

Preston Avenue and Baldwin Avenue Corridor Study



Meriden, CT
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Prepared For:



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1 Introduction

Fuss and O'Neill has prepared this Corridor Study for the South Central Regional Council of Governments (SCRCOG) on behalf of the City of Meriden to evaluate the existing transportation performance of Preston Avenue and Baldwin Avenue from East Main Street to Bee Street. Preston Avenue runs approximately 6,000' north/south between East Main Street and Interstate 91 while Baldwin Avenue is a continuation of Preston Avenue and is approximately 4,000' long in an east/west orientation between Interstate 91 and Bee Street. A project location map is presented in *Figure 1*.

This study will be used as a planning tool by the City to evaluate and prioritize potential roadway improvements along the corridor. This study establishes the existing conditions of the roadway which will include pavement conditions, sight distances, drainage, utilities, and geometry. The study will identify existing deficiencies and will recommend potential improvements. Construction cost information is provided so that the City can prioritize improvements within the corridor.

2 Existing Conditions

A comprehensive field inventory of the study area roadway system was performed in April 2010. The inventory included documentation of existing roadway and intersection geometry, pavement conditions, sidewalk presence, drainage systems, and traffic control devices along the corridor.

2.1 Overview of Corridor

2.1.1 Preston Avenue

Preston Avenue is a two lane roadway oriented in a north-south direction, connecting Interstate 91 to East Main Street. Preston Avenue is bisected by Route 66 and is fronted by a number of land uses. The Connecticut Police Academy, Meriden Executive Office development, a handful of small businesses, and various residential properties are all located on Preston Avenue. The roadway is functionally classified as an Urban Minor Arterial according to the Connecticut Department of Transportation (CTDOT) and has a posted speed limit of 35 miles per hour. There is no on-street parking or bicycle facilities along this roadway and sidewalks are limited.

Automated traffic recorder counts were collected on Preston Avenue, south of the I-91 ramps, in June 2010. The counts were collected bi-directionally over a 48-hour period along with speed data. Based on the counts, the existing weekday average daily traffic on Preston Avenue is 3,900 vehicles per day, with 1,700 vehicles traveling northbound and 2,200 vehicles traveling southbound. The 85th percentile speed for Preston Avenue, south of the I-91 ramps was 44 miles per hour northbound and 47 miles per hour southbound. Based on field observations and roadway geometry, this should not be considered the uniform speed of traffic. Further speed evaluations should be performed along the corridor. Automated traffic recorder counts data are presented in *Appendix A*.

2.1.2 Baldwin Avenue

Baldwin Avenue is a two lane roadway oriented in an east-west direction, continuing from Preston Avenue at Interstate 91 to its termination at North Wall Street, west of Route 15. The corridor study limit, Bee Street, is located between Interstate 91 and Route 15. The land use on Baldwin Avenue is primarily residential with some commercial development near Interstate 91. The posted speed limit is 25 miles per hour. Baldwin Avenue is classified as an Urban Collector Street by CTDOT for most of its length. The segment between the Interstate 91 on and off-ramps is classified as an Urban Minor Arterial. There is no on-street parking or bicycle facilities along this roadway. Sidewalks are present along most of Baldwin Avenue, though discontinuities exist.

Automated traffic recorder counts were collected on Baldwin Avenue; however, the recorder was damaged during the data collection process and no data was retrievable.

2.2 Existing Roadway Segments and Intersection Conditions

There are seven distinct road segments (each about a quarter mile long) and are presented linearly in terms of geography, from East Main Street to Bee Street. Each roadway segment description includes a summary of the geometry, roadway widths, and pavement condition. The intersections that are present within each particular roadway segment are further described with the relevant intersection sight distance at stop-controlled intersections, pavement conditions, drainage structures present, and pavement marking condition. Town GIS data was utilized in reviewing existing horizontal and vertical geometry.

Intersection sight distances were measured at each intersection in accordance with criteria set forth in the 2003 CTDOT Highway Design Manual. Adequate intersection sight distances are required for intersection designs to maintain safe sight distances for motorists to enter or cross an intersection safely without disrupting the flow of traffic on the roadway. Intersection sight distances are a desired requirement while stopping sight distances are required.

Design criteria to be followed are listed in CTDOT's Highway Design Manual, 2003 edition. Specifically, relevant guidelines are shown for 3R Non-Freeway Projects classified as Minor Urban Arterials and Urban Collector Streets. The selected design speed was based on the CTDOT HDM for a Minor Urban Arterial and an Urban Collector Street in a suburban area. This speed is 5 miles per hour above the posted speed limit and is appropriate for the residential context of the corridor. This study analyzes the existing roadway through context sensitive design (CSD) procedures.

CSD, as defined by the Federal Highway Administration, is "a collaborative, interdisciplinary approach that involves all stakeholders to develop a transportation facility that fits its physical setting and preserves scenic, aesthetic, historic and environmental resources, while maintaining safety and mobility." One of design controls that CSD differs from historical practice is the use of speed data. Historically, it has been the practice to design the roadway for the 85th percentile speed. This approach has the potential to promote speeds that are not consistent with the adjacent land use/environment. It should be noted that the CSD approach as used herein may

underestimate geometric related deficiencies. In these instances, increased enforcement and traffic calming measures should be considered.

According to the Manual, design parameters for Minor Urban Arterials, Figure 2-3H (Suburban Areas, 40 mph design speed) are:

- Travel lane width: 11' – 12'
- Shoulder width (non-NHS): 2' - 8'
- Parking lanes: N/A
- Bike lanes: 5', if present
- Sidewalk width: 5' minimum, if present
- Stopping sight distance: 305'
- Intersection sight distance: 445'
- Minimum Radius: 655' (Low Speed Urban)
- Grade: 0.5% - 12%
- Sag Vertical Curve K-Value: 64 (Headlight) – 35 (Comfort)
- Crest Vertical Curve K-Value: 44
- Vertical clearance for bridges: 14'-3"

According to the Manual, design parameters for Urban Collector Street, Figure 2-3H (Suburban Area, 30 mph design speed) are:

- Travel lane width: 10' – 12'
- Shoulder width (non-NHS): 2' - 8'
- Parking lanes: 7' - 10', if present
- Bike lanes: 5', if present
- Sidewalk width: 5' minimum, if present
- Stopping sight distance: 200'
- Intersection sight distance: 335'
- Minimum Radius: 295' (Low Speed Urban)
- Grade: 0.5% - 13%
- Sag Vertical Curve K-Value: 37 (Headlight) – 20 (Comfort)
- Crest Vertical Curve K-Value: 19

Detailed accident data was requested from the City of Meriden's Police Department for the last five years on record from 2005 to 2010. To date, only a general accident summary has been received. The only accidents reported by the City to have occurred within the corridor are at the intersection of Preston Avenue at East Main Street / Pomeroy Avenue / Cone Avenue. According to the City of Meriden Police Department, 48 accidents have occurred at the intersection with 9 involving injuries. CTDOT accident data was researched from 2006-2008 for the intersections of Preston Avenue at Route 66 and Baldwin Avenue at I-91. The results of the analysis revealed that 5 accidents have occurred at the intersection of Preston Avenue at the Route 66 off-ramp and 4 accidents at the Baldwin Avenue at I-91 off-ramp intersection.

Additional details beyond the summary total were not provided. It is presumed from the roadway geometry and visual evidence, that these accidents follow typical patterns associated with intersections and roadways of this type. These patterns include roadside fixed objects and turning movement counts. The overall totals indicate no significant accident pattern exists. In addition, no fatalities were recorded.

2.2.1 Preston Avenue - East Main Street to Parker Road

This segment of Preston Avenue is approximately 1,150' long and rises in elevation from East Main Street to Parker Road. The profile grade of the roadway ranges between 8.0% and 9.0% from the East Main Street intersection for 600'. The profile then reduces to a grade of 4.8% towards Parker Road. There is a vertical sag curve at the intersection of East Main Street which has a K-value of 20. This sag vertical curve is substandard for both headlight and comfort criteria. The horizontal geometry of Preston Avenue through this segment has many curves as it bends towards the west. The minimum horizontal radius is 700'. There is one travel lane in each direction and the roadway is 28'± wide, providing 12' travel lanes with 2'± shoulders.



Protruding drainage inlet on southbound Preston Avenue before intersection with East Main Street

The pavement is in fair to poor condition with longitudinal cracking, edge raveling, and several patches. Pavement markings are in fair to poor condition and are fading at various spots. Various objects are located within the clear zone of the roadway segment including drainage and landscape features. For example, a drop inlet with a protruding cement cover is located on the right side of the street (southbound) approximately 300' from the East Main Street intersection. A number of other drainage inlets have outdated designs and may not be as effective in collecting surface runoff as desired. No sidewalks are present, though a number of pedestrians were observed during the field visit walking on the shoulder at the southern end of the corridor. Land uses along this segment include residential, nursing home, small business, and agricultural properties.

2.2.1.1 East Main Street / Pomeroy Avenue / Cone Avenue Intersection

Preston Avenue terminates at the intersection of East Main Street / Pomeroy Avenue / Cone Avenue. The intersection is signalized and has five legs: East Main Street to the east and west, Preston Avenue to the north, Cone Avenue to the southeast, and Pomeroy Avenue to the southwest. All of the roadways have two travel lanes, one in each direction. East Main Street is classified as an Urban Principal Arterial and has an exclusive left turn lane in the eastbound direction; all other turning movements occur from shared lanes. At this location, the major street, East Main Street, has a posted speed limit of 30 miles per hour.

An existing vertical sag curve on Preston Avenue exists at the intersection with East Main Street. Preston Avenue has a 60 degree approach angle at East Main Street. Intersection sight distance from Preston Avenue to the east was measured at 240' and over 450' to the west. Some landscape obstructions are present which is minimizing intersection sight distance to the east. The measured intersection sight distance looking east is insufficient compared to the recommended intersection sight distance of 390' and the required 250' for stopping sight distance for a 35 mile per hour design speed for East Main Street.



East Main Street at Preston Avenue / Pomeroy and Cone Avenues looking east

Cone Avenue is classified as a Local Street and the northbound Cone Avenue approach is aligned at a 60 degree angle to East Main Street. Intersection sight distance to the west was measured at 205' and over 450' to the east. Significant topographical challenges obstruct the view to the west, namely a steeply sloped lot containing a residence set back approximately 65' from the street. The measured intersection sight distance looking west is insufficient compared to the recommended intersection sight distance of 390' and the required 250' for stopping sight distance for a 35 mile per hour design speed for East Main Street.

Pomeroy Avenue is classified as a Local Street and is the fifth leg of the intersection which meets East Main Street at a 45 degree angle. Though it is offset 50' to the west of the Preston Avenue approach, the current traffic signal phasing treats these approaches in coordination. Intersection sight distance looking west was measured at 150' and 450' looking east along East Main Street. A thick tree line bordering the roadway is a primary reason for reduced driver visibility towards the west. The measured intersection sight distance looking west is insufficient compared to the recommended intersection sight distance of 390' and the required 250' for stopping sight distance for a 35 mile per hour design speed for East Main Street.

A single pedestrian crosswalk extends from the northwest corner of the intersection to a location across East Main Street between Cone and Pomeroy Avenues. No sidewalks or curb ramps are present at either end and there are no pedestrian signal heads. The southern end of

the crosswalk has a very small landing area and is a questionable terminus location. Due to the alignment of intersection approaches and corresponding vehicular traffic signals, it is difficult to use these signals as a secondary visual aid for safe street crossing. Pavement markings are in good to fair shape with some sections showing wear.

Inspection of pavement conditions revealed wear on every approach. Longitudinal cracking was observed on East Main Street, and extensive pavement distress was present on the other three approaches. A number of utility patches were implemented on the Preston and Cone Avenue approaches. Due to the topography of minor street intersection approaches, evidence of roadway ponding was observed at the bottom of the two northbound approaches. Gutters and catch basins on Preston Avenue diverted most water runoff from this approach into a watercourse, though adjacent curbing and driveways exhibited erosion. An off-street catch basin located in a landscaped area of the property to the northeast of the intersection was mostly occluded by debris. A gravel driveway on the right side of the Preston Avenue (southbound direction) intersects the road at its low point; thus, no catch basin is present here and runoff continues overland across the driveway and into the watercourse.

At the request of the City of Meriden, an intersection capacity analysis was performed for the East Main Street/Pomeroy Avenue/Cone Avenue Intersection. The analysis was conducted using Synchro Professional Software, version 7.0.

In discussing intersection capacity analyses results, two terms are used to describe the operating condition of the road or intersection. These two terms are volume to capacity ratio (v/c) and level of service (LOS).

The v/c ratio is a ratio of the volume of traffic using an intersection to the total capacity of the intersection (the maximum number of vehicles that can utilize the intersection during an hour). The v/c ratio can be used to describe the percentage of capacity utilized by a single intersection movement, a combination of movements, an entire intersection approach, or the intersection as a whole.

LOS is a measure of the delay experienced by stopped vehicles at an intersection. LOS is rated on a scale from A to F, with A describing a condition of very low delay (less than 10 seconds per vehicle), and F describing a condition where delays will exceed 50 seconds per vehicle for unsignalized intersections and 80 seconds per vehicle for signalized intersections. Delay is described as a measure of driver discomfort, frustration, fuel consumption, and lost travel time. Therefore, intersections with longer delay times are less acceptable to most drivers.

LOS is generally used to describe the operation (based on delay time) of both signalized and unsignalized intersections, while v/c ratio is applied to signalized intersections only. These definitions for v/c ratio and LOS, as well as the methodology for conducting signalized and unsignalized intersection capacity analyses, are taken from the "2000 Highway Capacity Manual" published by the Transportation Research Board.

Turning movement counts were collected in June 2010 at the intersection during the morning peak period (7 AM – 9 AM) and the afternoon peak period (4 PM – 6 PM). The peak hours of the intersection were observed to be 7:30 – 8:30 AM during the morning and 4:45 – 5:45 PM during the afternoon. Signal timings were observed in the field. Turning movement count data

are presented in *Appendix A*. The results of the intersection capacity analysis for the 2010 weekday morning and afternoon peak periods are presented in *Table 1*. Copies of the Synchro analysis worksheets can be found in *Appendix B*.

Table 1
2010 Weekday Level of Service Analysis – Preston Avenue at East Main Street

Approach and Movement	Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio
East Main St. Eastbound - Left	20.4	C	63	0.52	52.0	D	215	0.96
East Main St. Eastbound - Through/Right	18.5	B	133	0.49	24.0	C	332	0.81
East Main St. Westbound - Left/Through/Right	26.9	C	168	0.68	29.8	C	198	0.74
Pomeroy Ave. Northbound - Left/Through/Right	16.9	B	17	0.03	21.3	C	19	0.05
Preston Ave. Southbound - Left/Through/Right	22.0	C	60	0.43	86.0	F	245	1.03
Cone Ave. Northwestbound - Left/Through/Right	43.0	D	112	0.68	44.5	D	136	0.69
Overall	24.5	C	N/A	0.56	44.5	D	N/A	0.81

The results of the analysis show that the LOS for the overall intersection and individual movements operate at LOS D or better for both peak hours except for the Preston Avenue southbound weekday afternoon peak hour approach, which operates at LOS F. In addition the v/c ratio for Preston Avenue southbound is above 1.00 during the weekday afternoon peak hour.

2.2.1.2 Parker Road Intersection

Parker Road meets Preston Avenue to form a stop-controlled T-intersection. Parker Road is classified as a Local Street, is stop-controlled and has a single shared lane for all outbound turning movements. The intersection sight distance from Parker Road looking to the south was measured at 235' and over 450' looking north. The intersection sight distance looking south is inhibited by a steep slope adjacent to the road. The measured intersection sight distance looking south is insufficient compared to the recommended intersection sight



Drainage channel and inlet at intersection of Parker Road and Preston Avenue

distance of 445' and the required 305' for stopping sight distance.

The pavement is in good condition on Parker Road, though it has a few repaired cracks. The stop bar marking on Parker Road is faded. The southbound lane of Preston Avenue exhibits extensive fatigue cracking and the northbound lane has a protruding utility cap in the intersection. On the northeast corner of the intersection, a drainage channel has been constructed to feed roadway runoff into an inlet. The inlet is of atypical design and is partially obstructed by leaves and branches.

2.2.2 Preston Avenue - Parker Road to Route 66 Off-Ramp

Preston Avenue between Parker Road and the Route 66 off-ramp spans a distance of approximately 750' in a north-south orientation. The vertical profile drops from a high point at Clearfield Drive towards the Route 66 off-ramp. The profile grade within this section is approximately 1.8%. The horizontal geometry of Preston Avenue through this segment is fairly straight with a few horizontal curves that have radii over 1,000' which provides a small deflection angle. There is one travel lane in each direction and the roadway width varies between 25' and 28'. Variable width shoulders are present on both sides of the road.

Longitudinal cracking is present along the entire segment as is evidence of small repair patches along the roadway. Pavement markings are faded along the length of the roadway. Outdating guide rail treatment such as wire rope rail and cable guide rail are present on the westbound side of the roadway in the vicinity of the Route 66 off-ramp intersection



Inadequate barrier on southbound lane of Preston Avenue

Some erosion of shoulder landscaping is present along the fill side of the roadway due to surface runoff. No curbs or gutters are present on the cut side. A drop inlet with a makeshift wood palette cover is located 300' north of the intersection with Clearfield Drive at the edge of the northbound lane shoulder. The land use along this segment is primarily residential.

2.2.2.1 Clearfield Drive Intersection

The intersection of Preston Avenue and Clearfield Drive is a 3-way minor street stop controlled intersection located 250' north of Parker Road at the top of a vertical crest. Clearfield Drive is classified as a Local Street and is a two lane roadway providing a single lane approach towards Preston Avenue. The measured intersection sight distance to the north is 265' and to the south is 390'. The intersection sight distance is prohibited by a vertical crest curve looking south and roadside vegetation looking north. The measured intersection sight distance looking south is insufficient compared to the recommended intersection sight distance of 445', but meets the

required 305' for stopping sight distance. The measured intersection sight distance looking north is insufficient compared to the recommended intersection sight distance of 445' and the required 305' for stopping sight distance.

The pavement condition at the intersection is poor, particularly along the Preston Avenue approaches which have evidence of extensive fatigue cracking and pothole formation. The surface has been patched multiple times and is rough. The stop bar on Clearfield Drive and lane markings on Preston Avenue are faded.



Preston Avenue southbound approach to Clearfield Drive intersection shows extensive

2.2.2.2 Route 66 Off-Ramp Intersection

Route 66 connects to Interstate 691 and is classified as an Urban Principal Arterial Expressway. The off-ramp is for the eastbound travel lanes of Route 66. Sight distances were not measured from the Route 66 off-ramp as the highway is not under the jurisdiction of the City of Meriden.

Like the previous intersections mentioned, the pavement on each approach shows signs of wear, with longitudinal cracking present along Preston Avenue. The off-ramp is missing a stop bar and the roadside barriers differ on each side of the ramp with outdated cable guide rail located on the south side of the ramp.



Outdated cable guide railing on Route 66 off-ramp

2.2.3 Preston Avenue - Route 66 Off-Ramp to Patton Drive

The segment of Preston Avenue that extends from the Route 66 off-ramp to Patton Drive is 2,450' long in a north-south orientation. The vertical profile drops from the Route 66 off-ramp to a low point at Patton Drive. The profile grade within this section ranges between 1.2% and 4.2%. The sag vertical curve at Patton Drive has a K-value of 24, which does not meet the criteria for sag curves for either headlight or comfort. The horizontal geometry of Preston



Avenue through this segment meanders from east to west with a minimum radius of 1,000'. The roadway width varies between 24' and 30' with one variable width travel lane and shoulder in each direction.

This segment is in similar condition to previously described segments of Preston Avenue and contains numerous cracks and evidence of fatigue. A scupper on the northbound side of Preston Avenue on the bridge over Route 66 was completely filled with silt. The segment is primarily wooded with land use primarily residential with the exception of the police academy on the east side of Preston Avenue at the Route 66 on-ramp. There are several signs for deer crossing present.

2.2.3.1 *Route 66 On-Ramp Intersection / Police Academy Driveway*

The State Police Training Facility is located just north of Route 66 on Preston Avenue. The driveway to the facility is aligned with the Route 66 on-ramp to facilitate rapid interstate highway access, with a single stop sign at the end of the driveway providing intersection control.



Southbound approach to intersection with Police Academy driveway and Route 66

The measured intersection sight distance looking south from the driveway is 360' and looking north is 280'. Both measured intersection sight distances are insufficient compared to the recommended intersection sight distance of 445' and only the required 305' for stopping sight distance is met looking south. Vegetation inhibits sight distance looking south and a steep slope along the roadway affects sight distance looking north.

Both transverse and longitudinal cracks are present on the Preston Avenue approaches and lane markings are worn. Drainage catch basins are present on both sides of the road.

2.2.3.2 *Patton Drive Intersection*

Patton Drive is the entrance to a relatively new subdivision and meets Preston Road at a T-intersection with minor street stop control. Patton Drive has 4" stone curbing and drainage inlets on either side of its leg of the intersection. A sidewalk with a curb ramp is located on the north side of Patton Drive. The bottom of the ramp is not fully flush with ground and there are no pedestrian facilities on



Drainage basin on northbound (cut) side of Preston Avenue north of Patton Drive

Preston Avenue in the immediate vicinity of the intersection.

Measured intersection sight distance to the south is 280' and to the north is 365'. Both measured intersection sight distances are insufficient compared to the recommended intersection sight distance of 445' and only the required 305' for stopping sight distance is met looking north. A steep vegetated slope inhibits intersection sight distance in both directions. The pavement on the Preston Avenue approaches demonstrates wear, with some longitudinal cracking and a transverse utility patch aligned with Patton Drive.

2.2.4 Preston Avenue – Patton Drive to Baldwin Avenue

The segment of Preston Avenue that extends from Preston Avenue to Baldwin Avenue is 1,650' long in a north-south orientation. The vertical profile is gently rolling through this segment. Starting from the low point at Patton Drive, there are two high points and one low point between Patton Drive and Baldwin Avenue. The profile grade varies from 0.5% to 1.9%. All of the vertical curves meet design criteria except for the sag vertical curve between Patton Drive and Baldwin Avenue. The K-value of the sag vertical curve is 49, which does not meet design criteria for headlight but does meet the criteria for comfort. The horizontal geometry of Preston Avenue through this segment is fairly straight until it meets Baldwin Avenue where the roadway curves to the west with a radius of 800'. The roadway width varies between 24' and 40' with one variable width travel lane and shoulder in each direction. There are no curbs present on east side of the roadway, except in the vicinity of Baldwin Avenue.



