protected	0.950				0.999					0.950	0.956	
Satd. Flow (prot)	1770	3514	0	0	3355	0	0	0	0	1681	1692	1583
Flt Permitted	0.194				0.955					0.950	0.956	
Satd. Flow (perm)	361	3514	0	0	3208	0	0	0	0	1681	1692	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			214							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	618	28	17	762	400	0	0	0	137	5	51
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	40	646	0	0	1179	0	0	0	0	71	71	51
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	78.7	78.7			137.0					13.1	13.1	13.1
Actuated g/C Ratio	0.47	0.47			0.81					0.08	0.08	0.08
v/c Ratio	0.24	0.39			0.43					0.55	0.54	0.19
Control Delay	34.9	31.5			2.4					89.5	89.1	1.7
Queue Delay	0.0	0.0			0.3					0.3	0.3	0.0
Total Delay	34.9	31.5			2.8					89.8	89.4	1.7
LOS	C	C			A					F	F	A
Approach Delay		31.7			2.8						66.4	
Approach LOS		C			A						E	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	30	275			95					81	81	0
Queue Length 95th (ft)	60	298			97					137	137	0
Internal Link Dist (ft)		284			152			135			398	
Turn Bay Length (ft)	300									125		125
Base Capacity (vph)	168	1642			2744					157	158	285
Starvation Cap Reductn	0	0			857					0	0	0
Spillback Cap Reductn	0	6			0					6	6	0
Storage Cap Reductn	0	0			0					0	0	0
Reduced v/c Ratio	0.24	0.39			0.62					0.47	0.47	0.18

**Intersection Summary**

Area Type:	Other
Cycle Length:	168.5
Actuated Cycle Length:	168.5
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	18.4
Intersection LOS:	B
Intersection Capacity Utilization:	59.1%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 102: McD/Sebethe & Rte 372

#103#103 → Ø4 → Ø1	#101#103#103 ← Ø5	#102#103 ← Ø6	#103 ↙ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↘ Ø7
3.1 s			21.2 s

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

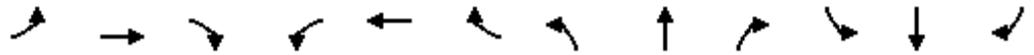
FedEx- Middletown  
103: Ind Park/I91SB & Rte 372

2020 Existing Volumes With Mid-Forcasat Dev.

Timing Plan: AM Peak Hr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	92	515	95	124	564	226	131	31	188	168	253	389
Future Volume (vph)	92	515	95	124	564	226	131	31	188	168	253	389
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.422			0.735		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	778	1845	1568	1369	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			204			423
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		232			1355			2498			741	
Travel Time (s)		4.0			23.1			48.7			14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	100	560	103	135	613	246	142	34	204	183	275	423
Shared Lane Traffic (%)												
Lane Group Flow (vph)	100	560	103	135	613	246	142	34	204	183	275	423
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	13.1	94.4	168.5	17.0	78.7	45.2	36.7	19.9	168.5	36.7	19.9	19.9
Actuated g/C Ratio	0.08	0.56	1.00	0.10	0.47	0.27	0.22	0.12	1.00	0.22	0.12	0.12
v/c Ratio	0.73	0.28	0.07	0.77	0.37	0.47	0.56	0.16	0.13	0.55	0.67	0.76
Control Delay	130.5	3.9	0.1	100.0	31.1	25.7	59.9	66.3	0.2	59.5	78.7	14.6
Queue Delay	3.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	134.1	4.3	0.1	100.0	31.2	25.7	59.9	66.3	0.2	59.5	78.7	14.6
LOS	F	A	A	F	C	C	E	E	A	E	E	B
Approach Delay		20.7			39.2			28.4			43.9	

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			C			D		
Queue Length 50th (ft)	96	64	0	148	258	106	129	34	0	171	155	0
Queue Length 95th (ft)	163	76	0	220	282	186	189	69	0	237	200	112
Internal Link Dist (ft)	152			1275			2418			661		
Turn Bay Length (ft)				325			125			460		
Base Capacity (vph)	165	1982	1568	194	1652	524	258	875	1568	826	1664	973
Starvation Cap Reductn	23	849	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	9	0	0	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.49	0.07	0.70	0.37	0.47	0.55	0.04	0.13	0.22	0.17	0.44

Intersection Summary

Area Type:	Other
Cycle Length:	168.5
Actuated Cycle Length:	168.5
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.77
Intersection Signal Delay:	34.5
Intersection LOS:	C
Intersection Capacity Utilization:	62.6%
ICU Level of Service:	B
Analysis Period (min):	15

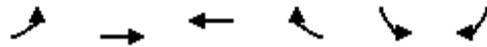
Splits and Phases: 103: Ind Park/I91SB & Rte 372

#103#103 → Ø4 → Ø1 30.1 s	#101#103#103 ← Ø5 6.4 s	#102#103 ← Ø6 20.2 s	#103 ↙ Ø3 87.5 s
#102#103 → Ø8 3.1 s			#102#103 ↗ Ø7 21.2 s

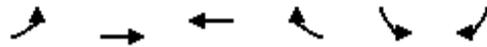
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Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖	↗	↖↖	↗
Traffic Volume (vph)	308	576	648	631	290	250
Future Volume (vph)	308	576	648	631	290	250
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.364				0.950	
Satd. Flow (perm)	678	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				686		181
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	335	626	704	686	315	272
Shared Lane Traffic (%)						
Lane Group Flow (vph)	335	626	704	686	315	272
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	18.0		52.0	52.0	20.0	
Total Split (%)	20.0%		57.8%	57.8%	22.2%	
Maximum Green (s)	14.0		46.3	46.3	15.8	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	66.0	70.0	56.8	56.8	11.8	23.5
Actuated g/C Ratio	0.73	0.78	0.63	0.63	0.13	0.26
v/c Ratio	0.57	0.23	0.32	0.55	0.70	0.50
Control Delay	7.3	3.2	8.9	2.7	45.7	12.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.3	3.2	8.9	2.7	45.7	12.3
LOS	A	A	A	A	D	B
Approach Delay		4.6	5.8		30.2	
Approach LOS		A	A		C	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	40	38	85	0	89	41
Queue Length 95th (ft)	79	66	148	48	126	98
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	695	2742	2232	1251	602	530
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.23	0.32	0.55	0.52	0.51

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	82 (91%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	10.3
Intersection LOS:	B
Intersection Capacity Utilization	64.2%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	328	470	0
Future Volume (vph)	0	0	0	328	470	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1267	0	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	0	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	139			256	2498	
Travel Time (s)	3.8			5.0	48.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	357	511	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	357	511	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.3%
ICU Level of Service	A
Analysis Period (min)	15



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	328	470	0
Future Volume (Veh/h)	0	0	0	328	470	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	357	511	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	690	256	511			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	690	256	511			
tC, single (s)	7.8	7.9	5.1			
tC, 2 stage (s)						
tF (s)	4.0	3.8	2.7			
p0 queue free %	100	100	100			
cM capacity (veh/h)	289	617	778			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	119	238	341	170	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	778	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.14	0.20	0.10	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	16.3%			ICU Level of Service	A	
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	328	470	0
Future Vol, veh/h	0	0	0	328	470	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	357	511	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	690	256	511	0	-	0
Stage 1	511	-	-	-	-	-
Stage 2	179	-	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-	-
Pot Cap-1 Maneuver	289	616	778	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	708	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	289	616	778	-	-	-
Mov Cap-2 Maneuver	289	-	-	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	708	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	778	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



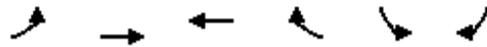
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖↖	↖		↖↖	↕	↘
Traffic Volume (vph)	13	1	1	315	462	8
Future Volume (vph)	13	1	1	315	462	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	2	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	1751	808	0	3495	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	1751	808	0	3495	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	1266	
Travel Time (s)	17.1			16.1	21.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	14	1	1	342	502	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	1	0	343	502	9
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	34.3%
Analysis Period (min)	15
	ICU Level of Service A



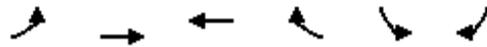
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	1	1	315	462	8
Future Volume (Veh/h)	13	1	1	315	462	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	1	1	342	502	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	10					
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	675	502	502			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	675	502	502			
tC, single (s)	8.8	8.9	6.1			
tC, 2 stage (s)						
tF (s)	4.5	4.3	3.2			
p0 queue free %	94	100	100			
cM capacity (veh/h)	227	322	596			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	9	6	115	228	502	9
Volume Left	9	5	1	0	0	0
Volume Right	0	1	0	0	0	9
cSH	227	276	596	1700	1700	1700
Volume to Capacity	0.04	0.02	0.00	0.13	0.30	0.01
Queue Length 95th (ft)	3	2	0	0	0	0
Control Delay (s)	21.5	20.3	0.1	0.0	0.0	0.0
Lane LOS	C	C	A			
Approach Delay (s)	21.1		0.0		0.0	
Approach LOS	C					
Intersection Summary						
Average Delay	0.4					
Intersection Capacity Utilization	34.3%			ICU Level of Service		A
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↙	↙
Traffic Volume (vph)	182	53	309	150	58	117
Future Volume (vph)	182	53	309	150	58	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.956		0.910	
Flt Protected		0.963			0.984	
Satd. Flow (prot)	0	1780	1775	0	1663	0
Flt Permitted		0.963			0.984	
Satd. Flow (perm)	0	1780	1775	0	1663	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	198	58	336	163	63	127
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	256	499	0	190	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	58.7%
ICU Level of Service	B
Analysis Period (min)	15



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	182	53	309	150	58	117
Future Volume (Veh/h)	182	53	309	150	58	117
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	198	58	336	163	63	127
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1107				
pX, platoon unblocked						
vC, conflicting volume	499				872	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	499				872	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	81				76	80
cM capacity (veh/h)	1060				260	635
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	256	499	190			
Volume Left	198	0	63			
Volume Right	0	163	127			
cSH	1060	1700	430			
Volume to Capacity	0.19	0.29	0.44			
Queue Length 95th (ft)	17	0	55			
Control Delay (s)	7.5	0.0	19.8			
Lane LOS	A		C			
Approach Delay (s)	7.5	0.0	19.8			
Approach LOS			C			
Intersection Summary						
Average Delay			6.0			
Intersection Capacity Utilization		58.7%		ICU Level of Service		B
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	5.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	182	53	309	150	58	117
Future Vol, veh/h	182	53	309	150	58	117
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	198	58	336	163	63	127

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	499	0	-	0	872 418
Stage 1	-	-	-	-	418 -
Stage 2	-	-	-	-	454 -
Critical Hdwy	4.13	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.227	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1060	-	-	-	320 635
Stage 1	-	-	-	-	662 -
Stage 2	-	-	-	-	638 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1060	-	-	-	258 635
Mov Cap-2 Maneuver	-	-	-	-	258 -
Stage 1	-	-	-	-	534 -
Stage 2	-	-	-	-	638 -

Approach	EB	WB	SB
HCM Control Delay, s	7.1	0	20
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1060	-	-	-	428
HCM Lane V/C Ratio	0.187	-	-	-	0.444
HCM Control Delay (s)	9.2	0	-	-	20
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	2.2

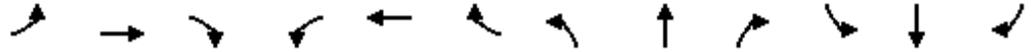
FedEx- Middletown  
 110: Middle/Main & Spruce Brook/Division

2020 Existing Volumes With Mid-Forcast Dev.  
 Timing Plan: AM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	0	8	0	0	2	4	372	0	1	256	5
Future Volume (vph)	16	0	8	0	0	2	4	372	0	1	256	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.953			0.865							0.998
Fl <sub>t</sub> Protected		0.968										
Satd. Flow (prot)	0	1718	0	0	1611	0	0	1863	0	0	1859	0
Fl <sub>t</sub> Permitted		0.968										
Satd. Flow (perm)	0	1718	0	0	1611	0	0	1863	0	0	1859	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			2074			2021	
Travel Time (s)		10.8			12.9			40.4			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	9	0	0	2	4	404	0	1	278	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	26	0	0	2	0	0	408	0	0	284	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	37.2%
Analysis Period (min)	15
	ICU Level of Service A



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	16	0	8	0	0	2	4	372	0	1	256	5
Future Volume (vph)	16	0	8	0	0	2	4	372	0	1	256	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	17	0	9	0	0	2	4	404	0	1	278	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	26	2	408	284
Volume Left (vph)	17	0	4	1
Volume Right (vph)	9	2	0	5
Hadj (s)	-0.04	-0.57	0.04	0.02
Departure Headway (s)	5.4	4.9	4.3	4.4
Degree Utilization, x	0.04	0.00	0.49	0.35
Capacity (veh/h)	590	630	822	793
Control Delay (s)	8.6	7.9	11.3	9.8
Approach Delay (s)	8.6	7.9	11.3	9.8
Approach LOS	A	A	B	A

**Intersection Summary**

Delay	10.6
Level of Service	B
Intersection Capacity Utilization	37.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	10.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	8	0	0	2	4	372	0	1	256	5
Future Vol, veh/h	16	0	8	0	0	2	4	372	0	1	256	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	9	0	0	2	4	404	0	1	278	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.6	7.9	11.4	9.8
HCM LOS	A	A	B	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	67%	0%	0%
Vol Thru, %	99%	0%	0%	98%
Vol Right, %	0%	33%	100%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	376	24	2	262
LT Vol	4	16	0	1
Through Vol	372	0	0	256
RT Vol	0	8	2	5
Lane Flow Rate	409	26	2	285
Geometry Grp	1	1	1	1
Degree of Util (X)	0.488	0.039	0.003	0.348
Departure Headway (Hd)	4.3	5.357	4.86	4.405
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	842	668	735	817
Service Time	2.315	3.392	2.9	2.421
HCM Lane V/C Ratio	0.486	0.039	0.003	0.349
HCM Control Delay	11.4	8.6	7.9	9.8
HCM Lane LOS	B	A	A	A
HCM 95th-tile Q	2.7	0.1	0	1.6



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	114	279	5	21	243
Future Volume (vph)	26	114	279	5	21	243
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.998			
Flt Protected	0.991					0.996
Satd. Flow (prot)	1643	0	1859	0	0	1855
Flt Permitted	0.991					0.996
Satd. Flow (perm)	1643	0	1859	0	0	1855
Link Speed (mph)	25		35			35
Link Distance (ft)	450		732			2074
Travel Time (s)	12.3		14.3			40.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	124	303	5	23	264
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	308	0	0	287
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	45.3%
Analysis Period (min)	15
	ICU Level of Service A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	114	279	5	21	243
Future Volume (Veh/h)	26	114	279	5	21	243
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	124	303	5	23	264
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	616	306			308	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	616	306			308	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	83			98	
cM capacity (veh/h)	446	734			1253	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	152	308	287			
Volume Left	28	0	23			
Volume Right	124	5	0			
cSH	656	1700	1253			
Volume to Capacity	0.23	0.18	0.02			
Queue Length 95th (ft)	22	0	1			
Control Delay (s)	12.1	0.0	0.8			
Lane LOS	B		A			
Approach Delay (s)	12.1	0.0	0.8			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.8			
Intersection Capacity Utilization			45.3%		ICU Level of Service	A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	2.7					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		B			A
Traffic Vol, veh/h	26	114	279	5	21	243
Future Vol, veh/h	26	114	279	5	21	243
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	124	303	5	23	264

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	616	306	0	0	308
Stage 1	306	-	-	-	-
Stage 2	310	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	454	734	-	-	1253
Stage 1	747	-	-	-	-
Stage 2	744	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	444	734	-	-	1253
Mov Cap-2 Maneuver	444	-	-	-	-
Stage 1	747	-	-	-	-
Stage 2	728	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.2	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	655	1253
HCM Lane V/C Ratio	-	-	0.232	0.018
HCM Control Delay (s)	-	-	12.2	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	51	233	13	10	259
Future Volume (vph)	63	51	233	13	10	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940		0.993			
Flt Protected	0.973					0.998
Satd. Flow (prot)	1704	0	1850	0	0	1859
Flt Permitted	0.973					0.998
Satd. Flow (perm)	1704	0	1850	0	0	1859
Link Speed (mph)	25		35			35
Link Distance (ft)	471		839			732
Travel Time (s)	12.8		16.3			14.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	55	253	14	11	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	123	0	267	0	0	293
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.0% ICU Level of Service A
Analysis Period (min)	15



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	51	233	13	10	259
Future Volume (Veh/h)	63	51	233	13	10	259
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	55	253	14	11	282
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)			839			
pX, platoon unblocked						
vC, conflicting volume	564	260			267	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564	260			267	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	86	93			99	
cM capacity (veh/h)	483	779			1297	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	123	267	293			
Volume Left	68	0	11			
Volume Right	55	14	0			
cSH	582	1700	1297			
Volume to Capacity	0.21	0.16	0.01			
Queue Length 95th (ft)	20	0	1			
Control Delay (s)	12.8	0.0	0.4			
Lane LOS	B		A			
Approach Delay (s)	12.8	0.0	0.4			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			35.0%	ICU Level of Service		A
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	63	51	233	13	10	259
Future Vol, veh/h	63	51	233	13	10	259
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	55	253	14	11	282

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	564	260	0	0	267
Stage 1	260	-	-	-	-
Stage 2	304	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	487	779	-	-	1297
Stage 1	783	-	-	-	-
Stage 2	748	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	482	779	-	-	1297
Mov Cap-2 Maneuver	482	-	-	-	-
Stage 1	783	-	-	-	-
Stage 2	741	-	-	-	-

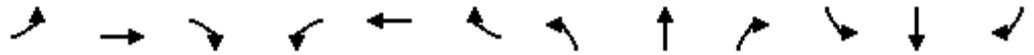
Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	581	1297
HCM Lane V/C Ratio	-	-	0.213	0.008
HCM Control Delay (s)	-	-	12.9	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0

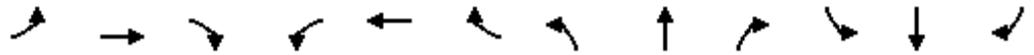
FedEx- Middletown  
114: Middle & Bradley/Aetna

2020 Existing Volumes With Mid-Forcast Dev.

Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	22	1	21	1	0	2	42	223	6	11	249	35
Future Volume (vph)	22	1	21	1	0	2	42	223	6	11	249	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.935				0.850			0.850		0.982	
Fl <sub>t</sub> Protected		0.976			0.950			0.992		0.950		
Satd. Flow (prot)	0	1813	0	0	1770	1583	0	1848	1583	1770	1829	0
Fl <sub>t</sub> Permitted								0.923		0.498		
Satd. Flow (perm)	0	1858	0	0	1863	1583	0	1719	1583	928	1829	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				191			191		21	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			839	
Travel Time (s)		14.2			7.8			66.6			16.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	1	23	1	0	2	46	242	7	12	271	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	1	2	0	288	7	12	309	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.3			7.3	34.5		30.1	34.5	27.9	31.7	
Actuated g/C Ratio		0.21			0.21	1.00		0.87	1.00	0.81	0.92	
v/c Ratio		0.12			0.00	0.00		0.19	0.00	0.01	0.18	
Control Delay		9.0			12.0	0.0		4.4	0.0	2.2	1.7	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		9.0			12.0	0.0		4.4	0.0	2.2	1.7	
LOS		A			B	A		A	A	A	A	
Approach Delay		9.0			4.0			4.3			1.8	

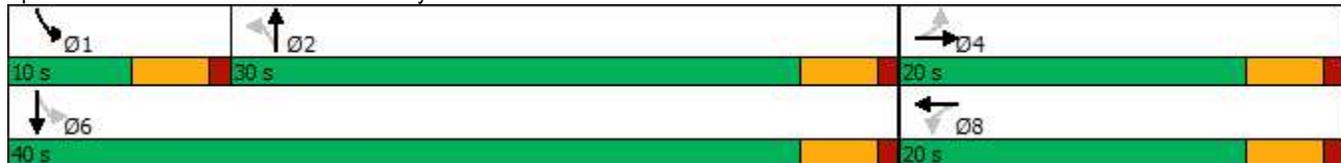


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A			A	
Queue Length 50th (ft)		4			0	0		0	0	0	0	0
Queue Length 95th (ft)		24			3	0		100	0	5	51	
Internal Link Dist (ft)		439			261			3337			759	
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		863			853	1583		1564	1583	886	1774	
Starvation Cap Reductn		0			0	0		0	0	0	0	
Spillback Cap Reductn		0			0	0		0	0	0	0	
Storage Cap Reductn		0			0	0		0	0	0	0	
Reduced v/c Ratio		0.06			0.00	0.00		0.18	0.00	0.01	0.17	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	34.5
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.19
Intersection Signal Delay:	3.4
Intersection LOS:	A
Intersection Capacity Utilization:	49.8%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 114: Middle & Bradley/Aetna





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	190	156	187	227	65	122
Future Volume (vph)	190	156	187	227	65	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939		0.926			
Flt Protected	0.973					0.983
Satd. Flow (prot)	1685	0	1708	0	0	1813
Flt Permitted	0.973					0.662
Satd. Flow (perm)	1685	0	1708	0	0	1221
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	52		84			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	207	170	203	247	71	133
Shared Lane Traffic (%)						
Lane Group Flow (vph)	377	0	450	0	0	204
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	16.3		18.7			28.6
Actuated g/C Ratio	0.30		0.34			0.53
v/c Ratio	0.69		0.70			0.29
Control Delay	22.1		19.8			9.3
Queue Delay	0.0		0.0			0.0
Total Delay	22.1		19.8			9.3
LOS	C		B			A
Approach Delay	22.1		19.8			9.3

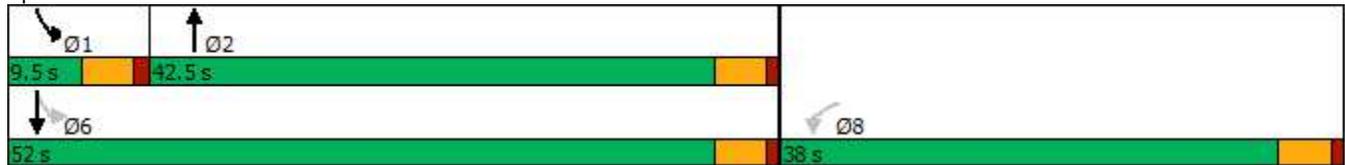


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		B			A
Queue Length 50th (ft)	79		92			30
Queue Length 95th (ft)	203		228			84
Internal Link Dist (ft)	1027		4683			3337
Turn Bay Length (ft)						
Base Capacity (vph)	1099		1265			1134
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.34		0.36			0.18

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	54.3
Natural Cycle:	55
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.70
Intersection Signal Delay:	18.5
Intersection LOS:	B
Intersection Capacity Utilization:	67.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 115: Middle & Smith



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	105	17	497	0	0	312
Future Volume (vph)	105	17	497	0	0	312
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.982					
Flt Protected	0.959					
Satd. Flow (prot)	1754	0	1863	0	0	1863
Flt Permitted	0.959					
Satd. Flow (perm)	1754	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	888		541			4763
Travel Time (s)	20.2		12.3			108.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	18	540	0	0	339
Shared Lane Traffic (%)						
Lane Group Flow (vph)	132	0	540	0	0	339
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.7%
Analysis Period (min)	15
	ICU Level of Service A

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	105	17	497	0	0	312
Future Volume (Veh/h)	105	17	497	0	0	312
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	114	18	540	0	0	339
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	879	540			540	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	879	540			540	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	64	97			100	
cM capacity (veh/h)	318	542			1028	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	132	540	339			
Volume Left	114	0	0			
Volume Right	18	0	0			
cSH	337	1700	1700			
Volume to Capacity	0.39	0.32	0.20			
Queue Length 95th (ft)	45	0	0			
Control Delay (s)	22.4	0.0	0.0			
Lane LOS	C					
Approach Delay (s)	22.4	0.0	0.0			
Approach LOS	C					
Intersection Summary						
Average Delay			2.9			
Intersection Capacity Utilization			39.7%	ICU Level of Service		A
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	2.9					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	105	17	497	0	0	312
Future Vol, veh/h	105	17	497	0	0	312
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	114	18	540	0	0	339

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	879	540	0	-	-	-
Stage 1	540	-	-	-	-	-
Stage 2	339	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	318	542	-	0	0	-
Stage 1	584	-	-	0	0	-
Stage 2	722	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	318	542	-	-	-	-
Mov Cap-2 Maneuver	318	-	-	-	-	-
Stage 1	584	-	-	-	-	-
Stage 2	722	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.4	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 337	-
HCM Lane V/C Ratio	- 0.393	-
HCM Control Delay (s)	- 22.4	-
HCM Lane LOS	- C	-
HCM 95th %tile Q(veh)	- 1.8	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	54	110	43	189	110	439	0	0	0	81	238	98
Future Volume (vph)	54	110	43	189	110	439	0	0	0	81	238	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.920							0.968
Flt Protected		0.987			0.987							0.990
Satd. Flow (prot)	0	1787	0	0	1691	0	0	0	0	0	1785	0
Flt Permitted		0.987			0.987							0.990
Satd. Flow (perm)	0	1787	0	0	1691	0	0	0	0	0	1785	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		832			1070			907			541	
Travel Time (s)		18.9			24.3			20.6			12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	120	47	205	120	477	0	0	0	88	259	107
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	226	0	0	802	0	0	0	0	0	454	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 86.8% ICU Level of Service E

Analysis Period (min) 15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	54	110	43	189	110	439	0	0	0	81	238	98
Future Volume (vph)	54	110	43	189	110	439	0	0	0	81	238	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	59	120	47	205	120	477	0	0	0	88	259	107

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	226	802	454
Volume Left (vph)	59	205	88
Volume Right (vph)	47	477	107
Hadj (s)	-0.04	-0.27	-0.07
Departure Headway (s)	6.5	5.6	6.2
Degree Utilization, x	0.41	1.25	0.78
Capacity (veh/h)	536	633	571
Control Delay (s)	13.8	146.3	27.8
Approach Delay (s)	13.8	146.3	27.8
Approach LOS	B	F	D