Roadway features of Preston Avenue between Patton Drive and Baldwin Avenue

Significant pavement failure is noted on this segment with fatigue cracking of several types being present. Roadside barrier types are inconsistent and are no longer functional. This section of Preston Avenue is the only one with sidewalks, which are present for about 1,000' on the west side of the roadway. The sidewalk ends just before the Interstate 91 overpass, and there is a 1,200' discontinuity before a sidewalk begins again further down Baldwin Avenue as noted in future sections of this study. Adjacent land uses are low density residential, agricultural, and office uses.

2.2.4.1 Baldwin Avenue Intersection

Preston Avenue intersects Baldwin Avenue at a three-way intersection just south of Interstate 91. The northbound and westbound approaches are named Preston Avenue and the southbound approach is named Baldwin Avenue. Thus, Baldwin Avenue is a continuation of the through movement along Preston Avenue. Through movement on the main corridor occurs along a curve with a radius of 800' in the vicinity of the intersection.



Looking north from the beginning of Baldwin Avenue to the Interstate 91 overpass.

The intersection sight distance measured from the minor street looking south is more than 450' to the crest of the roadway and more than 400' to the Interstate 91 overpass looking north. An on-ramp to the interstate is located approximately 200' north of the intersection on the east side of the roadway, while a driveway for two large office buildings is located 100' south on the west side of the roadway.

The pavement on all approaches is in fair condition and there is some longitudinal and transverse cracking, as well as edge failure at the seam of the office park driveway and Baldwin Avenue. A sidewalk exists along the entire street frontage of the commercial property on the west side of the intersection. Some curbing is present on both sides of the roadway. Twin drainage pipes have outlets directly across the street from the westbound Preston Avenue approach. A wooden post and rail barrier is used to block vehicular entry to the drainage channel which is about 10' lower than the roadway. On the southeast corner of the intersection, a drainage inlet and headwall are present approximately 15' from the edge of the travel lane, and are surrounded by a handful of damaged wooden posts. There are no wires between the posts.

2.2.5 Baldwin Avenue - Preston Avenue to Preston Drive

Baldwin Avenue begins as a continuation of Preston Avenue just south of Interstate 91 and extends from Preston Avenue to Preston Drive. The segment is 1,200' long and is oriented in an east-west direction. The vertical profile descends from Preston Avenue ranging from 0.5% to 2.7%. The horizontal geometry of Baldwin Avenue through this segment is primarily in a curve with a radius of 800'. This particular segment of Baldwin Avenue is wider than most of Preston Avenue. The roadway provides 13'± travel lanes with variable width shoulders for a total width of approximately 40'. On the



Baldwin Avenue at Interstate 91 overpass.

north/westbound side of the roadway, the shoulder is a minimum of 2' wide, expanding to 5.5' in some places. On the south/eastbound of the roadway, the paved shoulder varies in width from 4' to 8'.

The pavement condition of this segment is fair, though in general, the Baldwin Avenue segments of the corridor are in better shape than the Preston Avenue ones. Fatigue cracking is more prevalent along Baldwin Avenue than on side streets, and there is minor edge wear. The vertical clearance of Baldwin Avenue under Interstate 91 is 13'-10", which is below the design criteria of 14'-3".

Curbs, gutters, and drainage basins are located along both sides of this segment, however they are intermittent. As Baldwin Avenue continues westward, the land use becomes primarily residential.

2.2.5.1 *Thurrott Avenue Intersection*

Thurrott Avenue intersects Baldwin Avenue just west of the Interstate 91 off-ramp; the minor road is stop-controlled. Thurrott Avenue is classified as a Local Street. The measured intersection sight distances to the west and east is 300' and more than 350' to the Interstate 91 Bridge, respectively. The measured intersection sight distance looking west is insufficient compared to the recommended intersection sight distance of 335'; however, it meets the required 200' for stopping sight distance.



Looking east from Thurrott Drive along Baldwin Avenue

In the vicinity of the intersection, roadside barriers exist to prevent vehicles from entering drainage ditches on the north side of the road. The barrier between the off-ramp and Thurrott Avenue is not functioning properly as the cables are slack and posts are not all upright. Pavement condition is good, with some minor longitudinal cracks on the Baldwin Avenue approaches.

2.2.5.2 *Preston Drive Intersection*

Preston Drive intersects Baldwin Avenue 220' west of Thurrott Avenue to form a T-intersection. Preston Drive is classified as a Local Street and forms the stop-controlled minor leg of the three-way intersection. Looking east, the measured intersection sight distance 500'+ and looking west, the intersection sight distance is 300'. The measured intersection sight distance looking west is insufficient compared to the



Drainage and pavement condition on Baldwin Avenue east of Preston Drive

recommended intersection sight distance of 335'; however, it meets the required 200' for stopping sight distance.

Catch basins are located along the north side of the street on both Baldwin Avenue approaches and there is some curbing along the south side of the street with additional drainage inlets. Pavement condition is fair and some roadway patching has been performed on Baldwin Avenue in the vicinity of the intersection.

2.2.6 Baldwin Avenue - Preston Drive to Higby Drive

The segment of Baldwin Avenue between Preston Drive and Higby Drive is 1,350' long in an east-west orientation. The vertical profile is rolling through this segment. Starting from Preston Drive, the profile descends to a low point east of Heather Heights. The profile then ascends to a high point at Heather Heights before descending towards Higby Drive. The maximum profile grade is 11.6% between Lori Lane and the low point. All other grades vary between 1.0% and 5.2%. The two vertical sag curves within this segment do not meet the K-value for headlight criteria but do meet the requirements for comfort criteria. The K-value for the vertical crest curve at Heather Heights does not meet the minimum value for 17. The horizontal geometry of Preston Avenue through this segment is on a tangent from Preston Avenue to Lori Lane. The roadway then turns to the south with a 1,000' radius curve and is in a tangent section until Heather Heights. The roadway turns towards the north to the east of Heather Heights with a 550' radius curve towards Higby Drive. The roadway width varies between 22' and 36' with one variable width travel lane and shoulder in each direction.



There are several drainage basins located near Preston Drive, at Lori lane, and one approximately 350' east of the intersection with Heather Heights on the south side of Baldwin Avenue. An underground pipe conveys water from the basin 350' from Heather Heights to an outlet on the other side of the street. There are no roadside barriers preventing vehicular entry into the drainage ditch. In the eastbound direction, a sign depicting an upcoming junction with Interstate 691 is missing the highway shield. The damaged sign is located 400' east of the Heather Heights intersection.



Top: Drainage basin, damaged highway sign, fatigued pavement, and incomplete sidewalk
Bottom: Unprotected outlet across the street from the catch basin

In general, pavement along this roadway section shows signs of fatigue cracking and patching. The lane markings are faded as well as crosswalk

lines where present. Sidewalk coverage is mostly present on at least one side but switches back and forth across Baldwin Avenue. There are noticeable irregularities in pedestrian facilities (crosswalks, ramps, signing, etc.), which are important to rectify given the concentration of residential and recreational uses in the area.

2.2.6.1 Lori Lane Intersection

Lori Lane is classified as a Local Street and is a residential side street that meets Baldwin Avenue near a vertical crest to form a T-intersection, with Lori Lane stop controlled. The measured intersection sight distance is 400' to the west and more than 600' to the east.



Looking east along Baldwin Avenue at Lori Lane

The pavement is in good condition on all of the intersection approaches, with a few visible cracks on the major street, mainly on the westbound approach. Vegetation along the side slopes has crept into the shoulder space on the northern side of the road, so there is minimal pavement outside of the travel lanes at this location. There are no curbs on the northern (cut) side of the road, though some exist on the southern side along with a catch basin to the east of the intersection in a small swale. Though Lori Lane itself has sidewalks on both sides of the street, they do not extend to Baldwin Avenue and the intersection approaches do not have pedestrian facilities.

2.2.6.2 Heather Heights Intersection

Heather Heights and a new subdivision roadway are the side streets to form a 4-legged intersection located at the top of a vertical crest on Baldwin Avenue. Heather Heights is classified as a Local Street and is stop-controlled as well as the subdivision road. The measured intersection sight distances from both approaches looking east and west are greater than 335'.

The condition of the pavement is fair; the eastbound lane of Baldwin Avenue has fatigue cracking and multiple repair patches. The asphalt on the Heather Heights approach has been repaired with elastomeric crack filler. Curbs have been installed at the corners of the intersection but do not continue down Baldwin Avenue. One drainage inlet is present on Baldwin Avenue east of the intersection.

Sidewalks are present on every leg of the intersection, with the western and southern legs having sidewalks on both sides of the streets. Accordingly, three pedestrian ramps are present as well, located on every corner except the northeast corner. One faded crosswalk is painted across Heather Heights, though there is no crosswalk across Baldwin Avenue as the corresponding ramps are misaligned.

2.2.6.3 Higby Drive Intersection

Higby Drive is classified as a Local Street, is the minor leg of the T-intersection and is stop controlled. It is located directly across from green space and a walking trail entrance. The measured intersection sight distance looking to the west is 485' and to the east is 375'.

The pavement condition of the approaches is fair. Baldwin Avenue has numerous cracks and small potholes in the vicinity of the intersection, some of which have been repaired. Curbing is present on the north side of the intersection and on the corners of the south side. Drainage inlets are not present and there is some erosion of landscaping on the southern side of the road where there are no curbs.

There are no sidewalks on Higby Drive, though there are pedestrian facilities adjacent to the westbound lanes of Baldwin Avenue in the intersection. The existing sidewalks have both impervious and pervious sections, and a gap of about 100' exists adjacent to the greenspace between the edge of the walking trail and Mattabassett Drive. A utility pole is located in the middle of the pedestrian travel path in the gap.



Sidewalk gap on westbound Baldwin Avenue approach to intersection with Higby Drive

2.2.7 Baldwin Avenue - Higby Drive to Bee Street

The segment of Baldwin Avenue extending from Higby Drive to Bee Street is 1,450' long in an east-west orientation. The vertical profile is rolling through this segment, starting from Higby Drive the profile descends to a low point west of Mattabassett Drive. The profile then ascends to a high point just east of Winding Brook Lane and descends to another low point just west of Winding Brook Lane. An additional high point is located 150' east of the Bee Street intersection. The profile grades range from 1.5% to 6.1%. The crest and sag curve K-values between Mattabassett Drive and Winding Brook Lane do not conform to the design criteria, however the sag curve K-value does conform to the comfort design criteria. The horizontal geometry of Baldwin Avenue is fairly straight with two horizontal curves with a minimum radius of 800'. The roadway width varies between 19' and 26' with one variable width travel lane and shoulder in each direction.



Baldwin Avenue at Winding Brook Lane looking east

Unlike other segments of the corridor discussed earlier, this part of Baldwin Avenue has full sidewalk coverage along one side for its entire length. The pavement condition is good, with few cracks evident. Adjacent land use is primarily residential and recreational.

2.2.7.1 Mattabassett Drive Intersection

Mattabassett Drive intersects Baldwin Avenue to form a T-intersection with Mattabassett Drive stop controlled. Mattabassett Drive is classified as a Local Street. The measured intersection sight distance is approximately 550' looking west and 270' looking east. On the eastbound side of the street, a "limited sight distance" sign with flashing yellow lights is mounted to caution drivers about potential unseen roadway hazards on the other side of a vertical crest curve. The measured intersection sight distance looking east is insufficient compared to the recommended intersection sight distance of 335', however meets the required 200' for stopping sight distance.



Limited sight distance to west of intersection with Mattabassett Drive

A sidewalk is present on the north side of Baldwin Avenue. The sidewalk is elevated and separated from the roadway by a curb. There are no drainage basins or gutters on the south side of the road and there is evidence of minor erosion along the edge of the roadway. The pavement condition is fair in this area and does exhibit some longitudinal cracking and edge of road failure.

2.2.7.2 Winding Brook Lane Intersection

Winding Brook Lane intersects Baldwin Avenue west of a vertical crest curve to form a T-intersection, with Winding Brook Lane stop controlled. Winding Brook Lane is classified as a Local Street. The measured sight distance from this intersection is 195' looking east and 290' being looking west. The measured intersection sight distance for both directions is insufficient compared to the recommended intersection sight distance of 335' and only the western sight distance meets the required 200' for stopping sight distance.



Limited intersection sight distance looking east from Winding Brook Drive

The pavement has fatigue cracks on the Baldwin Avenue approaches as well as repaired transverse cracks on Winding Brook Lane. Similar to the Mattabassett Drive intersection, a sidewalk is present along the north side of the road. There is no curbing on the south side of the road and drainage inlets are not present in the vicinity of the intersection.

2.2.7.3 Bee Street Intersection

Bee Street crosses Baldwin Avenue at a 4-way intersection with stop control on every approach. Intersection sight distances were measured from Baldwin Avenue for both approaches to Bee Street. The measured intersection sight distance on Baldwin Avenue westbound looking north is 500'+ and looking south is 295'. The measured intersection sight distance on Baldwin Avenue eastbound looking north is 500'+ and looking south is 475'. The measured intersection sight distance for the Baldwin Avenue westbound approach looking south is insufficient compared to the recommended intersection sight distance of 335'; however, it meets the required 200' for stopping sight distance.

Sidewalks are present on several approaches, which connect area residences with recreational opportunities, including Carroll Park on the northwest corner of the intersection. Specifically, sidewalks are located alongside the following travel lanes: westbound Baldwin Avenue and northbound Bee Street. Two highly visible zebra striped crosswalks connect these sidewalks and ramps are present at each end of the crosswalks.



Sight obstruction on westbound approach to Bee Street / Baldwin Avenue intersection

The pavement condition on every approach is good, and there is little evidence of drainage problems at the intersection. Curb and gutters are installed on most legs and a creek and drainage area is fenced off adjacent to the park.

3 Drainage Analysis

A conceptual drainage analysis was performed to determine deficiencies and potential drainage improvements for the corridor. The existing drainage areas for the corridor were defined based on the City GIS data and the design flows were analyzed for the 25-year storm. Proposed catch basin spacing was based on maximum recommended spacing. Detailed gutter analysis was not in the scope of this effort.

The Preston Avenue corridor has three existing low points between East Main Street and Baldwin Avenue. These low points are located at East Main Street, Patton Drive, and west of Baldwin Avenue.

A closed drainage system exists north of Parker Road to East Main Street and outlets at a watercourse at the northwest corners of East Main Street. The existing drainage area was delineated to be 8.8 acres. Based on the results of the conceptual drainage analysis, an 18" outlet pipe would be required to handle the volume of water within this segment of roadway. The existing catch basin spacing does not meet the CTDOT recommended maximum spacing of 300'.

A closed drainage system exists between Parker Road and the Route 66 off-ramp. The existing drainage area was delineated to be 1.7 acres. The existing outlet could not be field located. Based on the results of the conceptual drainage analysis, a 12" outlet pipe should accommodate storm drainage through this segment. The existing catch basin spacing does not meet the CTDOT recommended maximum spacing of 300'.

A closed drainage system exists on the east side of Preston Avenue from the Route 66 on-ramp to north of Patton Drive. The existing drainage area was delineated to be 15.9 acres. The existing outlet could not be field located. Based on the results of the conceptual drainage analysis, a 24" outlet pipe should accommodate storm drainage through this segment. The existing catch basin spacing does not meet the CTDOT recommended maximum spacing of 300' on the east side of Preston Avenue. No catch basins exist on the west side as the existing ground slopes away from the roadway; however, debris and vegetation along the roadway act like a curb line directing storm water to the low point. In addition, flanker catch basins do not exist at the low point.

A closed drainage system exists between the north of Patton Drive and Baldwin Avenue. The existing drainage area was delineated to be 3.0 acres. The existing outlet to the system drains into the office park property. The existing outlet was not field measured; however, based on the results of the conceptual drainage analysis, an 18" pipe is necessary.

The Baldwin Avenue corridor has three existing low points between Preston Avenue and Bee Street. These low points are located at west of Heather Heights, at Mattabasset Drive, and between Winding Brook Lane and Bee Street.

A closed drainage system exists between Baldwin Avenue and Heather Heights. The existing drainage area was delineated to be 3.4 acres. The existing outlet to the system drains to the north of the roadway. The existing outlet was not field measured; however, based on the

results of the conceptual drainage analysis, an 18" pipe is necessary. The existing catch basin spacing does not meet the CTDOT recommended maximum spacing of 300' at various sections. In addition, flanker catch basins do not exist at the low point.

A closed drainage system exists between Heather Heights and Winding Brook Lane. The existing drainage area was delineated to be 1.7 acres. Based on the existing conditions survey from the "Baldwin Avenue Improvements" project, this drainage system connects to an existing 36" trunk line on Baldwin Avenue. It is assumed that the trunk line is adequately sized. The existing catch basin spacing does not meet the CTDOT recommended maximum spacing of 300' at various sections. In addition, flanker catch basins do not exist at the low point.

A closed drainage system exists between Winding Brook Lane and Bee Street. The existing drainage area was delineated to be 0.7 acres. Based on the existing condition survey from the "Baldwin Avenue Improvements" project, this drainage system connects to the before mentioned 36" trunk line. Flanker catch basins do not exist at the low point.

4 Future Developments

The City of Meriden has identified one future development that will have potential traffic impacts to the Preston Avenue/Baldwin Avenue corridor, the Hall Property planned development area. The Hall Property is approximately 70 acres of land and is located on the parcel formed by I-91, I-691/Route 66 and Preston Avenue. The property is currently zoned "S-R Suburban Residential" and was identified as a potential site to create sustainable, high-quality commercial, office, and industrial space that would be designed in a manner that maximizes tax revenue while being sensitive to surrounding neighborhoods and environmental assets. One of the recommendations in the City's POCD is to change the zone for this property so that it can be developed for commercial use. The City has begun this effort and is in the process of developing the zone regulations for the zone change. Additionally, the City has also developed an initial concept for the site which includes:

- Townhouse: 300 units
- Retail: 200,000 square feet (sq. ft.)
- Office: 75,000 sq. ft.
- Hotel: 75,000 sq. ft.
- Fitness/Health Center: 50,000 sq. ft.
- Parking: 2,000 spaces

Estimates of the amount of traffic expected to be generated by this initial concept was made using Trip Generation, Version 6 which implements procedures in the Institute of Transportation Engineers (ITE) publication titled, Trip Generation, 7th edition. A summary of the site generated trips estimated is provided in *Table 2*.

Table 2
Hall Property Mixed-Use Development Initial Concept Site Generated Trips

	Land Use Code	Units	Daily	AM Peak Hour			PM Peak Hour		
				Enter	Exit	Total	Enter	Exit	Total
Townhouse	230	300	1,743	21	111	132	105	51	156
Retail	820	200,000 sq. ft.	8,588	122	78	200	366	380	746
Office	710	75,000 sq. ft.	826	102	14	116	19	93	112
Hotel	310	75,000 sq. ft.*	1,226	51	33	84	47	42	89
Health/Fitness	492	50,000 sq. ft.	1,647	31	38	69	100	76	176
Total			14,030	327	274	601	637	642	1,279
Internal Capture Trips**			1,122	26	22	48	51	51	102
Total Site Trips			12,908	301	252	553	586	591	1,117

Source: Fitzgerald & Halliday, Inc., June 2010

* Assumes 1.95 rooms per 1,000 square feet.

**Assumes an 8% internal capture rate.

Assuming an internal capture rate of 8%, it is estimated that approximately 13,000 trips per day, 550 vehicle trips during the morning peak hour, and 1,200 vehicle trips during the afternoon peak hour will be generated by the proposed development.

5 Recommended Improvements

The existing conditions assessment served to identify existing roadway deficiencies along the Preston and Baldwin Avenue corridors. The purpose of this section of the report is to summarize potential improvements based on the identified existing deficiencies. Preliminary construction cost estimates were prepared for each roadway segment per CTDOT preliminary estimating procedures for the City to prioritize the implementation of the recommended improvements.

The projected Year 2030 weekday average daily traffic volumes for Preston Avenue, given a 1% annual growth rate and vehicle trips anticipated to be generated by the Hall Property, are estimated to be 17,750 vehicles per day with 8,600 vehicles traveling northbound and 9,150 vehicles traveling southbound. Based on these volumes, the two-lane Preston Avenue will not accommodate the projected Year 2030 weekday average daily traffic with the full build-out of the Hall Property. Mitigation measures for the full build-out of the Hall Property may include widening Preston and Baldwin Avenues from two lanes to four lanes between Route 66 and I-91 with potential intersection capacity improvements at the proposed entrance to the site. A detailed traffic study will be required for the Hall Property to identify specific improvements. Traffic counts were performed at the Preston Avenue at East Main Street / Pomeroy Avenue / Cone Avenue only and the results of the intersection capacity analysis are presented in the relevant section.

5.1 Preston Avenue - East Main Street to Parker Road

An intersection capacity analysis was performed for the East Main Street/Pomeroy Avenue/Cone Avenue intersection for the future Year 2030 traffic volumes. The projected Year 2030 weekday traffic volumes for the intersection were grown by a 1% annual growth rate. Additional traffic to be generated by the Hall Property development at the intersection was not estimated. A detailed trip distribution will be required when a traffic study for the Hall Property development is initiated. It is assumed that the traffic to be generated by the development at the intersection will be minor when compared to the future traffic volumes at the intersection.

The results of the intersection capacity analysis for the 2030 weekday morning and afternoon peak periods are presented in *Table 3*. Copies of the Synchro analysis worksheets can be found in *Appendix C*.

Table 3
2030 Weekday Level of Service Analysis – Preston Avenue at East Main Street

Approach and Movement	Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio
East Main St. Eastbound - Left	27.8	C	76	0.70	174.1	F	317	1.31
East Main St. Eastbound - Through/Right	19.8	B	162	0.58	48.9	D	447	0.98
East Main St. Westbound - Left/Through/Right	38.6	D	244	0.85	53.3	D	271	0.94
Pomeroy Ave. Northbound - Left/Through/Right	17.5	B	21	0.05	21.5	C	23	0.07
Preston Ave. Southbound - Left/Through/Right	28.3	C	105	0.65	181.0	F	318	1.29
Cone Ave. Northwestbound - Left/Through/Right	59.2	E	144	0.84	59.3	E	173	0.84
Overall	32.0	C	N/A	0.75	102.8	F	N/A	1.02

The results of the analysis show that the LOS for the overall intersection and individual movements operate at LOS D or better for the weekday morning peak hour except for the Cone Avenue northwestbound approach, which operates at LOS F. During the weekday afternoon peak hour, the intersection operated at an overall LOS F. In addition, the intersection is overcapacity during the weekday afternoon peak hour with a v/c ratio of 1.02.

To mitigate future traffic growth and future developments, such as the Hall Property, it is recommended that the intersection be reconstructed and realigned. The recommended improvements to the intersection are presented in *Figure 2* and are as follows:

- Eliminate the Pomeroy Avenue approach to East Main Street and realign to the east to form a T-intersection with Cone Avenue to the south of East Main Street with Pomeroy Avenue stop-controlled. The realignment will require a full property acquisition at the intersection. In addition, a partial property acquisition adjacent to the full property acquisition may be required.
- Realign the Cone Avenue and Preston Avenue approaches to the east to improve sight distance and turning radii. The realignment may require two partial property acquisitions at the intersection.
- Extend the East Main Street eastbound left turn lane to 230'-long.
- Prune vegetation on the south side of East Main Street to improve intersection sight distance from Cone Avenue looking west onto East Main Street.
- Prune vegetation on north side of East Main Street at Preston Avenue to improve intersection sight distance from Preston Avenue looking east onto East Main Street.

- Full traffic signal replacement at the intersection.

An intersection capacity analysis was performed for the recommended reconstructed intersection. The results of the intersection capacity analysis for the 2030 mitigation weekday morning and afternoon peak periods are presented in *Table 4*. Copies of the Synchro analysis worksheets can be found in *Appendix C*.

Table 4
2030 Weekday Mitigation Level of Service Analysis – Preston Avenue at East Main Street

Approach and Movement	Weekday Morning Peak Hour				Weekday Afternoon Peak Hour			
	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio	Delay (sec)	LOS	95 th Percentile Queue (feet)	v/c Ratio
East Main St. Eastbound - Left	8.3	A	63	0.30	17.4	B	216	0.76
East Main St. Eastbound - Through/Right	9.1	A	132	0.33	15.4	B	391	0.65
East Main St. Westbound - Left/Through/Right	16.7	B	199	0.47	25.2	C	266	0.56
Preston Ave. Southbound - Left/Through/Right	45.8	D	111	0.82	37.6	D	164	0.72
Cone Ave. Northbound - Left/Through/Right	24.8	C	66	0.56	44.2	D	255	0.85
Overall	20.4	C	N/A	0.61	25.0	C	N/A	0.70

The results of the analysis show that the LOS for the overall intersection and individual movements operate at LOS D or better for both peak hours. In addition, the intersection has additional capacity with the a maximum v/c ratio of 0.85 for any individual movement.

The recommended improvements for the remaining portion of Preston Avenue from East Main Street to Parker Road are presented in *Figure 3* and are as follows:

- Perform full-depth reconstruction for pavement rehabilitation through entire the section.
- Install bituminous concrete lip curbing on both sides of Preston Avenue.
- Construct concrete sidewalk on west side of Preston Avenue from East Main Street to Parker Road.
- Regrade slope on east side of Preston Avenue at Parker Road to improve intersection sight distance looking south onto Preston Avenue.
- Remove metal beam rail at drop inlet on east side of Preston Avenue, north of East Main Street.

- Install a new closed drainage system from Parker Road to East Main Street. Install 18" outlet pipe on the southwest corner of Preston Avenue and East Main Street where an existing leakoff drains Preston Avenue into a watercourse.
- Install underdrain along the roadway edge on the east side of Preston Avenue from East Main Street to Parker Road.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$2,826,000. A detailed construction cost estimate is presented in *Appendix D*.

5.2 Preston Avenue - Parker Road to Route 66 Off-Ramp

The recommended improvements for Preston Avenue from Parker Road to the Route 66 off-ramp presented in *Figure 3* are as follows:

- Perform full-depth reconstruction for pavement rehabilitation through the entire section.
- CTDOT design standards require a minimum roadway width of 26' for this classification of roadway. The minimum existing width of roadway through this section is 25'. Depending on the funding source, it may be required to widen the roadway to the CTDOT design standard width of 26'. The cost of this potential widening has been provided in the cost estimate.
- Construct concrete sidewalk on west side of Preston Avenue from Parker Road to Clearfield Drive.
- Install bituminous concrete lip curbing on both sides of Preston Avenue.
- Prune vegetation on south side of East Main Street to improve intersection sight distance from Pomeroy Avenue and Cone Avenue looking west onto Preston Avenue.
- Prune vegetation on west side of Preston Avenue south of the Route 66 off-ramp to improve intersection sight distance from Clearfield Drive looking north onto Preston Avenue.
- Remove unnecessary portion of metal beam rail at private pull-in area.
- Replace cable guide rail with metal beam rail and proper end treatments at Route 66 off-ramp.
- Upgrade the existing drainage system with additional catch basins from Parker Road to the Route 66 off-ramp.
- Install underdrain along the roadway edge on the east side of Preston Avenue from Parker Road to the Route 66 off-ramp.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$853,000. A detailed construction cost estimate is presented in *Appendix D*.

5.3 Preston Avenue - Route 66 Off-Ramp to Patton Drive

The recommended improvements for Preston Avenue from the Route 66 off-ramp to Patton Drive presented in *Figures 4 and 5* are as follows:

- Mill and overlay Preston Avenue Bridge over Route 66.
- Perform full-depth reconstruction for pavement rehabilitation from Preston Avenue Bridge over Route 66 to Patton Drive.
- CTDOT design standards require a minimum roadway width of 26' for this classification of roadway. The minimum existing width of roadway through this section is 24'. Depending on the funding source, it may be required to widen the roadway to the CTDOT design standard width of 26'. The cost of this potential widening has been provided in the cost estimate.
- Install bituminous concrete lip curbing on both sides of Preston Avenue from Preston Avenue Bridge over Route 66 to Patton Drive.
- Prune vegetation on southeast corner of the Preston Avenue at Police Academy Drive to improve intersection sight distance on Police Academy Drive looking south onto Preston Avenue.
- Regrade slope on northeast corner of the Preston Avenue at Police Academy Drive to improve intersection sight distance on Police Academy Drive looking north onto Preston Avenue.
- Clear vegetation on southeast corner of Preston Avenue at Patton Drive to improve intersection sight distance on Patton Drive looking north onto Preston Avenue.
- Replace wire rope rail with metal beam rail and proper end treatment, at northeast corner of Preston Avenue Bridge over Route 66.
- Upgrade metal beam rail end treatment, on the west side of Preston Avenue north of the Route 66 on-ramp.
- Clean scuppers on Preston Avenue Bridge over Route 66.
- Upgrade the existing drainage system with additional catch basins from Route 66 on-ramp to north of Patton Drive. Upgrade outlet to a 24" outlet pipe, as necessary.
- Install underdrain along the roadway edge on the east side of Preston Avenue from the Route 66 on-ramp to Patton Drive.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$2,386,000. A detailed construction cost estimate is presented in *Appendix D*.

5.4 Preston Avenue - Patton Drive to Baldwin Avenue

The recommended improvements for Preston Avenue from Patton Drive to Baldwin Avenue presented in *Figures 5 and 6* are as follows:

- Perform full-depth reconstruction for pavement rehabilitation through the entire section.
- CTDOT design standards require a minimum roadway width of 26' for this classification of roadway. The minimum existing width of roadway through this section is 24'. Depending on the funding source, it may be required to widen the roadway to the CTDOT design standard width of 26'. The cost of this potential widening has been provided in the cost estimate.
- Install bituminous concrete lip curbing on both sides of Preston Avenue.
- Upgrade metal beam rail end treatment on the west side of Preston Avenue north of the Patton Drive.
- Upgrade existing drainage system with additional catch basins from north of Patton Drive to Baldwin Avenue. Upgrade existing outlet to an 18" pipe, as necessary.
- Install underdrain along the roadway edge on the east side of Preston Avenue from the Patton Drive to Baldwin Avenue.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$1,786,000. A detailed construction cost estimate is presented in *Appendix D*.

5.5 Baldwin Avenue - Preston Avenue to Preston Drive

The recommended improvements for Baldwin Avenue from Preston Avenue to Preston Drive presented in *Figure 6* are as follows:

- Mill and overlay Baldwin Avenue through the entire section.
- Construct a new 5' wide concrete sidewalk on south side of Baldwin Avenue.
- Install new bituminous concrete lip curbing on both sides of Baldwin Avenue in locations where no curbing exists or existing bituminous concrete lip curbing is damaged.
- Replace wire rope rail with metal beam rail and proper end treatments on north side of Baldwin Avenue between the I-91 off-ramp and Thurrott Avenue.
- Upgrade metal beam rail end treatment on the west side of Preston Avenue north of the I-91 on-ramp.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$620,000. A detailed construction cost estimate is presented in *Appendix D*.

5.6 Baldwin Avenue - Preston Drive to Higby Drive

The recommended improvements for Baldwin Avenue from Preston Drive to Higby Drive presented in *Figure 7* are as follows:

- Mill and overlay Baldwin Avenue from Preston Drive to between Heather Heights and Lori Lane
- Perform full-depth reconstruction for pavement rehabilitation and to correct vertical profile deficiencies from between Heather Heights and Lori Lane to Higby Drive. Vertical profile revisions at Heather Heights will result in a maximum cut of 1.5'.
- Construct a new 5' wide concrete sidewalk on south side of Baldwin Avenue from Preston Drive to existing sidewalk between Lori Lane and Heather Heights.
- Reconstruct the existing sidewalk on south side of Baldwin Avenue between Lori Lane and Higby Drive.
- Construct a new 5' wide concrete sidewalk on north side of Baldwin Avenue from trail to Higby Drive.
- Install bituminous concrete lip curbing on both sides of Baldwin Avenue. Install concrete curb where concrete sidewalk borders the roadway.
- Upgrade the existing drainage system with additional catch basins from Preston Drive to Heather Heights. Based on the results of the conceptual drainage analysis, upgrade the existing outlet pipe to 18", as necessary.
- Install crosswalk with crosswalk and advanced signage between Higby Drive and Heather Heights to connect reconstructed sidewalk on south side of Baldwin Avenue to proposed sidewalk on north side of Baldwin Avenue.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$1,178,000. A detailed construction cost estimate is presented in *Appendix D*.

5.7 Baldwin Avenue - Higby Drive to Bee Street

The recommended improvements for Baldwin Avenue from Higby Drive to Bee Street presented in *Figure 8* are as follows:

- Perform full-depth reconstruction for pavement from Higby Drive to Mattabasset Drive.
- Perform full-depth reconstruction and associated improvements from Mattabasset Drive to west of Winding Brook Lane per the preliminary design plans "Reconstruction of Baldwin Avenue, May 2008".

- Mill and overlay from west of Winding Brook Lane to Bee Street.
- Reconstruct the existing sidewalk on north side of Baldwin Avenue between Higby Drive and Bee Street.
- Install bituminous concrete lip curbing on south side of Baldwin Avenue.
- Install concrete curbing on north side of Baldwin Avenue.
- Prune vegetation on southeast corner of Baldwin Avenue at Bee Street to improve intersection sight distance on Baldwin Avenue looking south onto Baldwin Avenue.
- Upgrade the existing drainage system with additional catch basins from Higby Drive to Winding Brook Lane.
- Upgrade existing drainage system with additional catch basins from Winding Brook Lane to Bee Street.
- Replace all existing signage to conform to latest edition of the Manual of Uniform Traffic Control Devices for reflectivity and letter legend standards.

The construction cost for the recommended improvements for this segment of roadway is \$1,590,000. A detailed construction cost estimate is presented in *Appendix D*.

6 Implementation of Recommended Improvements and Funding Sources

Based on the recommended improvements and cost estimates prepared for the various roadway segments, the City can prioritize individual projects. A summary of the construction cost for each segment is presented in *Table 5*.

Table 5
Construction Cost Summary

Roadway Segment	Construction Cost
Preston Avenue - East Main Street to Parker Road	\$2,826,000
Preston Avenue - Parker Road to Route 66 Off-Ramp	\$853,000
Preston Avenue - Route 66 Off-Ramp to Patton Drive	\$2,386,000
Preston Avenue - Patton Drive to Baldwin Avenue	\$1,786,000
Baldwin Avenue - Preston Avenue to Preston Drive	\$620,000
Baldwin Avenue - Preston Drive to Higby Drive	\$1,178,000
Baldwin Avenue - Higby Drive to Bee Street	\$1,590,000
Total	\$11,239,000

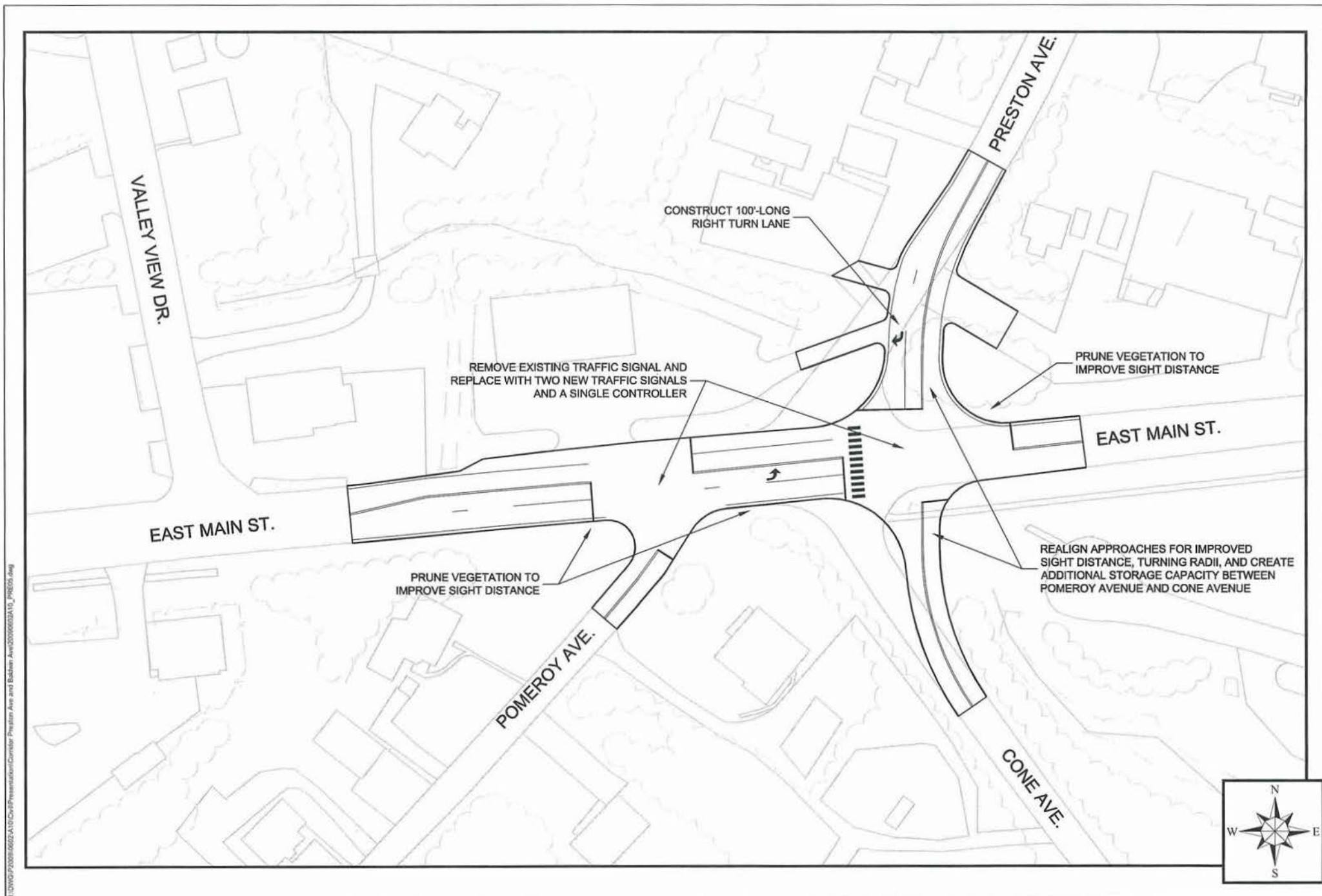
The total construction cost for the entire corridor is estimated to be \$11,239,000

There are various funding sources available for the implementation of the recommended improvements for the corridor, (i.e. Local Capital Improvement (LOCIP), Surface Transportation Plan – Urban (STP-Urban), High Priority Project (HPP), and other State and local funding.)

Short-term improvements such as clearing of vegetation for intersection sight distance improvements, upgrading existing signing, and pavement marking restriping can be implemented in a short-time period at a low cost. Drainage improvements, sidewalk improvements, and milling and overlay can be considered intermediate improvements. Full-depth reconstruction, vertical profile corrections, and widening can be considered long-term improvement projects, which will require dedicated funding.

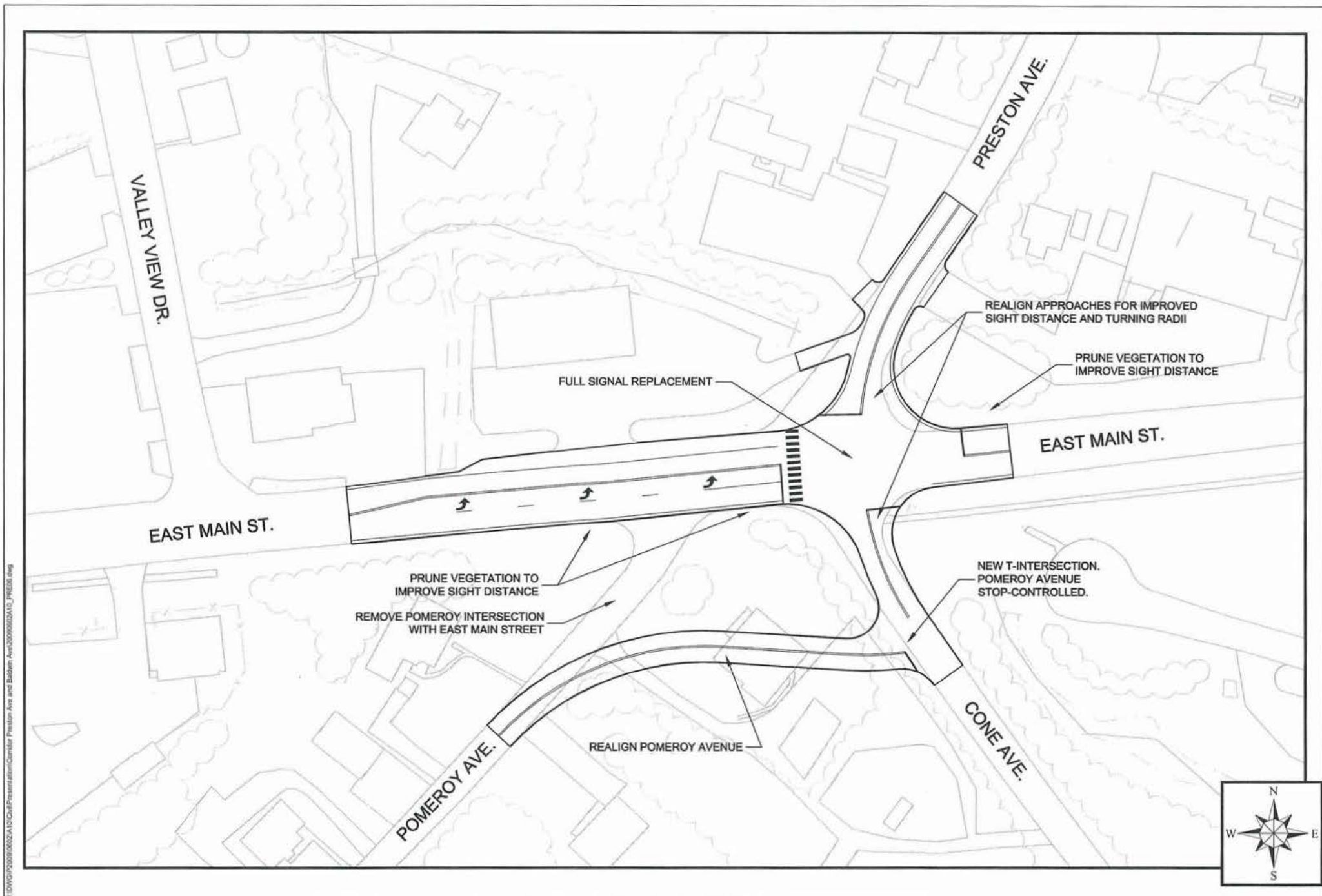
The identification of recommended improvements along with construction cost estimates for each roadway segment of the corridor will allow the City to develop a phased improvement plan as funding becomes available.

Figures



J:\DWG\2008\6622\A1C\4\Presentations\Combiner\Preplan_Ave and Bldgs_Ave\20090603A1\PRE05.dwg

Figure 2 - Preston Avenue
East Main Street
Intersection Improvements
(Alternative #1)



J:\DWG\2008\0602\A10\Chp\Presentations\Cumulative_Preston_Ave_and_Baldwin_Ave\20090602A10_P0208.dwg

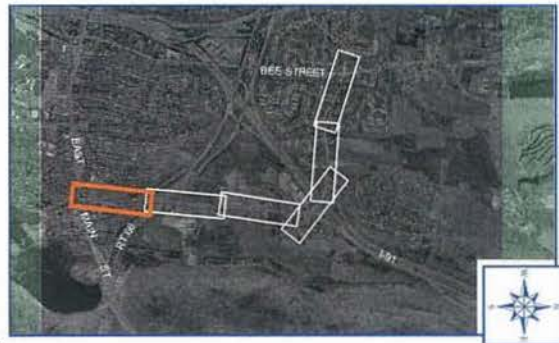
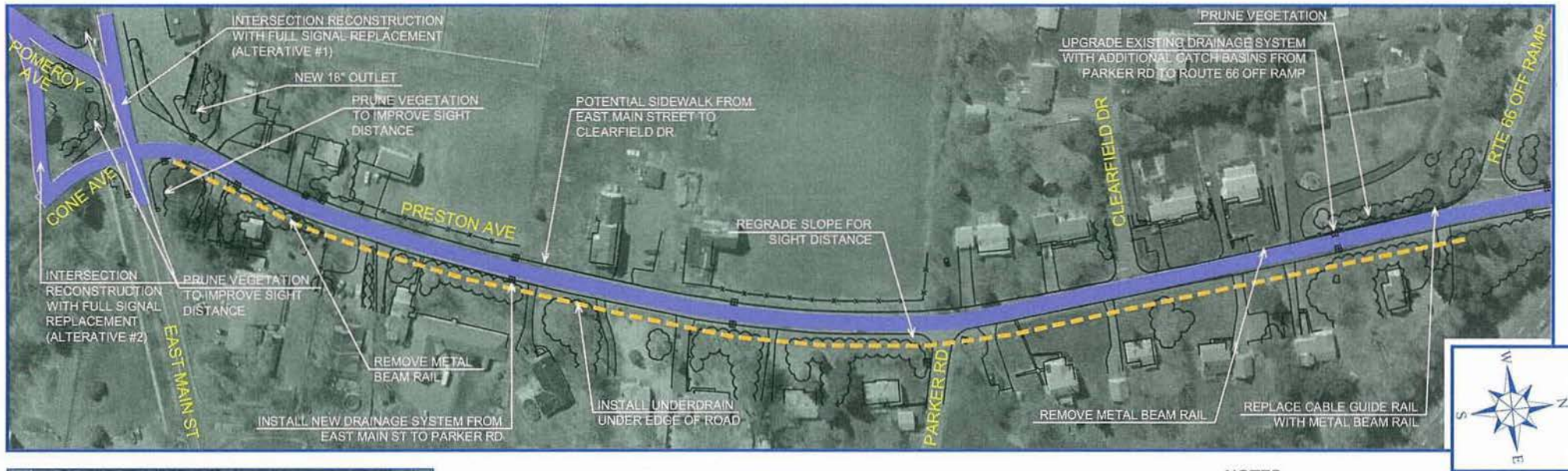
Figure 3 - Preston Avenue
 East Main Street
 Intersection Improvements
 (Alternative #2)

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FUSS & O'NEILL
Disciplines to Deliver

146 HARTFORD RD MANCHESTER, CT 06040 860.646.2469

South Central Regional Council of Governments
 CORRIDOR STUDY
 MERIDEN, CONNECTICUT
 June 2010



LEGEND

- FULL-DEPTH RECONSTRUCTION FOR PAVEMENT REHABILITATION.
- INSTALL UNDERDRAIN

NOTES

- REPLACE ALL EXISTING SIGNING TO CONFORM TO LATEST EDITION OF MUTCD
- ROADWAY MAY REQUIRE WIDENING TO 26' WIDE DEPENDING ON FUNDING SOURCE



FULL SIGNAL REPLACEMENT
EAST MAIN ST. AT PRESTON AVE.