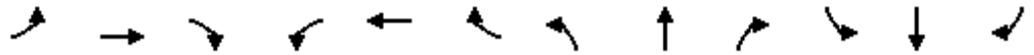
Intersection Summary		
Delay		89.8
Level of Service		F
Intersection Capacity Utilization	86.8%	ICU Level of Service E
Analysis Period (min)		15

Intersection	
Intersection Delay, s/veh	88.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	54	110	43	189	110	439	0	0	0	81	238	98
Future Vol, veh/h	54	110	43	189	110	439	0	0	0	81	238	98
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	59	120	47	205	120	477	0	0	0	88	259	107
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	14.4	143.6	28.8
HCM LOS	B	F	D

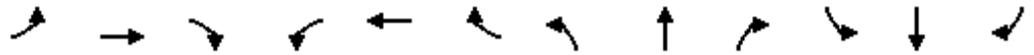
Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	26%	19%
Vol Thru, %	53%	15%	57%
Vol Right, %	21%	59%	24%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	207	738	417
LT Vol	54	189	81
Through Vol	110	110	238
RT Vol	43	439	98
Lane Flow Rate	225	802	453
Geometry Grp	1	1	1
Degree of Util (X)	0.403	1.248	0.771
Departure Headway (Hd)	6.831	5.599	6.711
Convergence, Y/N	Yes	Yes	Yes
Cap	531	650	544
Service Time	4.831	3.612	4.711
HCM Lane V/C Ratio	0.424	1.234	0.833
HCM Control Delay	14.4	143.6	28.8
HCM Lane LOS	B	F	D
HCM 95th-tile Q	1.9	29.9	7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	47	144	0	0	326	173	409	11	168	0	0	0
Future Volume (vph)	47	144	0	0	326	173	409	11	168	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.953			0.961				
Flt Protected		0.988						0.966				
Satd. Flow (prot)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Flt Permitted		0.988						0.966				
Satd. Flow (perm)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	157	0	0	354	188	445	12	183	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	208	0	0	542	0	0	640	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	81.4%
ICU Level of Service	D
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	47	144	0	0	326	173	409	11	168	0	0	0
Future Volume (vph)	47	144	0	0	326	173	409	11	168	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	51	157	0	0	354	188	445	12	183	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	208	542	640
Volume Left (vph)	51	0	445
Volume Right (vph)	0	188	183
Hadj (s)	0.08	-0.17	0.00
Departure Headway (s)	7.0	6.1	6.2
Degree Utilization, x	0.40	0.92	1.10
Capacity (veh/h)	505	542	584
Control Delay (s)	14.6	43.8	92.2
Approach Delay (s)	14.6	43.8	92.2
Approach LOS	B	E	F

**Intersection Summary**

Delay	61.7
Level of Service	F
Intersection Capacity Utilization	81.4%
ICU Level of Service	D
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	61.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	47	144	0	0	326	173	409	11	168	0	0	0
Future Vol, veh/h	47	144	0	0	326	173	409	11	168	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	51	157	0	0	354	188	445	12	183	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	15.2	45.2	89.6
HCM LOS	C	E	F

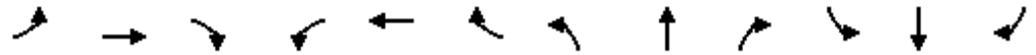
Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	70%	25%	0%
Vol Thru, %	2%	75%	65%
Vol Right, %	29%	0%	35%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	588	191	499
LT Vol	409	47	0
Through Vol	11	144	326
RT Vol	168	0	173
Lane Flow Rate	639	208	542
Geometry Grp	1	1	1
Degree of Util (X)	1.094	0.401	0.916
Departure Headway (Hd)	6.164	7.334	6.4
Convergence, Y/N	Yes	Yes	Yes
Cap	588	494	570
Service Time	4.223	5.334	4.4
HCM Lane V/C Ratio	1.087	0.421	0.951
HCM Control Delay	89.6	15.2	45.2
HCM Lane LOS	F	C	E
HCM 95th-tile Q	19.2	1.9	11.3



FedEx- Middletown  
101: Main & Rte 372

2020 Existing Volumes With Mid-Forecast Dev.

Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	420	128	249	462	74	178	16	236	68	26	16
Future Volume (vph)	5	420	128	249	462	74	178	16	236	68	26	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979			0.926			0.981	
Flt Protected		0.999		0.950				0.980			0.970	
Satd. Flow (prot)	0	1861	1583	1770	1824	0	0	1859	0	0	1950	0
Flt Permitted		0.995		0.401				0.812			0.620	
Satd. Flow (perm)	0	1853	1583	747	1824	0	0	1541	0	0	1246	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			139		14			79				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	457	139	271	502	80	193	17	257	74	28	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	462	139	271	582	0	0	467	0	0	119	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		31.0	31.0	31.0	31.0			22.0			22.0	
Actuated g/C Ratio		0.48	0.48	0.48	0.48			0.34			0.34	
v/c Ratio		0.53	0.17	0.77	0.67			0.82			0.28	
Control Delay		14.7	2.7	31.1	17.3			31.3			20.6	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		14.7	2.7	31.1	17.3			31.3			20.6	
LOS		B	A	C	B			C			C	
Approach Delay		11.9			21.7			31.3			20.6	

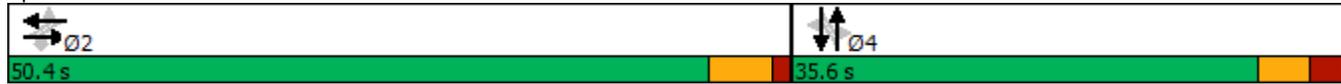


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			C			C	
Queue Length 50th (ft)		121	0	84	164			141			34	
Queue Length 95th (ft)		228	26	#222	307			#349			89	
Internal Link Dist (ft)		795			2226			1941			499	
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1343	1186	541	1326			826			636	
Starvation Cap Reductn		0	0	0	0			0			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.34	0.12	0.50	0.44			0.57			0.19	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 65.2  
 Natural Cycle: 45  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.82  
 Intersection Signal Delay: 20.9  
 Intersection LOS: C  
 Intersection Capacity Utilization 91.8%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

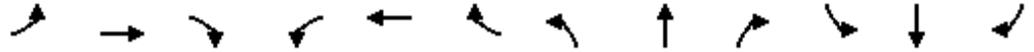
Splits and Phases: 101: Main & Rte 372





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕			↕					↖	↕	↗
Traffic Volume (vph)	37	820	16	5	827	420	0	0	0	510	5	95
Future Volume (vph)	37	820	16	5	827	420	0	0	0	510	5	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.997			0.950							0.850
Flt Protected	0.950									0.950	0.953	
Satd. Flow (prot)	1770	3529	0	0	3362	0	0	0	0	1681	1686	1583
Flt Permitted	0.160				0.955					0.950	0.953	
Satd. Flow (perm)	298	3529	0	0	3211	0	0	0	0	1681	1686	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			209							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	891	17	5	899	457	0	0	0	554	5	103
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	40	908	0	0	1361	0	0	0	0	277	282	103
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	24.0	24.0			110.7					42.4	42.4	42.4
Actuated g/C Ratio	0.14	0.14			0.66					0.25	0.25	0.25
v/c Ratio	0.95	1.81			0.60					0.65	0.67	0.20
Control Delay	193.6	407.1			8.2					65.7	66.1	2.3
Queue Delay	0.0	0.0			13.5					4.0	4.3	0.0
Total Delay	193.6	407.1			21.8					69.7	70.4	2.3
LOS	F	F			C					E	E	A
Approach Delay		398.1			21.8						59.5	
Approach LOS		F			C						E	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	44	~794			283					291	297	0
Queue Length 95th (ft)	#132	#934			m134					#590	#601	11
Internal Link Dist (ft)		284			152			135			398	
Turn Bay Length (ft)	300									125		125
Base Capacity (vph)	42	503			2280					423	424	511
Starvation Cap Reductn	0	0			922					0	0	0
Spillback Cap Reductn	0	0			0					82	82	0
Storage Cap Reductn	0	0			0					0	0	0
Reduced v/c Ratio	0.95	1.81			1.00					0.81	0.82	0.20

**Intersection Summary**

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.81  
 Intersection Signal Delay: 150.3      Intersection LOS: F  
 Intersection Capacity Utilization 64.5%      ICU Level of Service C  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: McD/Sebethe & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↘ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

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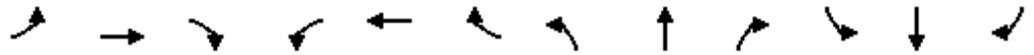
FedEx- Middletown  
103: Ind Park/I91SB & Rte 372

2020 Existing Volumes With Mid-Forecast Dev.

Timing Plan: PM Peak Hr

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	1108	89	66	731	147	163	18	325	431	236	338
Future Volume (vph)	111	1108	89	66	731	147	163	18	325	431	236	338
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.571			0.744		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	1053	1845	1568	1386	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			353			367
Link Speed (mph)		40			40			35			35	
Link Distance (ft)		232			1355			2498			741	
Travel Time (s)		4.0			23.1			48.7			14.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	121	1204	97	72	795	160	177	20	353	468	257	367
Shared Lane Traffic (%)												
Lane Group Flow (vph)	121	1204	97	72	795	160	177	20	353	468	257	367
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	42.4	67.4	168.5	10.7	24.0	24.0	69.9	52.6	168.5	69.9	52.6	52.6
Actuated g/C Ratio	0.25	0.40	1.00	0.06	0.14	0.14	0.41	0.31	1.00	0.41	0.31	0.31
v/c Ratio	0.27	0.85	0.06	0.65	1.58	0.47	0.36	0.03	0.23	0.77	0.23	0.49
Control Delay	72.4	22.9	0.0	102.3	312.2	18.8	29.0	34.2	0.3	46.7	41.6	5.1
Queue Delay	2.0	48.0	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.4	71.0	0.0	102.3	313.9	18.8	29.0	34.2	0.3	46.7	41.6	5.2
LOS	E	E	A	F	F	B	C	C	A	D	D	A
Approach Delay		66.4			253.1			10.8			31.5	

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			F			B			C		
Queue Length 50th (ft)	88	387	0	79	~653	23	119	15	0	385	111	0
Queue Length 95th (ft)	m88	m224	m0	135	#788	98	139	32	0	401	126	64
Internal Link Dist (ft)	152			1275			2418			661		
Turn Bay Length (ft)				325			125			460		
Base Capacity (vph)	445	1415	1568	176	504	342	498	875	1568	834	1664	944
Starvation Cap Reductn	210	375	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	89	0	2	0	0	0	0	36
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	1.16	0.06	0.41	1.92	0.47	0.36	0.02	0.23	0.56	0.15	0.40

**Intersection Summary**

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 110  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.81  
 Intersection Signal Delay: 96.5 Intersection LOS: F  
 Intersection Capacity Utilization 87.7% ICU Level of Service E  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

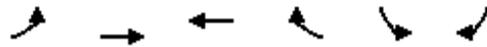
**Splits and Phases: 103: Ind Park/I91SB & Rte 372**

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↙ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↘ Ø7
3.1 s			21.2 s

Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖	↗	↖↖	↗
Traffic Volume (vph)	556	1313	792	263	338	129
Future Volume (vph)	556	1313	792	263	338	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Fl <sub>t</sub> Permitted	0.216				0.950	
Satd. Flow (perm)	402	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				271		30
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	604	1427	861	286	367	140
Shared Lane Traffic (%)						
Lane Group Flow (vph)	604	1427	861	286	367	140
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	49.0		45.7	45.7	29.2	
Total Split (%)	39.5%		36.9%	36.9%	23.6%	
Maximum Green (s)	45.0		40.0	40.0	25.0	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	94.8	98.8	53.0	53.0	16.9	61.2
Actuated g/C Ratio	0.77	0.80	0.43	0.43	0.14	0.49
v/c Ratio	0.80	0.51	0.57	0.34	0.79	0.18
Control Delay	26.5	5.3	30.7	5.4	63.9	12.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	5.3	30.7	5.4	63.9	12.2
LOS	C	A	C	A	E	B
Approach Delay		11.6	24.4		49.6	
Approach LOS		B	C		D	

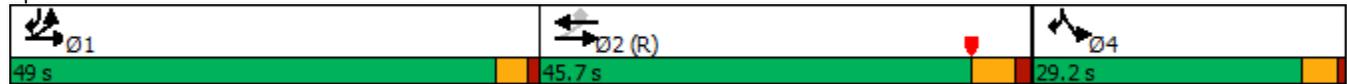


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	261	167	274	7	148	46
Queue Length 95th (ft)	414	250	401	72	193	66
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	819	2801	1513	832	692	795
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.74	0.51	0.57	0.34	0.53	0.18

**Intersection Summary**

Area Type:	Other
Cycle Length:	123.9
Actuated Cycle Length:	123.9
Offset:	0 (0%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.80
Intersection Signal Delay:	20.8
Intersection LOS:	C
Intersection Capacity Utilization	73.9%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	479	380	0
Future Volume (vph)	0	0	0	479	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Fr						
Flt Protected						
Satd. Flow (prot)	1267	0	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	0	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	124			135	2498	
Travel Time (s)	3.4			2.6	48.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	521	413	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	521	413	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	16.6%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	479	380	0
Future Vol, veh/h	0	0	0	479	380	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	521	413	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	674	207	413	0	-	0
Stage 1	413	-	-	-	-	-
Stage 2	261	-	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-	-
Pot Cap-1 Maneuver	297	670	864	-	-	-
Stage 1	514	-	-	-	-	-
Stage 2	633	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	297	670	864	-	-	-
Mov Cap-2 Maneuver	297	-	-	-	-	-
Stage 1	514	-	-	-	-	-
Stage 2	633	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	864	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	1	1	473	373	7
Future Volume (vph)	6	1	1	473	373	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	902	808	0	3498	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	902	808	0	3498	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	1253	
Travel Time (s)	17.1			16.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	7	1	1	514	405	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	1	0	515	405	8
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	29.6%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗		↖↗	↖	↗
Traffic Vol, veh/h	6	1	1	473	373	7
Future Vol, veh/h	6	1	1	473	373	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	240	-	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	3	3	100
Mvmt Flow	7	1	1	514	405	8

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	664	405	405	0	-	0
Stage 1	405	-	-	-	-	-
Stage 2	259	-	-	-	-	-
Critical Hdwy	8.1	7.7	5.6	-	-	-
Critical Hdwy Stg 1	6.9	-	-	-	-	-
Critical Hdwy Stg 2	7.3	-	-	-	-	-
Follow-up Hdwy	4.45	4.25	3.15	-	-	-
Pot Cap-1 Maneuver	266	448	723	-	-	0
Stage 1	473	-	-	-	-	0
Stage 2	559	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	265	448	723	-	-	-
Mov Cap-2 Maneuver	265	-	-	-	-	-
Stage 1	472	-	-	-	-	-
Stage 2	559	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	18.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	723	-	265	448	-
HCM Lane V/C Ratio	0.002	-	0.025	0.002	-
HCM Control Delay (s)	10	0	18.9	13.1	-
HCM Lane LOS	A	A	C	B	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↘	↙
Traffic Volume (vph)	118	205	126	70	206	205
Future Volume (vph)	118	205	126	70	206	205
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.952		0.933	
Flt Protected		0.982			0.976	
Satd. Flow (prot)	0	1823	1767	0	1688	0
Flt Permitted		0.982			0.976	
Satd. Flow (perm)	0	1823	1767	0	1688	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	128	223	137	76	224	223
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	351	213	0	447	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.2%
ICU Level of Service	B
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	17.7					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	118	205	126	70	206	205
Future Vol, veh/h	118	205	126	70	206	205
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	128	223	137	76	224	223

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	213	0	-	0	654 175
Stage 1	-	-	-	-	175 -
Stage 2	-	-	-	-	479 -
Critical Hdwy	4.13	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.227	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1351	-	-	-	430 868
Stage 1	-	-	-	-	853 -
Stage 2	-	-	-	-	621 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1351	-	-	-	384 868
Mov Cap-2 Maneuver	-	-	-	-	384 -
Stage 1	-	-	-	-	761 -
Stage 2	-	-	-	-	621 -

Approach	EB	WB	SB
HCM Control Delay, s	2.9	0	37.8
HCM LOS			E

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1351	-	-	-	532
HCM Lane V/C Ratio	0.095	-	-	-	0.84
HCM Control Delay (s)	7.9	0	-	-	37.8
HCM Lane LOS	A	A	-	-	E
HCM 95th %tile Q(veh)	0.3	-	-	-	8.7

FedEx- Middletown  
110: Middle/Main & Spruce Brook/Division

2020 Existing Volumes With Mid-Forecast Dev.  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	0	5	1	2	2	12	399	1	3	359	21
Future Volume (vph)	16	0	5	1	2	2	12	399	1	3	359	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.969			0.946							0.993
Flt Protected		0.963			0.990			0.999				
Satd. Flow (prot)	0	1738	0	0	1745	0	0	1861	0	0	1850	0
Flt Permitted		0.963			0.990			0.999				
Satd. Flow (perm)	0	1738	0	0	1745	0	0	1861	0	0	1850	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			2074			2021	
Travel Time (s)		10.8			12.9			40.4			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	0	5	1	2	2	13	434	1	3	390	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	22	0	0	5	0	0	448	0	0	416	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	39.2%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	16	0	5	1	2	2	12	399	1	3	359	21
Future Vol, veh/h	16	0	5	1	2	2	12	399	1	3	359	21
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	0	5	1	2	2	13	434	1	3	390	23
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	8.7	12.8	12.1
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	76%	20%	1%
Vol Thru, %	97%	0%	40%	94%
Vol Right, %	0%	24%	40%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	412	21	5	383
LT Vol	12	16	1	3
Through Vol	399	0	2	359
RT Vol	1	5	2	21
Lane Flow Rate	448	23	5	416
Geometry Grp	1	1	1	1
Degree of Util (X)	0.553	0.037	0.008	0.513
Departure Headway (Hd)	4.443	5.794	5.621	4.44
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	815	616	634	812
Service Time	2.464	3.85	3.683	2.462
HCM Lane V/C Ratio	0.55	0.037	0.008	0.512
HCM Control Delay	12.8	9.1	8.7	12.1
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3.4	0.1	0	3

						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	48	323	23	100	267
Future Volume (vph)	11	48	323	23	100	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.991			
Flt Protected	0.991					0.987
Satd. Flow (prot)	1643	0	1846	0	0	1839
Flt Permitted	0.991					0.987
Satd. Flow (perm)	1643	0	1846	0	0	1839
Link Speed (mph)	25		35			35
Link Distance (ft)	106		712			2074
Travel Time (s)	2.9		13.9			40.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	52	351	25	109	290
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	376	0	0	399
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	51.5%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	11	48	323	23	100	267
Future Vol, veh/h	11	48	323	23	100	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	52	351	25	109	290

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	872	364	0	0	376
Stage 1	364	-	-	-	-
Stage 2	508	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	321	681	-	-	1182
Stage 1	703	-	-	-	-
Stage 2	604	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	286	681	-	-	1182
Mov Cap-2 Maneuver	286	-	-	-	-
Stage 1	703	-	-	-	-
Stage 2	538	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.5	0	2.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	542	1182
HCM Lane V/C Ratio	-	-	0.118	0.092
HCM Control Delay (s)	-	-	12.5	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	21	325	63	47	231
Future Volume (vph)	27	21	325	63	47	231
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940		0.978			
Flt Protected	0.973					0.992
Satd. Flow (prot)	1704	0	1822	0	0	1848
Flt Permitted	0.973					0.992
Satd. Flow (perm)	1704	0	1822	0	0	1848
Link Speed (mph)	25		35			35
Link Distance (ft)	103		859			712
Travel Time (s)	2.8		16.7			13.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	23	353	68	51	251
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	421	0	0	302
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	49.0% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	1.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	21	325	63	47	231
Future Vol, veh/h	27	21	325	63	47	231
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	23	353	68	51	251

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	740	387	0	0	421
Stage 1	387	-	-	-	-
Stage 2	353	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	384	661	-	-	1138
Stage 1	686	-	-	-	-
Stage 2	711	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	364	661	-	-	1138
Mov Cap-2 Maneuver	364	-	-	-	-
Stage 1	686	-	-	-	-
Stage 2	674	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	453	1138
HCM Lane V/C Ratio	-	-	0.115	0.045
HCM Control Delay (s)	-	-	14	8.3
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

FedEx- Middletown  
114: Middle & Bradley/Aetna

2020 Existing Volumes With Mid-Forecast Dev.

Timing Plan: PM Peak Hr

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	0	53	7	0	7	26	326	3	3	241	33
Future Volume (vph)	55	0	53	7	0	7	26	326	3	3	241	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.934				0.850			0.850		0.982	
Flt Protected		0.975			0.950			0.996		0.950		
Satd. Flow (prot)	0	1809	0	0	1770	1583	0	1855	1583	1770	1829	0
Flt Permitted		0.836			0.862			0.966		0.422		
Satd. Flow (perm)	0	1551	0	0	1606	1583	0	1799	1583	786	1829	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109				191			191		20	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			859	
Travel Time (s)		14.2			7.8			66.6			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	0	58	8	0	8	28	354	3	3	262	36
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	118	0	0	8	8	0	382	3	3	298	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.6			7.6	37.5		22.5	37.5	23.2	24.1	
Actuated g/C Ratio		0.20			0.20	1.00		0.60	1.00	0.62	0.64	
v/c Ratio		0.30			0.02	0.01		0.35	0.00	0.00	0.25	
Control Delay		6.7			13.0	0.0		8.0	0.0	3.7	4.7	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		6.7			13.0	0.0		8.0	0.0	3.7	4.7	
LOS		A			B	A		A	A	A	A	
Approach Delay		6.7			6.5			7.9			4.6	

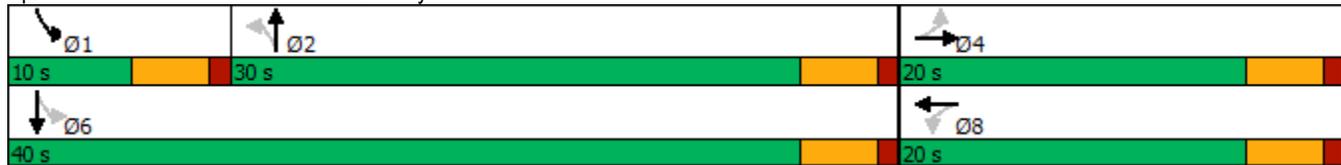


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A			A	
Queue Length 50th (ft)		1			1	0		34	0	0		23
Queue Length 95th (ft)		33			10	0		138	0	2		54
Internal Link Dist (ft)		439			261			3337				779
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		723			684	1583		1379	1583	634		1671
Starvation Cap Reductn		0			0	0		0	0	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.16			0.01	0.01		0.28	0.00	0.00		0.18

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	37.5
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.35
Intersection Signal Delay:	6.5
Intersection LOS:	A
Intersection Capacity Utilization:	57.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 114: Middle & Bradley/Aetna





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	400	116	173	127	175	197
Future Volume (vph)	400	116	173	127	175	197
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970		0.943			
Flt Protected	0.963					0.977
Satd. Flow (prot)	1723	0	1740	0	0	1802
Flt Permitted	0.963					0.482
Satd. Flow (perm)	1723	0	1740	0	0	889
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	18		51			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	435	126	188	138	190	214
Shared Lane Traffic (%)						
Lane Group Flow (vph)	561	0	326	0	0	404
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	27.3		26.5			36.6
Actuated g/C Ratio	0.37		0.36			0.50
v/c Ratio	0.86		0.49			0.80
Control Delay	37.1		18.0			28.4
Queue Delay	0.0		0.0			0.0
Total Delay	37.1		18.0			28.4
LOS	D		B			C
Approach Delay	37.1		18.0			28.4



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		B			C
Queue Length 50th (ft)	228		99			122
Queue Length 95th (ft)	#473		177			#227
Internal Link Dist (ft)	1027		4683			3337
Turn Bay Length (ft)						
Base Capacity (vph)	839		974			673
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.67		0.33			0.60

**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 73.4  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.86  
 Intersection Signal Delay: 29.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 77.4%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 115: Middle & Smith



						
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	252	21	232	0	0	592
Future Volume (vph)	252	21	232	0	0	592
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.990					
Flt Protected	0.956					
Satd. Flow (prot)	1763	0	1863	0	0	1863
Flt Permitted	0.956					
Satd. Flow (perm)	1763	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	888		541			4763
Travel Time (s)	20.2		12.3			108.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	23	252	0	0	643
Shared Lane Traffic (%)						
Lane Group Flow (vph)	297	0	252	0	0	643
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.1%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	16.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↑		↑			↑
Traffic Vol, veh/h	252	21	232	0	0	592
Future Vol, veh/h	252	21	232	0	0	592
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	274	23	252	0	0	643

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	895	252	0	-	-	-
Stage 1	252	-	-	-	-	-
Stage 2	643	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	311	787	-	0	0	-
Stage 1	790	-	-	0	0	-
Stage 2	523	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	311	787	-	-	-	-
Mov Cap-2 Maneuver	311	-	-	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	66.1	0	0
HCM LOS	F		

Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 326	-
HCM Lane V/C Ratio	- 0.91	-
HCM Control Delay (s)	- 66.1	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 8.9	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	34	184	48	74	158	192	0	0	0	210	392	232
Future Volume (vph)	34	184	48	74	158	192	0	0	0	210	392	232
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.939							0.962
Flt Protected		0.994			0.991							0.988
Satd. Flow (prot)	0	1807	0	0	1733	0	0	0	0	0	1770	0
Flt Permitted		0.994			0.991							0.988
Satd. Flow (perm)	0	1807	0	0	1733	0	0	0	0	0	1770	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		832			1070			907			541	
Travel Time (s)		18.9			24.3			20.6			12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	200	52	80	172	209	0	0	0	228	426	252
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	289	0	0	461	0	0	0	0	0	906	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 88.9% ICU Level of Service E

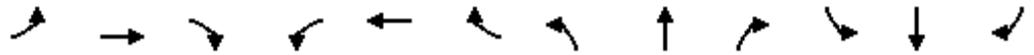
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	159.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	34	184	48	74	158	192	0	0	0	210	392	232
Future Vol, veh/h	34	184	48	74	158	192	0	0	0	210	392	232
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	37	200	52	80	172	209	0	0	0	228	426	252
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	19.8	33.2	267.6
HCM LOS	C	D	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	17%	25%
Vol Thru, %	69%	37%	47%
Vol Right, %	18%	45%	28%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	266	424	834
LT Vol	34	74	210
Through Vol	184	158	392
RT Vol	48	192	232
Lane Flow Rate	289	461	907
Geometry Grp	1	1	1
Degree of Util (X)	0.531	0.789	1.538
Departure Headway (Hd)	8.058	7.514	6.107
Convergence, Y/N	Yes	Yes	Yes
Cap	451	484	607
Service Time	6.058	5.514	4.107
HCM Lane V/C Ratio	0.641	0.952	1.494
HCM Control Delay	19.8	33.2	267.6
HCM Lane LOS	C	D	F
HCM 95th-tile Q	3	7.2	46.9



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	89	304	0	0	226	74	199	0	231	0	0	0
Future Volume (vph)	89	304	0	0	226	74	199	0	231	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.967			0.927				
Fl <sub>t</sub> Protected		0.989						0.977				
Satd. Flow (prot)	0	1842	0	0	1801	0	0	1687	0	0	0	0
Fl <sub>t</sub> Permitted		0.989						0.977				
Satd. Flow (perm)	0	1842	0	0	1801	0	0	1687	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	330	0	0	246	80	216	0	251	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	427	0	0	326	0	0	467	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	72.5%
ICU Level of Service	C
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	21.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	89	304	0	0	226	74	199	0	231	0	0	0
Future Vol, veh/h	89	304	0	0	226	74	199	0	231	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	97	330	0	0	246	80	216	0	251	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	22.7	16.1	24.6
HCM LOS	C	C	C

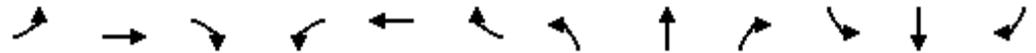
Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	46%	23%	0%
Vol Thru, %	0%	77%	75%
Vol Right, %	54%	0%	25%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	430	393	300
LT Vol	199	89	0
Through Vol	0	304	226
RT Vol	231	0	74
Lane Flow Rate	467	427	326
Geometry Grp	1	1	1
Degree of Util (X)	0.753	0.712	0.543
Departure Headway (Hd)	5.803	6	5.99
Convergence, Y/N	Yes	Yes	Yes
Cap	617	598	597
Service Time	3.887	4.093	4.09
HCM Lane V/C Ratio	0.757	0.714	0.546
HCM Control Delay	24.6	22.7	16.1
HCM Lane LOS	C	C	C
HCM 95th-tile Q	6.7	5.8	3.3



**NO BUILD**

FedEx- Middletown  
101: Main & Rte 372

2030 Base w/ Mid Vols  
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	281	121	163	366	62	165	22	244	50	17	12
Future Volume (vph)	5	281	121	163	366	62	165	22	244	50	17	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.978			0.924			0.979	
Flt Protected		0.999		0.950				0.981			0.969	
Satd. Flow (prot)	0	1861	1583	1770	1822	0	0	1857	0	0	1944	0
Flt Permitted		0.992		0.550				0.838			0.680	
Satd. Flow (perm)	0	1848	1583	1025	1822	0	0	1587	0	0	1364	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			132		15			84				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	305	132	177	398	67	179	24	265	54	18	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	132	177	465	0	0	468	0	0	85	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		21.0	21.0	21.0	21.0			18.8			18.8	
Actuated g/C Ratio		0.41	0.41	0.41	0.41			0.37			0.37	
v/c Ratio		0.41	0.18	0.42	0.62			0.74			0.17	
Control Delay		13.8	3.4	16.1	16.8			20.3			13.1	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		13.8	3.4	16.1	16.8			20.3			13.1	
LOS		B	A	B	B			C			B	
Approach Delay		10.7			16.6			20.3			13.1	

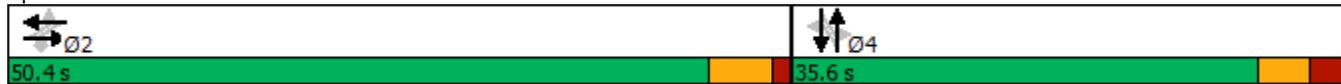


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		59	0	34	95			85			15	
Queue Length 95th (ft)		149	28	102	234			242			52	
Internal Link Dist (ft)		795			2226			1941			499	
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1593	1383	883	1573			1018			847	
Starvation Cap Reductn		0	0	0	0			0			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.19	0.10	0.20	0.30			0.46			0.10	

Intersection Summary

Area Type:	Other
Cycle Length:	86
Actuated Cycle Length:	51.5
Natural Cycle:	40
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	15.9
Intersection LOS:	B
Intersection Capacity Utilization:	78.2%
ICU Level of Service:	D
Analysis Period (min):	15

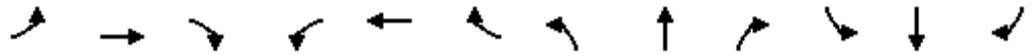
Splits and Phases: 101: Main & Rte 372





Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	310	132	177	465	468	85
v/c Ratio	0.41	0.18	0.42	0.62	0.74	0.17
Control Delay	13.8	3.4	16.1	16.8	20.3	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	3.4	16.1	16.8	20.3	13.1
Queue Length 50th (ft)	59	0	34	95	85	15
Queue Length 95th (ft)	149	28	102	234	242	52
Internal Link Dist (ft)	795			2226	1941	499
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	1593	1383	883	1573	1018	847
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.10	0.20	0.30	0.46	0.10

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕			↕					↘	↕	↗
Traffic Volume (vph)	40	598	28	17	748	394	0	0	0	135	5	50
Future Volume (vph)	40	598	28	17	748	394	0	0	0	135	5	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.993			0.949							0.850
Flt Protected	0.950				0.999					0.950	0.955	
Satd. Flow (prot)	1770	3514	0	0	3355	0	0	0	0	1681	1690	1583
Flt Permitted	0.174				0.955					0.950	0.955	
Satd. Flow (perm)	324	3514	0	0	3208	0	0	0	0	1681	1690	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			216							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	650	30	18	813	428	0	0	0	147	5	54
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	43	680	0	0	1259	0	0	0	0	76	76	54
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	84.4	84.4			136.2					13.9	13.9	13.9
Actuated g/C Ratio	0.50	0.50			0.81					0.08	0.08	0.08
v/c Ratio	0.27	0.39			0.46					0.55	0.55	0.20
Control Delay	33.2	28.0			2.5					88.3	87.9	1.7
Queue Delay	0.0	0.0			0.3					0.4	0.3	0.0
Total Delay	33.2	28.0			2.7					88.6	88.3	1.7
LOS	C	C			A					F	F	A
Approach Delay		28.3			2.7						65.7	
Approach LOS		C			A						E	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	29	262			55					86	86	0
Queue Length 95th (ft)	69	323			105					145	145	0
Internal Link Dist (ft)		284			152			135			398	
Turn Bay Length (ft)	300									125		125
Base Capacity (vph)	162	1760			2725					160	161	288
Starvation Cap Reductn	0	0			691					0	0	0
Spillback Cap Reductn	0	19			0					6	6	0
Storage Cap Reductn	0	0			0					0	0	0
Reduced v/c Ratio	0.27	0.39			0.62					0.49	0.49	0.19

**Intersection Summary**

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 17.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 62.0%  
 ICU Level of Service B  
 Analysis Period (min) 15

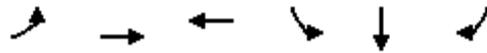
Splits and Phases: 102: McD/Sebethe & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↙ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↘ Ø7
3.1 s			21.2 s

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Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

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Lane Group	EBL	EBT	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	43	680	1259	76	76	54
v/c Ratio	0.27	0.39	0.46	0.55	0.55	0.20
Control Delay	33.2	28.0	2.5	88.3	87.9	1.7
Queue Delay	0.0	0.0	0.3	0.4	0.3	0.0
Total Delay	33.2	28.0	2.7	88.6	88.3	1.7
Queue Length 50th (ft)	29	262	55	86	86	0
Queue Length 95th (ft)	69	323	105	145	145	0
Internal Link Dist (ft)		284	152		398	
Turn Bay Length (ft)	300			125		125
Base Capacity (vph)	162	1760	2725	160	161	288
Starvation Cap Reductn	0	0	691	0	0	0
Spillback Cap Reductn	0	19	0	6	6	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.39	0.62	0.49	0.49	0.19

Intersection Summary

FedEx- Middletown  
103: Ind Park/I91SB & Rte 372

2030 Base w/ Mid Vols  
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑↑	↗
Traffic Volume (vph)	98	541	102	132	603	242	140	33	201	180	270	415
Future Volume (vph)	98	541	102	132	603	242	140	33	201	180	270	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.400			0.734		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	738	1845	1568	1367	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			218			451
Link Speed (mph)		40			40			35				35
Link Distance (ft)		232			1355			2498				741
Travel Time (s)		4.0			23.1			48.7				14.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	107	588	111	143	655	263	152	36	218	196	293	451
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	588	111	143	655	263	152	36	218	196	293	451
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	13.9	92.1	168.5	18.0	84.4	45.9	37.9	21.0	168.5	37.9	21.0	21.0
Actuated g/C Ratio	0.08	0.55	1.00	0.11	0.50	0.27	0.22	0.12	1.00	0.22	0.12	0.12
v/c Ratio	0.74	0.30	0.07	0.76	0.37	0.50	0.60	0.16	0.14	0.57	0.67	0.76
Control Delay	127.0	4.3	0.1	97.7	27.7	27.3	60.7	65.3	0.2	59.5	77.9	14.2
Queue Delay	6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.9	4.7	0.1	97.7	27.8	27.3	60.7	65.3	0.2	59.5	77.9	14.2
LOS	F	A	A	F	C	C	E	E	A	E	E	B
Approach Delay		21.0			37.1			28.6				43.5

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			

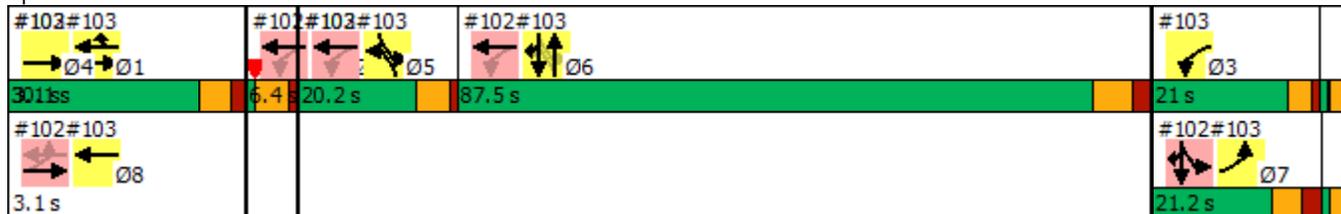


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			C			D		
Queue Length 50th (ft)	102	68	0	156	250	117	137	36	0	182	165	0
Queue Length 95th (ft)	173	81	0	231	311	215	198	72	0	252	211	116
Internal Link Dist (ft)	152			1275			2418			661		
Turn Bay Length (ft)				325			125			460		
Base Capacity (vph)	169	1933	1568	201	1771	530	257	875	1568	825	1664	988
Starvation Cap Reductn	29	750	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	28	0	0	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.07	0.71	0.38	0.50	0.59	0.04	0.14	0.24	0.18	0.46

**Intersection Summary**

Area Type:	Other
Cycle Length:	168.5
Actuated Cycle Length:	168.5
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	33.9
Intersection LOS:	C
Intersection Capacity Utilization:	65.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 103: Ind Park/I91SB & Rte 372



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Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	588	111	143	655	263	152	36	218	196	293	451
v/c Ratio	0.74	0.30	0.07	0.76	0.37	0.50	0.60	0.16	0.14	0.57	0.67	0.76
Control Delay	127.0	4.3	0.1	97.7	27.7	27.3	60.7	65.3	0.2	59.5	77.9	14.2
Queue Delay	6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	132.9	4.7	0.1	97.7	27.8	27.3	60.7	65.3	0.2	59.5	77.9	14.2
Queue Length 50th (ft)	102	68	0	156	250	117	137	36	0	182	165	0
Queue Length 95th (ft)	173	81	0	231	311	215	198	72	0	252	211	116
Internal Link Dist (ft)		152			1275			2418			661	
Turn Bay Length (ft)				325		125	375			460		325
Base Capacity (vph)	169	1933	1568	201	1771	530	257	875	1568	825	1664	988
Starvation Cap Reductn	29	750	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	28	0	0	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.07	0.71	0.38	0.50	0.59	0.04	0.14	0.24	0.18	0.46

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	323	612	693	675	310	267
Future Volume (vph)	323	612	693	675	310	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.340				0.950	
Satd. Flow (perm)	633	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				715		159
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	351	665	753	734	337	290
Shared Lane Traffic (%)						
Lane Group Flow (vph)	351	665	753	734	337	290
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	18.0		52.0	52.0	20.0	
Total Split (%)	20.0%		57.8%	57.8%	22.2%	
Maximum Green (s)	14.0		46.3	46.3	15.8	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	65.5	69.5	55.8	55.8	12.3	24.5
Actuated g/C Ratio	0.73	0.77	0.62	0.62	0.14	0.27
v/c Ratio	0.63	0.24	0.34	0.59	0.72	0.53
Control Delay	8.8	3.3	9.6	3.2	46.0	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	3.3	9.6	3.2	46.0	15.0
LOS	A	A	A	A	D	B
Approach Delay		5.2	6.4		31.6	
Approach LOS		A	A		C	



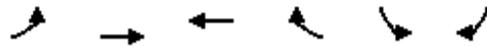
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	45	43	96	4	95	60
Queue Length 95th (ft)	85	72	167	57	134	119
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	662	2714	2194	1253	602	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.25	0.34	0.59	0.56	0.54

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	82 (91%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	11.1
Intersection LOS:	B
Intersection Capacity Utilization	67.8%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	351	665	753	734	337	290
v/c Ratio	0.63	0.24	0.34	0.59	0.72	0.53
Control Delay	8.8	3.3	9.6	3.2	46.0	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.8	3.3	9.6	3.2	46.0	15.0
Queue Length 50th (ft)	45	43	96	4	95	60
Queue Length 95th (ft)	85	72	167	57	134	119
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	662	2714	2194	1253	602	537
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.25	0.34	0.59	0.56	0.54

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	350	502	0
Future Volume (vph)	0	0	0	350	502	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1267	0	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	0	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	139			256	2498	
Travel Time (s)	3.8			5.0	48.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	380	546	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	380	546	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.2%
ICU Level of Service	A
Analysis Period (min)	15



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	350	502	0
Future Volume (Veh/h)	0	0	0	350	502	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	380	546	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	736	273	546			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	736	273	546			
tC, single (s)	7.8	7.9	5.1			
tC, 2 stage (s)						
tF (s)	4.0	3.8	2.7			
p0 queue free %	100	100	100			
cM capacity (veh/h)	267	599	750			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	0	127	253	364	182	
Volume Left	0	0	0	0	0	
Volume Right	0	0	0	0	0	
cSH	1700	750	1700	1700	1700	
Volume to Capacity	0.00	0.00	0.15	0.21	0.11	
Queue Length 95th (ft)	0	0	0	0	0	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	0.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay	0.0					
Intersection Capacity Utilization	17.2%			ICU Level of Service	A	
Analysis Period (min)	15					

**Intersection**

Int Delay, s/veh	0					
<b>Movement</b>	<b>EBL</b>	<b>EBR</b>	<b>NBL</b>	<b>NBT</b>	<b>SBT</b>	<b>SBR</b>
Lane Configurations	↘↗			↕↕	↕↕	
Traffic Vol, veh/h	0	0	0	350	502	0
Future Vol, veh/h	0	0	0	350	502	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	380	546	0

<b>Major/Minor</b>	<b>Minor2</b>	<b>Major1</b>		<b>Major2</b>	
Conflicting Flow All	736	273	546	0	0
Stage 1	546	-	-	-	-
Stage 2	190	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-
Pot Cap-1 Maneuver	267	599	750	-	-
Stage 1	428	-	-	-	-
Stage 2	697	-	-	-	-
Platoon blocked, %				-	-
Mov Cap-1 Maneuver	267	599	750	-	-
Mov Cap-2 Maneuver	267	-	-	-	-
Stage 1	428	-	-	-	-
Stage 2	697	-	-	-	-

<b>Approach</b>	<b>EB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	0	0	0
HCM LOS	A		

<b>Minor Lane/Major Mvmt</b>	<b>NBL</b>	<b>NBT</b>	<b>EBLn1</b>	<b>SBT</b>	<b>SBR</b>
Capacity (veh/h)	750	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	13	1	1	337	494	8
Future Volume (vph)	13	1	1	337	494	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	2	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	1751	808	0	3496	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	1751	808	0	3496	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	1266	
Travel Time (s)	17.1			16.1	21.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	14	1	1	366	537	9
Shared Lane Traffic (%)						
Lane Group Flow (vph)	14	1	0	367	537	9
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.0% ICU Level of Service A
Analysis Period (min)	15



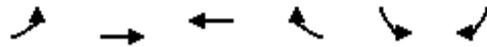
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	13	1	1	337	494	8
Future Volume (Veh/h)	13	1	1	337	494	8
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	14	1	1	366	537	9
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	10					
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	722	537	537			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	537	537			
tC, single (s)	8.8	8.9	6.1			
tC, 2 stage (s)						
tF (s)	4.5	4.3	3.2			
p0 queue free %	93	100	100			
cM capacity (veh/h)	208	301	570			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	9	6	123	244	537	9
Volume Left	9	5	1	0	0	0
Volume Right	0	1	0	0	0	9
cSH	208	252	570	1700	1700	1700
Volume to Capacity	0.04	0.02	0.00	0.14	0.32	0.01
Queue Length 95th (ft)	4	2	0	0	0	0
Control Delay (s)	23.2	21.7	0.1	0.0	0.0	0.0
Lane LOS	C	C	A			
Approach Delay (s)	22.6		0.0	0.0		
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay	0.4					
Intersection Capacity Utilization	36.0%			ICU Level of Service		A
Analysis Period (min)	15					



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↙	↙
Traffic Volume (vph)	193	57	330	161	62	125
Future Volume (vph)	193	57	330	161	62	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.956		0.910	
Fl <sub>t</sub> Protected		0.963			0.984	
Satd. Flow (prot)	0	1780	1775	0	1663	0
Fl <sub>t</sub> Permitted		0.963			0.984	
Satd. Flow (perm)	0	1780	1775	0	1663	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	210	62	359	175	67	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	272	534	0	203	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.0%
ICU Level of Service	B
Analysis Period (min)	15



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	193	57	330	161	62	125
Future Volume (Veh/h)	193	57	330	161	62	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	210	62	359	175	67	136
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1107				
pX, platoon unblocked						
vC, conflicting volume	534				928	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	534				928	446
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	80				72	78
cM capacity (veh/h)	1029				236	612
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	272	534	203			
Volume Left	210	0	67			
Volume Right	0	175	136			
cSH	1029	1700	401			
Volume to Capacity	0.20	0.31	0.51			
Queue Length 95th (ft)	19	0	69			
Control Delay (s)	7.7	0.0	22.9			
Lane LOS	A		C			
Approach Delay (s)	7.7	0.0	22.9			
Approach LOS			C			
Intersection Summary						
Average Delay			6.7			
Intersection Capacity Utilization		62.0%		ICU Level of Service		B
Analysis Period (min)			15			

**Intersection**

Int Delay, s/veh 6.6

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations		↶	↷		↶	↷
Traffic Vol, veh/h	193	57	330	161	62	125
Future Vol, veh/h	193	57	330	161	62	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	210	62	359	175	67	136

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	534	0	-	0	929	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	482	-
Critical Hdwy	4.13	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	1029	-	-	-	296	612
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	619	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1029	-	-	-	234	612
Mov Cap-2 Maneuver	-	-	-	-	234	-
Stage 1	-	-	-	-	507	-
Stage 2	-	-	-	-	619	-

**Approach** EB WB SB

HCM Control Delay, s	7.3	0	23
HCM LOS			C

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1029	-	-	-	399
HCM Lane V/C Ratio	0.204	-	-	-	0.509
HCM Control Delay (s)	9.4	0	-	-	23
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.8	-	-	-	2.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	0	8	0	0	2	4	387	0	1	272	5
Future Volume (vph)	17	0	8	0	0	2	4	387	0	1	272	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.955			0.865							0.998
Fl <sub>t</sub> Protected		0.968										
Satd. Flow (prot)	0	1722	0	0	1611	0	0	1863	0	0	1859	0
Fl <sub>t</sub> Permitted		0.968										
Satd. Flow (perm)	0	1722	0	0	1611	0	0	1863	0	0	1859	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			2074			2021	
Travel Time (s)		10.8			12.9			40.4			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	0	9	0	0	2	4	421	0	1	296	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	2	0	0	425	0	0	302	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	38.0%
ICU Level of Service	A
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	17	0	8	0	0	2	4	387	0	1	272	5
Future Volume (vph)	17	0	8	0	0	2	4	387	0	1	272	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	9	0	0	2	4	421	0	1	296	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	27	2	425	302
Volume Left (vph)	18	0	4	1
Volume Right (vph)	9	2	0	5
Hadj (s)	-0.03	-0.57	0.04	0.02
Departure Headway (s)	5.5	5.0	4.3	4.4
Degree Utilization, x	0.04	0.00	0.51	0.37
Capacity (veh/h)	579	617	818	789
Control Delay (s)	8.7	8.0	11.8	10.0
Approach Delay (s)	8.7	8.0	11.8	10.0
Approach LOS	A	A	B	B

**Intersection Summary**

Delay	11.0
Level of Service	B
Intersection Capacity Utilization	38.0%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	8	0	0	2	4	387	0	1	272	5
Future Vol, veh/h	17	0	8	0	0	2	4	387	0	1	272	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	9	0	0	2	4	421	0	1	296	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.7	8	11.8	10.1
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	68%	0%	0%
Vol Thru, %	99%	0%	0%	98%
Vol Right, %	0%	32%	100%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	391	25	2	278
LT Vol	4	17	0	1
Through Vol	387	0	0	272
RT Vol	0	8	2	5
Lane Flow Rate	425	27	2	302
Geometry Grp	1	1	1	1
Degree of Util (X)	0.51	0.041	0.003	0.372
Departure Headway (Hd)	4.323	5.438	4.934	4.427
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	837	657	723	816
Service Time	2.339	3.48	2.98	2.445
HCM Lane V/C Ratio	0.508	0.041	0.003	0.37
HCM Control Delay	11.8	8.7	8	10.1
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3	0.1	0	1.7



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	26	114	295	5	21	259
Future Volume (vph)	26	114	295	5	21	259
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.998			
Flt Protected	0.991					0.996
Satd. Flow (prot)	1643	0	1859	0	0	1855
Flt Permitted	0.991					0.996
Satd. Flow (perm)	1643	0	1859	0	0	1855
Link Speed (mph)	25		35			35
Link Distance (ft)	450		732			2074
Travel Time (s)	12.3		14.3			40.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	28	124	321	5	23	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	152	0	326	0	0	305
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	46.1% ICU Level of Service A
Analysis Period (min)	15



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	26	114	295	5	21	259
Future Volume (Veh/h)	26	114	295	5	21	259
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	28	124	321	5	23	282
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	652	324			326	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	652	324			326	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	83			98	
cM capacity (veh/h)	425	717			1234	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	152	326	305
Volume Left	28	0	23
Volume Right	124	5	0
cSH	637	1700	1234
Volume to Capacity	0.24	0.19	0.02
Queue Length 95th (ft)	23	0	1
Control Delay (s)	12.4	0.0	0.8
Lane LOS	B		A
Approach Delay (s)	12.4	0.0	0.8
Approach LOS	B		

Intersection Summary			
Average Delay		2.7	
Intersection Capacity Utilization		46.1%	ICU Level of Service
Analysis Period (min)		15	A

**Intersection**

Int Delay, s/veh 2.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	26	114	295	5	21	259
Future Vol, veh/h	26	114	295	5	21	259
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	124	321	5	23	282

Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	652	324	0
Stage 1	324	-	-
Stage 2	328	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	433	717	-
Stage 1	733	-	-
Stage 2	730	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	423	717	-
Mov Cap-2 Maneuver	423	-	-
Stage 1	733	-	-
Stage 2	714	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	635	1234
HCM Lane V/C Ratio	-	-	0.24	0.018
HCM Control Delay (s)	-	-	12.4	8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0.1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	63	51	249	13	10	275
Future Volume (vph)	63	51	249	13	10	275
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940		0.993			
Flt Protected	0.973					0.998
Satd. Flow (prot)	1704	0	1850	0	0	1859
Flt Permitted	0.973					0.998
Satd. Flow (perm)	1704	0	1850	0	0	1859
Link Speed (mph)	25		35			35
Link Distance (ft)	471		839			732
Travel Time (s)	12.8		16.3			14.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	55	271	14	11	299
Shared Lane Traffic (%)						
Lane Group Flow (vph)	123	0	285	0	0	310
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	35.8%
Analysis Period (min)	15
	ICU Level of Service A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	63	51	249	13	10	275
Future Volume (Veh/h)	63	51	249	13	10	275
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	55	271	14	11	299
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None		None	
Median storage (veh)						
Upstream signal (ft)			839			
pX, platoon unblocked						
vC, conflicting volume	599		278		285	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	599		278		285	
tC, single (s)	6.4		6.2		4.1	
tC, 2 stage (s)						
tF (s)	3.5		3.3		2.2	
p0 queue free %	85		93		99	
cM capacity (veh/h)	461		761		1277	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	123	285	310
Volume Left	68	0	11
Volume Right	55	14	0
cSH	559	1700	1277
Volume to Capacity	0.22	0.17	0.01
Queue Length 95th (ft)	21	0	1
Control Delay (s)	13.2	0.0	0.4
Lane LOS	B		A
Approach Delay (s)	13.2	0.0	0.4
Approach LOS	B		