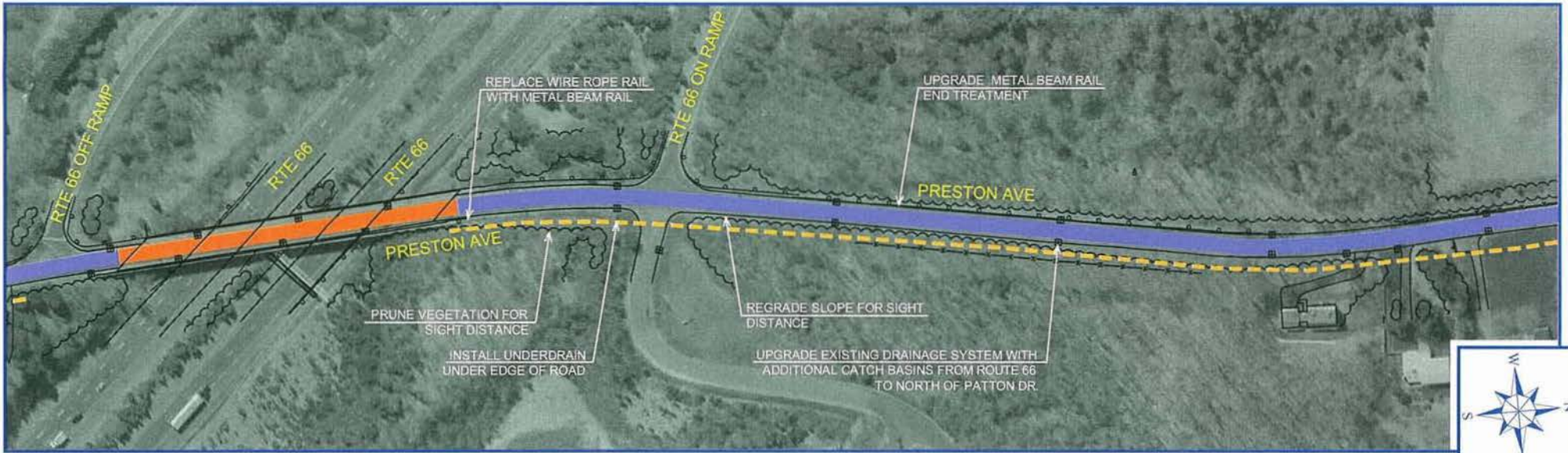


LIMITED SIGHT DISTANCE LOOKING LEFT
PRESTON AVE. AT PARKER ROAD LOOKING NORTH



REPLACE OBSOLETE CABLE GUIDE RAIL
PRESTON AVE. AT ROUTE 66 OFF-RAMP

Figure 4 - Preston Avenue
From East Main St to Rte 66
Off-Ramp



LEGEND

- FULL-DEPTH RECONSTRUCTION FOR PAVEMENT REHABILITATION.
- MILL AND OVERLAY
- INSTALL UNDERDRAIN

NOTES

- REPLACE ALL EXISTING SIGNING TO CONFORM TO LATEST EDITION OF MUTCD
- ROADWAY MAY REQUIRE WIDENING TO 26' WIDE DEPENDING ON FUNDING SOURCE



REPLACE OBSOLETE WIRE ROPE RAIL
PRESTON AVE. OVER ROUTE 66



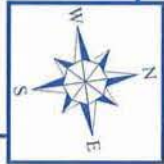
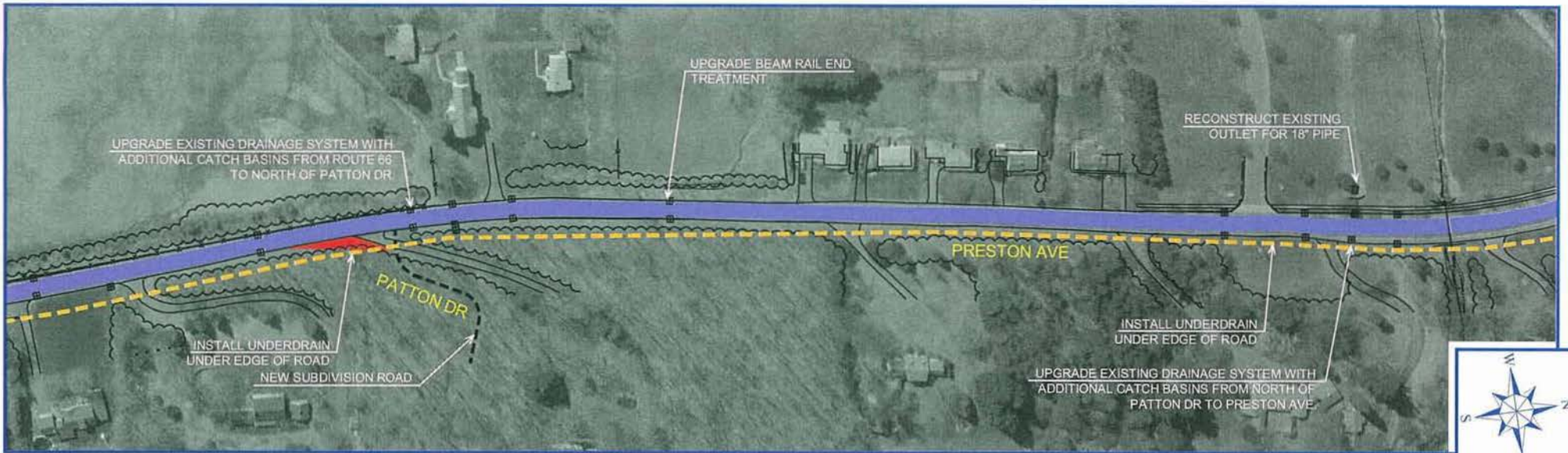
PRUNE VEGETATION TO IMPROVE SIGHT DISTANCE
JOHNSON AVE. AT POLICE ACADEMY DR. LOOKING SOUTH






REGRADE SLOPE FOR POLICE ACADEMY DRIVE
PRESTON AVENUE LOOKING EAST TOWARDS ROUTE 66

Figure 5 - Preston Avenue

From Rte 66 Off-Ramp to
North of Rte 66 On-Ramp



LEGEND

-  FULL-DEPTH RECONSTRUCTION FOR PAVEMENT REHABILITATION. VARIABLE WIDTH WIDENING TO PROVIDE 24' WIDE MINIMUM ROADWAY.
-  REMOVE OBSTRUCTIONS FROM SIGHT TRIANGLES
-  INSTALL UNDERDRAIN

NOTES

- REPLACE ALL EXISTING SIGNING TO CONFORM TO LATEST EDITION OF MUTCD
- ROADWAY MAY REQUIRE WIDENING TO 26' WIDE DEPENDING ON FUNDING SOURCE



REMOVE VEGETATION TO IMPROVE SIGHT DISTANCE PRESTON AVE. AT PATTON DR. LOOKING SOUTH

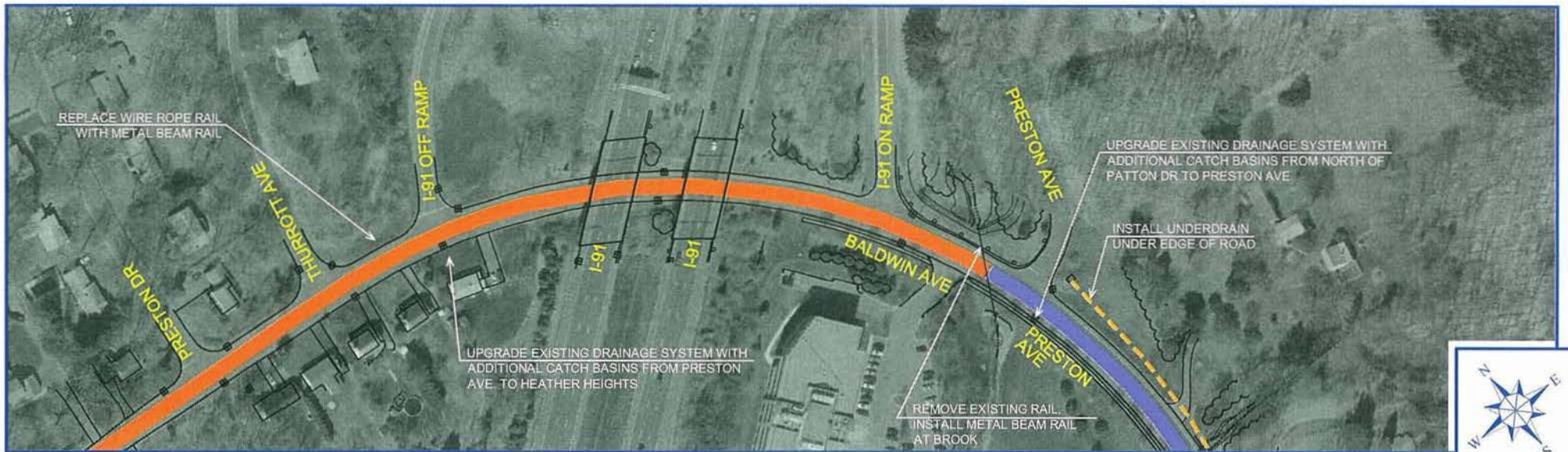


POTENTIALLY WIDEN ROADWAY TO 26' PRESTON AVE. AT PATTON DR. LOOKING EAST





POTENTIALLY WIDEN ROADWAY TO 26' PRESTON AVE. EAST OF PATTON DR.

Figure 6 - Preston Avenue
From North of Route 66 On-Ramp to South of Baldwin Ave



LEGEND

-  FULL-DEPTH RECONSTRUCTION FOR PAVEMENT REHABILITATION. VARIABLE WIDTH WIDENING TO PROVIDE 24' WIDE MINIMUM ROADWAY.
-  MILL AND OVERLAY WITH SIDEWALK EXTENSION FROM OFFICE PARK TO THE NORTH.

NOTES

- REPLACE ALL EXISTING SIGNING TO CONFORM TO LATEST EDITION OF MUTCD
- ROADWAY MAY REQUIRE WIDENING TO 26' WIDE DEPENDING ON FUNDING SOURCE



UPGRADE ROADSIDE PROTECTION AT CULVERT JOHNSON AVE. AT FAIRFAX AVE. LOOKING EAST

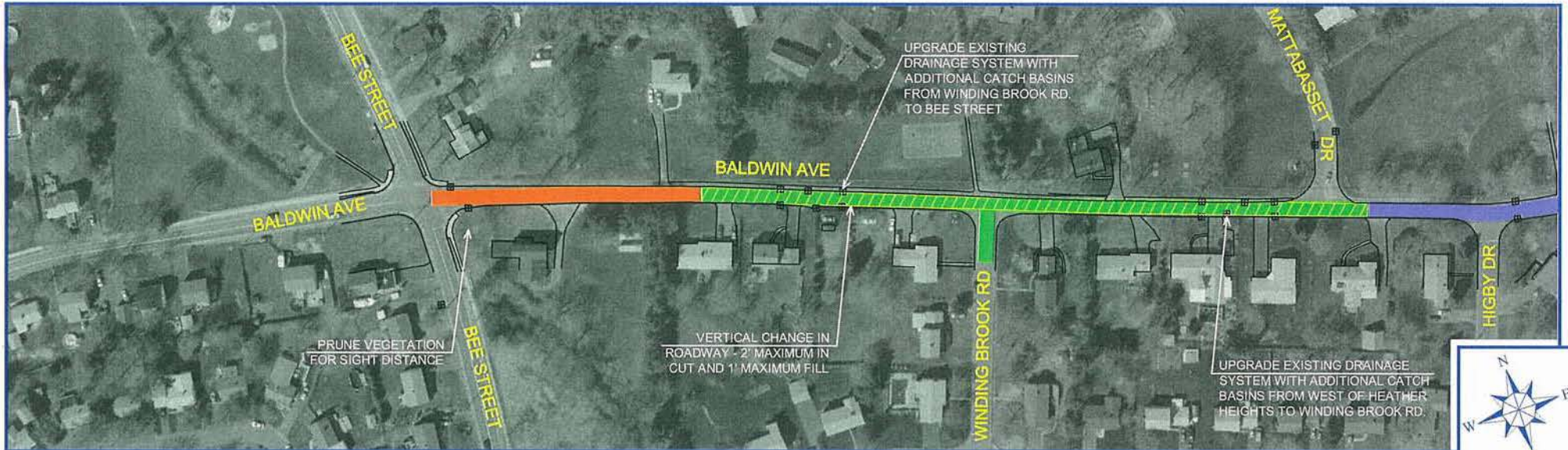


SUBSTANDARD VERTICAL CLEARANCE UNDER I-91 BALDWIN AVENUE LOOKING WEST UNDER I-91







MILL AND OVERLAY EXISTING PAVEMENT BALDWIN AVE. AT PRESTON DR. LOOKING WEST

Figure 7 - Preston Avenue/Baldwin Avenue South of Baldwin Ave to Preston Drive



RECONSTRUCT ROADWAY TO IMPROVE SIGHT DISTANCE BALDWIN AVE. AT MATTABASSET DR. LOOKING WEST

LEGEND

-  FULL-DEPTH RECONSTRUCTION FOR PAVEMENT REHABILITATION. VARIABLE WIDTH WIDENING TO PROVIDE 24' WIDE MINIMUM ROADWAY. RECONSTRUCT EXISTING SIDEWALKS WITH CONCRETE SIDEWALKS AND ADA COMPLIANT RAMPS.
-  FULL-DEPTH RECONSTRUCTION TO CORRECT VERTICAL PROFILE DEFICIENCIES
-  FULL-DEPTH RECONSTRUCTION AND ASSOCIATED IMPROVEMENTS PER BALDWIN AVENUE IMPROVEMENTS PRELIMINARY DESIGN PLANS.
-  MILL AND OVERLAY. VARIABLE WIDTH WIDENING TO PROVIDE 24' WIDE MINIMUM ROADWAY. RECONSTRUCT EXISTING SIDEWALKS WITH CONCRETE SIDEWALKS AND ADA COMPLIANT RAMPS.

NOTES

- REPLACE ALL EXISTING SIGNING TO CONFORM TO LATEST EDITION OF MUTCD



PRUNE VEGETATION TO IMPROVE SIGHT DISTANCE BEE ST. AT BALDWIN AVE. LOOKING SOUTH

Figure 9 - Baldwin Avenue
From Higby Drive to Bee Street

Appendix A

Traffic Counts

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 2205
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	07-Jun-10		Tue		Wed		Thu		Fri		Sat		Sun		Week Average		
	Northbound	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	
12:00 AM	*	*	*	*	*	*	*	*	18	12	21	17	12	21	17	17	
01:00	*	*	*	*	*	*	*	*	8	4	15	8	16	11	13	8	
02:00	*	*	*	*	*	*	*	*	8	5	15	10	18	14	14	10	
03:00	*	*	*	*	*	*	*	*	6	5	6	9	4	6	5	7	
04:00	*	*	*	*	*	*	*	*	10	14	7	9	3	6	7	10	
05:00	*	*	*	*	*	*	*	*	10	42	6	17	5	8	7	22	
06:00	*	*	*	*	*	*	*	*	40	104	22	50	15	20	26	58	
07:00	*	*	*	*	*	*	*	*	84	225	27	57	28	38	46	107	
08:00	*	*	*	*	*	*	*	*	72	189	44	79	39	45	52	104	
09:00	*	*	*	*	*	*	*	*	60	111	68	118	37	83	55	104	
10:00	*	*	*	*	*	*	*	*	54	88	88	121	63	132	68	114	
11:00	*	*	*	*	*	*	*	81	108	82	123	92	133	80	96	84	115
12:00 PM	*	*	*	*	*	*	*	89	126	91	121	93	131	88	128	90	126
01:00	*	*	*	*	*	*	*	97	103	109	122	95	127	78	117	95	117
02:00	*	*	*	*	*	*	*	123	102	128	140	102	102	93	123	112	117
03:00	*	*	*	*	*	*	*	149	159	153	157	81	103	86	87	117	126
04:00	*	*	*	*	*	*	*	203	150	193	198	102	116	64	116	140	145
05:00	*	*	*	*	*	*	*	205	228	191	194	94	107	74	90	141	155
06:00	*	*	*	*	*	*	*	126	137	105	149	70	100	73	62	94	112
07:00	*	*	*	*	*	*	*	92	75	115	104	72	88	59	74	84	85
08:00	*	*	*	*	*	*	*	94	58	87	79	57	57	44	56	70	62
09:00	*	*	*	*	*	*	*	53	52	44	64	51	63	32	46	45	56
10:00	*	*	*	*	*	*	*	30	24	32	40	39	41	15	28	29	33
11:00	*	*	*	*	*	*	*	33	32	40	42	30	29	12	19	29	30
Lane	0	0	0	0	0	0	0	1375	1354	1740	2332	1297	1692	1038	1426	1440	1840
Day	0	0	0	0	0	0	0	2729	1354	4072	2332	2989	1692	2464	1426	3280	1840
AM Peak Vol.								11:00	11:00	07:00	07:00	11:00	11:00	11:00	10:00	11:00	11:00
PM Peak Vol.								17:00	17:00	16:00	16:00	14:00	12:00	14:00	12:00	17:00	17:00

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 2205
Station ID:

Latitude: 0' 0.000 Undefined

Start Time	14-Jun-10		Tue		Wed		Thu		Fri		Sat		Sun		Week Average			
	Northbound	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo	Northbo	Southbo		
12:00 AM	9	8	13	17	*	*	*	*	*	*	*	*	*	*	11	12		
01:00	5	7	3	13	*	*	*	*	*	*	*	*	*	*	4	10		
02:00	5	6	5	9	*	*	*	*	*	*	*	*	*	*	5	8		
03:00	2	5	10	2	*	*	*	*	*	*	*	*	*	*	6	4		
04:00	3	15	4	16	*	*	*	*	*	*	*	*	*	*	4	16		
05:00	15	56	20	45	*	*	*	*	*	*	*	*	*	*	18	50		
06:00	32	142	42	130	*	*	*	*	*	*	*	*	*	*	37	136		
07:00	106	260	111	222	*	*	*	*	*	*	*	*	*	*	108	241		
08:00	76	202	86	219	*	*	*	*	*	*	*	*	*	*	81	210		
09:00	53	100	47	120	*	*	*	*	*	*	*	*	*	*	50	110		
10:00	61	92	59	108	*	*	*	*	*	*	*	*	*	*	60	100		
11:00	60	101	79	117	*	*	*	*	*	*	*	*	*	*	70	109		
12:00 PM	103	105	105	136	*	*	*	*	*	*	*	*	*	*	104	120		
01:00	97	105	67	76	*	*	*	*	*	*	*	*	*	*	82	90		
02:00	104	129	*	*	*	*	*	*	*	*	*	*	*	*	104	129		
03:00	134	123	*	*	*	*	*	*	*	*	*	*	*	*	134	123		
04:00	197	161	*	*	*	*	*	*	*	*	*	*	*	*	197	161		
05:00	224	219	*	*	*	*	*	*	*	*	*	*	*	*	224	219		
06:00	94	111	*	*	*	*	*	*	*	*	*	*	*	*	94	111		
07:00	88	84	*	*	*	*	*	*	*	*	*	*	*	*	88	84		
08:00	82	65	*	*	*	*	*	*	*	*	*	*	*	*	82	65		
09:00	47	37	*	*	*	*	*	*	*	*	*	*	*	*	47	37		
10:00	35	41	*	*	*	*	*	*	*	*	*	*	*	*	35	41		
11:00	17	9	*	*	*	*	*	*	*	*	*	*	*	*	17	9		
Lane	1649	2183	651	1230	0	0	0	0	0	0	0	0	0	0	1662	2195		
Day	3832		1881		0		0		0		0		0		3857			
AM Peak	07:00	07:00	07:00	07:00													07:00	07:00
Vol.	106	260	111	222													108	241
PM Peak	17:00	17:00	12:00	12:00													17:00	17:00
Vol.	224	219	105	136													224	219

Comb. Total	3832	1881	0	2729	4072	2989	2464	7137
ADT	ADT 3,952		AADT 3,952					

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Northbound															Latitude: 0' 0.000 Undefined			
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75					
6/10/10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	1	0	0	6	8	29	30	7	0	0	0	0	0	0	81	36-45	59	
12 PM	0	1	0	7	23	36	19	3	0	0	0	0	0	0	89	31-40	59	
13:00	1	0	0	6	9	46	23	10	2	0	0	0	0	0	97	36-45	69	
14:00	0	0	2	2	24	51	34	9	1	0	0	0	0	0	123	36-45	85	
15:00	1	0	0	3	23	58	51	11	2	0	0	0	0	0	149	36-45	109	
16:00	0	2	1	9	21	86	68	13	3	0	0	0	0	0	203	36-45	154	
17:00	1	1	1	4	18	84	82	13	0	1	0	0	0	0	205	36-45	166	
18:00	0	0	0	1	17	57	42	8	1	0	0	0	0	0	126	36-45	99	
19:00	0	0	0	3	13	38	27	7	3	1	0	0	0	0	92	36-45	65	
20:00	0	0	0	7	20	39	23	4	1	0	0	0	0	0	94	34-43	62	
21:00	0	0	0	0	17	18	14	3	1	0	0	0	0	0	53	31-40	35	
22:00	0	0	0	2	8	11	7	2	0	0	0	0	0	0	30	33-42	21	
23:00	0	0	1	2	9	16	2	2	1	0	0	0	0	0	33	31-40	25	
Total	4	4	5	52	210	569	422	92	15	2	0	0	0	0	1375			
Percent	0.3%	0.3%	0.4%	3.8%	15.3%	41.4%	30.7%	6.7%	1.1%	0.1%	0.0%	0.0%	0.0%	0.0%				
AM Peak	11:00			11:00	11:00	11:00	11:00	11:00								11:00		
Vol.	1			6	8	29	30	7							81			
PM Peak	13:00	16:00	14:00	16:00	14:00	16:00	17:00	16:00	16:00	17:00						17:00		
Vol.	1	2	2	9	24	86	82	13	3	1					205			