Intersection Summary			
Average Delay			2.4
Intersection Capacity Utilization	35.8%		ICU Level of Service
Analysis Period (min)	15		A

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W	W	T	T	T	T
Traffic Vol, veh/h	63	51	249	13	10	275
Future Vol, veh/h	63	51	249	13	10	275
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	68	55	271	14	11	299

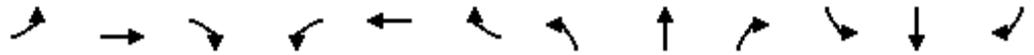
Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	599	278	0	0	285
Stage 1	278	-	-	-	-
Stage 2	321	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	465	761	-	-	1277
Stage 1	769	-	-	-	-
Stage 2	735	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	460	761	-	-	1277
Mov Cap-2 Maneuver	460	-	-	-	-
Stage 1	769	-	-	-	-
Stage 2	728	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.3	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	559	1277
HCM Lane V/C Ratio	-	-	0.222	0.009
HCM Control Delay (s)	-	-	13.3	7.8
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.8	0

FedEx- Middletown  
114: Middle & Bradley/Aetna

2030 Base w/ Mid Vols  
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	23	1	22	1	0	2	45	237	6	12	260	37
Future Volume (vph)	23	1	22	1	0	2	45	237	6	12	260	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.935				0.850			0.850		0.981	
Flt Protected		0.976			0.950			0.992		0.950		
Satd. Flow (prot)	0	1813	0	0	1770	1583	0	1848	1583	1770	1827	0
Flt Permitted								0.919		0.489		
Satd. Flow (perm)	0	1858	0	0	1863	1583	0	1712	1583	911	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				191			191		21	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			839	
Travel Time (s)		14.2			7.8			66.6			16.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1	24	1	0	2	49	258	7	13	283	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	1	2	0	307	7	13	323	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.3			7.3	34.4		30.0	34.4	27.8	31.7	
Actuated g/C Ratio		0.21			0.21	1.00		0.87	1.00	0.81	0.92	
v/c Ratio		0.12			0.00	0.00		0.21	0.00	0.01	0.19	
Control Delay		8.9			12.0	0.0		4.4	0.0	2.2	1.8	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		8.9			12.0	0.0		4.4	0.0	2.2	1.8	
LOS		A			B	A		A	A	A	A	
Approach Delay		8.9			4.0			4.3			1.8	

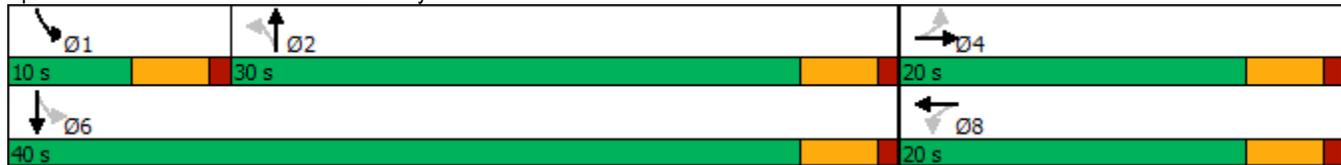


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A			A	
Queue Length 50th (ft)		4			0	0		0	0	0	0	
Queue Length 95th (ft)		25			3	0		107	0	5	55	
Internal Link Dist (ft)		439			261			3337			759	
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		870			860	1583		1567	1583	876	1768	
Starvation Cap Reductn		0			0	0		0	0	0	0	
Spillback Cap Reductn		0			0	0		0	0	0	0	
Storage Cap Reductn		0			0	0		0	0	0	0	
Reduced v/c Ratio		0.06			0.00	0.00		0.20	0.00	0.01	0.18	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	34.4
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	3.4
Intersection LOS:	A
Intersection Capacity Utilization:	51.5%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 114: Middle & Bradley/Aetna





Lane Group	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	1	2	307	7	13	323
v/c Ratio	0.12	0.00	0.00	0.21	0.00	0.01	0.19
Control Delay	8.9	12.0	0.0	4.4	0.0	2.2	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.9	12.0	0.0	4.4	0.0	2.2	1.8
Queue Length 50th (ft)	4	0	0	0	0	0	0
Queue Length 95th (ft)	25	3	0	107	0	5	55
Internal Link Dist (ft)	439	261		3337			759
Turn Bay Length (ft)					175	175	
Base Capacity (vph)	870	860	1583	1567	1583	876	1768
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.00	0.00	0.20	0.00	0.01	0.18

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	203	167	199	243	68	126
Future Volume (vph)	203	167	199	243	68	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939		0.926			
Flt Protected	0.973					0.983
Satd. Flow (prot)	1685	0	1708	0	0	1813
Flt Permitted	0.973					0.610
Satd. Flow (perm)	1685	0	1708	0	0	1125
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	52		85			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	221	182	216	264	74	137
Shared Lane Traffic (%)						
Lane Group Flow (vph)	403	0	480	0	0	211
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	17.9		20.2			30.2
Actuated g/C Ratio	0.31		0.35			0.52
v/c Ratio	0.72		0.73			0.32
Control Delay	23.8		21.6			10.2
Queue Delay	0.0		0.0			0.0
Total Delay	23.8		21.6			10.2
LOS	C		C			B
Approach Delay	23.8		21.6			10.2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C		B	
Queue Length 50th (ft)	93		108		33	
Queue Length 95th (ft)	237		264		95	
Internal Link Dist (ft)	1027		4683		3337	
Turn Bay Length (ft)						
Base Capacity (vph)	1050		1211		1016	
Starvation Cap Reductn	0		0		0	
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0		0		0	
Reduced v/c Ratio	0.38		0.40		0.21	

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	57.6
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	20.2
Intersection LOS:	C
Intersection Capacity Utilization:	70.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 115: Middle & Smith





Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	403	480	211
v/c Ratio	0.72	0.73	0.32
Control Delay	23.8	21.6	10.2
Queue Delay	0.0	0.0	0.0
Total Delay	23.8	21.6	10.2
Queue Length 50th (ft)	93	108	33
Queue Length 95th (ft)	237	264	95
Internal Link Dist (ft)	1027	4683	3337
Turn Bay Length (ft)			
Base Capacity (vph)	1050	1211	1016
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.38	0.40	0.21

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	112	18	531	0	0	329
Future Volume (vph)	112	18	531	0	0	329
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					
Flt Protected	0.959					
Satd. Flow (prot)	1752	0	1863	0	0	1863
Flt Permitted	0.959					
Satd. Flow (perm)	1752	0	1863	0	0	1863
Link Speed (mph)	30		30		30	
Link Distance (ft)	888		541		4763	
Travel Time (s)	20.2		12.3		108.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	20	577	0	0	358
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	577	0	0	358
Sign Control	Stop		Free		Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.9%
Analysis Period (min)	15
	ICU Level of Service A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Volume (veh/h)	112	18	531	0	0	329
Future Volume (Veh/h)	112	18	531	0	0	329
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	122	20	577	0	0	358
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	935	577			577	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	935	577			577	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	59	96			100	
cM capacity (veh/h)	295	516			996	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	142	577	358
Volume Left	122	0	0
Volume Right	20	0	0
cSH	314	1700	1700
Volume to Capacity	0.45	0.34	0.21
Queue Length 95th (ft)	56	0	0
Control Delay (s)	25.6	0.0	0.0
Lane LOS	D		
Approach Delay (s)	25.6	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay			3.4
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)			15

Intersection						
Int Delay, s/veh	3.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑			↑
Traffic Vol, veh/h	112	18	531	0	0	329
Future Vol, veh/h	112	18	531	0	0	329
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	20	577	0	0	358

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	935	577	0	-	-	-
Stage 1	577	-	-	-	-	-
Stage 2	358	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	295	516	-	0	0	-
Stage 1	562	-	-	0	0	-
Stage 2	707	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	295	516	-	-	-	-
Mov Cap-2 Maneuver	295	-	-	-	-	-
Stage 1	562	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	25.5	0	0
HCM LOS	D		

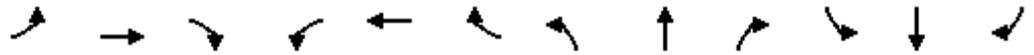
Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 314	-
HCM Lane V/C Ratio	- 0.45	-
HCM Control Delay (s)	- 25.5	-
HCM Lane LOS	- D	-
HCM 95th %tile Q(veh)	- 2.2	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	58	118	46	202	118	469	0	0	0	85	252	105
Future Volume (vph)	58	118	46	202	118	469	0	0	0	85	252	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.920							0.968
Flt Protected		0.987			0.987							0.991
Satd. Flow (prot)	0	1787	0	0	1691	0	0	0	0	0	1787	0
Flt Permitted		0.987			0.987							0.991
Satd. Flow (perm)	0	1787	0	0	1691	0	0	0	0	0	1787	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		832			1070			907			541	
Travel Time (s)		18.9			24.3			20.6			12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	128	50	220	128	510	0	0	0	92	274	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	858	0	0	0	0	0	480	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	92.1%
ICU Level of Service	F
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	58	118	46	202	118	469	0	0	0	85	252	105
Future Volume (vph)	58	118	46	202	118	469	0	0	0	85	252	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	128	50	220	128	510	0	0	0	92	274	114

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	241	858	480
Volume Left (vph)	63	220	92
Volume Right (vph)	50	510	114
Hadj (s)	-0.04	-0.27	-0.07
Departure Headway (s)	6.6	5.8	6.2
Degree Utilization, x	0.44	1.38	0.83
Capacity (veh/h)	527	621	569
Control Delay (s)	14.7	197.7	32.8
Approach Delay (s)	14.7	197.7	32.8
Approach LOS	B	F	D

**Intersection Summary**

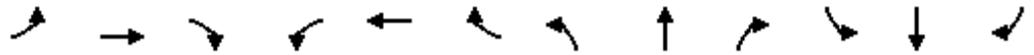
Delay	119.6
Level of Service	F
Intersection Capacity Utilization	92.1%
ICU Level of Service	F
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	118.4
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	58	118	46	202	118	469	0	0	0	85	252	105
Future Vol, veh/h	58	118	46	202	118	469	0	0	0	85	252	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	128	50	220	128	510	0	0	0	92	274	114
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	15.6	194.4	34.5
HCM LOS	C	F	D

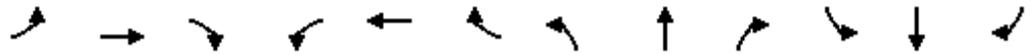
Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	26%	19%
Vol Thru, %	53%	15%	57%
Vol Right, %	21%	59%	24%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	222	789	442
LT Vol	58	202	85
Through Vol	118	118	252
RT Vol	46	469	105
Lane Flow Rate	241	858	480
Geometry Grp	1	1	1
Degree of Util (X)	0.44	1.37	0.822
Departure Headway (Hd)	7.103	5.752	6.951
Convergence, Y/N	Yes	Yes	Yes
Cap	512	635	524
Service Time	5.103	3.765	4.951
HCM Lane V/C Ratio	0.471	1.351	0.916
HCM Control Delay	15.6	194.4	34.5
HCM Lane LOS	C	F	D
HCM 95th-tile Q	2.2	37.4	8.1



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	50	152	0	0	348	185	437	12	180	0	0	0
Future Volume (vph)	50	152	0	0	348	185	437	12	180	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr t					0.953			0.961				
Flt Protected		0.988						0.966				
Satd. Flow (prot)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Flt Permitted		0.988						0.966				
Satd. Flow (perm)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	165	0	0	378	201	475	13	196	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	219	0	0	579	0	0	684	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	86.2%
ICU Level of Service	E
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	152	0	0	348	185	437	12	180	0	0	0
Future Volume (vph)	50	152	0	0	348	185	437	12	180	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	165	0	0	378	201	475	13	196	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	219	579	684
Volume Left (vph)	54	0	475
Volume Right (vph)	0	201	196
Hadj (s)	0.08	-0.17	0.00
Departure Headway (s)	7.1	6.1	6.4
Degree Utilization, x	0.43	0.98	1.21
Capacity (veh/h)	505	577	574
Control Delay (s)	15.3	57.9	130.9
Approach Delay (s)	15.3	57.9	130.9
Approach LOS	C	F	F

**Intersection Summary**

Delay	85.3
Level of Service	F
Intersection Capacity Utilization	86.2%
ICU Level of Service	E
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	87
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	50	152	0	0	348	185	437	12	180	0	0	0
Future Vol, veh/h	50	152	0	0	348	185	437	12	180	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	165	0	0	378	201	475	13	196	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

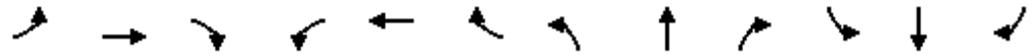
Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	16.3	60.6	132.1
HCM LOS	C	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	69%	25%	0%
Vol Thru, %	2%	75%	65%
Vol Right, %	29%	0%	35%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	629	202	533
LT Vol	437	50	0
Through Vol	12	152	348
RT Vol	180	0	185
Lane Flow Rate	684	220	579
Geometry Grp	1	1	1
Degree of Util (X)	1.21	0.426	0.984
Departure Headway (Hd)	6.369	7.701	6.682
Convergence, Y/N	Yes	Yes	Yes
Cap	574	470	545
Service Time	4.369	5.701	4.682
HCM Lane V/C Ratio	1.192	0.468	1.062
HCM Control Delay	132.1	16.3	60.6
HCM Lane LOS	F	C	F
HCM 95th-tile Q	25.1	2.1	13.6

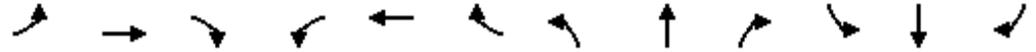


FedEx- Middletown  
101: Main & Rte 372

2030 Base w/ Mid Vols  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	449	136	257	494	79	190	17	248	73	28	17
Future Volume (vph)	5	449	136	257	494	79	190	17	248	73	28	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.850		0.979			0.926			0.981	
Fl <sub>t</sub> Protected		0.999		0.950				0.980			0.970	
Satd. Flow (prot)	0	1861	1583	1770	1824	0	0	1859	0	0	1950	0
Fl <sub>t</sub> Permitted		0.995		0.370				0.818			0.605	
Satd. Flow (perm)	0	1853	1583	689	1824	0	0	1552	0	0	1216	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			148		14			77				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	488	148	279	537	86	207	18	270	79	30	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	493	148	279	623	0	0	495	0	0	127	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		33.5	33.5	33.5	33.5			24.2			24.2	
Actuated g/C Ratio		0.48	0.48	0.48	0.48			0.35			0.35	
v/c Ratio		0.55	0.18	0.85	0.71			0.84			0.30	
Control Delay		15.7	2.6	41.4	19.1			34.5			21.7	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		15.7	2.6	41.4	19.1			34.5			21.7	
LOS		B	A	D	B			C			C	
Approach Delay		12.7			26.0			34.5			21.7	

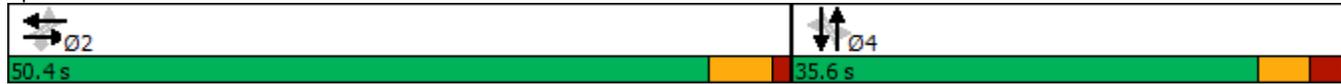


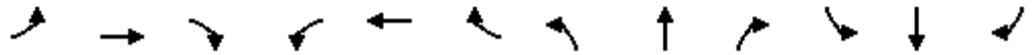
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			C			C	
Queue Length 50th (ft)		157	0	109	215			188			45	
Queue Length 95th (ft)		247	26	#263	340			#386			94	
Internal Link Dist (ft)		795			2226			1941			499	
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1254	1119	466	1239			773			574	
Starvation Cap Reductn		0	0	0	0			0			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.39	0.13	0.60	0.50			0.64			0.22	

Intersection Summary

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 69.8  
 Natural Cycle: 55  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.85  
 Intersection Signal Delay: 23.7  
 Intersection LOS: C  
 Intersection Capacity Utilization 96.9%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

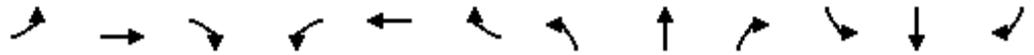
Splits and Phases: 101: Main & Rte 372





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↕			↕					↖	↕	↗
Traffic Volume (vph)	40	873	17	5	876	449	0	0	0	546	5	102
Future Volume (vph)	40	873	17	5	876	449	0	0	0	546	5	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.997			0.949							0.850
Flt Protected	0.950									0.950	0.953	
Satd. Flow (prot)	1770	3529	0	0	3359	0	0	0	0	1681	1686	1583
Flt Permitted	0.160				0.955					0.950	0.953	
Satd. Flow (perm)	298	3529	0	0	3208	0	0	0	0	1681	1686	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			212							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	949	18	5	952	488	0	0	0	593	5	111
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	43	967	0	0	1445	0	0	0	0	296	302	111
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	24.0	24.0			115.4					37.7	37.7	37.7
Actuated g/C Ratio	0.14	0.14			0.68					0.22	0.22	0.22
v/c Ratio	1.02	1.92			0.61					0.79	0.80	0.24
Control Delay	212.6	456.9			9.3					75.9	76.9	3.8
Queue Delay	0.0	0.1			18.3					33.5	38.4	0.0
Total Delay	212.6	457.0			27.6					109.4	115.3	3.8
LOS	F	F			C					F	F	A
Approach Delay		446.6			27.6						95.4	
Approach LOS		F			C						F	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	~49	~866			368					329	337	0
Queue Length 95th (ft)	#144	#1007			m150					#689	#706	21
Internal Link Dist (ft)		284			152			135			398	
Turn Bay Length (ft)	300									125		125
Base Capacity (vph)	42	503			2367					376	377	471
Starvation Cap Reductn	0	0			951					0	0	0
Spillback Cap Reductn	0	6			0					90	90	0
Storage Cap Reductn	0	0			0					0	0	0
Reduced v/c Ratio	1.02	1.95			1.02					1.03	1.05	0.24

**Intersection Summary**

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.92  
 Intersection Signal Delay: 176.5      Intersection LOS: F  
 Intersection Capacity Utilization 67.8%      ICU Level of Service C  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
   Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
   Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 102: McD/Sebethe & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↘ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

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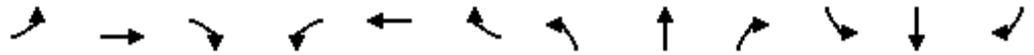
FedEx- Middletown  
103: Ind Park/I91SB & Rte 372

2030 Base w/ Mid Vols  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑↑	↗
Traffic Volume (vph)	119	1181	95	70	778	157	174	19	347	461	252	356
Future Volume (vph)	119	1181	95	70	778	157	174	19	347	461	252	356
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.561			0.744		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	1035	1845	1568	1386	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			377			387
Link Speed (mph)		40			40			35				35
Link Distance (ft)		232			1355			2498				741
Travel Time (s)		4.0			23.1			48.7				14.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	129	1284	103	76	846	171	189	21	377	501	274	387
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1284	103	76	846	171	189	21	377	501	274	387
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	37.7	62.4	168.5	11.0	24.0	24.0	74.6	57.3	168.5	74.6	57.3	57.3
Actuated g/C Ratio	0.22	0.37	1.00	0.07	0.14	0.14	0.44	0.34	1.00	0.44	0.34	0.34
v/c Ratio	0.33	0.98	0.07	0.67	1.68	0.50	0.36	0.03	0.24	0.77	0.23	0.49
Control Delay	77.4	30.3	0.0	102.7	354.0	21.5	26.5	31.4	0.4	44.0	38.5	4.7
Queue Delay	2.3	40.5	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.7	70.8	0.0	102.7	356.3	21.5	26.5	31.4	0.4	44.0	38.5	4.7
LOS	E	E	A	F	F	C	C	C	A	D	D	A
Approach Delay		66.8			286.3			9.9			29.6	

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			F			A			C		
Queue Length 50th (ft)	94	451	0	84	~714	33	121	15	0	398	113	0
Queue Length 95th (ft)	m84	m#640	m0	141	#851	114	140	31	0	411	127	62
Internal Link Dist (ft)	152			1275			2418			661		
Turn Bay Length (ft)				325			125			460		
Base Capacity (vph)	395	1309	1568	176	504	342	521	875	1568	834	1664	954
Starvation Cap Reductn	166	323	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	113	0	2	0	0	0	0	41
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.30	0.07	0.43	2.16	0.50	0.36	0.02	0.24	0.60	0.16	0.42

Intersection Summary

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.92  
 Intersection Signal Delay: 104.3      Intersection LOS: F  
 Intersection Capacity Utilization 91.4%      ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 103: Ind Park/I91SB & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↘ Ø3
301 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖	↖	↗↗	↖
Traffic Volume (vph)	592	1403	844	281	362	138
Future Volume (vph)	592	1403	844	281	362	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.171				0.950	
Satd. Flow (perm)	319	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				271		23
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	643	1525	917	305	393	150
Shared Lane Traffic (%)						
Lane Group Flow (vph)	643	1525	917	305	393	150
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	49.0		45.7	45.7	29.2	
Total Split (%)	39.5%		36.9%	36.9%	23.6%	
Maximum Green (s)	45.0		40.0	40.0	25.0	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	93.9	97.9	48.5	48.5	17.8	65.7
Actuated g/C Ratio	0.76	0.79	0.39	0.39	0.14	0.53
v/c Ratio	0.85	0.55	0.66	0.39	0.80	0.18
Control Delay	34.8	6.0	35.5	6.9	63.5	11.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	6.0	35.5	6.9	63.5	11.8
LOS	C	A	D	A	E	B
Approach Delay		14.5	28.4		49.2	
Approach LOS		B	C		D	

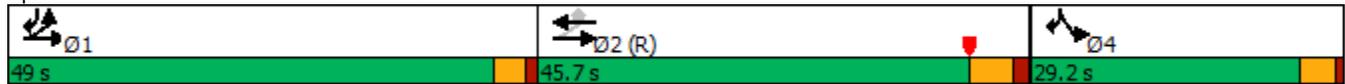


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	341	195	320	17	159	49
Queue Length 95th (ft)	520	292	435	90	205	74
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	790	2794	1385	784	692	846
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.55	0.66	0.39	0.57	0.18

**Intersection Summary**

Area Type:	Other
Cycle Length:	123.9
Actuated Cycle Length:	123.9
Offset:	0 (0%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	65
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.85
Intersection Signal Delay:	23.6
Intersection LOS:	C
Intersection Capacity Utilization	78.0%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	0	0	0	512	406	0
Future Volume (vph)	0	0	0	512	406	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1267	0	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	0	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	124			135	2498	
Travel Time (s)	3.4			2.6	48.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	557	441	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	557	441	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.5%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	512	406	0
Future Vol, veh/h	0	0	0	512	406	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	557	441	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	720	221	441	0	-	0
Stage 1	441	-	-	-	-	-
Stage 2	279	-	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-	-
Pot Cap-1 Maneuver	275	654	838	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	618	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	275	654	838	-	-	-
Mov Cap-2 Maneuver	275	-	-	-	-	-
Stage 1	495	-	-	-	-	-
Stage 2	618	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	838	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	6	1	1	506	399	7
Future Volume (vph)	6	1	1	506	399	7
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	902	808	0	3499	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	902	808	0	3499	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	1253	
Travel Time (s)	17.1			16.1	21.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	7	1	1	550	434	8
Shared Lane Traffic (%)						
Lane Group Flow (vph)	7	1	0	551	434	8
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.0% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.1					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	6	1	1	506	399	7
Future Vol, veh/h	6	1	1	506	399	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	240	-	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	3	3	100
Mvmt Flow	7	1	1	550	434	8

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	711	434	434	0	-	0
Stage 1	434	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	8.1	7.7	5.6	-	-	-
Critical Hdwy Stg 1	6.9	-	-	-	-	-
Critical Hdwy Stg 2	7.3	-	-	-	-	-
Follow-up Hdwy	4.45	4.25	3.15	-	-	-
Pot Cap-1 Maneuver	246	428	699	-	-	0
Stage 1	455	-	-	-	-	0
Stage 2	545	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	246	428	699	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	19.1	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	699	-	246	428	-
HCM Lane V/C Ratio	0.002	-	0.027	0.003	-
HCM Control Delay (s)	10.2	0	20	13.4	-
HCM Lane LOS	B	A	C	B	-
HCM 95th %tile Q(veh)	0	-	0.1	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↘	↙
Traffic Volume (vph)	126	219	134	75	219	220
Future Volume (vph)	126	219	134	75	219	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.951		0.932	
Flt Protected		0.982			0.976	
Satd. Flow (prot)	0	1823	1765	0	1686	0
Flt Permitted		0.982			0.976	
Satd. Flow (perm)	0	1823	1765	0	1686	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	137	238	146	82	238	239
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	375	228	0	477	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	65.7%
ICU Level of Service	C
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 26

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↔		↕	
Traffic Vol, veh/h	126	219	134	75	219	220
Future Vol, veh/h	126	219	134	75	219	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	137	238	146	82	238	239

**Major/Minor** Major1 Major2 Minor2

Conflicting Flow All	228	0	-	0	699	187
Stage 1	-	-	-	-	187	-
Stage 2	-	-	-	-	512	-
Critical Hdwy	4.13	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	1334	-	-	-	405	855
Stage 1	-	-	-	-	843	-
Stage 2	-	-	-	-	600	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1334	-	-	-	357	855
Mov Cap-2 Maneuver	-	-	-	-	357	-
Stage 1	-	-	-	-	744	-
Stage 2	-	-	-	-	600	-

**Approach** EB WB SB

HCM Control Delay, s	2.9	0	56.6
HCM LOS			F

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

Capacity (veh/h)	1334	-	-	-	504
HCM Lane V/C Ratio	0.103	-	-	-	0.947
HCM Control Delay (s)	8	0	-	-	56.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	11.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	0	5	1	2	2	13	422	1	3	374	22
Future Volume (vph)	17	0	5	1	2	2	13	422	1	3	374	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.946							0.993
Flt Protected		0.962			0.990			0.999				
Satd. Flow (prot)	0	1740	0	0	1745	0	0	1861	0	0	1850	0
Flt Permitted		0.962			0.990			0.999				
Satd. Flow (perm)	0	1740	0	0	1745	0	0	1861	0	0	1850	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			2074			2021	
Travel Time (s)		10.8			12.9			40.4			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	0	5	1	2	2	14	459	1	3	407	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	23	0	0	5	0	0	474	0	0	434	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	41.3%
Analysis Period (min)	15
	ICU Level of Service A

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	5	1	2	2	13	422	1	3	374	22
Future Vol, veh/h	17	0	5	1	2	2	13	422	1	3	374	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	5	1	2	2	14	459	1	3	407	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.2	8.8	13.7	12.6
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	77%	20%	1%
Vol Thru, %	97%	0%	40%	94%
Vol Right, %	0%	23%	40%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	436	22	5	399
LT Vol	13	17	1	3
Through Vol	422	0	2	374
RT Vol	1	5	2	22
Lane Flow Rate	474	24	5	434
Geometry Grp	1	1	1	1
Degree of Util (X)	0.588	0.039	0.009	0.539
Departure Headway (Hd)	4.467	5.893	5.715	4.472
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	810	605	623	807
Service Time	2.493	3.958	3.784	2.498
HCM Lane V/C Ratio	0.585	0.04	0.008	0.538
HCM Control Delay	13.7	9.2	8.8	12.6
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3.9	0.1	0	3.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	11	48	344	23	100	282
Future Volume (vph)	11	48	344	23	100	282
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.890		0.992			
Flt Protected	0.991					0.987
Satd. Flow (prot)	1643	0	1848	0	0	1839
Flt Permitted	0.991					0.987
Satd. Flow (perm)	1643	0	1848	0	0	1839
Link Speed (mph)	25		35			35
Link Distance (ft)	106		712			2074
Travel Time (s)	2.9		13.9			40.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	52	374	25	109	307
Shared Lane Traffic (%)						
Lane Group Flow (vph)	64	0	399	0	0	416
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	53.4%
Analysis Period (min)	15
	ICU Level of Service A

**Intersection**

Int Delay, s/veh 2

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	W		T			T
Traffic Vol, veh/h	11	48	344	23	100	282
Future Vol, veh/h	11	48	344	23	100	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	52	374	25	109	307

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	912	387	0	0	399
Stage 1	387	-	-	-	-
Stage 2	525	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	304	661	-	-	1160
Stage 1	686	-	-	-	-
Stage 2	593	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	270	661	-	-	1160
Mov Cap-2 Maneuver	270	-	-	-	-
Stage 1	686	-	-	-	-
Stage 2	526	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.9	0	2.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	520	1160
HCM Lane V/C Ratio	-	-	0.123	0.094
HCM Control Delay (s)	-	-	12.9	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	27	21	346	63	47	246
Future Volume (vph)	27	21	346	63	47	246
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.940		0.979			
Flt Protected	0.973					0.992
Satd. Flow (prot)	1704	0	1824	0	0	1848
Flt Permitted	0.973					0.992
Satd. Flow (perm)	1704	0	1824	0	0	1848
Link Speed (mph)	25		35			35
Link Distance (ft)	103		859			712
Travel Time (s)	2.8		16.7			13.9
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	23	376	68	51	267
Shared Lane Traffic (%)						
Lane Group Flow (vph)	52	0	444	0	0	318
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.9%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	1.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	27	21	346	63	47	246
Future Vol, veh/h	27	21	346	63	47	246
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	29	23	376	68	51	267

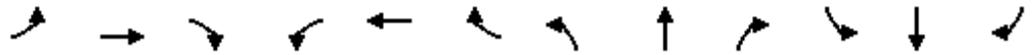
Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	779	410	0	0	444	0
Stage 1	410	-	-	-	-	-
Stage 2	369	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	364	642	-	-	1116	-
Stage 1	670	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	344	642	-	-	1116	-
Mov Cap-2 Maneuver	344	-	-	-	-	-
Stage 1	670	-	-	-	-	-
Stage 2	661	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.5	0	1.3
HCM LOS	B		

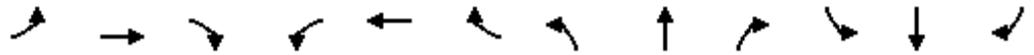
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	432	1116
HCM Lane V/C Ratio	-	-	0.121	0.046
HCM Control Delay (s)	-	-	14.5	8.4
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

FedEx- Middletown  
114: Middle & Bradley/Aetna

2030 Base w/ Mid Vols  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	59	0	57	7	0	7	28	343	3	3	255	35
Future Volume (vph)	59	0	57	7	0	7	28	343	3	3	255	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.934				0.850			0.850		0.982	
Fl <sub>t</sub> Protected		0.975			0.950			0.996		0.950		
Satd. Flow (prot)	0	1809	0	0	1770	1583	0	1855	1583	1770	1829	0
Fl <sub>t</sub> Permitted		0.836			0.838			0.964		0.405		
Satd. Flow (perm)	0	1551	0	0	1561	1583	0	1796	1583	754	1829	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109				191			191		20	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			859	
Travel Time (s)		14.2			7.8			66.6			16.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	0	62	8	0	8	30	373	3	3	277	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	126	0	0	8	8	0	403	3	3	315	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.6			7.6	37.3		22.3	37.3	22.9	23.9	
Actuated g/C Ratio		0.20			0.20	1.00		0.60	1.00	0.61	0.64	
v/c Ratio		0.31			0.03	0.01		0.37	0.00	0.00	0.27	
Control Delay		7.2			13.1	0.0		8.2	0.0	4.0	4.8	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		7.2			13.1	0.0		8.2	0.0	4.0	4.8	
LOS		A			B	A		A	A	A	A	
Approach Delay		7.2			6.6			8.1			4.8	

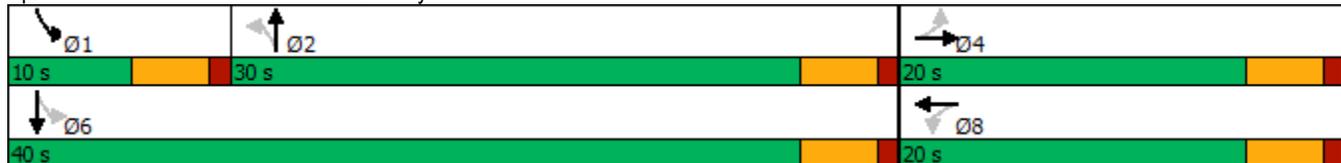


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A			A	
Queue Length 50th (ft)		2			1	0		36	0	0	24	
Queue Length 95th (ft)		37			10	0		149	0	2	59	
Internal Link Dist (ft)		439			261			3337			779	
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		726			668	1583		1363	1583	617	1678	
Starvation Cap Reductn		0			0	0		0	0	0	0	
Spillback Cap Reductn		0			0	0		0	0	0	0	
Storage Cap Reductn		0			0	0		0	0	0	0	
Reduced v/c Ratio		0.17			0.01	0.01		0.30	0.00	0.00	0.19	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	37.3
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.37
Intersection Signal Delay:	6.7
Intersection LOS:	A
Intersection Capacity Utilization:	59.8%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 114: Middle & Bradley/Aetna





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	428	123	180	136	187	209
Future Volume (vph)	428	123	180	136	187	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.970		0.942			
Flt Protected	0.963					0.977
Satd. Flow (prot)	1723	0	1738	0	0	1802
Flt Permitted	0.963					0.462
Satd. Flow (perm)	1723	0	1738	0	0	852
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	18		52			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	465	134	196	148	203	227
Shared Lane Traffic (%)						
Lane Group Flow (vph)	599	0	344	0	0	430
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	30.1		30.5			40.4
Actuated g/C Ratio	0.38		0.38			0.51
v/c Ratio	0.91		0.50			0.87
Control Delay	44.2		18.4			37.3
Queue Delay	0.0		0.0			0.0
Total Delay	44.2		18.4			37.3
LOS	D		B			D
Approach Delay	44.2		18.4			37.3



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		B			D
Queue Length 50th (ft)	311		113			143
Queue Length 95th (ft)	#525		188			#280
Internal Link Dist (ft)	1027		4683			3337
Turn Bay Length (ft)						
Base Capacity (vph)	762		887			589
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.79		0.39			0.73

**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 79.9  
 Natural Cycle: 80  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 35.6  
 Intersection LOS: D  
 Intersection Capacity Utilization 81.6%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 115: Middle & Smith





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	270	22	244	0	0	631
Future Volume (vph)	270	22	244	0	0	631
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>	0.990					
Fl <sub>t</sub> Protected	0.956					
Satd. Flow (prot)	1763	0	1863	0	0	1863
Fl <sub>t</sub> Permitted	0.956					
Satd. Flow (perm)	1763	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	888		541			4763
Travel Time (s)	20.2		12.3			108.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	24	265	0	0	686
Shared Lane Traffic (%)						
Lane Group Flow (vph)	317	0	265	0	0	686
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.2%
Analysis Period (min)	15
	ICU Level of Service B

**Intersection**

Int Delay, s/veh	26.1					
<b>Movement</b>	<b>WBL</b>	<b>WBR</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>
Lane Configurations	↔		↑			↑
Traffic Vol, veh/h	270	22	244	0	0	631
Future Vol, veh/h	270	22	244	0	0	631
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	293	24	265	0	0	686

<b>Major/Minor</b>	<b>Minor1</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	951	265	0	-	-	-
Stage 1	265	-	-	-	-	-
Stage 2	686	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 288	774	-	0	0	-
Stage 1	779	-	-	0	0	-
Stage 2	500	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 288	774	-	-	-	-
Mov Cap-2 Maneuver	~ 288	-	-	-	-	-
Stage 1	779	-	-	-	-	-
Stage 2	500	-	-	-	-	-

<b>Approach</b>	<b>WB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	104.3	0	0
HCM LOS	F		

<b>Minor Lane/Major Mvmt</b>	<b>NBTWBLn1</b>	<b>SBT</b>
Capacity (veh/h)	- 302	-
HCM Lane V/C Ratio	- 1.051	-
HCM Control Delay (s)	- 104.3	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 11.9	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	36	197	51	79	169	201	0	0	0	224	418	248
Future Volume (vph)	36	197	51	79	169	201	0	0	0	224	418	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.940							0.962
Flt Protected		0.994			0.991							0.988
Satd. Flow (prot)	0	1807	0	0	1735	0	0	0	0	0	1770	0
Flt Permitted		0.994			0.991							0.988
Satd. Flow (perm)	0	1807	0	0	1735	0	0	0	0	0	1770	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		832			1070			907			541	
Travel Time (s)		18.9			24.3			20.6			12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	214	55	86	184	218	0	0	0	243	454	270
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	308	0	0	488	0	0	0	0	0	967	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 94.3% ICU Level of Service F

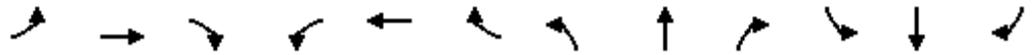
Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	196.1
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	36	197	51	79	169	201	0	0	0	224	418	248
Future Vol, veh/h	36	197	51	79	169	201	0	0	0	224	418	248
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	39	214	55	86	184	218	0	0	0	243	454	270
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	22.2	40.7	330
HCM LOS	C	E	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	18%	25%
Vol Thru, %	69%	38%	47%
Vol Right, %	18%	45%	28%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	284	449	890
LT Vol	36	79	224
Through Vol	197	169	418
RT Vol	51	201	248
Lane Flow Rate	309	488	967
Geometry Grp	1	1	1
Degree of Util (X)	0.573	0.843	1.68
Departure Headway (Hd)	8.469	7.894	6.251
Convergence, Y/N	Yes	Yes	Yes
Cap	429	464	590
Service Time	6.469	5.894	4.251
HCM Lane V/C Ratio	0.72	1.052	1.639
HCM Control Delay	22.2	40.7	330
HCM Lane LOS	C	E	F
HCM 95th-tile Q	3.5	8.3	55.5



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	95	325	0	0	240	79	210	0	247	0	0	0
Future Volume (vph)	95	325	0	0	240	79	210	0	247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr t					0.967			0.927				
Flt Protected		0.989						0.978				
Satd. Flow (prot)	0	1842	0	0	1801	0	0	1689	0	0	0	0
Flt Permitted		0.989						0.978				
Satd. Flow (perm)	0	1842	0	0	1801	0	0	1689	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	353	0	0	261	86	228	0	268	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	456	0	0	347	0	0	496	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 76.6% ICU Level of Service D

Analysis Period (min) 15

Intersection	
Intersection Delay, s/veh	28.3
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	95	325	0	0	240	79	210	0	247	0	0	0
Future Vol, veh/h	95	325	0	0	240	79	210	0	247	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	353	0	0	261	86	228	0	268	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	30.1	18.9	33.1
HCM LOS	D	C	D

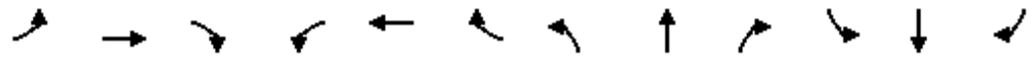
Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	46%	23%	0%
Vol Thru, %	0%	77%	75%
Vol Right, %	54%	0%	25%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	457	420	319
LT Vol	210	95	0
Through Vol	0	325	240
RT Vol	247	0	79
Lane Flow Rate	497	457	347
Geometry Grp	1	1	1
Degree of Util (X)	0.839	0.801	0.61
Departure Headway (Hd)	6.079	6.314	6.338
Convergence, Y/N	Yes	Yes	Yes
Cap	596	571	569
Service Time	4.119	4.362	4.391
HCM Lane V/C Ratio	0.834	0.8	0.61
HCM Control Delay	33.1	30.1	18.9
HCM Lane LOS	D	D	C
HCM 95th-tile Q	8.9	7.8	4.1



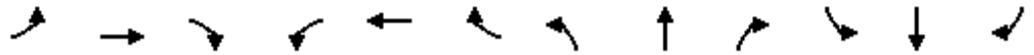
**BUILD**

FedEx- Middletown  
101: Main & Rte 372

2030 Full Build  
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	281	122	169	366	62	169	22	292	50	17	12
Future Volume (vph)	5	281	122	169	366	62	169	22	292	50	17	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.978			0.918			0.979	
Flt Protected		0.999		0.950				0.983			0.969	
Satd. Flow (prot)	0	1861	1583	1770	1822	0	0	1849	0	0	1944	0
Flt Permitted		0.992		0.536				0.849			0.668	
Satd. Flow (perm)	0	1848	1583	998	1822	0	0	1597	0	0	1340	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			133		15			98				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	305	133	184	398	67	184	24	317	54	18	13
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	310	133	184	465	0	0	525	0	0	85	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		21.2	21.2	21.2	21.2			21.3			21.3	
Actuated g/C Ratio		0.39	0.39	0.39	0.39			0.39			0.39	
v/c Ratio		0.43	0.19	0.47	0.64			0.76			0.16	
Control Delay		15.0	3.5	18.2	18.5			20.8			12.7	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		15.0	3.5	18.2	18.5			20.8			12.7	
LOS		B	A	B	B			C			B	
Approach Delay		11.6			18.5			20.8			12.7	

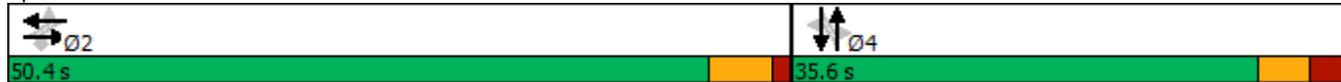


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			B			C			B	
Queue Length 50th (ft)		67	0	41	109			105				16
Queue Length 95th (ft)		149	28	107	234			#285				52
Internal Link Dist (ft)		795			2226			1941				499
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1546	1346	835	1527			978				786
Starvation Cap Reductn		0	0	0	0			0				0
Spillback Cap Reductn		0	0	0	0			0				0
Storage Cap Reductn		0	0	0	0			0				0
Reduced v/c Ratio		0.20	0.10	0.22	0.30			0.54				0.11

**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 54.1  
 Natural Cycle: 40  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 17.1  
 Intersection LOS: B  
 Intersection Capacity Utilization 81.2%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Main & Rte 372

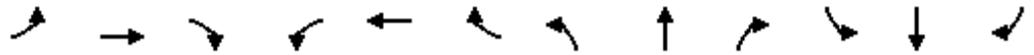




Lane Group	EBT	EBR	WBL	WBT	NBT	SBT
Lane Group Flow (vph)	310	133	184	465	525	85
v/c Ratio	0.43	0.19	0.47	0.64	0.76	0.16
Control Delay	15.0	3.5	18.2	18.5	20.8	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	3.5	18.2	18.5	20.8	12.7
Queue Length 50th (ft)	67	0	41	109	105	16
Queue Length 95th (ft)	149	28	107	234	#285	52
Internal Link Dist (ft)	795			2226	1941	499
Turn Bay Length (ft)		150	100			
Base Capacity (vph)	1546	1346	835	1527	978	786
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.10	0.22	0.30	0.54	0.11

**Intersection Summary**

# 95th percentile volume exceeds capacity, queue may be longer.  
Queue shown is maximum after two cycles.



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖					↖	↗	↖
Traffic Volume (vph)	40	646	28	17	754	394	0	0	0	135	5	50
Future Volume (vph)	40	646	28	17	754	394	0	0	0	135	5	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.994			0.949							0.850
Flt Protected	0.950				0.999					0.950	0.955	
Satd. Flow (prot)	1770	3518	0	0	3355	0	0	0	0	1681	1690	1583
Flt Permitted	0.173				0.955					0.950	0.955	
Satd. Flow (perm)	322	3518	0	0	3208	0	0	0	0	1681	1690	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			213							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	702	30	18	820	428	0	0	0	147	5	54
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	43	732	0	0	1266	0	0	0	0	76	76	54
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	84.5	84.5			136.2					13.9	13.9	13.9
Actuated g/C Ratio	0.50	0.50			0.81					0.08	0.08	0.08
v/c Ratio	0.27	0.41			0.46					0.55	0.55	0.20
Control Delay	34.2	28.8			2.5					88.3	87.9	1.7
Queue Delay	0.0	0.0			0.2					0.4	0.3	0.0
Total Delay	34.2	28.8			2.7					88.6	88.3	1.7
LOS	C	C			A					F	F	A
Approach Delay		29.1			2.7						65.7	
Approach LOS		C			A						E	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Length 50th (ft)	27	267			51					86	86	0
Queue Length 95th (ft)	72	370			102					145	145	0
Internal Link Dist (ft)		284			152			135			398	
Turn Bay Length (ft)	300									125		125
Base Capacity (vph)	161	1764			2723					160	161	288
Starvation Cap Reductn	0	0			636					0	0	0
Spillback Cap Reductn	0	22			0					6	6	0
Storage Cap Reductn	0	0			0					0	0	0
Reduced v/c Ratio	0.27	0.42			0.61					0.49	0.49	0.19

**Intersection Summary**

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 75  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.76  
 Intersection Signal Delay: 17.6  
 Intersection LOS: B  
 Intersection Capacity Utilization 62.2%  
 ICU Level of Service B  
 Analysis Period (min) 15

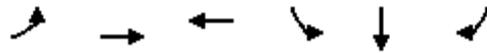
Splits and Phases: 102: McD/Sebethe & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↘ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

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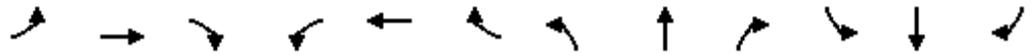
Lane Group	EBL	EBT	WBT	SBL	SBT	SBR
Lane Group Flow (vph)	43	732	1266	76	76	54
v/c Ratio	0.27	0.41	0.46	0.55	0.55	0.20
Control Delay	34.2	28.8	2.5	88.3	87.9	1.7
Queue Delay	0.0	0.0	0.2	0.4	0.3	0.0
Total Delay	34.2	28.8	2.7	88.6	88.3	1.7
Queue Length 50th (ft)	27	267	51	86	86	0
Queue Length 95th (ft)	72	370	102	145	145	0
Internal Link Dist (ft)		284	152		398	
Turn Bay Length (ft)	300			125		125
Base Capacity (vph)	161	1764	2723	160	161	288
Starvation Cap Reductn	0	0	636	0	0	0
Spillback Cap Reductn	0	22	0	6	6	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.27	0.42	0.61	0.49	0.49	0.19

Intersection Summary



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑	↗	↘	↑↑	↗
Traffic Volume (vph)	98	588	102	135	606	242	140	38	215	180	278	418
Future Volume (vph)	98	588	102	135	606	242	140	38	215	180	278	418
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.412			0.730		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	760	1845	1568	1360	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			234			454
Link Speed (mph)		40			40			35				35
Link Distance (ft)		232			1355			1244				741
Travel Time (s)		4.0			23.1			24.2				14.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	107	639	111	147	659	263	152	41	234	196	302	454
Shared Lane Traffic (%)												
Lane Group Flow (vph)	107	639	111	147	659	263	152	41	234	196	302	454
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	13.9	88.6	168.5	18.6	84.5	44.8	40.8	23.8	168.5	40.8	23.8	23.8
Actuated g/C Ratio	0.08	0.53	1.00	0.11	0.50	0.27	0.24	0.14	1.00	0.24	0.14	0.14
v/c Ratio	0.74	0.34	0.07	0.76	0.37	0.50	0.56	0.16	0.15	0.54	0.61	0.74
Control Delay	127.7	4.5	0.1	96.5	28.0	28.4	56.3	62.4	0.2	55.6	72.6	12.7
Queue Delay	6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.7	4.8	0.1	96.5	28.0	28.4	56.3	62.4	0.2	55.6	72.6	12.7
LOS	F	A	A	F	C	C	E	E	A	E	E	B
Approach Delay		20.3			37.5			26.2			40.6	

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	C			D			C			D		
Queue Length 50th (ft)	104	70	0	160	235	112	134	40	0	178	167	0
Queue Length 95th (ft)	176	82	0	235	327	227	191	77	0	242	210	111
Internal Link Dist (ft)	152			1275			1164			661		
Turn Bay Length (ft)				325		125	375		460		325	
Base Capacity (vph)	169	1861	1568	205	1774	521	273	875	1568	821	1664	990
Starvation Cap Reductn	29	590	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	25	0	0	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.07	0.72	0.38	0.50	0.56	0.05	0.15	0.24	0.18	0.46

Intersection Summary

Area Type:	Other
Cycle Length:	168.5
Actuated Cycle Length:	168.5
Offset:	0 (0%), Referenced to phase 2:WBTL, Start of Yellow
Natural Cycle:	75
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	32.5
Intersection LOS:	C
Intersection Capacity Utilization:	66.1%
ICU Level of Service:	C
Analysis Period (min):	15

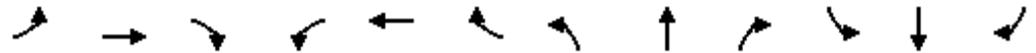
Splits and Phases: 103: Ind Park/I91SB & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↘ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	107	639	111	147	659	263	152	41	234	196	302	454
v/c Ratio	0.74	0.34	0.07	0.76	0.37	0.50	0.56	0.16	0.15	0.54	0.61	0.74
Control Delay	127.7	4.5	0.1	96.5	28.0	28.4	56.3	62.4	0.2	55.6	72.6	12.7
Queue Delay	6.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	133.7	4.8	0.1	96.5	28.0	28.4	56.3	62.4	0.2	55.6	72.6	12.7
Queue Length 50th (ft)	104	70	0	160	235	112	134	40	0	178	167	0
Queue Length 95th (ft)	176	82	0	235	327	227	191	77	0	242	210	111
Internal Link Dist (ft)		152			1275			1164			661	
Turn Bay Length (ft)				325		125	375			460		325
Base Capacity (vph)	169	1861	1568	205	1774	521	273	875	1568	821	1664	990
Starvation Cap Reductn	29	590	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	25	0	0	0	0	0	0	3
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.50	0.07	0.72	0.38	0.50	0.56	0.05	0.15	0.24	0.18	0.46

Intersection Summary



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗	↑↑	↑↑	↖	↘↘	↘
Traffic Volume (vph)	361	632	695	675	310	270
Future Volume (vph)	361	632	695	675	310	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Flt Permitted	0.337				0.950	
Satd. Flow (perm)	628	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				695		158
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	687	755	734	337	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	392	687	755	734	337	293
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	18.0		52.0	52.0	20.0	
Total Split (%)	20.0%		57.8%	57.8%	22.2%	
Maximum Green (s)	14.0		46.3	46.3	15.8	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	65.5	69.5	55.0	55.0	12.3	25.3
Actuated g/C Ratio	0.73	0.77	0.61	0.61	0.14	0.28
v/c Ratio	0.69	0.25	0.35	0.59	0.72	0.53
Control Delay	10.5	3.4	10.1	3.6	46.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	3.4	10.1	3.6	46.0	14.6
LOS	B	A	B	A	D	B
Approach Delay		6.0	6.9		31.4	
Approach LOS		A	A		C	



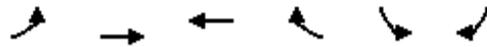
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	51	45	100	8	95	61
Queue Length 95th (ft)	97	75	175	68	134	117
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	657	2732	2163	1237	602	549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.35	0.59	0.56	0.53