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Northbound															Latitude: 0' 0.000 Undefined		
Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total	Pace Speed	Number in Pace
6/11/10	0	0	0	2	4	6	3	3	0	0	0	0	0	0	18	29-38	10
01:00	0	0	0	0	3	3	2	0	0	0	0	0	0	0	8	33-42	8
02:00	0	0	0	1	1	5	1	0	0	0	0	0	0	0	8	32-41	7
03:00	0	0	0	0	0	5	1	0	0	0	0	0	0	0	6	32-41	6
04:00	0	1	0	1	1	2	4	1	0	0	0	0	0	0	10	35-44	7
05:00	0	0	0	0	1	3	4	2	0	0	0	0	0	0	10	38-47	9
06:00	0	0	0	0	4	14	16	5	1	0	0	0	0	0	40	36-45	30
07:00	0	0	0	2	6	29	38	9	0	0	0	0	0	0	84	36-45	67
08:00	0	0	0	1	8	35	24	3	1	0	0	0	0	0	72	36-45	59
09:00	0	0	0	4	12	22	18	3	1	0	0	0	0	0	60	34-43	40
10:00	1	0	0	3	13	19	17	1	0	0	0	0	0	0	54	33-42	36
11:00	0	0	1	3	16	28	28	6	0	0	0	0	0	0	82	36-45	56
12 PM	0	0	0	6	13	35	30	6	1	0	0	0	0	0	91	36-45	65
13:00	0	0	0	7	18	36	35	10	3	0	0	0	0	0	109	36-45	71
14:00	1	1	4	8	20	52	31	10	1	0	0	0	0	0	128	36-45	83
15:00	0	0	0	5	15	72	51	9	1	0	0	0	0	0	153	36-45	123
16:00	1	0	0	2	10	85	80	14	0	0	1	0	0	0	193	36-45	165
17:00	0	0	0	6	14	87	71	11	0	0	0	0	1	1	191	36-45	158
18:00	0	0	1	2	3	49	40	10	0	0	0	0	0	0	105	36-45	89
19:00	0	0	0	1	20	43	41	6	4	0	0	0	0	0	115	36-45	84
20:00	0	0	0	2	20	27	33	5	0	0	0	0	0	0	87	36-45	60
21:00	0	0	0	1	10	17	12	4	0	0	0	0	0	0	44	33-42	29
22:00	0	0	0	0	9	18	4	1	0	0	0	0	0	0	32	31-40	27
23:00	0	0	0	6	8	17	1	6	2	0	0	0	0	0	40	31-40	25
Total	3	2	6	63	229	709	585	125	15	0	1	0	1	1	1740		
Percent	0.2%	0.1%	0.3%	3.6%	13.2%	40.7%	33.6%	7.2%	0.9%	0.0%	0.1%	0.0%	0.1%	0.1%			
AM Peak	10:00	04:00	11:00	09:00	11:00	08:00	07:00	07:00	06:00								07:00
Vol.	1	1	1	4	16	35	38	9	1								84
PM Peak	14:00	14:00	14:00	14:00	14:00	17:00	16:00	16:00	19:00		16:00		17:00	17:00			16:00
Vol.	1	1	4	8	20	87	80	14	4		1		1	1			193

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 2205
Station ID:

Northbound															Latitude: 0' 0.000 Undefined		
Start Time	0 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 9999	Total	Pace Speed	Number in Pace
6/12/10	0	0	0	4	3	9	2	1	2	0	0	0	0	0	21	33-42	14
01:00	0	0	0	0	2	5	6	1	1	0	0	0	0	0	15	34-43	11
02:00	0	0	0	1	6	6	2	0	0	0	0	0	0	0	15	30-39	12
03:00	0	0	0	0	0	2	2	1	0	1	0	0	0	0	6	37-46	5
04:00	0	1	0	0	3	2	1	0	0	0	0	0	0	0	7	28-37	5
05:00	0	0	0	0	2	2	1	1	0	0	0	0	0	0	6	28-37	4
06:00	0	0	0	0	4	3	9	5	1	0	0	0	0	0	22	38-47	14
07:00	0	0	0	0	5	9	9	4	0	0	0	0	0	0	27	35-44	18
08:00	0	0	0	2	10	17	10	3	0	2	0	0	0	0	44	31-40	27
09:00	0	1	1	2	11	26	24	3	0	0	0	0	0	0	68	36-45	50
10:00	1	1	0	4	16	24	31	8	3	0	0	0	0	0	88	36-45	55
11:00	0	0	0	5	10	35	33	7	1	0	1	0	0	0	92	36-45	68
12 PM	0	0	0	3	17	41	26	6	0	0	0	0	0	0	93	36-45	67
13:00	0	0	0	3	18	41	23	8	2	0	0	0	0	0	95	34-43	64
14:00	0	0	0	2	17	38	35	9	0	0	1	0	0	0	102	36-45	73
15:00	0	0	0	0	8	38	21	11	2	1	0	0	0	0	81	36-45	59
16:00	0	1	0	2	7	37	41	13	0	0	0	0	0	1	102	36-45	78
17:00	0	0	0	1	7	32	38	13	3	0	0	0	0	0	94	36-45	70
18:00	0	0	0	2	6	27	27	8	0	0	0	0	0	0	70	36-45	54
19:00	0	0	1	2	11	34	20	3	0	1	0	0	0	0	72	36-45	54
20:00	0	0	0	8	8	26	13	1	1	0	0	0	0	0	57	34-43	39
21:00	0	0	1	6	16	20	5	3	0	0	0	0	0	0	51	31-40	36
22:00	0	0	0	9	13	11	6	0	0	0	0	0	0	0	39	27-36	24
23:00	0	1	0	4	7	8	4	5	1	0	0	0	0	0	30	29-38	15
Total	1	5	3	60	207	493	389	114	17	5	2	0	0	1	1297		
Percent	0.1%	0.4%	0.2%	4.6%	16.0%	38.0%	30.0%	8.8%	1.3%	0.4%	0.2%	0.0%	0.0%	0.1%			
AM Peak	10:00	04:00	09:00	11:00	10:00	11:00	11:00	10:00	10:00	08:00	11:00				11:00		
Vol.	1	1	1	5	16	35	33	8	3	2	1				92		
PM Peak		16:00	19:00	22:00	13:00	12:00	16:00	16:00	17:00	15:00	14:00			16:00	14:00		
Vol.		1	1	9	18	41	41	13	3	1	1			1	102		

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Northbound															Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	9999			
6/13/10	0	0	0	0	4	6	0	2	0	0	0	0	0	0	12	31-40	10
01:00	0	0	0	0	3	10	3	0	0	0	0	0	0	0	16	33-42	15
02:00	0	0	0	1	3	8	4	1	0	1	0	0	0	0	18	33-42	13
03:00	0	0	0	0	1	2	1	0	0	0	0	0	0	0	4	32-41	4
04:00	0	0	0	0	1	2	0	0	0	0	0	0	0	0	3	28-37	3
05:00	1	0	0	1	0	1	2	0	0	0	0	0	0	0	5	33-42	3
06:00	0	0	0	1	1	2	6	2	1	1	0	0	0	0	15	38-47	10
07:00	0	0	0	0	6	12	9	1	0	0	0	0	0	0	28	35-44	22
08:00	0	0	0	3	5	20	7	4	0	0	0	0	0	0	39	33-42	27
09:00	0	1	1	3	3	14	13	2	0	0	0	0	0	0	37	36-45	27
10:00	0	0	0	1	5	28	23	4	2	0	0	0	0	0	63	36-45	51
11:00	0	0	0	5	6	34	29	5	0	1	0	0	0	0	80	36-45	63
12 PM	0	0	0	4	11	34	29	7	1	2	0	0	0	0	88	36-45	63
13:00	0	1	1	3	14	32	24	3	0	0	0	0	0	0	78	36-45	56
14:00	0	0	0	0	6	55	24	7	1	0	0	0	0	0	93	36-45	79
15:00	0	0	0	2	29	25	24	6	0	0	0	0	0	0	86	31-40	54
16:00	0	0	0	1	7	32	19	4	1	0	0	0	0	0	64	36-45	51
17:00	0	0	2	2	7	25	33	4	1	0	0	0	0	0	74	36-45	58
18:00	1	0	0	1	13	29	22	7	0	0	0	0	0	0	73	36-45	51
19:00	0	1	2	0	8	22	18	6	2	0	0	0	0	0	59	36-45	40
20:00	0	0	0	2	6	20	13	3	0	0	0	0	0	0	44	35-44	33
21:00	0	0	0	0	8	16	6	1	1	0	0	0	0	0	32	32-41	25
22:00	0	0	0	0	3	6	5	1	0	0	0	0	0	0	15	33-42	11
23:00	0	0	0	1	3	4	2	2	0	0	0	0	0	0	12	30-39	8
Total	2	3	6	32	153	439	316	72	10	5	0	0	0	0	1038		
Percent	0.2%	0.3%	0.6%	3.1%	14.7%	42.3%	30.4%	6.9%	1.0%	0.5%	0.0%	0.0%	0.0%	0.0%			
AM Peak	05:00	09:00	09:00	11:00	07:00	11:00	11:00	11:00	10:00	02:00					11:00		
Vol.	1	1	1	5	6	34	29	5	2	1					80		
PM Peak	18:00	13:00	17:00	12:00	15:00	14:00	17:00	12:00	19:00	12:00					14:00		
Vol.	1	1	2	4	29	55	33	7	2	2					93		

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 2205
Station ID:

Northbound															Latitude: 0' 0.000 Undefined			
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75					
6/15/10	0	0	0	0	4	5	4	0	0	0	0	0	0	0	0	13	32-41	10
01:00	0	0	0	1	0	1	1	0	0	0	0	0	0	0	0	3	32-41	2
02:00	0	0	0	0	3	1	1	0	0	0	0	0	0	0	0	5	31-40	4
03:00	0	1	0	0	0	8	1	0	0	0	0	0	0	0	0	10	32-41	9
04:00	0	0	0	0	1	1	2	0	0	0	0	0	0	0	0	4	33-42	4
05:00	0	0	0	0	2	8	9	1	0	0	0	0	0	0	0	20	35-44	17
06:00	0	0	1	1	2	19	14	5	0	0	0	0	0	0	0	42	36-45	33
07:00	0	0	0	0	17	38	47	9	0	0	0	0	0	0	0	111	36-45	85
08:00	1	0	1	3	10	36	28	4	0	1	1	0	0	1	86	36-45	64	
09:00	0	3	0	2	5	20	11	6	0	0	0	0	0	0	47	36-45	31	
10:00	0	0	0	1	17	24	13	4	0	0	0	0	0	0	59	31-40	41	
11:00	1	0	1	3	16	27	26	5	0	0	0	0	0	0	79	36-45	53	
12 PM	1	1	2	2	20	42	25	10	1	1	0	0	0	0	105	36-45	67	
13:00	0	0	0	3	13	26	19	5	0	1	0	0	0	0	67	35-44	45	
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	3	5	5	16	110	256	201	49	1	3	1	0	0	1	651			
Percent	0.5%	0.8%	0.8%	2.5%	16.9%	39.3%	30.9%	7.5%	0.2%	0.5%	0.2%	0.0%	0.0%	0.2%				
AM Peak	08:00	09:00	06:00	08:00	07:00	07:00	07:00	07:00		08:00	08:00			08:00	07:00			
Vol.	1	3	1	3	17	38	47	9		1	1			1	111			
PM Peak	12:00	12:00	12:00	13:00	12:00	12:00	12:00	12:00	12:00	12:00					12:00			
Vol.	1	1	2	3	20	42	25	10	1	1					105			
Total	18	23	37	279	1162	3122	2444	568	69	20	4	0	1	3	7750			
Percent	0.2%	0.3%	0.5%	3.6%	15.0%	40.3%	31.5%	7.3%	0.9%	0.3%	0.1%	0.0%	0.0%	0.0%				

15th Percentile : 34 MPH
50th Percentile : 39 MPH
85th Percentile : 44 MPH
95th Percentile : 48 MPH

Stats
10 MPH Pace Speed : 36-45 MPH
Number in Pace : 5566
Percent in Pace : 71.8%
Number of Vehicles > 35 MPH : 6231
Percent of Vehicles > 35 MPH : 80.4%
Mean Speed(Average) : 39 MPH

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Southbound															Latitude: 0' 0.000 Undefined			
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75					
6/10/10	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	0	0	0	2	8	37	42	13	5	0	1	0	0	0	108	36-45	79	
12 PM	0	0	0	1	18	28	54	21	4	0	0	0	0	0	126	36-45	82	
13:00	1	0	1	3	11	28	44	12	3	0	0	0	0	0	103	36-45	72	
14:00	1	1	2	0	6	31	32	26	2	1	0	0	0	0	102	36-45	63	
15:00	0	1	1	0	8	54	52	36	6	1	0	0	0	0	159	36-45	106	
16:00	1	0	0	2	5	43	71	21	6	1	0	0	0	0	150	36-45	114	
17:00	0	0	0	3	14	58	94	41	11	5	2	0	0	0	228	36-45	152	
18:00	0	1	0	1	6	47	57	19	5	0	0	0	0	1	137	36-45	104	
19:00	0	0	0	0	9	21	31	10	3	0	1	0	0	0	75	36-45	52	
20:00	0	0	0	1	7	16	23	9	2	0	0	0	0	0	58	36-45	39	
21:00	0	0	0	0	4	18	22	7	0	1	0	0	0	0	52	36-45	40	
22:00	0	0	0	0	1	8	13	2	0	0	0	0	0	0	24	36-45	21	
23:00	0	0	1	1	3	12	7	3	2	3	0	0	0	0	32	33-42	19	
Total	3	3	5	14	100	401	542	220	49	12	4	0	0	1	1354			
Percent	0.2%	0.2%	0.4%	1.0%	7.4%	29.6%	40.0%	16.2%	3.6%	0.9%	0.3%	0.0%	0.0%	0.1%				
AM Peak				11:00	11:00	11:00	11:00	11:00	11:00		11:00					11:00		
Vol.				2	8	37	42	13	5		1				108			
PM Peak	13:00	14:00	14:00	13:00	12:00	17:00	17:00	17:00	17:00	17:00	17:00			18:00	17:00			
Vol.	1	1	2	3	18	58	94	41	11	5	2			1	228			

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Site Code: 2205
Station ID:

															Latitude: 0' 0.000 Undefined		
Southbound	0	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace	Number
Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	9999		Speed	in Pace
6/11/10	0	0	1	0	1	6	3	1	0	0	0	0	0	0	12	34-43	10
01:00	0	0	0	0	2	0	2	0	0	0	0	0	0	0	4	23-32	2
02:00	0	0	0	0	1	1	3	0	0	0	0	0	0	0	5	34-43	5
03:00	0	0	0	0	1	1	0	2	1	0	0	0	0	0	5	42-51	3
04:00	0	0	0	0	3	2	3	3	2	0	0	0	1	0	14	39-48	8
05:00	0	0	0	1	1	12	18	8	2	0	0	0	0	0	42	36-45	30
06:00	0	0	0	0	4	24	56	18	2	0	0	0	0	0	104	36-45	80
07:00	0	0	0	3	12	58	103	44	5	0	0	0	0	0	225	36-45	161
08:00	0	1	1	1	7	57	86	25	9	2	0	0	0	0	189	36-45	143
09:00	0	0	0	1	10	44	36	17	2	1	0	0	0	0	111	36-45	80
10:00	0	0	0	1	3	28	33	16	7	0	0	0	0	0	88	36-45	61
11:00	0	0	4	6	9	35	50	16	3	0	0	0	0	0	123	36-45	85
12 PM	2	0	0	1	12	39	46	18	3	0	0	0	0	0	121	36-45	85
13:00	0	0	0	1	18	34	40	25	3	1	0	0	0	0	122	36-45	74
14:00	0	0	0	2	16	36	58	21	6	1	0	0	0	0	140	36-45	94
15:00	0	0	0	0	5	41	75	32	2	2	0	0	0	0	157	36-45	116
16:00	1	1	1	1	7	61	101	21	3	1	0	0	0	0	198	36-45	162
17:00	0	0	1	1	16	54	84	30	6	1	1	0	0	0	194	36-45	138
18:00	0	1	1	1	13	40	72	18	3	0	0	0	0	0	149	36-45	112
19:00	0	0	0	0	5	26	46	20	6	1	0	0	0	0	104	36-45	72
20:00	1	0	0	0	6	19	36	12	3	2	0	0	0	0	79	36-45	55
21:00	0	0	0	1	4	28	23	5	3	0	0	0	0	0	64	36-45	51
22:00	0	0	0	0	4	14	15	4	2	1	0	0	0	0	40	36-45	29
23:00	0	0	2	2	8	10	15	5	0	0	0	0	0	0	42	36-45	25
Total	4	3	11	23	168	670	1004	361	73	13	1	0	1	0	2332		
Percent	0.2%	0.1%	0.5%	1.0%	7.2%	28.7%	43.1%	15.5%	3.1%	0.6%	0.0%	0.0%	0.0%	0.0%			
AM Peak		08:00	11:00	11:00	07:00	07:00	07:00	07:00	08:00	08:00			04:00		07:00		
Vol.		1	4	6	12	58	103	44	9	2			1		225		
PM Peak	12:00	16:00	23:00	14:00	13:00	16:00	16:00	15:00	14:00	15:00	17:00				16:00		
Vol.	2	1	2	2	18	61	101	32	6	2	1				198		

Preston Avenue South of I-91 Ramps
Meriden, Connecticut

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(860) 828-1693

Site Code: 2205
Station ID:

Southbound															Latitude: 0' 0.000 Undefined		
Start	0	16	21	26	31	36	41	46	51	56	61	66	71	76		Pace	Number
Time	15	20	25	30	35	40	45	50	55	60	65	70	75	9999	Total	Speed	in Pace
6/12/10	0	0	0	1	1	3	7	5	0	0	0	0	0	0	17	38-47	12
01:00	0	0	0	0	1	2	3	1	0	0	1	0	0	0	8	34-43	6
02:00	0	0	0	1	0	4	2	2	0	1	0	0	0	0	10	36-45	6
03:00	0	0	0	0	0	0	5	3	1	0	0	0	0	0	9	39-48	8
04:00	0	0	0	0	1	2	2	1	3	0	0	0	0	0	9	33-42	5
05:00	0	0	0	1	0	1	11	4	0	0	0	0	0	0	17	40-49	16
06:00	0	0	0	0	4	10	23	10	3	0	0	0	0	0	50	36-45	33
07:00	0	0	0	0	3	14	25	10	3	2	0	0	0	0	57	36-45	39
08:00	0	0	0	0	4	19	35	19	1	1	0	0	0	0	79	37-46	55
09:00	0	0	0	2	16	26	47	23	4	0	0	0	0	0	118	36-45	73
10:00	1	0	0	2	5	39	49	18	6	1	0	0	0	0	121	36-45	88
11:00	0	0	0	3	5	43	48	28	3	3	0	0	0	0	133	36-45	91
12 PM	0	0	1	0	12	44	53	18	3	0	0	0	0	0	131	36-45	97
13:00	0	0	0	2	10	59	41	13	2	0	0	0	0	0	127	36-45	100
14:00	0	0	0	1	8	21	34	34	3	1	0	0	0	0	102	41-50	68
15:00	0	0	0	0	4	22	47	25	3	2	0	0	0	0	103	39-48	72
16:00	0	0	0	1	3	30	51	29	1	1	0	0	0	0	116	36-45	81
17:00	0	0	0	2	6	19	57	22	1	0	0	0	0	0	107	38-47	79
18:00	0	0	0	1	6	27	39	23	2	2	0	0	0	0	100	36-45	66
19:00	0	1	1	2	6	32	35	11	0	0	0	0	0	0	88	36-45	67
20:00	0	0	0	0	6	17	23	8	2	0	1	0	0	0	57	36-45	40
21:00	0	0	0	1	7	20	30	2	3	0	0	0	0	0	63	36-45	50
22:00	0	0	0	0	9	14	14	2	2	0	0	0	0	0	41	35-44	28
23:00	0	0	0	0	2	7	12	5	1	2	0	0	0	0	29	36-45	19
Total	1	1	2	20	119	475	693	316	47	16	2	0	0	0	1692		
Percent	0.1%	0.1%	0.1%	1.2%	7.0%	28.1%	41.0%	18.7%	2.8%	0.9%	0.1%	0.0%	0.0%	0.0%			
AM Peak	10:00			11:00	09:00	11:00	10:00	11:00	10:00	11:00	01:00				11:00		
Vol.	1			3	16	43	49	28	6	3	1				133		
PM Peak		19:00	12:00	13:00	12:00	13:00	17:00	14:00	12:00	15:00	20:00				12:00		
Vol.		1	1	2	12	59	57	34	3	2	1				131		