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Offset:	82 (91%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle:	60
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.72
Intersection Signal Delay:	11.4
Intersection LOS:	B
Intersection Capacity Utilization	69.9%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	392	687	755	734	337	293
v/c Ratio	0.69	0.25	0.35	0.59	0.72	0.53
Control Delay	10.5	3.4	10.1	3.6	46.0	14.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.5	3.4	10.1	3.6	46.0	14.6
Queue Length 50th (ft)	51	45	100	8	95	61
Queue Length 95th (ft)	97	75	175	68	134	117
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	657	2732	2163	1237	602	549
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.25	0.35	0.59	0.56	0.53

Intersection Summary



Lane Group	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	370	514	0
Future Volume (vph)	0	0	0	370	514	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1267	1267	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	1267	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	517			425	1602	
Travel Time (s)	14.1			8.3	31.2	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	402	559	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	402	559	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.5%
ICU Level of Service	A
Analysis Period (min)	15



Movement	SEL	SER	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (veh/h)	0	0	0	370	514	0
Future Volume (Veh/h)	0	0	0	370	514	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	0	402	559	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	760	280	559			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	760	280	559			
tC, single (s)	7.8	7.9	5.1			
tC, 2 stage (s)						
tF (s)	4.0	3.8	2.7			
p0 queue free %	100	100	100			
cM capacity (veh/h)	257	592	739			
Direction, Lane #	SE 1	SE 2	NE 1	NE 2	SW 1	SW 2
Volume Total	0	0	134	268	373	186
Volume Left	0	0	0	0	0	0
Volume Right	0	0	0	0	0	0
cSH	1700	1700	739	1700	1700	1700
Volume to Capacity	0.00	0.00	0.00	0.16	0.22	0.11
Queue Length 95th (ft)	0	0	0	0	0	0
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	A	A				
Approach Delay (s)	0.0		0.0		0.0	
Approach LOS	A					
<b>Intersection Summary</b>						
Average Delay			0.0			
Intersection Capacity Utilization			17.5%		ICU Level of Service	A
Analysis Period (min)			15			

**Intersection**

Int Delay, s/veh 0

**Movement** SEL SER NEL NET SWT SWR

Lane Configurations						
Traffic Vol, veh/h	0	0	0	370	514	0
Future Vol, veh/h	0	0	0	370	514	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	402	559	0

**Major/Minor** Minor2 Major1 Major2

Conflicting Flow All	760	280	559	0	-	0
Stage 1	559	-	-	-	-	-
Stage 2	201	-	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-	-
Pot Cap-1 Maneuver	257	592	739	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	687	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	257	592	739	-	-	-
Mov Cap-2 Maneuver	257	-	-	-	-	-
Stage 1	420	-	-	-	-	-
Stage 2	687	-	-	-	-	-

**Approach** SE NE SW

HCM Control Delay, s	0	0	0
HCM LOS	A		

**Minor Lane/Major Mvmt** NEL NET SELn1 SELn2 SWT SWR

Capacity (veh/h)	739	-	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-	-
HCM Control Delay (s)	0	-	0	0	-	-
HCM Lane LOS	A	-	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	33	2	1	337	494	20
Future Volume (vph)	33	2	1	337	494	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	2	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	0.97	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	1751	808	0	3496	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	1751	808	0	3496	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	820	
Travel Time (s)	17.1			16.1	14.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	36	2	1	366	537	22
Shared Lane Traffic (%)						
Lane Group Flow (vph)	36	2	0	367	537	22
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.0% ICU Level of Service A
Analysis Period (min)	15



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	33	2	1	337	494	20
Future Volume (Veh/h)	33	2	1	337	494	20
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	36	2	1	366	537	22
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)	10					
Median type				None	None	
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	722	537	537			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	722	537	537			
tC, single (s)	8.8	8.9	6.1			
tC, 2 stage (s)						
tF (s)	4.5	4.3	3.2			
p0 queue free %	83	99	100			
cM capacity (veh/h)	208	301	570			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	SB 2
Volume Total	24	14	123	244	537	22
Volume Left	24	12	1	0	0	0
Volume Right	0	2	0	0	0	22
cSH	208	242	570	1700	1700	1700
Volume to Capacity	0.12	0.06	0.00	0.14	0.32	0.01
Queue Length 95th (ft)	10	5	0	0	0	0
Control Delay (s)	24.6	22.5	0.1	0.0	0.0	0.0
Lane LOS	C	C	A			
Approach Delay (s)	23.8		0.0		0.0	
Approach LOS	C					
<b>Intersection Summary</b>						
Average Delay			1.0			
Intersection Capacity Utilization			36.0%		ICU Level of Service	
Analysis Period (min)			15			
					A	



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↘	↙
Traffic Volume (vph)	176	80	330	161	62	125
Future Volume (vph)	176	80	330	161	62	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.956		0.910	
Flt Protected		0.967			0.984	
Satd. Flow (prot)	0	1789	1775	0	1663	0
Flt Permitted		0.967			0.984	
Satd. Flow (perm)	0	1789	1775	0	1663	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	191	87	359	175	67	136
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	278	534	0	203	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	62.3%
ICU Level of Service	B
Analysis Period (min)	15



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Volume (veh/h)	176	80	330	161	62	125
Future Volume (Veh/h)	176	80	330	161	62	125
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	191	87	359	175	67	136
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (ft)		1107				
pX, platoon unblocked						
vC, conflicting volume	534				916	446
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	534				916	446
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	81				73	78
cM capacity (veh/h)	1029				245	612
Direction, Lane #	EB 1	WB 1	SB 1			
Volume Total	278	534	203			
Volume Left	191	0	67			
Volume Right	0	175	136			
cSH	1029	1700	410			
Volume to Capacity	0.19	0.31	0.50			
Queue Length 95th (ft)	17	0	67			
Control Delay (s)	7.0	0.0	22.1			
Lane LOS	A		C			
Approach Delay (s)	7.0	0.0	22.1			
Approach LOS			C			
Intersection Summary						
Average Delay			6.3			
Intersection Capacity Utilization		62.3%		ICU Level of Service		B
Analysis Period (min)			15			

**Intersection**

Int Delay, s/veh 6.2

**Movement** EBL EBT WBT WBR SBL SBR

Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	176	80	330	161	62	125
Future Vol, veh/h	176	80	330	161	62	125
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	191	87	359	175	67	136

**Major/Minor** Major1 Major2 Minor2

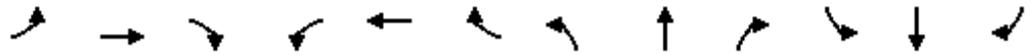
Conflicting Flow All	534	0	-	0	916	447
Stage 1	-	-	-	-	447	-
Stage 2	-	-	-	-	469	-
Critical Hdwy	4.13	-	-	-	6.43	6.22
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.318
Pot Cap-1 Maneuver	1029	-	-	-	301	612
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	628	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1029	-	-	-	242	612
Mov Cap-2 Maneuver	-	-	-	-	242	-
Stage 1	-	-	-	-	517	-
Stage 2	-	-	-	-	628	-

**Approach** EB WB SB

HCM Control Delay, s	6.4	0	22.4
HCM LOS			C

**Minor Lane/Major Mvmt** EBL EBT WBT WBR SBLn1

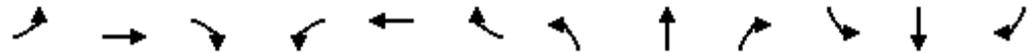
Capacity (veh/h)	1029	-	-	-	406
HCM Lane V/C Ratio	0.186	-	-	-	0.501
HCM Control Delay (s)	9.3	0	-	-	22.4
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.7	-	-	-	2.7



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	0	8	0	0	2	4	439	0	1	279	5
Future Volume (vph)	17	0	8	0	0	2	4	439	0	1	279	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.865							0.998
Flt Protected		0.968										
Satd. Flow (prot)	0	1722	0	0	1611	0	0	1863	0	0	1859	0
Flt Permitted		0.968										
Satd. Flow (perm)	0	1722	0	0	1611	0	0	1863	0	0	1859	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			1767			2021	
Travel Time (s)		10.8			12.9			34.4			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	0	9	0	0	2	4	477	0	1	303	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	27	0	0	2	0	0	481	0	0	309	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	40.8%
ICU Level of Service	A
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	17	0	8	0	0	2	4	439	0	1	279	5
Future Volume (vph)	17	0	8	0	0	2	4	439	0	1	279	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	18	0	9	0	0	2	4	477	0	1	303	5

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	27	2	481	309
Volume Left (vph)	18	0	4	1
Volume Right (vph)	9	2	0	5
Hadj (s)	-0.03	-0.57	0.04	0.02
Departure Headway (s)	5.6	5.1	4.3	4.5
Degree Utilization, x	0.04	0.00	0.58	0.39
Capacity (veh/h)	560	595	817	778
Control Delay (s)	8.8	8.1	13.2	10.3
Approach Delay (s)	8.8	8.1	13.2	10.3
Approach LOS	A	A	B	B

**Intersection Summary**

Delay	11.9
Level of Service	B
Intersection Capacity Utilization	40.8%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	11.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	8	0	0	2	4	439	0	1	279	5
Future Vol, veh/h	17	0	8	0	0	2	4	439	0	1	279	5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	9	0	0	2	4	477	0	1	303	5
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.1	13.2	10.3
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	68%	0%	0%
Vol Thru, %	99%	0%	0%	98%
Vol Right, %	0%	32%	100%	2%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	443	25	2	285
LT Vol	4	17	0	1
Through Vol	439	0	0	279
RT Vol	0	8	2	5
Lane Flow Rate	482	27	2	310
Geometry Grp	1	1	1	1
Degree of Util (X)	0.58	0.042	0.003	0.386
Departure Headway (Hd)	4.336	5.573	5.072	4.486
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	833	641	702	802
Service Time	2.353	3.621	3.125	2.507
HCM Lane V/C Ratio	0.579	0.042	0.003	0.387
HCM Control Delay	13.2	8.9	8.1	10.3
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	3.8	0.1	0	1.8



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	134	327	6	20	267
Future Volume (vph)	0	134	327	6	20	267
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		50	0	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.997			
Flt Protected						0.996
Satd. Flow (prot)	1863	1583	1857	0	0	1855
Flt Permitted						0.996
Satd. Flow (perm)	1863	1583	1857	0	0	1855
Link Speed (mph)	25		35			35
Link Distance (ft)	450		591			1767
Travel Time (s)	12.3		11.5			34.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	146	355	7	22	290
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	146	362	0	0	312
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	33.9%
	ICU Level of Service A
Analysis Period (min)	15



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	0	134	327	6	20	267
Future Volume (Veh/h)	0	134	327	6	20	267
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	146	355	7	22	290
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	692	358			362	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	692	358			362	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	79			98	
cM capacity (veh/h)	402	686			1197	

Direction, Lane #	WB 1	WB 2	NB 1	SB 1
Volume Total	0	146	362	312
Volume Left	0	0	0	22
Volume Right	0	146	7	0
cSH	1700	686	1700	1197
Volume to Capacity	0.00	0.21	0.21	0.02
Queue Length 95th (ft)	0	20	0	1
Control Delay (s)	0.0	11.7	0.0	0.7
Lane LOS	A	B		A
Approach Delay (s)	11.7		0.0	0.7
Approach LOS	B			

Intersection Summary			
Average Delay		2.4	
Intersection Capacity Utilization		33.9%	ICU Level of Service A
Analysis Period (min)		15	

Intersection						
Int Delay, s/veh	2.3					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	134	327	6	20	267
Future Vol, veh/h	0	134	327	6	20	267
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	146	355	7	22	290

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	693	359	0	0	362
Stage 1	359	-	-	-	-
Stage 2	334	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	409	685	-	-	1197
Stage 1	707	-	-	-	-
Stage 2	725	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	400	685	-	-	1197
Mov Cap-2 Maneuver	400	-	-	-	-
Stage 1	707	-	-	-	-
Stage 2	709	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	0.6
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBRWBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	685	1197
HCM Lane V/C Ratio	-	-	-	0.213	0.018
HCM Control Delay (s)	-	-	0	11.7	8.1
HCM Lane LOS	-	-	A	B	A
HCM 95th %tile Q(veh)	-	-	-	0.8	0.1



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	50	33	288	6	9	247
Future Volume (vph)	50	33	288	6	9	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		150	120	
Storage Lanes	1	1		0	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850	0.997			
Flt Protected	0.950					0.998
Satd. Flow (prot)	1770	1583	1857	0	0	1859
Flt Permitted	0.950					0.998
Satd. Flow (perm)	1770	1583	1857	0	0	1859
Link Speed (mph)	30		35			35
Link Distance (ft)	343		438			591
Travel Time (s)	7.8		8.5			11.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	36	313	7	10	268
Shared Lane Traffic (%)						
Lane Group Flow (vph)	54	36	320	0	0	278
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	30.3%
ICU Level of Service	A
Analysis Period (min)	15



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	50	33	288	6	9	247
Future Volume (Veh/h)	50	33	288	6	9	247
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	36	313	7	10	268
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage (veh)						
Upstream signal (ft)			1306			
pX, platoon unblocked						
vC, conflicting volume	604	316			320	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	604	316			320	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	88	95			99	
cM capacity (veh/h)	457	724			1240	
Direction, Lane #	WB 1	WB 2	NB 1	SB 1		
Volume Total	54	36	320	278		
Volume Left	54	0	0	10		
Volume Right	0	36	7	0		
cSH	457	724	1700	1240		
Volume to Capacity	0.12	0.05	0.19	0.01		
Queue Length 95th (ft)	10	4	0	1		
Control Delay (s)	13.9	10.2	0.0	0.4		
Lane LOS	B	B		A		
Approach Delay (s)	12.4		0.0	0.4		
Approach LOS	B					
Intersection Summary						
Average Delay			1.8			
Intersection Capacity Utilization			30.3%		ICU Level of Service	A
Analysis Period (min)			15			

**Intersection**

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	50	33	288	6	9	247
Future Vol, veh/h	50	33	288	6	9	247
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	36	313	7	10	268

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	605	317	0	0	320	0
Stage 1	317	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	461	724	-	-	1240	-
Stage 1	738	-	-	-	-	-
Stage 2	761	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	457	724	-	-	1240	-
Mov Cap-2 Maneuver	457	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	754	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.4	0	0.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	457	724	1240	-
HCM Lane V/C Ratio	-	-	0.119	0.05	0.008	-
HCM Control Delay (s)	-	-	13.9	10.2	7.9	0
HCM Lane LOS	-	-	B	B	A	A
HCM 95th %tile Q(veh)	-	-	0.4	0.2	0	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	67	50	256	11	9	299
Future Volume (vph)	67	50	256	11	9	299
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.943		0.994			
Flt Protected	0.972					0.999
Satd. Flow (prot)	1707	0	1852	0	0	1861
Flt Permitted	0.972					0.999
Satd. Flow (perm)	1707	0	1852	0	0	1861
Link Speed (mph)	25		35			35
Link Distance (ft)	471		868			438
Travel Time (s)	12.8		16.9			8.5
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	73	54	278	12	10	325
Shared Lane Traffic (%)						
Lane Group Flow (vph)	127	0	290	0	0	335
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	36.4%
Analysis Period (min)	15
	ICU Level of Service A



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	67	50	256	11	9	299
Future Volume (Veh/h)	67	50	256	11	9	299
Sign Control	Stop		Free		Free	
Grade	0%		0%		0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	73	54	278	12	10	325
<b>Pedestrians</b>						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (ft)	868					
pX, platoon unblocked						
vC, conflicting volume	629	284			290	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	629	284			290	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	84	93			99	
cM capacity (veh/h)	443	755			1272	
<b>Direction, Lane #</b>	<b>WB 1</b>	<b>NB 1</b>	<b>SB 1</b>			
Volume Total	127	290	335			
Volume Left	73	0	10			
Volume Right	54	12	0			
cSH	537	1700	1272			
Volume to Capacity	0.24	0.17	0.01			
Queue Length 95th (ft)	23	0	1			
Control Delay (s)	13.8	0.0	0.3			
Lane LOS	B		A			
Approach Delay (s)	13.8	0.0	0.3			
Approach LOS	B					
<b>Intersection Summary</b>						
Average Delay			2.5			
Intersection Capacity Utilization			36.4%	ICU Level of Service		A
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	67	50	256	11	9	299
Future Vol, veh/h	67	50	256	11	9	299
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	54	278	12	10	325

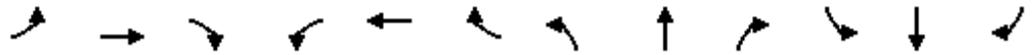
Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	629	284	0	0	290
Stage 1	284	-	-	-	-
Stage 2	345	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	446	755	-	-	1272
Stage 1	764	-	-	-	-
Stage 2	717	-	-	-	-
Platoon blocked, %					
Mov Cap-1 Maneuver	442	755	-	-	1272
Mov Cap-2 Maneuver	442	-	-	-	-
Stage 1	764	-	-	-	-
Stage 2	710	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	13.8	0	0.2
HCM LOS	B		

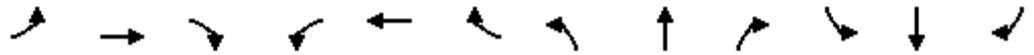
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	537	1272
HCM Lane V/C Ratio	-	-	0.237	0.008
HCM Control Delay (s)	-	-	13.8	7.9
HCM Lane LOS	-	-	B	A
HCM 95th %tile Q(veh)	-	-	0.9	0

FedEx- Middletown  
114: Middle & Bradley/Aetna

2030 Full Build  
Timing Plan: AM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	23	1	22	1	0	2	45	241	6	12	288	37
Future Volume (vph)	23	1	22	1	0	2	45	241	6	12	288	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.935				0.850			0.850		0.983	
Fl <sub>t</sub> Protected		0.976			0.950			0.992		0.950		
Satd. Flow (prot)	0	1813	0	0	1770	1583	0	1848	1583	1770	1831	0
Fl <sub>t</sub> Permitted								0.916		0.488		
Satd. Flow (perm)	0	1858	0	0	1863	1583	0	1706	1583	909	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				191			191		19	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			868	
Travel Time (s)		14.2			7.8			66.6			16.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	25	1	24	1	0	2	49	262	7	13	313	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	50	0	0	1	2	0	311	7	13	353	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.3			7.3	34.5		30.1	34.5	27.9	31.8	
Actuated g/C Ratio		0.21			0.21	1.00		0.87	1.00	0.81	0.92	
v/c Ratio		0.12			0.00	0.00		0.21	0.00	0.01	0.21	
Control Delay		9.0			12.0	0.0		4.4	0.0	2.1	1.8	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		9.0			12.0	0.0		4.4	0.0	2.1	1.8	
LOS		A			B	A		A	A	A	A	
Approach Delay		9.0			4.0			4.3			1.8	

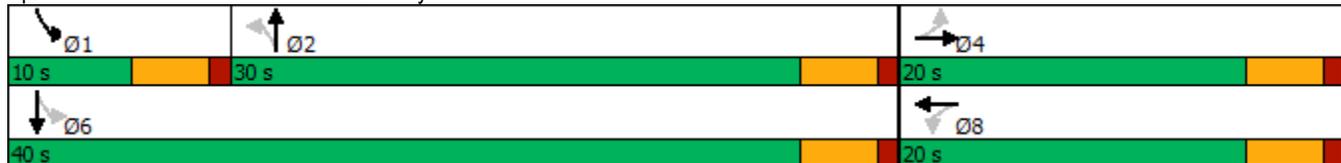


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A				A
Queue Length 50th (ft)		4			0	0		0	0	0	0	0
Queue Length 95th (ft)		25			3	0		109	0	5	61	
Internal Link Dist (ft)		439			261			3337			788	
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		868			858	1583		1560	1583	874	1769	
Starvation Cap Reductn		0			0	0		0	0	0	0	
Spillback Cap Reductn		0			0	0		0	0	0	0	
Storage Cap Reductn		0			0	0		0	0	0	0	
Reduced v/c Ratio		0.06			0.00	0.00		0.20	0.00	0.01	0.20	

Intersection Summary

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	34.5
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.21
Intersection Signal Delay:	3.4
Intersection LOS:	A
Intersection Capacity Utilization:	53.2%
ICU Level of Service:	A
Analysis Period (min):	15

Splits and Phases: 114: Middle & Bradley/Aetna





Lane Group	EBT	WBT	WBR	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	50	1	2	311	7	13	353
v/c Ratio	0.12	0.00	0.00	0.21	0.00	0.01	0.21
Control Delay	9.0	12.0	0.0	4.4	0.0	2.1	1.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.0	12.0	0.0	4.4	0.0	2.1	1.8
Queue Length 50th (ft)	4	0	0	0	0	0	0
Queue Length 95th (ft)	25	3	0	109	0	5	61
Internal Link Dist (ft)	439	261		3337			788
Turn Bay Length (ft)					175	175	
Base Capacity (vph)	868	858	1583	1560	1583	874	1769
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.00	0.00	0.20	0.00	0.01	0.20

Intersection Summary



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	204	167	203	243	73	148
Future Volume (vph)	204	167	203	243	73	148
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939		0.927			
Flt Protected	0.973					0.984
Satd. Flow (prot)	1685	0	1710	0	0	1815
Flt Permitted	0.973					0.591
Satd. Flow (perm)	1685	0	1710	0	0	1090
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	52		83			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	222	182	221	264	79	161
Shared Lane Traffic (%)						
Lane Group Flow (vph)	404	0	485	0	0	240
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	18.1		20.4			30.4
Actuated g/C Ratio	0.31		0.35			0.52
v/c Ratio	0.72		0.74			0.38
Control Delay	23.9		22.0			10.8
Queue Delay	0.0		0.0			0.0
Total Delay	23.9		22.0			10.8
LOS	C		C			B
Approach Delay	23.9		22.0			10.8

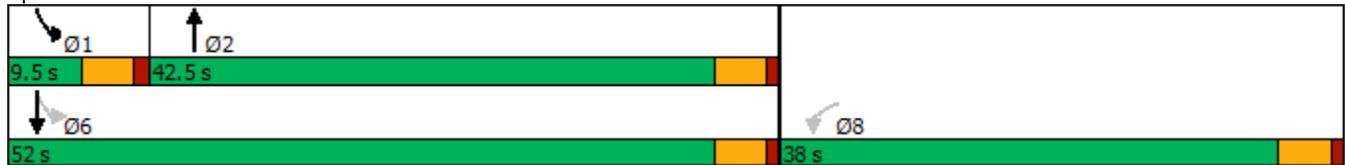


Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	C		C		B	
Queue Length 50th (ft)	94		111		39	
Queue Length 95th (ft)	239		271		108	
Internal Link Dist (ft)	1027		4683		3337	
Turn Bay Length (ft)						
Base Capacity (vph)	1045		1205		985	
Starvation Cap Reductn	0		0		0	
Spillback Cap Reductn	0		0		0	
Storage Cap Reductn	0		0		0	
Reduced v/c Ratio	0.39		0.40		0.24	

**Intersection Summary**

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	58
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	20.3
Intersection LOS:	C
Intersection Capacity Utilization:	70.8%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 115: Middle & Smith





Lane Group	WBL	NBT	SBT
Lane Group Flow (vph)	404	485	240
v/c Ratio	0.72	0.74	0.38
Control Delay	23.9	22.0	10.8
Queue Delay	0.0	0.0	0.0
Total Delay	23.9	22.0	10.8
Queue Length 50th (ft)	94	111	39
Queue Length 95th (ft)	239	271	108
Internal Link Dist (ft)	1027	4683	3337
Turn Bay Length (ft)			
Base Capacity (vph)	1045	1205	985
Starvation Cap Reductn	0	0	0
Spillback Cap Reductn	0	0	0
Storage Cap Reductn	0	0	0
Reduced v/c Ratio	0.39	0.40	0.24
<b>Intersection Summary</b>			



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	112	18	535	0	0	352
Future Volume (vph)	112	18	535	0	0	352
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.981					
Flt Protected	0.959					
Satd. Flow (prot)	1752	0	1863	0	0	1863
Flt Permitted	0.959					
Satd. Flow (perm)	1752	0	1863	0	0	1863
Link Speed (mph)	30		30		30	
Link Distance (ft)	888		541		4763	
Travel Time (s)	20.2		12.3		108.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	20	582	0	0	383
Shared Lane Traffic (%)						
Lane Group Flow (vph)	142	0	582	0	0	383
Sign Control	Stop		Free		Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.1% ICU Level of Service A
Analysis Period (min)	15



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔		↑			↑
Traffic Volume (veh/h)	112	18	535	0	0	352
Future Volume (Veh/h)	112	18	535	0	0	352
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	122	20	582	0	0	383
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None	None		
Median storage veh						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	965	582			582	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	965	582			582	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	57	96			100	
cM capacity (veh/h)	283	513			992	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	142	582	383
Volume Left	122	0	0
Volume Right	20	0	0
cSH	302	1700	1700
Volume to Capacity	0.47	0.34	0.23
Queue Length 95th (ft)	60	0	0
Control Delay (s)	27.1	0.0	0.0
Lane LOS	D		
Approach Delay (s)	27.1	0.0	0.0
Approach LOS	D		

Intersection Summary			
Average Delay		3.5	
Intersection Capacity Utilization		42.1%	ICU Level of Service A
Analysis Period (min)		15	

Intersection						
Int Delay, s/veh	3.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↘↗		↑			↑
Traffic Vol, veh/h	112	18	535	0	0	352
Future Vol, veh/h	112	18	535	0	0	352
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	122	20	582	0	0	383

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	965	582	0	-	-	-
Stage 1	582	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	283	513	-	0	0	-
Stage 1	559	-	-	0	0	-
Stage 2	689	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	283	513	-	-	-	-
Mov Cap-2 Maneuver	283	-	-	-	-	-
Stage 1	559	-	-	-	-	-
Stage 2	689	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	27	0	0
HCM LOS	D		

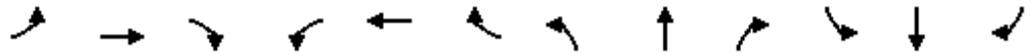
Minor Lane/Major Mvmt	NBTWBLn1	SBT
Capacity (veh/h)	- 302	-
HCM Lane V/C Ratio	- 0.468	-
HCM Control Delay (s)	- 27	-
HCM Lane LOS	- D	-
HCM 95th %tile Q(veh)	- 2.4	-