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Southbound															Latitude: 0' 0.000 Undefined			
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	9999	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75					
6/13/10	0	0	0	0	2	9	6	3	1	0	0	0	0	0	0	21	34-43	15
01:00	0	0	0	0	2	0	4	3	1	0	1	0	0	0	0	11	39-48	7
02:00	0	0	0	0	1	2	4	6	1	0	0	0	0	0	0	14	42-51	11
03:00	0	0	0	0	0	0	5	1	0	0	0	0	0	0	0	6	37-46	6
04:00	0	0	0	0	0	0	2	3	1	0	0	0	0	0	0	6	42-51	6
05:00	0	0	0	0	0	2	1	5	0	0	0	0	0	0	0	8	41-50	6
06:00	0	0	0	0	1	4	9	5	0	1	0	0	0	0	0	20	37-46	14
07:00	0	0	0	1	6	4	18	7	1	1	0	0	0	0	0	38	38-47	25
08:00	0	0	1	2	2	12	14	13	1	0	0	0	0	0	0	45	39-48	29
09:00	0	0	0	1	4	23	36	15	4	0	0	0	0	0	0	83	36-45	59
10:00	0	0	0	1	3	46	59	18	4	1	0	0	0	0	0	132	36-45	105
11:00	0	0	0	0	4	33	41	13	5	0	0	0	0	0	0	96	36-45	74
12 PM	0	1	0	2	4	33	61	19	6	1	1	0	0	0	0	128	36-45	94
13:00	0	0	2	4	9	39	45	16	2	0	0	0	0	0	0	117	36-45	84
14:00	0	0	0	4	8	36	41	29	4	1	0	0	0	0	0	123	36-45	77
15:00	0	0	0	3	7	22	35	19	1	0	0	0	0	0	0	87	36-45	57
16:00	0	0	1	1	4	37	50	19	4	0	0	0	0	0	0	116	36-45	87
17:00	0	1	0	1	4	28	29	22	5	0	0	0	0	0	0	90	36-45	57
18:00	0	0	0	0	3	17	25	15	2	0	0	0	0	0	0	62	36-45	42
19:00	0	0	0	1	4	19	28	20	1	1	0	0	0	0	0	74	37-46	48
20:00	1	0	0	0	7	13	28	7	0	0	0	0	0	0	0	56	36-45	41
21:00	0	2	1	1	3	14	16	5	4	0	0	0	0	0	0	46	36-45	30
22:00	0	0	0	0	3	7	13	4	0	1	0	0	0	0	0	28	36-45	20
23:00	0	0	0	0	1	6	5	6	1	0	0	0	0	0	0	19	35-44	11
Total	1	4	5	22	82	406	575	273	49	7	2	0	0	0	0	1426		
Percent	0.1%	0.3%	0.4%	1.5%	5.8%	28.5%	40.3%	19.1%	3.4%	0.5%	0.1%	0.0%	0.0%	0.0%				
AM Peak			08:00	08:00	07:00	10:00	10:00	10:00	11:00	06:00	01:00					10:00		
Vol.			1	2	6	46	59	18	5	1	1					132		
PM Peak	20:00	21:00	13:00	13:00	13:00	13:00	12:00	14:00	12:00	12:00	12:00					12:00		
Vol.	1	2	2	4	9	39	61	29	6	1	1					128		

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Southbound															Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	9999			
6/14/10	0	0	0	2	1	2	3	0	0	0	0	0	0	0	8	34-43	6
01:00	0	0	0	0	1	4	1	0	1	0	0	0	0	0	7	32-41	6
02:00	0	0	0	0	0	0	3	2	1	0	0	0	0	0	6	38-47	5
03:00	0	0	0	0	0	1	2	2	0	0	0	0	0	0	5	38-47	5
04:00	0	0	0	4	6	1	2	2	0	0	0	0	0	0	15	26-35	10
05:00	0	0	2	4	5	12	23	8	1	1	0	0	0	0	56	36-45	35
06:00	0	0	1	1	2	36	65	30	3	4	0	0	0	0	142	36-45	101
07:00	1	1	0	2	11	68	123	47	6	1	0	0	0	0	260	36-45	191
08:00	0	0	0	1	14	62	90	28	4	2	1	0	0	0	202	36-45	152
09:00	0	0	0	2	7	28	41	17	3	2	0	0	0	0	100	36-45	69
10:00	0	0	0	1	13	20	37	18	3	0	0	0	0	0	92	36-45	57
11:00	0	0	1	4	10	26	42	15	2	1	0	0	0	0	101	36-45	68
12 PM	0	0	3	5	12	36	34	15	0	0	0	0	0	0	105	36-45	70
13:00	0	0	1	4	8	29	45	16	2	0	0	0	0	0	105	36-45	74
14:00	0	0	3	1	14	32	55	20	2	2	0	0	0	0	129	36-45	87
15:00	2	0	0	0	4	38	61	16	1	1	0	0	0	0	123	36-45	99
16:00	0	0	1	0	10	46	72	25	5	1	0	0	0	1	161	36-45	118
17:00	0	0	1	0	11	57	109	35	4	1	0	0	0	1	219	36-45	166
18:00	0	0	0	2	8	28	44	25	4	0	0	0	0	0	111	36-45	72
19:00	0	0	1	1	11	24	32	10	5	0	0	0	0	0	84	36-45	56
20:00	0	0	0	2	4	21	24	12	1	1	0	0	0	0	65	36-45	45
21:00	0	0	0	2	7	8	11	8	0	0	0	1	0	0	37	38-47	21
22:00	0	0	0	0	6	13	14	6	1	1	0	0	0	0	41	35-44	27
23:00	0	0	1	0	0	4	4	0	0	0	0	0	0	0	9	35-44	8
Total	3	1	15	38	165	596	937	357	49	18	1	1	0	2	2183		
Percent	0.1%	0.0%	0.7%	1.7%	7.6%	27.3%	42.9%	16.4%	2.2%	0.8%	0.0%	0.0%	0.0%	0.1%			
AM Peak	07:00	07:00	05:00	04:00	08:00	07:00	07:00	07:00	07:00	06:00	08:00						07:00
Vol.	1	1	2	4	14	68	123	47	6	4	1						260
PM Peak	15:00		12:00	12:00	14:00	17:00	17:00	17:00	16:00	14:00		21:00		16:00			17:00
Vol.	2		3	5	14	57	109	35	5	2		1		1			219

Connecticut Counts LLC
63 Sugar Maple Lane
Kensington, Connecticut 06037
(860) 828-1693

Preston Avenue South of I-91 Ramps
 Meriden, Connecticut

Site Code: 2205
 Station ID:

Southbound															Latitude: 0' 0.000 Undefined		
Start Time	0	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	Pace Speed	Number in Pace
	15	20	25	30	35	40	45	50	55	60	65	70	75	9999			
6/15/10	0	0	0	1	0	5	10	0	1	0	0	0	0	0	17	36-45	15
01:00	0	0	0	0	0	7	3	2	0	0	1	0	0	0	13	34-43	10
02:00	0	0	1	0	1	2	2	2	1	0	0	0	0	0	9	38-47	6
03:00	0	0	0	0	0	0	0	1	1	0	0	0	0	0	2	42-51	2
04:00	0	0	1	1	1	3	5	5	0	0	0	0	0	0	16	38-47	10
05:00	0	0	0	3	2	10	17	11	2	0	0	0	0	0	45	37-46	28
06:00	0	0	0	1	5	36	63	19	4	1	1	0	0	0	130	36-45	99
07:00	1	0	0	2	11	54	101	43	8	1	0	0	0	1	222	36-45	155
08:00	0	1	0	1	10	67	87	40	9	2	2	0	0	0	219	36-45	154
09:00	0	0	1	0	7	39	52	17	3	1	0	0	0	0	120	36-45	91
10:00	0	0	1	0	8	28	45	21	5	0	0	0	0	0	108	36-45	73
11:00	0	0	2	0	7	24	54	21	9	0	0	0	0	0	117	37-46	79
12 PM	0	0	1	4	18	51	37	18	5	2	0	0	0	0	136	36-45	88
13:00	0	0	2	8	6	27	26	7	0	0	0	0	0	0	76	36-45	53
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	1	1	9	21	76	353	502	207	48	7	4	0	0	1	1230		
Percent	0.1%	0.1%	0.7%	1.7%	6.2%	28.7%	40.8%	16.8%	3.9%	0.6%	0.3%	0.0%	0.0%	0.1%			
AM Peak	07:00	08:00	11:00	05:00	07:00	08:00	07:00	07:00	08:00	08:00	08:00			07:00	07:00		
Vol.	1	1	2	3	11	67	101	43	9	2	2			1	222		
PM Peak			13:00	13:00	12:00	12:00	12:00	12:00	12:00	12:00					12:00		
Vol.			2	8	18	51	37	18	5	2					136		
Total	13	13	47	138	710	2901	4253	1734	315	73	14	1	1	4	10217		
Percent	0.1%	0.1%	0.5%	1.4%	6.9%	28.4%	41.6%	17.0%	3.1%	0.7%	0.1%	0.0%	0.0%	0.0%			

15th Percentile : 37 MPH
 50th Percentile : 42 MPH
 85th Percentile : 47 MPH
 95th Percentile : 50 MPH

Stats
 10 MPH Pace Speed : 36-45 MPH
 Number in Pace : 7154
 Percent in Pace : 70.0%
 Number of Vehicles > 35 MPH : 9296
 Percent of Vehicles > 35 MPH : 91.0%
 Mean Speed(Average) : 42 MPH

Connecticut Counts LLC

Kensington, Connecticut 06037

East Main Street at Preston/Cone Avenue (860) 828-1693
Meriden, Connecticut

File Name : 9806
Site Code : 9806
Start Date : 6/14/2010
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
07:00 AM	32	10	9	0	51	4	39	1	0	44	0	18	18	0	36	8	34	19	0	61	192
07:15 AM	31	7	9	0	47	10	36	1	0	47	0	10	16	0	26	8	40	28	0	76	196
07:30 AM	67	9	8	0	84	13	52	0	0	65	2	15	12	0	29	10	63	32	0	105	283
07:45 AM	87	9	10	0	106	11	64	1	0	76	0	15	21	0	36	11	38	28	0	77	295
Total	217	35	36	0	288	38	191	3	0	232	2	58	67	0	127	37	175	107	0	319	966
08:00 AM	64	9	8	0	81	9	47	0	0	56	1	18	6	0	25	5	54	33	0	92	254
08:15 AM	45	5	3	0	53	10	47	0	0	57	1	14	11	0	26	9	37	22	0	68	204
08:30 AM	31	8	8	0	47	9	44	0	0	53	0	13	11	0	24	7	46	27	0	80	204
08:45 AM	47	3	9	0	59	5	61	0	0	66	1	10	13	0	24	15	46	14	0	75	224
Total	187	25	28	0	240	33	199	0	0	232	3	55	41	0	99	36	183	96	0	315	886
Grand Total	404	60	64	0	528	71	390	3	0	464	5	113	108	0	226	73	358	203	0	634	1852
Apprch %	76.5	11.4	12.1	0		15.3	84.1	0.6	0		2.2	50	47.8	0		11.5	56.5	32	0		
Total %	21.8	3.2	3.5	0	28.5	3.8	21.1	0.2	0	25.1	0.3	6.1	5.8	0	12.2	3.9	19.3	11	0	34.2	
Unshifted	393	56	61	0	510	71	376	2	0	449	4	113	104	0	221	68	343	188	0	599	1779
% Unshifted	97.3	93.3	95.3	0	96.6	100	96.4	66.7	0	96.8	80	100	96.3	0	97.8	93.2	95.8	92.6	0	94.5	96.1
Bank 1	7	0	1	0	8	0	14	1	0	15	1	0	1	0	2	2	13	14	0	29	54
% Bank 1	1.7	0	1.6	0	1.5	0	3.6	33.3	0	3.2	20	0	0.9	0	0.9	2.7	3.6	6.9	0	4.6	2.9
Bank 2	4	4	2	0	10	0	0	0	0	0	0	0	3	0	3	3	2	1	0	6	19
% Bank 2	1	6.7	3.1	0	1.9	0	0	0	0	0	0	0	2.8	0	1.3	4.1	0.6	0.5	0	0.9	1

Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

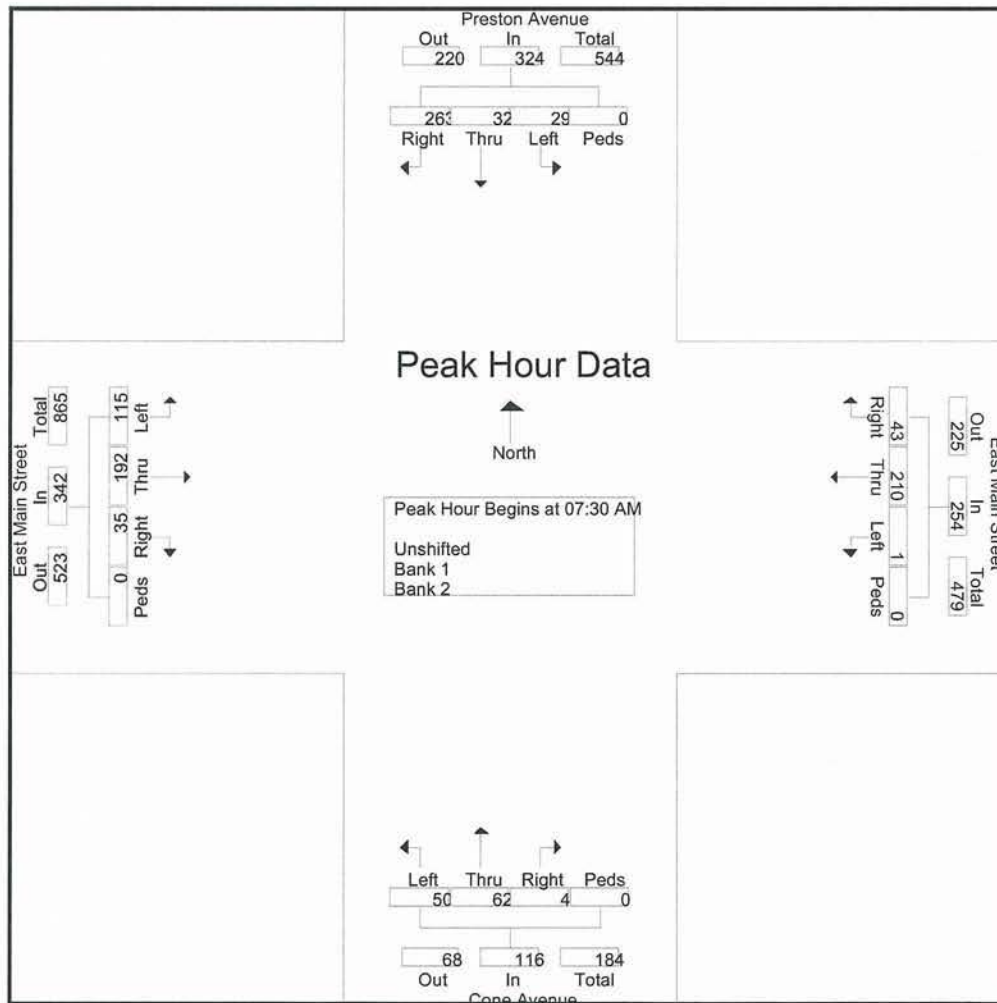
File Name : 9806

Site Code : 9806

Start Date : 6/14/2010

Page No : 2

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	67	9	8	0	84	13	52	0	0	65	2	15	12	0	29	10	63	32	0	105	283
07:45 AM	87	9	10	0	106	11	64	1	0	76	0	15	21	0	36	11	38	28	0	77	295
08:00 AM	64	9	8	0	81	9	47	0	0	56	1	18	6	0	25	5	54	33	0	92	254
08:15 AM	45	5	3	0	53	10	47	0	0	57	1	14	11	0	26	9	37	22	0	68	204
Total Volume	263	32	29	0	324	43	210	1	0	254	4	62	50	0	116	35	192	115	0	342	1036
% App. Total	81.2	9.9	9	0		16.9	82.7	0.4	0		3.4	53.4	43.1	0		10.2	56.1	33.6	0		
PHF	.756	.889	.725	.000	.764	.827	.820	.250	.000	.836	.500	.861	.595	.000	.806	.795	.762	.871	.000	.814	.878



Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

File Name : 9806

Site Code : 9806

Start Date : 6/14/2010

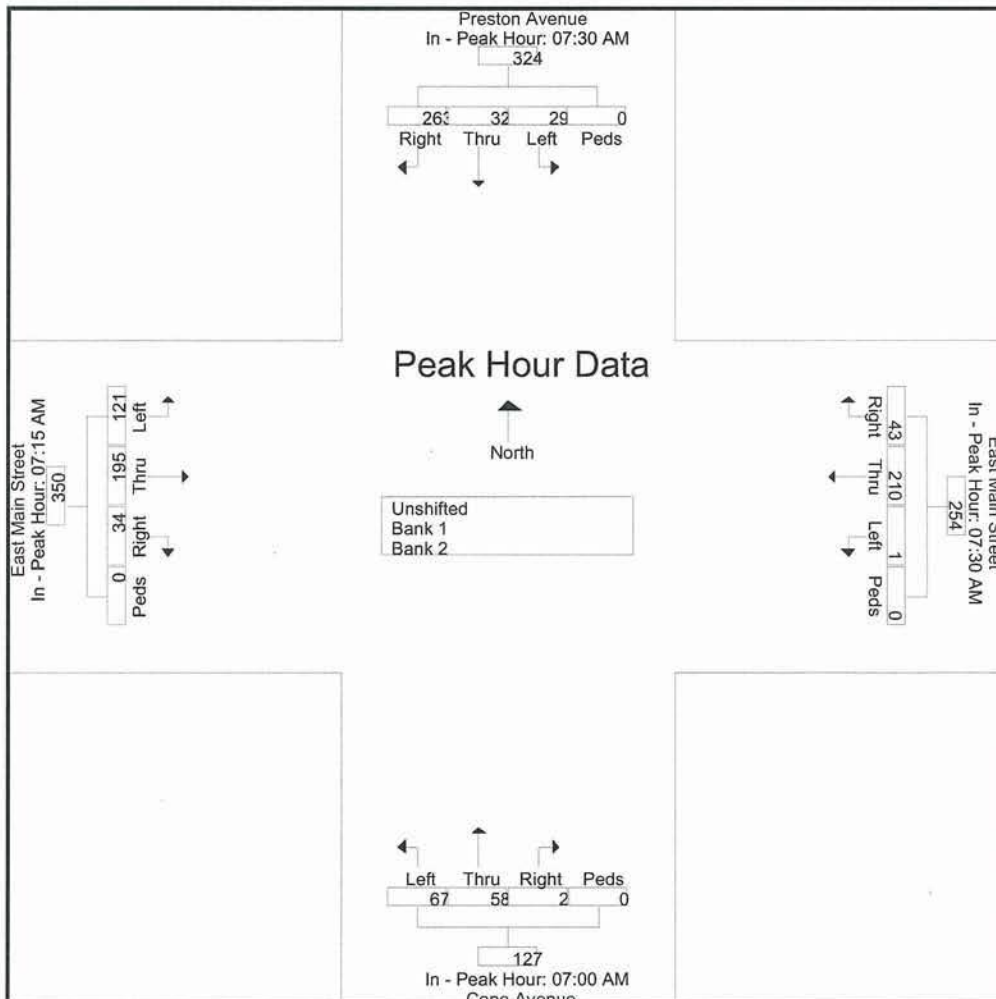
Page No : 3

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	07:30 AM					07:30 AM					07:00 AM					07:15 AM				
+0 mins.	67	9	8	0	84	13	52	0	0	65	0	18	18	0	36	8	40	28	0	76
+15 mins.	87	9	10	0	106	11	64	1	0	76	0	10	16	0	26	10	63	32	0	105
+30 mins.	64	9	8	0	81	9	47	0	0	56	2	15	12	0	29	11	38	28	0	77
+45 mins.	45	5	3	0	53	10	47	0	0	57	0	15	21	0	36	5	54	33	0	92
Total Volume	263	32	29	0	324	43	210	1	0	254	2	58	67	0	127	34	195	121	0	350
% App. Total	81.2	9.9	9	0		16.9	82.7	0.4	0		1.6	45.7	52.8	0		9.7	55.7	34.6	0	
PHF	.756	.889	.725	.000	.764	.827	.820	.250	.000	.836	.250	.806	.798	.000	.882	.773	.774	.917	.000	.833



Connecticut Counts LLC

Kensington, Connecticut 06037

East Main Street at Preston/Cone Avenue (860) 828-1693
Meriden, Connecticut

File Name : 9807
Site Code : 9807
Start Date : 6/14/2010
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
04:00 PM	16	14	11	0	41	7	44	1	0	52	0	12	6	0	18	22	94	55	0	171	282
04:15 PM	30	13	15	0	58	4	35	1	0	40	0	14	14	0	28	18	78	43	0	139	265
04:30 PM	36	27	10	0	73	7	47	1	0	55	0	10	8	0	18	21	86	76	0	183	329
04:45 PM	22	16	13	0	51	10	69	1	0	80	2	16	13	0	31	34	81	83	0	198	360
Total	104	70	49	0	223	28	195	4	0	227	2	52	41	0	95	95	339	257	0	691	1236
05:00 PM	28	19	15	0	62	15	49	0	0	64	1	12	21	0	34	22	113	108	0	243	403
05:15 PM	38	33	13	0	84	7	43	0	0	50	3	16	18	0	37	37	84	90	0	211	382
05:30 PM	32	35	17	0	84	9	64	1	0	74	2	12	18	0	32	43	82	61	0	186	376
05:45 PM	29	42	15	0	86	7	32	0	0	39	2	14	22	0	38	37	88	57	0	182	345
Total	127	129	60	0	316	38	188	1	0	227	8	54	79	0	141	139	367	316	0	822	1506
Grand Total	231	199	109	0	539	66	383	5	0	454	10	106	120	0	236	234	706	573	0	1513	2742
Apprch %	42.9	36.9	20.2	0		14.5	84.4	1.1	0		4.2	44.9	50.8	0		15.5	46.7	37.9	0		
Total %	8.4	7.3	4	0	19.7	2.4	14	0.2	0	16.6	0.4	3.9	4.4	0	8.6	8.5	25.7	20.9	0	55.2	
Unshifted	221	199	109	0	529	66	376	5	0	447	9	106	119	0	234	233	696	557	0	1486	2696
% Unshifted	95.7	100	100	0	98.1	100	98.2	100	0	98.5	90	100	99.2	0	99.2	99.6	98.6	97.2	0	98.2	98.3
Bank 1	10	0	0	0	10	0	7	0	0	7	1	0	0	0	1	1	9	16	0	26	44
% Bank 1	4.3	0	0	0	1.9	0	1.8	0	0	1.5	10	0	0	0	0.4	0.4	1.3	2.8	0	1.7	1.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	0	1	2
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0.8	0	0.4	0	0.1	0	0	0.1	0.1