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	58	118	46	202	118	472	0	0	0	93	267	105
Future Volume (vph)	58	118	46	202	118	472	0	0	0	93	267	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.972			0.920							0.970
Flt Protected		0.987			0.987							0.990
Satd. Flow (prot)	0	1787	0	0	1691	0	0	0	0	0	1789	0
Flt Permitted		0.987			0.987							0.990
Satd. Flow (perm)	0	1787	0	0	1691	0	0	0	0	0	1789	0
Link Speed (mph)		30			30				30			30
Link Distance (ft)		832			1070				907			541
Travel Time (s)		18.9			24.3				20.6			12.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	63	128	50	220	128	513	0	0	0	101	290	114
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	241	0	0	861	0	0	0	0	0	505	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	93.5%
ICU Level of Service	F
Analysis Period (min)	15



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	58	118	46	202	118	472	0	0	0	93	267	105
Future Volume (vph)	58	118	46	202	118	472	0	0	0	93	267	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	63	128	50	220	128	513	0	0	0	101	290	114

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total (vph)	241	861	505
Volume Left (vph)	63	220	101
Volume Right (vph)	50	513	114
Hadj (s)	-0.04	-0.27	-0.06
Departure Headway (s)	6.7	5.9	6.3
Degree Utilization, x	0.45	1.41	0.88
Capacity (veh/h)	518	614	570
Control Delay (s)	15.0	210.8	38.5
Approach Delay (s)	15.0	210.8	38.5
Approach LOS	B	F	E

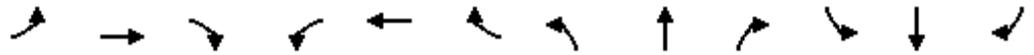
Intersection Summary			
Delay		127.3	
Level of Service		F	
Intersection Capacity Utilization	93.5%	ICU Level of Service	F
Analysis Period (min)		15	

Intersection	
Intersection Delay, s/veh	126.2
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	58	118	46	202	118	472	0	0	0	93	267	105
Future Vol, veh/h	58	118	46	202	118	472	0	0	0	93	267	105
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	128	50	220	128	513	0	0	0	101	290	114
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	16	207.5	40.4
HCM LOS	C	F	E

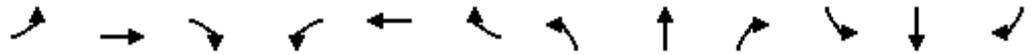
Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	26%	20%
Vol Thru, %	53%	15%	57%
Vol Right, %	21%	60%	23%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	222	792	465
LT Vol	58	202	93
Through Vol	118	118	267
RT Vol	46	472	105
Lane Flow Rate	241	861	505
Geometry Grp	1	1	1
Degree of Util (X)	0.447	1.4	0.867
Departure Headway (Hd)	7.254	5.854	7.016
Convergence, Y/N	Yes	Yes	Yes
Cap	500	628	521
Service Time	5.254	3.869	5.016
HCM Lane V/C Ratio	0.482	1.371	0.969
HCM Control Delay	16	207.5	40.4
HCM Lane LOS	C	F	E
HCM 95th-tile Q	2.3	38.9	9.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	50	160	0	0	348	185	439	12	180	0	0	0
Future Volume (vph)	50	160	0	0	348	185	439	12	180	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.953			0.961				
Fl <sub>t</sub> Protected		0.988						0.966				
Satd. Flow (prot)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Fl <sub>t</sub> Permitted		0.988						0.966				
Satd. Flow (perm)	0	1840	0	0	1775	0	0	1729	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	174	0	0	378	201	477	13	196	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	228	0	0	579	0	0	686	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	86.7%
Analysis Period (min)	15
	ICU Level of Service E



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	160	0	0	348	185	439	12	180	0	0	0
Future Volume (vph)	50	160	0	0	348	185	439	12	180	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	174	0	0	378	201	477	13	196	0	0	0

Direction, Lane #	EB 1	WB 1	NB 1
Volume Total (vph)	228	579	686
Volume Left (vph)	54	0	477
Volume Right (vph)	0	201	196
Hadj (s)	0.08	-0.17	0.00
Departure Headway (s)	7.1	6.1	6.4
Degree Utilization, x	0.45	0.99	1.22
Capacity (veh/h)	505	575	571
Control Delay (s)	15.6	58.8	134.6
Approach Delay (s)	15.6	58.8	134.6
Approach LOS	C	F	F

Intersection Summary		
Delay		87.0
Level of Service		F
Intersection Capacity Utilization	86.7%	ICU Level of Service E
Analysis Period (min)		15

Intersection	
Intersection Delay, s/veh	88.9
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	50	160	0	0	348	185	439	12	180	0	0	0
Future Vol, veh/h	50	160	0	0	348	185	439	12	180	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	54	174	0	0	378	201	477	13	196	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

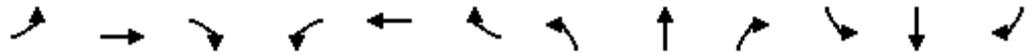
Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	16.7	62	135.7
HCM LOS	C	F	F

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	70%	24%	0%
Vol Thru, %	2%	76%	65%
Vol Right, %	29%	0%	35%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	631	210	533
LT Vol	439	50	0
Through Vol	12	160	348
RT Vol	180	0	185
Lane Flow Rate	686	228	579
Geometry Grp	1	1	1
Degree of Util (X)	1.219	0.443	0.989
Departure Headway (Hd)	6.399	7.727	6.724
Convergence, Y/N	Yes	Yes	Yes
Cap	576	470	545
Service Time	4.399	5.727	4.724
HCM Lane V/C Ratio	1.191	0.485	1.062
HCM Control Delay	135.7	16.7	62
HCM Lane LOS	F	C	F
HCM 95th-tile Q	25.5	2.2	13.7

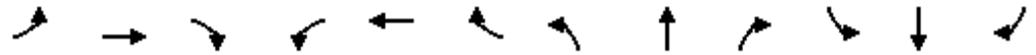


FedEx- Middletown  
101: Main & Rte 372

2030 Full Build  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘			↕			↕	
Traffic Volume (vph)	5	449	139	300	494	79	192	17	268	73	28	17
Future Volume (vph)	5	449	139	300	494	79	192	17	268	73	28	17
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	12	12	12	15	12	12	15	12
Storage Length (ft)	0		150	100		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	0		0
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.979			0.924			0.981	
Flt Protected		0.999		0.950				0.980			0.970	
Satd. Flow (prot)	0	1861	1583	1770	1824	0	0	1855	0	0	1950	0
Flt Permitted		0.995		0.377				0.827			0.584	
Satd. Flow (perm)	0	1853	1583	702	1824	0	0	1566	0	0	1174	0
Right Turn on Red			Yes			Yes			Yes			No
Satd. Flow (RTOR)			151		14			82				
Link Speed (mph)		35			35			30				30
Link Distance (ft)		875			2306			2021				579
Travel Time (s)		17.0			44.9			45.9				13.2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	488	151	326	537	86	209	18	291	79	30	18
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	493	151	326	623	0	0	518	0	0	127	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		2			2			4				4
Permitted Phases	2		2	2			4			4		
Detector Phase	2	2	2	2	2		4	4		4	4	
Switch Phase												
Minimum Initial (s)	15.0	15.0	15.0	15.0	15.0		9.0	9.0		9.0	9.0	
Minimum Split (s)	20.4	20.4	20.4	20.4	20.4		14.6	14.6		14.6	14.6	
Total Split (s)	50.4	50.4	50.4	50.4	50.4		35.6	35.6		35.6	35.6	
Total Split (%)	58.6%	58.6%	58.6%	58.6%	58.6%		41.4%	41.4%		41.4%	41.4%	
Maximum Green (s)	45.0	45.0	45.0	45.0	45.0		30.0	30.0		30.0	30.0	
Yellow Time (s)	4.2	4.2	4.2	4.2	4.2		3.3	3.3		3.3	3.3	
All-Red Time (s)	1.2	1.2	1.2	1.2	1.2		2.3	2.3		2.3	2.3	
Lost Time Adjust (s)		0.0	0.0	0.0	0.0			0.0			0.0	
Total Lost Time (s)		5.4	5.4	5.4	5.4			5.6			5.6	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0	4.0	4.0	4.0		3.0	3.0		3.0	3.0	
Recall Mode	Min	Min	Min	Min	Min		None	None		None	None	
Act Effct Green (s)		39.8	39.8	39.8	39.8			26.4			26.4	
Actuated g/C Ratio		0.51	0.51	0.51	0.51			0.34			0.34	
v/c Ratio		0.52	0.17	0.91	0.66			0.88			0.32	
Control Delay		15.3	2.5	50.2	18.1			40.2			23.2	
Queue Delay		0.0	0.0	0.0	0.0			0.0			0.0	
Total Delay		15.3	2.5	50.2	18.1			40.2			23.2	
LOS		B	A	D	B			D			C	
Approach Delay		12.3			29.1			40.2			23.2	

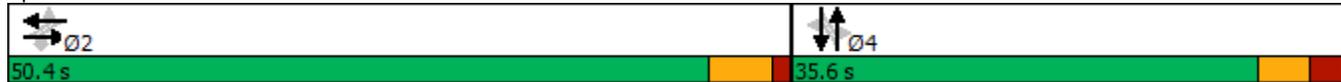


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		B			C			D			C	
Queue Length 50th (ft)		163	0	148	224			221			49	
Queue Length 95th (ft)		247	27	#322	340			#408			95	
Internal Link Dist (ft)		795			2226			1941			499	
Turn Bay Length (ft)			150	100								
Base Capacity (vph)		1121	1017	424	1109			680			473	
Starvation Cap Reductn		0	0	0	0			0			0	
Spillback Cap Reductn		0	0	0	0			0			0	
Storage Cap Reductn		0	0	0	0			0			0	
Reduced v/c Ratio		0.44	0.15	0.77	0.56			0.76			0.27	

**Intersection Summary**

Area Type: Other  
 Cycle Length: 86  
 Actuated Cycle Length: 77.6  
 Natural Cycle: 70  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.91  
 Intersection Signal Delay: 26.5  
 Intersection LOS: C  
 Intersection Capacity Utilization 98.2%  
 ICU Level of Service F  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 101: Main & Rte 372





Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↕			↕					↘	↕	↗
Traffic Volume (vph)	40	893	17	5	919	449	0	0	0	546	5	102
Future Volume (vph)	40	893	17	5	919	449	0	0	0	546	5	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300		0	0		0	0		0	125		125
Storage Lanes	1		0	0		0	0		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	0.95	0.95	1.00
Frt		0.997			0.951							0.850
Flt Protected	0.950									0.950	0.953	
Satd. Flow (prot)	1770	3529	0	0	3366	0	0	0	0	1681	1686	1583
Flt Permitted	0.160				0.955					0.950	0.953	
Satd. Flow (perm)	298	3529	0	0	3214	0	0	0	0	1681	1686	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			195							151
Link Speed (mph)		40			40			25			30	
Link Distance (ft)		364			232			215			478	
Travel Time (s)		6.2			4.0			5.9			10.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	971	18	5	999	488	0	0	0	593	5	111
Shared Lane Traffic (%)										50%		
Lane Group Flow (vph)	43	989	0	0	1492	0	0	0	0	296	302	111
Turn Type	Perm	NA		Perm	NA					Split	NA	Prot
Protected Phases		1 8			1 2 5 6					7	7	7
Permitted Phases	1 8			1 2 5 6	8							
Detector Phase	1	1		1 2 5 6	1					7	7	7
Switch Phase												
Minimum Initial (s)										7.0	7.0	7.0
Minimum Split (s)										13.2	13.2	13.2
Total Split (s)										21.2	21.2	21.2
Total Split (%)										12.6%	12.6%	12.6%
Maximum Green (s)										15.0	15.0	15.0
Yellow Time (s)										3.7	3.7	3.7
All-Red Time (s)										2.5	2.5	2.5
Lost Time Adjust (s)										0.0	0.0	0.0
Total Lost Time (s)										6.2	6.2	6.2
Lead/Lag										Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)										1.0	1.0	1.0
Recall Mode										None	None	None
Act Effct Green (s)	24.0	24.0			115.6					37.5	37.5	37.5
Actuated g/C Ratio	0.14	0.14			0.69					0.22	0.22	0.22
v/c Ratio	1.02	1.97			0.63					0.79	0.81	0.24
Control Delay	212.6	475.6			10.3					76.3	77.3	3.8
Queue Delay	0.0	0.2			23.3					41.9	47.4	0.0
Total Delay	212.6	475.8			33.5					118.2	124.7	3.8
LOS	F	F			C					F	F	A
Approach Delay		464.8			33.5						103.0	
Approach LOS		F			C						F	

Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Lane Configurations							
Traffic Volume (vph)							
Future Volume (vph)							
Ideal Flow (vphpl)							
Storage Length (ft)							
Storage Lanes							
Taper Length (ft)							
Lane Util. Factor							
Frt							
Flt Protected							
Satd. Flow (prot)							
Flt Permitted							
Satd. Flow (perm)							
Right Turn on Red							
Satd. Flow (RTOR)							
Link Speed (mph)							
Link Distance (ft)							
Travel Time (s)							
Peak Hour Factor							
Adj. Flow (vph)							
Shared Lane Traffic (%)							
Lane Group Flow (vph)							
Turn Type							
Protected Phases	1	2	3	4	5	6	8
Permitted Phases							
Detector Phase							
Switch Phase							
Minimum Initial (s)	15.0	1.0	7.0	1.0	5.0	10.0	1.0
Minimum Split (s)	21.2	6.4	11.0	3.1	10.2	17.5	3.1
Total Split (s)	30.1	6.4	21.0	3.1	20.2	87.5	3.1
Total Split (%)	18%	4%	12%	2%	12%	52%	2%
Maximum Green (s)	24.0	1.0	17.0	1.0	15.0	80.0	1.0
Yellow Time (s)	4.2	4.2	3.0	2.0	4.2	5.0	2.0
All-Red Time (s)	1.9	1.2	1.0	0.1	1.0	2.5	0.1
Lost Time Adjust (s)							
Total Lost Time (s)							
Lead/Lag			Lead	Lag	Lead	Lag	Lag
Lead-Lag Optimize?							
Vehicle Extension (s)	3.0	0.2	1.0	0.2	1.0	3.0	0.2
Recall Mode	Min	C-Max	None	None	None	None	None
Act Effct Green (s)							
Actuated g/C Ratio							
v/c Ratio							
Control Delay							
Queue Delay							
Total Delay							
LOS							
Approach Delay							
Approach LOS							



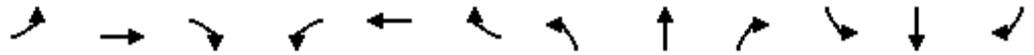
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Lane Group	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6	Ø8
Queue Length 50th (ft)							
Queue Length 95th (ft)							
Internal Link Dist (ft)							
Turn Bay Length (ft)							
Base Capacity (vph)							
Starvation Cap Reductn							
Spillback Cap Reductn							
Storage Cap Reductn							
Reduced v/c Ratio							
Intersection Summary							

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FedEx- Middletown  
103: Ind Park/I91SB & Rte 372

2030 Full Build  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗↗	↘
Traffic Volume (vph)	119	1201	95	73	797	157	174	22	353	461	259	380
Future Volume (vph)	119	1201	95	73	797	157	174	22	353	461	259	380
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	325		125	375		0	460		325
Storage Lanes	1		1	1		1	1		1	1		2
Taper Length (ft)	25			50			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	0.95	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1568	1752	3539	1583	1752	1845	1568	1770	3505	1583
Flt Permitted	0.950			0.950			0.554			0.742		
Satd. Flow (perm)	1770	3539	1568	1752	3539	1583	1022	1845	1568	1382	3505	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			177			137			384			413
Link Speed (mph)		40			40			35				35
Link Distance (ft)		232			1355			1167				741
Travel Time (s)		4.0			23.1			22.7				14.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%	3%	3%	3%	2%	3%	2%
Adj. Flow (vph)	129	1305	103	79	866	171	189	24	384	501	282	413
Shared Lane Traffic (%)												
Lane Group Flow (vph)	129	1305	103	79	866	171	189	24	384	501	282	413
Turn Type	Prot	NA	Free	Prot	NA	custom	pm+pt	NA	Free	pm+pt	NA	Prot
Protected Phases	7	1 2 4		3	1 8	1	5	6		5	6	6
Permitted Phases			Free				6		Free	6		
Detector Phase	7	1 2 4		3	1 8	1	5	6		5 6	6	6
Switch Phase												
Minimum Initial (s)	7.0			7.0		15.0	5.0	10.0		5.0	10.0	10.0
Minimum Split (s)	13.2			11.0		21.2	10.2	17.5		10.2	17.5	17.5
Total Split (s)	21.2			21.0		30.1	20.2	87.5		20.2	87.5	87.5
Total Split (%)	12.6%			12.5%		17.9%	12.0%	51.9%		12.0%	51.9%	51.9%
Maximum Green (s)	15.0			17.0		24.0	15.0	80.0		15.0	80.0	80.0
Yellow Time (s)	3.7			3.0		4.2	4.2	5.0		4.2	5.0	5.0
All-Red Time (s)	2.5			1.0		1.9	1.0	2.5		1.0	2.5	2.5
Lost Time Adjust (s)	0.0			0.0		0.0	0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.2			4.0		6.1	5.2	7.5		5.2	7.5	7.5
Lead/Lag	Lead			Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.0			1.0		3.0	1.0	3.0		1.0	3.0	3.0
Recall Mode	None			None		Min	None	None		None	None	None
Act Effct Green (s)	37.5	61.9	168.5	11.3	24.0	24.0	74.8	57.5	168.5	74.8	57.5	57.5
Actuated g/C Ratio	0.22	0.37	1.00	0.07	0.14	0.14	0.44	0.34	1.00	0.44	0.34	0.34
v/c Ratio	0.33	1.00	0.07	0.68	1.72	0.50	0.36	0.04	0.24	0.77	0.24	0.51
Control Delay	78.1	35.7	0.0	103.1	370.6	21.5	26.5	31.5	0.4	43.9	38.5	4.7
Queue Delay	2.3	35.8	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.5	71.5	0.0	103.1	372.9	21.5	26.5	31.5	0.4	43.9	38.5	4.7
LOS	F	E	A	F	F	C	C	C	A	D	D	A
Approach Delay		67.4			300.0			9.9			29.1	

Lane Group	Ø2	Ø4	Ø8
Lane Configurations			
Traffic Volume (vph)			
Future Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Lane Util. Factor			
Frt			
Flt Protected			
Satd. Flow (prot)			
Flt Permitted			
Satd. Flow (perm)			
Right Turn on Red			
Satd. Flow (RTOR)			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Peak Hour Factor			
Heavy Vehicles (%)			
Adj. Flow (vph)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	2	4	8
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	1.0	1.0	1.0
Minimum Split (s)	6.4	3.1	3.1
Total Split (s)	6.4	3.1	3.1
Total Split (%)	4%	2%	2%
Maximum Green (s)	1.0	1.0	1.0
Yellow Time (s)	4.2	2.0	2.0
All-Red Time (s)	1.2	0.1	0.1
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag		Lag	Lag
Lead-Lag Optimize?			
Vehicle Extension (s)	0.2	0.2	0.2
Recall Mode	C-Max	None	None
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS	E			F			A			C		
Queue Length 50th (ft)	95	~475	0	87	~738	33	120	18	0	397	116	0
Queue Length 95th (ft)	m84	m#648	m0	145	#876	114	139	34	0	410	131	63
Internal Link Dist (ft)	152			1275			1087			661		
Turn Bay Length (ft)				325			125			460		
Base Capacity (vph)	394	1300	1568	176	504	342	518	875	1568	832	1664	968
Starvation Cap Reductn	165	317	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	114	0	0	0	0	0	0	23
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	1.33	0.07	0.45	2.22	0.50	0.36	0.03	0.24	0.60	0.17	0.44

Intersection Summary

Area Type: Other  
 Cycle Length: 168.5  
 Actuated Cycle Length: 168.5  
 Offset: 0 (0%), Referenced to phase 2:WBTL, Start of Yellow  
 Natural Cycle: 130  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 1.97  
 Intersection Signal Delay: 107.8      Intersection LOS: F  
 Intersection Capacity Utilization 91.9%      ICU Level of Service F  
 Analysis Period (min) 15  
 ~ Volume exceeds capacity, queue is theoretically infinite.  
 Queue shown is maximum after two cycles.  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.  
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 103: Ind Park/I91SB & Rte 372

#103#103 → Ø4 → Ø1	#102#103#103 ← Ø5	#102#103 ← Ø6	#103 ↙ Ø3
30.1 s	6.4 s	20.2 s	87.5 s
#102#103 → Ø8			#102#103 ↗ Ø7
3.1 s			21.2 s

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Lane Group	Ø2	Ø4	Ø8
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			
Intersection Summary			

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Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↗↗	↖↖	↗	↖↖	↗
Traffic Volume (vph)	609	1411	862	281	363	141
Future Volume (vph)	609	1411	862	281	363	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	725			225	200	110
Storage Lanes	1			1	0	1
Taper Length (ft)	25				75	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Fr <sub>t</sub>				0.850		0.850
Fl <sub>t</sub> Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	3433	1583
Fl <sub>t</sub> Permitted	0.154				0.950	
Satd. Flow (perm)	287	3539	3539	1583	3433	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				265		21
Link Speed (mph)		40	40		35	
Link Distance (ft)		1355	610		341	
Travel Time (s)		23.1	10.4		6.6	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	662	1534	937	305	395	153
Shared Lane Traffic (%)						
Lane Group Flow (vph)	662	1534	937	305	395	153
Turn Type	pm+pt	NA	NA	Perm	Prot	pt+ov
Protected Phases	1	1 2	2		4	1 4
Permitted Phases	1 2			2		1
Detector Phase	1	1 2	2	2	4	4
Switch Phase						
Minimum Initial (s)	5.0		15.0	15.0	7.0	
Minimum Split (s)	9.0		20.7	20.7	11.2	
Total Split (s)	49.0		45.7	45.7	29.2	
Total Split (%)	39.5%		36.9%	36.9%	23.6%	
Maximum Green (s)	45.0		40.0	40.0	25.0	
Yellow Time (s)	3.0		4.2	4.2	3.2	
All-Red Time (s)	1.0		1.5	1.5	1.0	
Lost Time Adjust (s)	0.0		0.0	0.0	0.0	
Total Lost Time (s)	4.0		5.7	5.7	4.2	
Lead/Lag	Lead		Lag	Lag		
Lead-Lag Optimize?						
Vehicle Extension (s)	1.0		6.5	6.5	1.0	
Recall Mode	Min		C-Min	C-Min	None	
Act Effct Green (s)	93.8	97.8	47.0	47.0	17.9	67.2
Actuated g/C Ratio	0.76	0.79	0.38	0.38	0.14	0.54
v/c Ratio	0.87	0.55	0.70	0.40	0.80	0.18
Control Delay	38.2	6.1	37.4	7.4	63.4	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.2	6.1	37.4	7.4	63.4	11.6
LOS	D	A	D	A	E	B
Approach Delay		15.8	30.0		48.9	
Approach LOS		B	C		D	

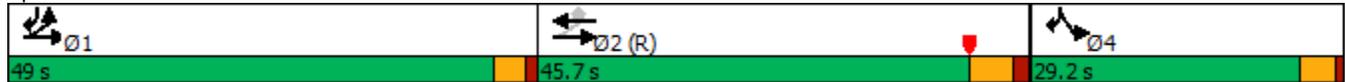


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	371	199	340	21	159	49
Queue Length 95th (ft)	#610	297	446	94	206	76
Internal Link Dist (ft)		1275	530		261	
Turn Bay Length (ft)	725			225	200	110
Base Capacity (vph)	781	2777	1341	764	692	864
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.55	0.70	0.40	0.57	0.18

**Intersection Summary**

Area Type: Other  
 Cycle Length: 123.9  
 Actuated Cycle Length: 123.9  
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow  
 Natural Cycle: 70  
 Control Type: Actuated-Coordinated  
 Maximum v/c Ratio: 0.87  
 Intersection Signal Delay: 24.8  
 Intersection LOS: C  
 Intersection Capacity Utilization 79.5%  
 ICU Level of Service D  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 104: Rte 372 & I91NB





Lane Group	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations						
Traffic Volume (vph)	0	0	0	521	417	0
Future Volume (vph)	0	0	0	521	417	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	0.95	0.95	0.95	0.95
Frt						
Flt Protected						
Satd. Flow (prot)	1267	0	0	3505	3505	0
Flt Permitted						
Satd. Flow (perm)	1267	0	0	3505	3505	0
Link Speed (mph)	25			35	35	
Link Distance (ft)	124			268	1697	
Travel Time (s)	3.4			5.2	33.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	50%	50%	50%	3%	3%	50%
Adj. Flow (vph)	0	0	0	566	453	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	0	0	566	453	0
Sign Control	Stop			Free	Free	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	17.7%
ICU Level of Service	A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0					
Movement	EBL	EBR	NEL	NET	SWT	SWR
Lane Configurations	T			T		
Traffic Vol, veh/h	0	0	0	521	417	0
Future Vol, veh/h	0	0	0	521	417	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	50	50	50	3	3	50
Mvmt Flow	0	0	0	566	453	0

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	736	227	453	0	-	0
Stage 1	453	-	-	-	-	-
Stage 2	283	-	-	-	-	-
Critical Hdwy	7.8	7.9	5.1	-	-	-
Critical Hdwy Stg 1	6.8	-	-	-	-	-
Critical Hdwy Stg 2	6.8	-	-	-	-	-
Follow-up Hdwy	4	3.8	2.7	-	-	-
Pot Cap-1 Maneuver	267	647	828	-	-	-
Stage 1	487	-	-	-	-	-
Stage 2	615	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	267	647	828	-	-	-
Mov Cap-2 Maneuver	267	-	-	-	-	-
Stage 1	487	-	-	-	-	-
Stage 2	615	-	-	-	-	-