Connecticut Counts LLC

Kensington, Connecticut 06037

(860) 828-1693

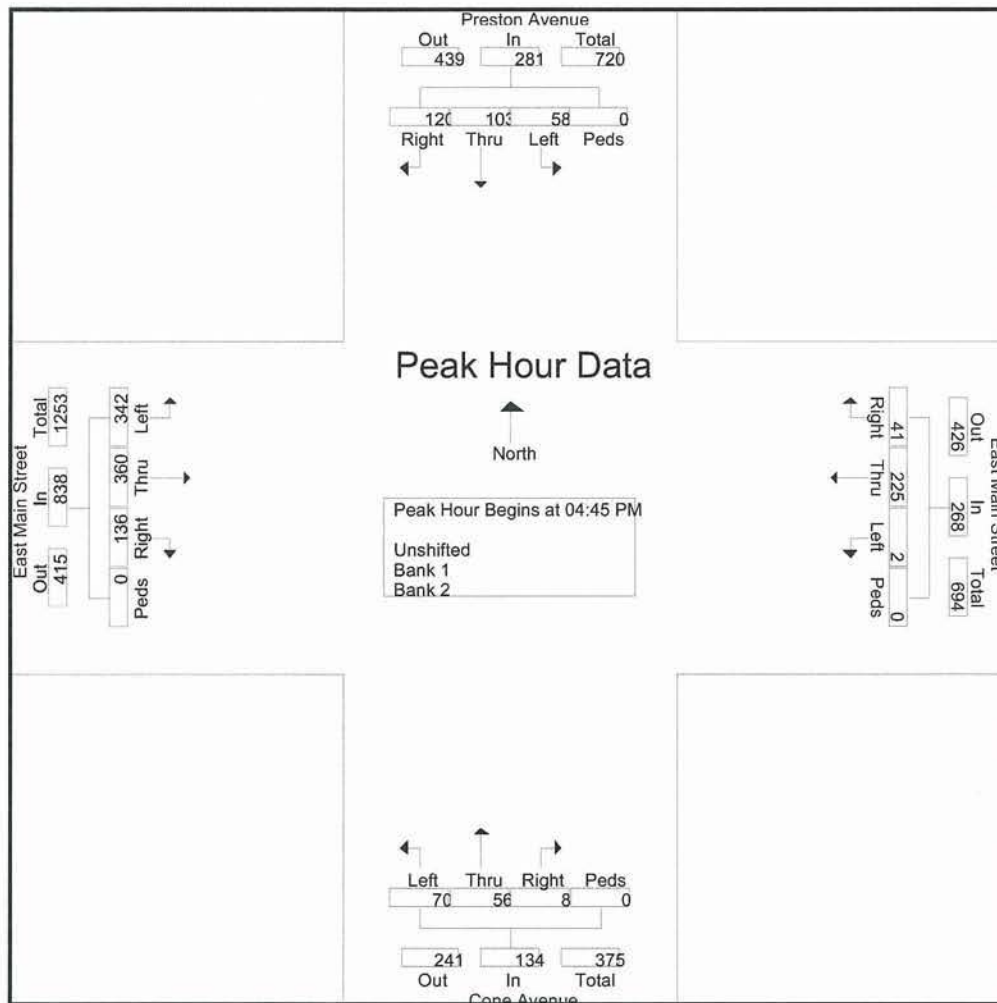
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Site Code : 9807

Start Date : 6/14/2010

Page No : 2

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	22	16	13	0	51	10	69	1	0	80	2	16	13	0	31	34	81	83	0	198	360
05:00 PM	28	19	15	0	62	15	49	0	0	64	1	12	21	0	34	22	113	108	0	243	403
05:15 PM	38	33	13	0	84	7	43	0	0	50	3	16	18	0	37	37	84	90	0	211	382
05:30 PM	32	35	17	0	84	9	64	1	0	74	2	12	18	0	32	43	82	61	0	186	376
Total Volume	120	103	58	0	281	41	225	2	0	268	8	56	70	0	134	136	360	342	0	838	1521
% App. Total	42.7	36.7	20.6	0		15.3	84	0.7	0		6	41.8	52.2	0		16.2	43	40.8	0		
PHF	.789	.736	.853	.000	.836	.683	.815	.500	.000	.838	.667	.875	.833	.000	.905	.791	.796	.792	.000	.862	.944



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File Name : 9807

Site Code : 9807

Start Date : 6/14/2010

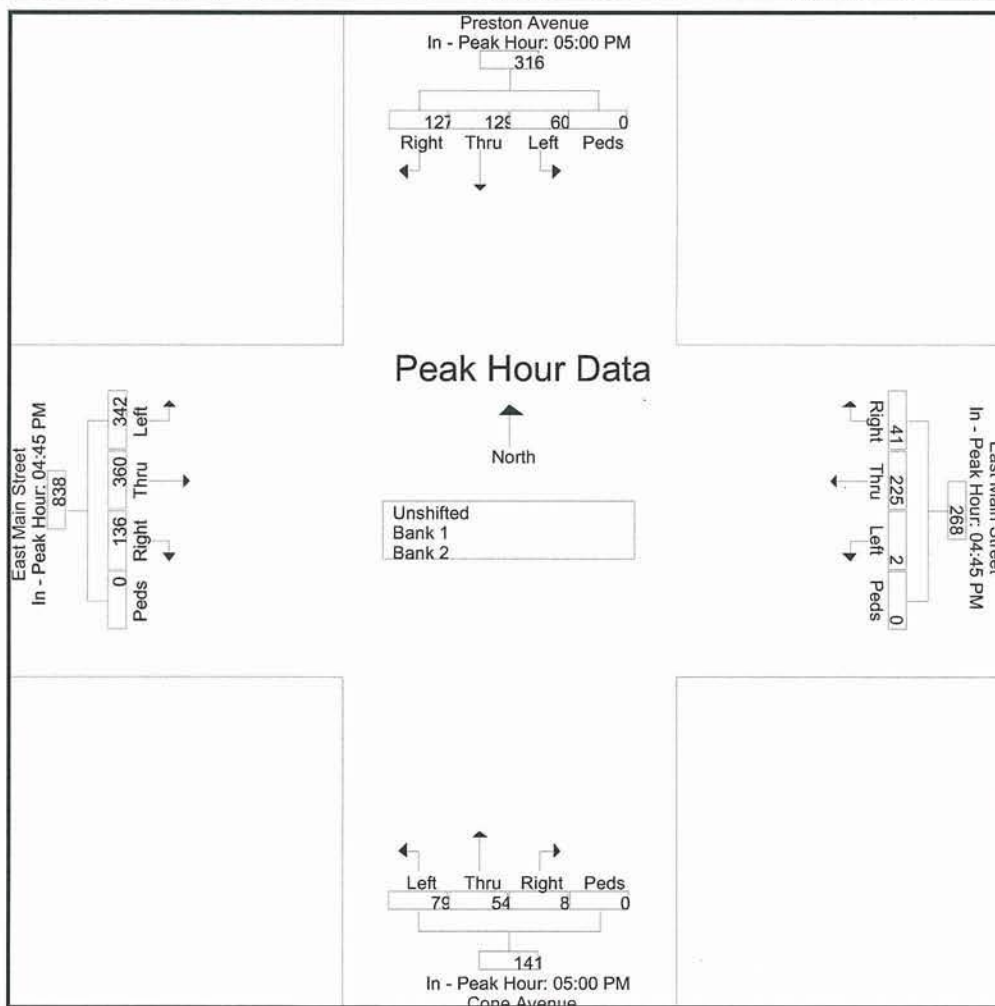
Page No : 3

Start Time	Preston Avenue From North					East Main Street From East					Cone Avenue From South					East Main Street From West					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

	05:00 PM					04:45 PM					05:00 PM					04:45 PM				
+0 mins.	28	19	15	0	62	10	69	1	0	80	1	12	21	0	34	34	81	83	0	198
+15 mins.	38	33	13	0	84	15	49	0	0	64	3	16	18	0	37	22	113	108	0	243
+30 mins.	32	35	17	0	84	7	43	0	0	50	2	12	18	0	32	37	84	90	0	211
+45 mins.	29	42	15	0	86	9	64	1	0	74	2	14	22	0	38	43	82	61	0	186
Total Volume	127	129	60	0	316	41	225	2	0	268	8	54	79	0	141	136	360	342	0	838
% App. Total	40.2	40.8	19	0		15.3	84	0.7	0		5.7	38.3	56	0		16.2	43	40.8	0	
PHF	.836	.768	.882	.000	.919	.683	.815	.500	.000	.838	.667	.844	.898	.000	.928	.791	.796	.792	.000	.862



Appendix B

2010 Weekday Capacity Analysis – Preston Avenue at East Main Street

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	115	192	35	1	210	43	5	5	5	29	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	130		0			0	0		0		0	
Storage Lanes	1		0			0	0		0		0	
Taper Length (ft)	25		25			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't		0.977			0.977			0.955				0.890
Flt Protected	0.950							0.984				0.991
Satd. Flow (prot)	1770	1820	0	0	1820	0	0	1750	0	0	0	1643
Flt Permitted	0.375				0.999			0.891				0.931
Satd. Flow (perm)	699	1820	0	0	1818	0	0	1585	0	0	0	1543
Right Turn on Red						Yes						
Satd. Flow (RTOR)					15							331
Link Speed (mph)		30			30			30				30
Link Distance (ft)		402			913			376				1042
Travel Time (s)		9.1			20.8			8.5				23.7
Peak Hour Factor	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92	0.92	0.76	0.76	0.76
Adj. Flow (vph)	142	237	43	1	250	51	5	5	5	38	42	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	142	280	0	0	302	0	0	15	0	0	0	426
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		15.0	15.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	6.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	6.0	27.0	0.0	21.0	21.0	0.0	24.0	24.0	0.0	24.0	24.0	24.0
Total Split (%)	9.2%	41.5%	0.0%	32.3%	32.3%	0.0%	36.9%	36.9%	0.0%	36.9%	36.9%	36.9%
Maximum Green (s)	4.0	21.0		15.0	15.0		18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	2.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
v/c Ratio	0.43	0.50			0.69			0.03				0.63
Control Delay	18.3	21.4			31.4			17.6				10.1
Queue Delay	0.0	0.0			0.0			0.0				0.0
Total Delay	18.3	21.4			31.4			17.6				10.1
Queue Length 50th (ft)	36	87			104			4				29
Queue Length 95th (ft)	63	133			#168			17				60
Internal Link Dist (ft)		322			833			296				962
Turn Bay Length (ft)	130											
Base Capacity (vph)	328	600			439			448				674
Starvation Cap Reductn	0	0			0			0				0

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010



Lane Group	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	263	50	62	4
Ideal Flow (vphpl)	1900	1900	1900	1900
Storage Length (ft)	0	0	0	
Storage Lanes	0	1	0	
Taper Length (ft)	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t		0.923		
Fl _t Protected		0.979		
Satd. Flow (prot)	0	1683	0	0
Fl _t Permitted		0.979		
Satd. Flow (perm)	0	1683	0	0
Right Turn on Red	Yes			Yes
Satd. Flow (RTOR)		2		
Link Speed (mph)		30		
Link Distance (ft)		264		
Travel Time (s)		6.0		
Peak Hour Factor	0.76	0.81	0.81	0.81
Adj. Flow (vph)	346	62	77	5
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	144	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Detector Phase		5		
Switch Phase				
Minimum Initial (s)		8.0		
Minimum Split (s)		14.0		
Total Split (s)	0.0	14.0	0.0	0.0
Total Split (%)	0.0%	21.5%	0.0%	0.0%
Maximum Green (s)		8.0		
Yellow Time (s)		4.0		
All-Red Time (s)		2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)		3.0		
Recall Mode		Max		
v/c Ratio		0.68		
Control Delay		45.3		
Queue Delay		0.0		
Total Delay		45.3		
Queue Length 50th (ft)		55		
Queue Length 95th (ft)		#112		
Internal Link Dist (ft)		184		
Turn Bay Length (ft)				
Base Capacity (vph)		213		
Starvation Cap Reductn		0		

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
 6/30/2010



Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Spillback Cap Reductn	0	0			0			0				0
Storage Cap Reductn	0	0			0			0				0
Reduced v/c Ratio	0.43	0.47			0.69			0.03				0.63

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 63.8
 Natural Cycle: 55
 Control Type: Actuated-Uncoordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Main Street & Preston Avenue

ø2	ø5	ø4
24 s	14 s	27 s
ø6		ø7
24 s		6 s
		ø8
		21 s




















Lane Group	SBR	NWL	NWR	NWR2
Spillback Cap Reductn		0		
Storage Cap Reductn		0		
Reduced v/c Ratio		0.68		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
 6/30/2010

												
Movement	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	115	192	35	1	210	43	5	5	5	29	32	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0			6.0				6.0
Lane Util. Factor	1.00	1.00			1.00			1.00				1.00
Fr _t	1.00	0.98			0.98			0.95				0.89
Fl _t Protected	0.95	1.00			1.00			0.98				0.99
Satd. Flow (prot)	1770	1820			1820			1750				1643
Fl _t Permitted	0.38	1.00			1.00			0.89				0.93
Satd. Flow (perm)	699	1820			1818			1585				1544
Peak-hour factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92	0.92	0.76	0.76	0.76
Adj. Flow (vph)	142	237	43	1	250	51	5	5	5	38	42	0
RTOR Reduction (vph)	0	0	0	0	11	0	0	0	0	0	0	238
Lane Group Flow (vph)	142	280	0	0	291	0	0	15	0	0	0	188
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Actuated Green, G (s)	20.1	20.1			15.0			18.0				18.0
Effective Green, g (s)	20.1	20.1			15.0			18.0				18.0
Actuated g/C Ratio	0.31	0.31			0.23			0.28				0.28
Clearance Time (s)	2.0	6.0			6.0			6.0				6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0				3.0
Lane Grp Cap (vph)	271	571			425			445				434
v/s Ratio Prot	c0.03	0.15										
v/s Ratio Perm	0.14				c0.16			0.01				c0.12
v/c Ratio	0.52	0.49			0.68			0.03				0.43
Uniform Delay, d1	18.6	17.8			22.4			16.7				18.9
Progression Factor	1.00	1.00			1.00			1.00				1.00
Incremental Delay, d2	1.8	0.7			4.5			0.1				3.1
Delay (s)	20.4	18.5			26.9			16.9				22.0
Level of Service	C	B			C			B				C
Approach Delay (s)		19.1			26.9			16.9				22.0
Approach LOS		B			C			B				C

Intersection Summary

HCM Average Control Delay		24.5		HCM Level of Service		C
HCM Volume to Capacity ratio		0.56				
Actuated Cycle Length (s)		64.1		Sum of lost time (s)		20.0
Intersection Capacity Utilization		75.3%		ICU Level of Service		D
Analysis Period (min)		15				
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue


















Timing Plan: AM Peak Hour
 6/30/2010



Movement	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	263	50	62	4
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		6.0		
Lane Util. Factor		1.00		
Flt		0.92		
Flt Protected		0.98		
Satd. Flow (prot)		1683		
Flt Permitted		0.98		
Satd. Flow (perm)		1683		
Peak-hour factor, PHF	0.76	0.81	0.81	0.81
Adj. Flow (vph)	346	62	77	5
RTOR Reduction (vph)	0	2	0	0
Lane Group Flow (vph)	0	142	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Actuated Green, G (s)		8.0		
Effective Green, g (s)		8.0		
Actuated g/C Ratio		0.12		
Clearance Time (s)		6.0		
Vehicle Extension (s)		3.0		
Lane Grp Cap (vph)		210		
v/s Ratio Prot		0.08		
v/s Ratio Perm				
v/c Ratio		0.68		
Uniform Delay, d1		26.8		
Progression Factor		1.00		
Incremental Delay, d2		16.2		
Delay (s)		43.0		
Level of Service		D		
Approach Delay (s)		43.0		
Approach LOS		D		
Intersection Summary				

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010

												
Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	342	360	136	2	225	41	5	5	5	58	103	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	130		0			0	0		0		0	
Storage Lanes	1		0			0	0		0		0	
Taper Length (ft)	25		25			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 t		0.959			0.979			0.955				0.942
Flt Protected	0.950							0.984				0.972
Satd. Flow (prot)	1770	1786	0	0	1824	0	0	1750	0	0	0	1706
Flt Permitted	0.346				0.995			0.882				0.814
Satd. Flow (perm)	645	1786	0	0	1815	0	0	1569	0	0	0	1428
Right Turn on Red						Yes						
Satd. Flow (RTOR)					13							52
Link Speed (mph)		30			30			30				30
Link Distance (ft)		402			913			376				1042
Travel Time (s)		9.1			20.8			8.5				23.7
Peak Hour Factor	0.86	0.86	0.86	0.84	0.84	0.84	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	398	419	158	2	268	49	5	5	5	69	123	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	398	577	0	0	319	0	0	15	0	0	0	335
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		15.0	15.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	6.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	11.0	32.0	0.0	21.0	21.0	0.0	19.0	19.0	0.0	19.0	19.0	19.0
Total Split (%)	16.9%	49.2%	0.0%	32.3%	32.3%	0.0%	29.2%	29.2%	0.0%	29.2%	29.2%	29.2%
Maximum Green (s)	9.0	26.0		15.0	15.0		13.0	13.0		13.0	13.0	13.0
Yellow Time (s)	2.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
v/c Ratio	0.88	0.81			0.74			0.05				1.02
Control Delay	37.3	28.5			35.1			21.6				82.6
Queue Delay	0.0	0.0			0.0			0.0				0.0
Total Delay	37.3	28.5			35.1			21.6				82.6
Queue Length 50th (ft)	104	196			113			5				~120
Queue Length 95th (ft)	#215	#332			#198			19				#245
Internal Link Dist (ft)		322			833			296				962
Turn Bay Length (ft)	130											
Base Capacity (vph)	453	714			429			314				327
Starvation Cap Reductn	0	0			0			0				0

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010



Lane Group	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	120	70	56	8
Ideal Flow (vphpl)	1900	1900	1900	1900
Storage Length (ft)	0	0	0	
Storage Lanes	0	1	0	
Taper Length (ft)	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00
Fr _t		0.935		
Fl _t Protected		0.975		
Satd. Flow (prot)	0	1698	0	0
Fl _t Permitted		0.975		
Satd. Flow (perm)	0	1698	0	0
Right Turn on Red	Yes			Yes
Satd. Flow (RTOR)		4		
Link Speed (mph)		30		
Link Distance (ft)		264		
Travel Time (s)		6.0		
Peak Hour Factor	0.84	0.91	0.91	0.91
Adj. Flow (vph)	143	77	62	9
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	148	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Detector Phase		5		
Switch Phase				
Minimum Initial (s)		8.0		
Minimum Split (s)		14.0		
Total Split (s)	0.0	14.0	0.0	0.0
Total Split (%)	0.0%	21.5%	0.0%	0.0%
Maximum Green (s)		8.0		
Yellow Time (s)		4.0		
All-Red Time (s)		2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)		3.0		
Recall Mode		Max		
v/c Ratio		0.70		
Control Delay		46.6		
Queue Delay		0.0		
Total Delay		46.6		
Queue Length 50th (ft)		56		
Queue Length 95th (ft)		#136		
Internal Link Dist (ft)		184		
Turn Bay Length (ft)				
Base Capacity (vph)		212		
Starvation Cap Reductn		0		

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010

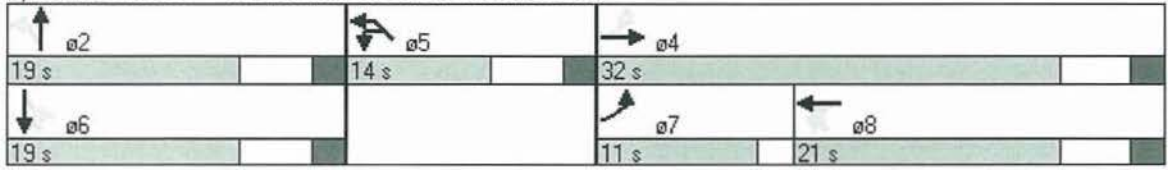


Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Spillback Cap Reductn	0	0			0			0				0
Storage Cap Reductn	0	0			0			0				0
Reduced v/c Ratio	0.88	0.81			0.74			0.05				1.02

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Natural Cycle: 70
 Control Type: Actuated-Uncoordinated
 ~ 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.

Splits and Phases: 1: East Main Street & Preston Avenue






















Lane Group	SBR	NWL	NWR	NWR2
Spillback Cap Reductn		0		
Storage Cap Reductn		0		
Reduced v/c Ratio		0.70		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010

												
Movement	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	342	360	136	2	225	41	5	5	5	58	103	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0			6.0				6.0
Lane Util. Factor	1.00	1.00			1.00			1.00				1.00
Fr _t	1.00	0.96			0.98			0.95				0.94
Fl _t Protected	0.95	1.00			1.00			0.98				0.97
Satd. Flow (prot)	1770	1786			1824			1750				1706
Fl _t Permitted	0.35	1.00			1.00			0.88				0.81
Satd. Flow (perm)	644	1786			1816			1569				1430
Peak-hour factor, PHF	0.86	0.86	0.86	0.84	0.84	0.84	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	398	419	158	2	268	49	5	5	5	69	123	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	0	42
Lane Group Flow (vph)	398	577	0	0	309	0	0	15	0	0	0	293
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Actuated Green, G (s)	26.0	26.0			15.0			13.0				13.0
Effective Green, g (s)	26.0	26.0			15.0			13.0				13.0
Actuated g/C Ratio	0.40	0.40			0.23			0.20				0.20
Clearance Time (s)	2.0	6.0			6.0			6.0				6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0				3.0
Lane Grp Cap (vph)	414	714			419			314				286
v/s Ratio Prot	c0.13	c0.32										
v/s Ratio Perm	0.25				0.17			0.01				c0.21
v/c Ratio	0.96	0.81			0.74			0.05				1.03
Uniform Delay, d ₁	17.8	17.3			23.2			21.0				26.0
Progression Factor	1.00	1.00			1.00			1.00				1.00
Incremental Delay, d ₂	34.2	6.7			6.6			0.3				60.0
Delay (s)	52.0	24.0			29.8			21.3				86.0
Level of Service	D	C			C			C				F
Approach Delay (s)		35.4			29.8			21.3				86.0
Approach LOS		D			C			C				F

Intersection Summary

HCM Average Control Delay		44.5		HCM Level of Service		D
HCM Volume to Capacity ratio		0.81				
Actuated Cycle Length (s)		65.0		Sum of lost time (s)		14.0
Intersection Capacity Utilization		92.4%		ICU Level of Service		F
Analysis Period (min)		15				
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010




















Movement	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	120	70	56	8
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		6.0		
Lane Util. Factor		1.00		
Fr _t		0.94		
Fit Protected		0.97		
Satd. Flow (prot)		1698		
Fit Permitted		0.97		
Satd. Flow (perm)		1698		
Peak-hour factor, PHF	0.84	0.91	0.91	0.91
Adj. Flow (vph)	143	77	62	9
RTOR Reduction (vph)	0	4	0	0
Lane Group Flow (vph)	0	144	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Actuated Green, G (s)		8.0		
Effective Green, g (s)		8.0		
Actuated g/C Ratio		0.12		
Clearance Time (s)		6.0		
Vehicle Extension (s)		3.0		
Lane Grp Cap (vph)		209		
v/s Ratio Prot		0.09		
v/s Ratio Perm				
v/c Ratio		0.69		
Uniform Delay, d1		27.3		
Progression Factor		1.00		
Incremental Delay, d2		17.2		
Delay (s)		44.5		
Level of Service		D		
Approach Delay (s)		44.5		
Approach LOS		D		
Intersection Summary				