Approach	EB	NE	SW
HCM Control Delay, s	0	0	0
HCM LOS	A		

Minor Lane/Major Mvmt	NEL	NET	EBLn1	SWT	SWR
Capacity (veh/h)	828	-	-	-	-
HCM Lane V/C Ratio	-	-	-	-	-
HCM Control Delay (s)	0	-	0	-	-
HCM Lane LOS	A	-	A	-	-
HCM 95th %tile Q(veh)	0	-	-	-	-



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	15	1	1	506	399	18
Future Volume (vph)	15	1	1	506	399	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	240	0			100
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	0.95	0.95	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950					
Satd. Flow (prot)	902	808	0	3499	1845	808
Flt Permitted	0.950					
Satd. Flow (perm)	902	808	0	3499	1845	808
Link Speed (mph)	30			40	40	
Link Distance (ft)	754			943	580	
Travel Time (s)	17.1			16.1	9.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	100%	100%	100%	3%	3%	100%
Adj. Flow (vph)	16	1	1	550	434	20
Shared Lane Traffic (%)						
Lane Group Flow (vph)	16	1	0	551	434	20
Sign Control	Stop			Free	Free	

**Intersection Summary**

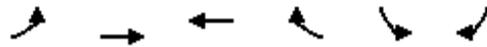
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	31.0% ICU Level of Service A
Analysis Period (min)	15

Intersection						
Int Delay, s/veh	0.4					
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	15	1	1	506	399	18
Future Vol, veh/h	15	1	1	506	399	18
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	Free
Storage Length	0	240	-	-	-	100
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	100	100	100	3	3	100
Mvmt Flow	16	1	1	550	434	20

Major/Minor	Minor2	Major1	Major2			
Conflicting Flow All	711	434	434	0	-	0
Stage 1	434	-	-	-	-	-
Stage 2	277	-	-	-	-	-
Critical Hdwy	8.1	7.7	5.6	-	-	-
Critical Hdwy Stg 1	6.9	-	-	-	-	-
Critical Hdwy Stg 2	7.3	-	-	-	-	-
Follow-up Hdwy	4.45	4.25	3.15	-	-	-
Pot Cap-1 Maneuver	246	428	699	-	-	0
Stage 1	455	-	-	-	-	0
Stage 2	545	-	-	-	-	0
Platoon blocked, %				-	-	
Mov Cap-1 Maneuver	246	428	699	-	-	-
Mov Cap-2 Maneuver	246	-	-	-	-	-
Stage 1	454	-	-	-	-	-
Stage 2	545	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.2	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	EBLn2	SBT
Capacity (veh/h)	699	-	246	428	-
HCM Lane V/C Ratio	0.002	-	0.066	0.003	-
HCM Control Delay (s)	10.2	0	20.7	13.4	-
HCM Lane LOS	B	A	C	B	-
HCM 95th %tile Q(veh)	0	-	0.2	0	-



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↘	↙
Traffic Volume (vph)	119	229	140	75	219	220
Future Volume (vph)	119	229	140	75	219	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>			0.953		0.932	
Fl <sub>t</sub> Protected		0.983			0.976	
Satd. Flow (prot)	0	1825	1769	0	1686	0
Fl <sub>t</sub> Permitted		0.983			0.976	
Satd. Flow (perm)	0	1825	1769	0	1686	0
Link Speed (mph)		30	30		30	
Link Distance (ft)		1107	1054		3274	
Travel Time (s)		25.2	24.0		74.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	2%	2%	3%	3%	2%
Adj. Flow (vph)	129	249	152	82	238	239
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	378	234	0	477	0
Sign Control		Free	Free		Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	66.2%
ICU Level of Service	C
Analysis Period (min)	15

**Intersection**

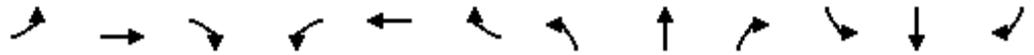
Int Delay, s/veh 25.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	119	229	140	75	219	220
Future Vol, veh/h	119	229	140	75	219	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	3	2	2	3	3	2
Mvmt Flow	129	249	152	82	238	239

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	234	0	-	0	700 193
Stage 1	-	-	-	-	193 -
Stage 2	-	-	-	-	507 -
Critical Hdwy	4.13	-	-	-	6.43 6.22
Critical Hdwy Stg 1	-	-	-	-	5.43 -
Critical Hdwy Stg 2	-	-	-	-	5.43 -
Follow-up Hdwy	2.227	-	-	-	3.527 3.318
Pot Cap-1 Maneuver	1328	-	-	-	404 849
Stage 1	-	-	-	-	837 -
Stage 2	-	-	-	-	603 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1328	-	-	-	358 849
Mov Cap-2 Maneuver	-	-	-	-	358 -
Stage 1	-	-	-	-	742 -
Stage 2	-	-	-	-	603 -

Approach	EB	WB	SB
HCM Control Delay, s	2.7	0	56.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1328	-	-	-	504
HCM Lane V/C Ratio	0.097	-	-	-	0.947
HCM Control Delay (s)	8	0	-	-	56.6
HCM Lane LOS	A	A	-	-	F
HCM 95th %tile Q(veh)	0.3	-	-	-	11.8



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	17	0	6	1	2	2	13	444	1	3	421	22
Future Volume (vph)	17	0	6	1	2	2	13	444	1	3	421	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.962			0.946							0.993
Flt Protected		0.965			0.990			0.999				
Satd. Flow (prot)	0	1729	0	0	1745	0	0	1861	0	0	1850	0
Flt Permitted		0.965			0.990			0.999				
Satd. Flow (perm)	0	1729	0	0	1745	0	0	1861	0	0	1850	0
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		475			567			1776			2021	
Travel Time (s)		10.8			12.9			34.6			45.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	18	0	7	1	2	2	14	483	1	3	458	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	25	0	0	5	0	0	498	0	0	485	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	42.7%
ICU Level of Service	A
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	14.4
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	17	0	6	1	2	2	13	444	1	3	421	22
Future Vol, veh/h	17	0	6	1	2	2	13	444	1	3	421	22
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	18	0	7	1	2	2	14	483	1	3	458	24
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.4	9	14.9	14.3
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	3%	74%	20%	1%
Vol Thru, %	97%	0%	40%	94%
Vol Right, %	0%	26%	40%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	458	23	5	446
LT Vol	13	17	1	3
Through Vol	444	0	2	421
RT Vol	1	6	2	22
Lane Flow Rate	498	25	5	485
Geometry Grp	1	1	1	1
Degree of Util (X)	0.626	0.042	0.009	0.607
Departure Headway (Hd)	4.526	6.02	5.875	4.509
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	797	591	604	800
Service Time	2.557	4.096	3.958	2.541
HCM Lane V/C Ratio	0.625	0.042	0.008	0.606
HCM Control Delay	14.9	9.4	9	14.3
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	4.5	0.1	0	4.2



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	0	56	358	31	102	327
Future Volume (vph)	0	56	358	31	102	327
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.850	0.989			
Fl <sub>t</sub> Protected						0.988
Satd. Flow (prot)	1863	1583	1842	0	0	1840
Fl <sub>t</sub> Permitted						0.988
Satd. Flow (perm)	1863	1583	1842	0	0	1840
Link Speed (mph)	25		35			35
Link Distance (ft)	326		594			1776
Travel Time (s)	8.9		11.6			34.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	61	389	34	111	355
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	61	423	0	0	466
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.2%
ICU Level of Service	A
Analysis Period (min)	15

**Intersection**

Int Delay, s/veh 1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	0	56	358	31	102	327
Future Vol, veh/h	0	56	358	31	102	327
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	61	389	34	111	355

Major/Minor	Minor1	Major1	Major2			
Conflicting Flow All	983	406	0	0	423	0
Stage 1	406	-	-	-	-	-
Stage 2	577	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	276	645	-	-	1136	-
Stage 1	673	-	-	-	-	-
Stage 2	562	-	-	-	-	-
Platoon blocked, %			-	-		
Mov Cap-1 Maneuver	242	645	-	-	1136	-
Mov Cap-2 Maneuver	242	-	-	-	-	-
Stage 1	673	-	-	-	-	-
Stage 2	493	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.2	0	2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	-	645	1136	-
HCM Lane V/C Ratio	-	-	-	0.094	0.098	-
HCM Control Delay (s)	-	-	0	11.2	8.5	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.3	0.3	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	21	14	359	31	46	270
Future Volume (vph)	21	14	359	31	46	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.850	0.989			
Fl <sub>t</sub> Protected	0.950					0.993
Satd. Flow (prot)	1770	1583	1842	0	0	1850
Fl <sub>t</sub> Permitted	0.950					0.993
Satd. Flow (perm)	1770	1583	1842	0	0	1850
Link Speed (mph)	30		35			35
Link Distance (ft)	331		429			594
Travel Time (s)	7.5		8.4			11.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	23	15	390	34	50	293
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	15	424	0	0	343
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	50.9%
Analysis Period (min)	15
	ICU Level of Service A

Intersection						
Int Delay, s/veh	1.2					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	21	14	359	31	46	270
Future Vol, veh/h	21	14	359	31	46	270
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	15	390	34	50	293

Major/Minor	Minor1	Major1	Major2		
Conflicting Flow All	800	407	0	0	424
Stage 1	407	-	-	-	-
Stage 2	393	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12
Critical Hdwy Stg 1	5.42	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218
Pot Cap-1 Maneuver	354	644	-	-	1135
Stage 1	672	-	-	-	-
Stage 2	682	-	-	-	-
Platoon blocked, %			-	-	-
Mov Cap-1 Maneuver	335	644	-	-	1135
Mov Cap-2 Maneuver	335	-	-	-	-
Stage 1	672	-	-	-	-
Stage 2	646	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	14.2	0	1.2
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	WBLn2	SBL	SBT
Capacity (veh/h)	-	-	335	644	1135	-
HCM Lane V/C Ratio	-	-	0.068	0.024	0.044	-
HCM Control Delay (s)	-	-	16.5	10.7	8.3	0
HCM Lane LOS	-	-	C	B	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0.1	-



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	28	21	385	52	46	256
Future Volume (vph)	28	21	385	52	46	256
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.941		0.984			
Flt Protected	0.972					0.992
Satd. Flow (prot)	1704	0	1833	0	0	1848
Flt Permitted	0.972					0.992
Satd. Flow (perm)	1704	0	1833	0	0	1848
Link Speed (mph)	25		35			35
Link Distance (ft)	305		867			429
Travel Time (s)	8.3		16.9			8.4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	23	418	57	50	278
Shared Lane Traffic (%)						
Lane Group Flow (vph)	53	0	475	0	0	328
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	52.8%
Analysis Period (min)	15
	ICU Level of Service A

**Intersection**

Int Delay, s/veh 1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Vol, veh/h	28	21	385	52	46	256
Future Vol, veh/h	28	21	385	52	46	256
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	30	23	418	57	50	278

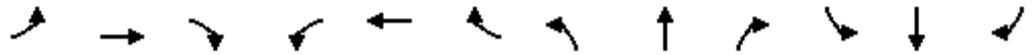
Major/Minor	Minor1	Major1	Major2
Conflicting Flow All	825	447	0
Stage 1	447	-	-
Stage 2	378	-	-
Critical Hdwy	6.42	6.22	-
Critical Hdwy Stg 1	5.42	-	-
Critical Hdwy Stg 2	5.42	-	-
Follow-up Hdwy	3.518	3.318	-
Pot Cap-1 Maneuver	342	612	-
Stage 1	644	-	-
Stage 2	693	-	-
Platoon blocked, %		-	-
Mov Cap-1 Maneuver	324	612	-
Mov Cap-2 Maneuver	324	-	-
Stage 1	644	-	-
Stage 2	656	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.2	0	1.3
HCM LOS	C		

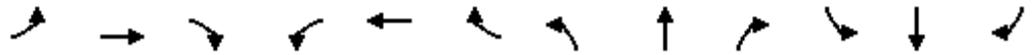
Minor Lane/Major Mvmt	NBT	NBRWBLn1	SBL	SBT
Capacity (veh/h)	-	-	406	1087
HCM Lane V/C Ratio	-	-	0.131	0.046
HCM Control Delay (s)	-	-	15.2	8.5
HCM Lane LOS	-	-	C	A
HCM 95th %tile Q(veh)	-	-	0.4	0.1

FedEx- Middletown  
114: Middle & Bradley/Aetna

2030 Full Build  
Timing Plan: PM Peak Hr



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕	↕	↕	↕	
Traffic Volume (vph)	60	0	57	7	0	7	28	370	3	3	267	35
Future Volume (vph)	60	0	57	7	0	7	28	370	3	3	267	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	14	12	12	12	12	12	12	12	12	12	12
Storage Length (ft)	0		0	0		0	0		175	175		0
Storage Lanes	0		0	0		1	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.934				0.850			0.850		0.983	
Flt Protected		0.975			0.950			0.997		0.950		
Satd. Flow (prot)	0	1809	0	0	1770	1583	0	1857	1583	1770	1831	0
Flt Permitted		0.835			0.832			0.965		0.384		
Satd. Flow (perm)	0	1550	0	0	1550	1583	0	1798	1583	715	1831	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109				191			191		19	
Link Speed (mph)		25			30			35			35	
Link Distance (ft)		519			341			3417			867	
Travel Time (s)		14.2			7.8			66.6			16.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	0	62	8	0	8	30	402	3	3	290	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	127	0	0	8	8	0	432	3	3	328	0
Turn Type	Perm	NA		Perm	NA	Free	Perm	NA	Free	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		Free	2		Free	6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0		15.0	15.0		5.0	15.0	
Minimum Split (s)	11.5	11.5		11.5	11.5		19.5	19.5		9.5	19.5	
Total Split (s)	20.0	20.0		20.0	20.0		30.0	30.0		10.0	40.0	
Total Split (%)	33.3%	33.3%		33.3%	33.3%		50.0%	50.0%		16.7%	66.7%	
Maximum Green (s)	15.5	15.5		15.5	15.5		25.5	25.5		5.5	35.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0		0.0	0.0	
Total Lost Time (s)		4.5			4.5			4.5		4.5	4.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Min	Min		None	Min	
Act Effct Green (s)		7.7			7.7	37.6		22.6	37.6	23.1	24.1	
Actuated g/C Ratio		0.20			0.20	1.00		0.60	1.00	0.61	0.64	
v/c Ratio		0.32			0.03	0.01		0.40	0.00	0.01	0.28	
Control Delay		7.4			13.6	0.0		8.3	0.0	4.0	4.9	
Queue Delay		0.0			0.0	0.0		0.0	0.0	0.0	0.0	
Total Delay		7.4			13.6	0.0		8.3	0.0	4.0	4.9	
LOS		A			B	A		A	A	A	A	
Approach Delay		7.4			6.8			8.3			4.9	

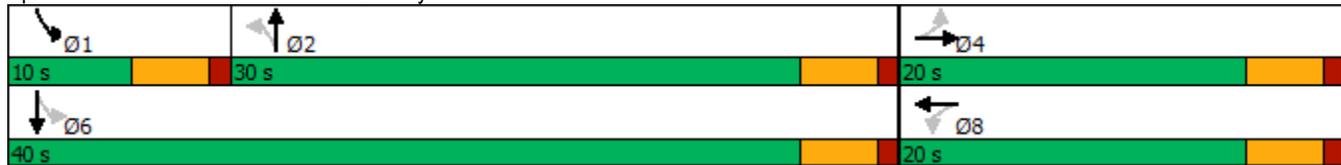


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		A			A			A				A
Queue Length 50th (ft)		2			1	0		40	0	0		26
Queue Length 95th (ft)		38			10	0		162	0	2		62
Internal Link Dist (ft)		439			261			3337				787
Turn Bay Length (ft)									175	175		
Base Capacity (vph)		723			661	1583		1356	1583	599		1673
Starvation Cap Reductn		0			0	0		0	0	0		0
Spillback Cap Reductn		0			0	0		0	0	0		0
Storage Cap Reductn		0			0	0		0	0	0		0
Reduced v/c Ratio		0.18			0.01	0.01		0.32	0.00	0.01		0.20

**Intersection Summary**

Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	37.6
Natural Cycle:	45
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.40
Intersection Signal Delay:	6.9
Intersection LOS:	A
Intersection Capacity Utilization:	61.9%
ICU Level of Service:	B
Analysis Period (min):	15

**Splits and Phases: 114: Middle & Bradley/Aetna**





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	428	129	201	136	190	218
Future Volume (vph)	428	129	201	136	190	218
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.969		0.945			
Flt Protected	0.963					0.977
Satd. Flow (prot)	1721	0	1743	0	0	1802
Flt Permitted	0.963					0.450
Satd. Flow (perm)	1721	0	1743	0	0	830
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)	19		47			
Link Speed (mph)	30		35			35
Link Distance (ft)	1107		4763			3417
Travel Time (s)	25.2		92.8			66.6
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	465	140	218	148	207	237
Shared Lane Traffic (%)						
Lane Group Flow (vph)	605	0	366	0	0	444
Turn Type	Perm		NA		pm+pt	NA
Protected Phases			2		1	6
Permitted Phases	8				6	
Detector Phase	8		2		1	6
Switch Phase						
Minimum Initial (s)	5.0		15.0		5.0	15.0
Minimum Split (s)	22.5		22.5		9.5	22.5
Total Split (s)	38.0		42.5		9.5	52.0
Total Split (%)	42.2%		47.2%		10.6%	57.8%
Maximum Green (s)	33.5		38.0		5.0	47.5
Yellow Time (s)	3.5		3.5		3.5	3.5
All-Red Time (s)	1.0		1.0		1.0	1.0
Lost Time Adjust (s)	0.0		0.0			0.0
Total Lost Time (s)	4.5		4.5			4.5
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Recall Mode	None		Min		Max	Min
Walk Time (s)	7.0		7.0			7.0
Flash Dont Walk (s)	11.0		11.0			11.0
Pedestrian Calls (#/hr)	0		0			0
Act Effct Green (s)	31.4		33.1			42.9
Actuated g/C Ratio	0.38		0.40			0.51
v/c Ratio	0.92		0.51			0.91
Control Delay	46.9		19.2			43.7
Queue Delay	0.0		0.0			0.0
Total Delay	46.9		19.2			43.7
LOS	D		B			D
Approach Delay	46.9		19.2			43.7



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Approach LOS	D		B			D
Queue Length 50th (ft)	316		127			149
Queue Length 95th (ft)	#532		206			#311
Internal Link Dist (ft)	1027		4683			3337
Turn Bay Length (ft)						
Base Capacity (vph)	720		840			545
Starvation Cap Reductn	0		0			0
Spillback Cap Reductn	0		0			0
Storage Cap Reductn	0		0			0
Reduced v/c Ratio	0.84		0.44			0.81

**Intersection Summary**

Area Type: Other  
 Cycle Length: 90  
 Actuated Cycle Length: 83.5  
 Natural Cycle: 90  
 Control Type: Actuated-Uncoordinated  
 Maximum v/c Ratio: 0.92  
 Intersection Signal Delay: 38.7  
 Intersection LOS: D  
 Intersection Capacity Utilization 83.7%  
 ICU Level of Service E  
 Analysis Period (min) 15  
 # 95th percentile volume exceeds capacity, queue may be longer.  
 Queue shown is maximum after two cycles.

Splits and Phases: 115: Middle & Smith





Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	270	23	264	0	0	640
Future Volume (vph)	270	23	264	0	0	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.989					
Flt Protected	0.956					
Satd. Flow (prot)	1761	0	1863	0	0	1863
Flt Permitted	0.956					
Satd. Flow (perm)	1761	0	1863	0	0	1863
Link Speed (mph)	30		30			30
Link Distance (ft)	888		541			4763
Travel Time (s)	20.2		12.3			108.3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	293	25	287	0	0	696
Shared Lane Traffic (%)						
Lane Group Flow (vph)	318	0	287	0	0	696
Sign Control	Stop		Free			Free

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.7%
Analysis Period (min)	15
	ICU Level of Service B

**Intersection**

Int Delay, s/veh	29.6					
<b>Movement</b>	<b>WBL</b>	<b>WBR</b>	<b>NBT</b>	<b>NBR</b>	<b>SBL</b>	<b>SBT</b>
Lane Configurations	↘↘		↑			↑
Traffic Vol, veh/h	270	23	264	0	0	640
Future Vol, veh/h	270	23	264	0	0	640
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	293	25	287	0	0	696

<b>Major/Minor</b>	<b>Minor1</b>	<b>Major1</b>	<b>Major2</b>			
Conflicting Flow All	983	287	0	-	-	-
Stage 1	287	-	-	-	-	-
Stage 2	696	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	-	-
Pot Cap-1 Maneuver	~ 276	752	-	0	0	-
Stage 1	762	-	-	0	0	-
Stage 2	495	-	-	0	0	-
Platoon blocked, %			-			-
Mov Cap-1 Maneuver	~ 276	752	-	-	-	-
Mov Cap-2 Maneuver	~ 276	-	-	-	-	-
Stage 1	762	-	-	-	-	-
Stage 2	495	-	-	-	-	-

<b>Approach</b>	<b>WB</b>	<b>NB</b>	<b>SB</b>
HCM Control Delay, s	120.9	0	0
HCM LOS	F		

<b>Minor Lane/Major Mvmt</b>	<b>NBTWBLn1</b>	<b>SBT</b>
Capacity (veh/h)	- 290	-
HCM Lane V/C Ratio	- 1.098	-
HCM Control Delay (s)	- 120.9	-
HCM Lane LOS	- F	-
HCM 95th %tile Q(veh)	- 12.9	-

**Notes**

~: Volume exceeds capacity    \$: Delay exceeds 300s    +: Computation Not Defined    \*: All major volume in platoon



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Volume (vph)	37	197	51	79	169	220	0	0	0	227	424	248
Future Volume (vph)	37	197	51	79	169	220	0	0	0	227	424	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.976			0.937							0.963
Flt Protected		0.994			0.992							0.988
Satd. Flow (prot)	0	1807	0	0	1731	0	0	0	0	0	1772	0
Flt Permitted		0.994			0.992							0.988
Satd. Flow (perm)	0	1807	0	0	1731	0	0	0	0	0	1772	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		832			1070			907			541	
Travel Time (s)		18.9			24.3			20.6			12.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	214	55	86	184	239	0	0	0	247	461	270
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	309	0	0	509	0	0	0	0	0	978	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

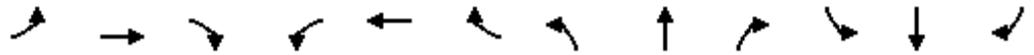
Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	95.6%
ICU Level of Service	F
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	204.7
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕						↕	
Traffic Vol, veh/h	37	197	51	79	169	220	0	0	0	227	424	248
Future Vol, veh/h	37	197	51	79	169	220	0	0	0	227	424	248
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	40	214	55	86	184	239	0	0	0	247	461	270
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	22.7	46	345.1
HCM LOS	C	E	F

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	17%	25%
Vol Thru, %	69%	36%	47%
Vol Right, %	18%	47%	28%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	285	468	899
LT Vol	37	79	227
Through Vol	197	169	424
RT Vol	51	220	248
Lane Flow Rate	310	509	977
Geometry Grp	1	1	1
Degree of Util (X)	0.578	0.878	1.714
Departure Headway (Hd)	8.604	7.961	6.314
Convergence, Y/N	Yes	Yes	Yes
Cap	424	458	586
Service Time	6.604	5.961	4.314
HCM Lane V/C Ratio	0.731	1.111	1.667
HCM Control Delay	22.7	46	345.1
HCM Lane LOS	C	E	F
HCM 95th-tile Q	3.5	9.2	57.3



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕				
Traffic Volume (vph)	95	328	0	0	247	79	222	0	247	0	0	0
Future Volume (vph)	95	328	0	0	247	79	222	0	247	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>					0.967			0.929				
Fl <sub>t</sub> Protected		0.989						0.977				
Satd. Flow (prot)	0	1842	0	0	1801	0	0	1691	0	0	0	0
Fl <sub>t</sub> Permitted		0.989						0.977				
Satd. Flow (perm)	0	1842	0	0	1801	0	0	1691	0	0	0	0
Link Speed (mph)		30			30			30				30
Link Distance (ft)		1070			714			989				751
Travel Time (s)		24.3			16.2			22.5				17.1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	357	0	0	268	86	241	0	268	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	460	0	0	354	0	0	509	0	0	0	0
Sign Control		Stop			Stop			Stop			Stop	

**Intersection Summary**

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	77.8%
ICU Level of Service	D
Analysis Period (min)	15

Intersection	
Intersection Delay, s/veh	30.9
Intersection LOS	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔				
Traffic Vol, veh/h	95	328	0	0	247	79	222	0	247	0	0	0
Future Vol, veh/h	95	328	0	0	247	79	222	0	247	0	0	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	103	357	0	0	268	86	241	0	268	0	0	0
Number of Lanes	0	1	0	0	1	0	0	1	0	0	0	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left		NB	EB
Conflicting Lanes Left	0	1	1
Conflicting Approach Right	NB		WB
Conflicting Lanes Right	1	0	1
HCM Control Delay	32.2	20	37.2
HCM LOS	D	C	E

Lane	NBLn1	EBLn1	WBLn1
Vol Left, %	47%	22%	0%
Vol Thru, %	0%	78%	76%
Vol Right, %	53%	0%	24%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	469	423	326
LT Vol	222	95	0
Through Vol	0	328	247
RT Vol	247	0	79
Lane Flow Rate	510	460	354
Geometry Grp	1	1	1
Degree of Util (X)	0.87	0.818	0.633
Departure Headway (Hd)	6.146	6.407	6.43
Convergence, Y/N	Yes	Yes	Yes
Cap	591	566	560
Service Time	4.188	4.459	4.486
HCM Lane V/C Ratio	0.863	0.813	0.632
HCM Control Delay	37.2	32.2	20
HCM Lane LOS	E	D	C
HCM 95th-tile Q	9.8	8.2	4.4