Appendix C

2030 Weekday Capacity Analysis – Preston Avenue at East Main Street

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010

												
Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	140	234	43	1	256	52	6	6	6	35	39	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	130		0			0	0		0		0	
Storage Lanes	1		0			0	0		0		0	
Taper Length (ft)	25		25			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		0.977			0.977			0.955				0.890
Flt Protected	0.950							0.984				0.991
Satd. Flow (prot)	1770	1820	0	0	1820	0	0	1750	0	0	0	1643
Flt Permitted	0.283				0.999			0.840				0.929
Satd. Flow (perm)	527	1820	0	0	1818	0	0	1494	0	0	0	1540
Right Turn on Red						Yes						
Satd. Flow (RTOR)					15							333
Link Speed (mph)		30			30			30				30
Link Distance (ft)		402			913			376				1042
Travel Time (s)		9.1			20.8			8.5				23.7
Peak Hour Factor	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92	0.92	0.76	0.76	0.76
Adj. Flow (vph)	173	289	53	1	305	62	7	7	7	46	51	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	173	342	0	0	368	0	0	21	0	0	0	519
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		15.0	15.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	6.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	6.0	27.0	0.0	21.0	21.0	0.0	24.0	24.0	0.0	24.0	24.0	24.0
Total Split (%)	9.2%	41.5%	0.0%	32.3%	32.3%	0.0%	36.9%	36.9%	0.0%	36.9%	36.9%	36.9%
Maximum Green (s)	4.0	21.0		15.0	15.0		18.0	18.0		18.0	18.0	18.0
Yellow Time (s)	2.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
v/c Ratio	0.62	0.58			0.85			0.05				0.78
Control Delay	25.9	23.1			44.5			17.8				17.8
Queue Delay	0.0	0.0			0.0			0.0				0.0
Total Delay	25.9	23.1			44.5			17.8				17.8
Queue Length 50th (ft)	45	111			134			6				60
Queue Length 95th (ft)	76	162			#244			21				105
Internal Link Dist (ft)		322			833			296				962
Turn Bay Length (ft)	130											
Base Capacity (vph)	279	588			431			414				667
Starvation Cap Reductn	0	0			0			0				0

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour

6/30/2010



Lane Group	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	321	61	76	5
Ideal Flow (vphpl)	1900	1900	1900	1900
Storage Length (ft)	0	0	0	
Storage Lanes	0	1	0	
Taper Length (ft)	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00
Frt		0.923		
Flt Protected		0.979		
Satd. Flow (prot)	0	1683	0	0
Flt Permitted		0.979		
Satd. Flow (perm)	0	1683	0	0
Right Turn on Red	Yes			Yes
Satd. Flow (RTOR)		2		
Link Speed (mph)		30		
Link Distance (ft)		264		
Travel Time (s)		6.0		
Peak Hour Factor	0.76	0.81	0.81	0.81
Adj. Flow (vph)	422	75	94	6
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	175	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Detector Phase		5		
Switch Phase				
Minimum Initial (s)		8.0		
Minimum Split (s)		14.0		
Total Split (s)	0.0	14.0	0.0	0.0
Total Split (%)	0.0%	21.5%	0.0%	0.0%
Maximum Green (s)		8.0		
Yellow Time (s)		4.0		
All-Red Time (s)		2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)		3.0		
Recall Mode		Max		
v/c Ratio		0.84		
Control Delay		62.7		
Queue Delay		0.0		
Total Delay		62.7		
Queue Length 50th (ft)		68		
Queue Length 95th (ft)		#144		
Internal Link Dist (ft)		184		
Turn Bay Length (ft)				
Base Capacity (vph)		209		
Starvation Cap Reductn		0		

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
 6/30/2010



Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Spillback Cap Reductn	0	0			0			0				0
Storage Cap Reductn	0	0			0			0				0
Reduced v/c Ratio	0.62	0.58			0.85			0.05				0.78

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Main Street & Preston Avenue

ø2	ø5	ø4
24 s	14 s	27 s
ø6		ø7
24 s		6 s
		ø8
		21 s



Lane Group	SBR	NWL	NWR	NWR2
Spillback Cap Reductn		0		
Storage Cap Reductn		0		
Reduced v/c Ratio		0.84		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010

Movement	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	140	234	43	1	256	52	6	6	6	35	39	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0			6.0				6.0
Lane Util. Factor	1.00	1.00			1.00			1.00				1.00
Frt	1.00	0.98			0.98			0.95				0.89
Flt Protected	0.95	1.00			1.00			0.98				0.99
Satd. Flow (prot)	1770	1819			1820			1750				1643
Flt Permitted	0.28	1.00			1.00			0.84				0.93
Satd. Flow (perm)	527	1819			1818			1495				1541
Peak-hour factor, PHF	0.81	0.81	0.81	0.84	0.84	0.84	0.92	0.92	0.92	0.76	0.76	0.76
Adj. Flow (vph)	173	289	53	1	305	62	7	7	7	46	51	0
RTOR Reduction (vph)	0	0	0	0	12	0	0	0	0	0	0	241
Lane Group Flow (vph)	173	342	0	0	356	0	0	21	0	0	0	278
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Actuated Green, G (s)	21.0	21.0			15.0			18.0				18.0
Effective Green, g (s)	21.0	21.0			15.0			18.0				18.0
Actuated g/C Ratio	0.32	0.32			0.23			0.28				0.28
Clearance Time (s)	2.0	6.0			6.0			6.0				6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0				3.0
Lane Grp Cap (vph)	247	588			420			414				427
v/s Ratio Prot	c0.04	0.19										
v/s Ratio Perm	0.18				c0.20			0.01				c0.18
v/c Ratio	0.70	0.58			0.85			0.05				0.65
Uniform Delay, d1	19.1	18.3			23.9			17.2				20.7
Progression Factor	1.00	1.00			1.00			1.00				1.00
Incremental Delay, d2	8.6	1.5			14.7			0.2				7.5
Delay (s)	27.8	19.8			38.6			17.5				28.3
Level of Service	C	B			D			B				C
Approach Delay (s)		22.5			38.6			17.5				28.3
Approach LOS		C			D			B				C

Intersection Summary

HCM Average Control Delay		32.0	HCM Level of Service	C
HCM Volume to Capacity ratio		0.75		
Actuated Cycle Length (s)		65.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization		87.1%	ICU Level of Service	E
Analysis Period (min)		15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
 6/30/2010



Movement	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	321	61	76	5
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		6.0		
Lane Util. Factor		1.00		
Frt		0.92		
Flt Protected		0.98		
Satd. Flow (prot)		1683		
Flt Permitted		0.98		
Satd. Flow (perm)		1683		
Peak-hour factor, PHF	0.76	0.81	0.81	0.81
Adj. Flow (vph)	422	75	94	6
RTOR Reduction (vph)	0	2	0	0
Lane Group Flow (vph)	0	173	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Actuated Green, G (s)		8.0		
Effective Green, g (s)		8.0		
Actuated g/C Ratio		0.12		
Clearance Time (s)		6.0		
Vehicle Extension (s)		3.0		
Lane Grp Cap (vph)		207		
v/s Ratio Prot		c0.10		
v/s Ratio Perm				
v/c Ratio		0.84		
Uniform Delay, d1		27.9		
Progression Factor		1.00		
Incremental Delay, d2		31.3		
Delay (s)		59.2		
Level of Service		E		
Approach Delay (s)		59.2		
Approach LOS		E		

Intersection Summary

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	417	439	166	2	275	50	6	6	6	71	126	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	130		0			0	0		0		0	
Storage Lanes	1		0			0	0		0		0	
Taper Length (ft)	25		25			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		0.959			0.979			0.955				0.943
Flt Protected	0.950							0.984				0.972
Satd. Flow (prot)	1770	1786	0	0	1824	0	0	1750	0	0	0	1707
Flt Permitted	0.259				0.962			0.870				0.811
Satd. Flow (perm)	482	1786	0	0	1754	0	0	1548	0	0	0	1425
Right Turn on Red						Yes						
Satd. Flow (RTOR)					13							51
Link Speed (mph)		30			30			30				30
Link Distance (ft)		402			913			376				1042
Travel Time (s)		9.1			20.8			8.5				23.7
Peak Hour Factor	0.86	0.86	0.86	0.84	0.84	0.84	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	485	510	193	2	327	60	7	7	7	85	150	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	485	703	0	0	389	0	0	21	0	0	0	409
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Detector Phase	7	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	4.0	15.0		15.0	15.0		8.0	8.0		8.0	8.0	8.0
Minimum Split (s)	6.0	21.0		21.0	21.0		14.0	14.0		14.0	14.0	14.0
Total Split (s)	11.0	32.0	0.0	21.0	21.0	0.0	19.0	19.0	0.0	19.0	19.0	19.0
Total Split (%)	16.9%	49.2%	0.0%	32.3%	32.3%	0.0%	29.2%	29.2%	0.0%	29.2%	29.2%	29.2%
Maximum Green (s)	9.0	26.0		15.0	15.0		13.0	13.0		13.0	13.0	13.0
Yellow Time (s)	2.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	4.0
All-Red Time (s)	0.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	2.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	4.0	6.0	6.0	6.0
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?	Yes			Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	Max
v/c Ratio	1.21	0.98			0.94			0.07				1.25
Control Delay	134.7	52.6			58.2			21.9				162.2
Queue Delay	0.0	0.0			0.0			0.0				0.0
Total Delay	134.7	52.6			58.2			21.9				162.2
Queue Length 50th (ft)	~173	266			147			7				~193
Queue Length 95th (ft)	#317	#447			#271			23				#318
Internal Link Dist (ft)		322			833			296				962
Turn Bay Length (ft)	130											
Base Capacity (vph)	401	714			415			310				326
Starvation Cap Reductn	0	0			0			0				0

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010



Lane Group	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	146	85	68	10
Ideal Flow (vphpl)	1900	1900	1900	1900
Storage Length (ft)	0	0	0	
Storage Lanes	0	1	0	
Taper Length (ft)	25	25	25	
Lane Util. Factor	1.00	1.00	1.00	1.00
Flt		0.935		
Flt Protected		0.975		
Satd. Flow (prot)	0	1698	0	0
Flt Permitted		0.975		
Satd. Flow (perm)	0	1698	0	0
Right Turn on Red	Yes			Yes
Satd. Flow (RTOR)		4		
Link Speed (mph)		30		
Link Distance (ft)		264		
Travel Time (s)		6.0		
Peak Hour Factor	0.84	0.91	0.91	0.91
Adj. Flow (vph)	174	93	75	11
Shared Lane Traffic (%)				
Lane Group Flow (vph)	0	179	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Detector Phase		5		
Switch Phase				
Minimum Initial (s)		8.0		
Minimum Split (s)		14.0		
Total Split (s)	0.0	14.0	0.0	0.0
Total Split (%)	0.0%	21.5%	0.0%	0.0%
Maximum Green (s)		8.0		
Yellow Time (s)		4.0		
All-Red Time (s)		2.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	6.0	4.0	4.0
Lead/Lag				
Lead-Lag Optimize?				
Vehicle Extension (s)		3.0		
Recall Mode		Max		
v/c Ratio		0.84		
Control Delay		63.1		
Queue Delay		0.0		
Total Delay		63.1		
Queue Length 50th (ft)		69		
Queue Length 95th (ft)		#173		
Internal Link Dist (ft)		184		
Turn Bay Length (ft)				
Base Capacity (vph)		212		
Starvation Cap Reductn		0		

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010

Lane Group	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Spillback Cap Reductn	0	0			0			0				0
Storage Cap Reductn	0	0			0			0				0
Reduced v/c Ratio	1.21	0.98			0.94			0.07				1.25

Intersection Summary

Area Type: Other
 Cycle Length: 65
 Actuated Cycle Length: 65
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 ~ 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.

Splits and Phases: 1: East Main Street & Preston Avenue

ø2	ø5	ø4	
19 s	14 s	32 s	
ø6		ø7	ø8
19 s		11 s	21 s




















Lane Group	SBR	NWL	NWR	NWR2
Spillback Cap Reductn		0		
Storage Cap Reductn		0		
Reduced v/c Ratio		0.84		

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010

												
Movement	EBL	EBT	EBR	WBL2	WBT	WBR	NBL	NBT	NBR	SBL2	SBL	SBT
Lane Configurations												
Volume (vph)	417	439	166	2	275	50	6	6	6	71	126	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	2.0	6.0			6.0			6.0				6.0
Lane Util. Factor	1.00	1.00			1.00			1.00				1.00
Frt	1.00	0.96			0.98			0.95				0.94
Flt Protected	0.95	1.00			1.00			0.98				0.97
Satd. Flow (prot)	1770	1786			1823			1750				1707
Flt Permitted	0.26	1.00			0.96			0.87				0.81
Satd. Flow (perm)	483	1786			1754			1548				1423
Peak-hour factor, PHF	0.86	0.86	0.86	0.84	0.84	0.84	0.92	0.92	0.92	0.84	0.84	0.84
Adj. Flow (vph)	485	510	193	2	327	60	7	7	7	85	150	0
RTOR Reduction (vph)	0	0	0	0	10	0	0	0	0	0	0	41
Lane Group Flow (vph)	485	703	0	0	379	0	0	21	0	0	0	368
Turn Type	pm+pt			Perm			Perm			Perm	Perm	
Protected Phases	7	4			8			2				6
Permitted Phases	4			8			2			6	6	6
Actuated Green, G (s)	26.0	26.0			15.0			13.0				13.0
Effective Green, g (s)	26.0	26.0			15.0			13.0				13.0
Actuated g/C Ratio	0.40	0.40			0.23			0.20				0.20
Clearance Time (s)	2.0	6.0			6.0			6.0				6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0				3.0
Lane Grp Cap (vph)	371	714			405			310				285
v/s Ratio Prot	c0.18	c0.39										
v/s Ratio Perm	0.34				0.22			0.01				c0.26
v/c Ratio	1.31	0.98			0.94			0.07				1.29
Uniform Delay, d1	17.5	19.3			24.5			21.1				26.0
Progression Factor	1.00	1.00			1.00			1.00				1.00
Incremental Delay, d2	156.5	29.6			28.8			0.4				155.0
Delay (s)	174.1	48.9			53.3			21.5				181.0
Level of Service	F	D			D			C				F
Approach Delay (s)		100.0			53.3			21.5				181.0
Approach LOS		F			D			C				F

Intersection Summary

HCM Average Control Delay		102.8	HCM Level of Service	F
HCM Volume to Capacity ratio		1.02		
Actuated Cycle Length (s)		65.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization		106.8%	ICU Level of Service	G
Analysis Period (min)		15		
c Critical Lane Group				

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010



Movement	SBR	NWL	NWR	NWR2
Lane Configurations				
Volume (vph)	146	85	68	10
Ideal Flow (vphpl)	1900	1900	1900	1900
Total Lost time (s)		6.0		
Lane Util. Factor		1.00		
Frt		0.94		
Flt Protected		0.97		
Satd. Flow (prot)		1698		
Flt Permitted		0.97		
Satd. Flow (perm)		1698		
Peak-hour factor, PHF	0.84	0.91	0.91	0.91
Adj. Flow (vph)	174	93	75	11
RTOR Reduction (vph)	0	4	0	0
Lane Group Flow (vph)	0	175	0	0
Turn Type				
Protected Phases		5		
Permitted Phases		5		
Actuated Green, G (s)		8.0		
Effective Green, g (s)		8.0		
Actuated g/C Ratio		0.12		
Clearance Time (s)		6.0		
Vehicle Extension (s)		3.0		
Lane Grp Cap (vph)		209		
v/s Ratio Prot		c0.10		
v/s Ratio Perm				
v/c Ratio		0.84		
Uniform Delay, d1		27.9		
Progression Factor		1.00		
Incremental Delay, d2		31.4		
Delay (s)		59.3		
Level of Service		E		
Approach Delay (s)		59.3		
Approach LOS		E		
Intersection Summary				

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	240	43	1	257	52	61	76	5	35	39	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		50
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		0.977			0.978			0.995				0.850
Flt Protected	0.950							0.979			0.977	
Satd. Flow (prot)	1770	1820	0	0	1822	0	0	1815	0	0	1820	1583
Flt Permitted	0.421				0.999			0.816			0.726	
Satd. Flow (perm)	784	1820	0	0	1820	0	0	1512	0	0	1352	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		32			16			2				424
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		104			913			284			1046	
Travel Time (s)		2.4			20.8			6.5			23.8	
Peak Hour Factor	0.83	0.83	0.83	0.86	0.86	0.86	0.81	0.81	0.81	0.76	0.76	0.76
Adj. Flow (vph)	176	289	52	1	299	60	75	94	6	46	51	424
Shared Lane Traffic (%)												
Lane Group Flow (vph)	176	341	0	0	360	0	0	175	0	0	97	424
Turn Type	D.P+P			Perm			Perm			Perm		custom
Protected Phases	1 4	1 2 4			2			3			3	1
Permitted Phases	2			2			3	3		3	3	3
Detector Phase	1 4	1 2 4		2	2		3	3		3	3	1
Switch Phase												
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0	8.0	15.0
Minimum Split (s)				14.0	14.0		14.0	14.0		14.0	14.0	21.0
Total Split (s)	27.0	56.0	0.0	29.0	29.0	0.0	14.0	14.0	0.0	14.0	14.0	13.0
Total Split (%)	38.6%	80.0%	0.0%	41.4%	41.4%	0.0%	20.0%	20.0%	0.0%	20.0%	20.0%	18.6%
Maximum Green (s)				23.0	23.0		9.0	9.0		9.0	9.0	7.0
Yellow Time (s)				4.0	4.0		3.0	3.0		3.0	3.0	4.0
All-Red Time (s)				2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	6.0
Lead/Lag				Lag	Lag		Lead	Lead		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode				C-Max	C-Max		None	None		None	None	None
v/c Ratio	0.22	0.26			0.57			0.89			0.56	0.63
Control Delay	3.1	1.5			22.1			75.3			42.6	6.0
Queue Delay	0.0	0.0			0.0			14.8			0.0	1.6
Total Delay	3.1	1.5			22.1			90.0			42.6	7.6
Queue Length 50th (ft)	3	0			118			75			40	0
Queue Length 95th (ft)	5	9			186			#157			70	18
Internal Link Dist (ft)		24			833			204			966	
Turn Bay Length (ft)												100
Base Capacity (vph)	736	1255			635			196			174	677
Starvation Cap Reductn	0	0			0			0			0	0

Lane Group	ø4
Lane Configurations	
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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	14.0
Total Split (s)	14.0
Total Split (%)	20%
Maximum Green (s)	9.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
 6/30/2010

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			4			17			0	117
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.24	0.27			0.57			0.98			0.56	0.76

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Main Street & Preston Avenue

#1 #7	#1 #7	#1 #7	#1 #7
13 s	29 s	14 s	14 s

Lane Group	ø4
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
1: East Main Street & Preston Avenue

Timing Plan: AM Peak Hour
6/30/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	146	240	43	1	257	52	61	76	5	35	39	322
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.0			5.0			5.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Fr _t	1.00	0.98			0.98			1.00			1.00	0.85
Fl _t Protected	0.95	1.00			1.00			0.98			0.98	1.00
Satd. Flow (prot)	1770	1820			1821			1815			1820	1583
Fl _t Permitted	0.42	1.00			1.00			0.82			0.73	1.00
Satd. Flow (perm)	784	1820			1819			1514			1351	1583
Peak-hour factor, PHF	0.83	0.83	0.83	0.86	0.86	0.86	0.81	0.81	0.81	0.76	0.76	0.76
Adj. Flow (vph)	176	289	52	1	299	60	75	94	6	46	51	424
RTOR Reduction (vph)	0	11	0	0	11	0	0	2	0	0	0	325
Lane Group Flow (vph)	176	330	0	0	349	0	0	173	0	0	97	99
Turn Type	D.P+P			Perm			Perm			Perm		custom
Protected Phases	1 4	1 2 4			2			3			3	1
Permitted Phases	2			2			3	3		3	3	3
Actuated Green, G (s)	44.0	50.0			23.0			9.0			9.0	16.3
Effective Green, g (s)	39.0	45.0			24.0			9.0			9.0	16.3
Actuated g/C Ratio	0.56	0.64			0.34			0.13			0.13	0.23
Clearance Time (s)					6.0			5.0			5.0	6.0
Vehicle Extension (s)					3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	662	1170			624			195			174	369
v/s Ratio Prot	0.06	c0.18										0.03
v/s Ratio Perm	0.09				c0.19			c0.11			0.07	0.03
v/c Ratio	0.27	0.28			0.56			0.89			0.56	0.27
Uniform Delay, d ₁	8.3	5.5			18.7			30.0			28.6	22.0
Progression Factor	0.67	0.31			1.00			1.00			1.00	1.00
Incremental Delay, d ₂	0.2	0.1			3.6			35.0			3.8	0.4
Delay (s)	5.8	1.8			22.3			65.0			32.5	22.4
Level of Service	A	A			C			E			C	C
Approach Delay (s)		3.2			22.3			65.0			24.2	
Approach LOS		A			C			E			C	

Intersection Summary

HCM Average Control Delay	21.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
7: East Main Street & Pomery Avenue

Timing Plan: AM Peak Hour
6/30/2010

	→	↘	↙	←	↖	↗			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø1	ø2	ø3
Lane Configurations	↑↑			↑	↖				
Volume (vph)	417	6	2	638	6	12			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00			
Frt	0.998				0.908				
Flt Protected					0.984				
Satd. Flow (prot)	3532	0	0	1863	1664	0			
Flt Permitted				0.999	0.984				
Satd. Flow (perm)	3532	0	0	1861	1664	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	3				15				
Link Speed (mph)	30			30	30				
Link Distance (ft)	285			104	347				
Travel Time (s)	6.5			2.4	7.9				
Peak Hour Factor	0.83	0.83	0.86	0.86	0.81	0.81			
Adj. Flow (vph)	502	7	2	742	7	15			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	509	0	0	744	22	0			
Turn Type			D.Pm						
Protected Phases	1 2			1 2 3	4		1	2	3
Permitted Phases			1 2						
Detector Phase	1 2		1 2	1 2 3	4				
Switch Phase									
Minimum Initial (s)					8.0		15.0	8.0	8.0
Minimum Split (s)					14.0		21.0	14.0	14.0
Total Split (s)	42.0	0.0	42.0	56.0	14.0	0.0	13.0	29.0	14.0
Total Split (%)	60.0%	0.0%	60.0%	80.0%	20.0%	0.0%	19%	41%	20%
Maximum Green (s)					9.0		7.0	23.0	9.0
Yellow Time (s)					3.0		4.0	4.0	3.0
All-Red Time (s)					2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	6.0	4.0	6.0	6.0	5.0	4.0			
Lead/Lag					Lag		Lead	Lag	Lead
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0		3.0	3.0	3.0
Recall Mode					None		None	C-Max	None
v/c Ratio	0.28			0.56	0.10				
Control Delay	10.0			4.0	17.9				
Queue Delay	0.0			0.0	0.0				
Total Delay	10.0			4.0	17.9				
Queue Length 50th (ft)	60			64	3				
Queue Length 95th (ft)	80			m74	18				
Internal Link Dist (ft)	205			24	267				
Turn Bay Length (ft)									
Base Capacity (vph)	1833			1337	227				
Starvation Cap Reductn	0			0	0				
Spillback Cap Reductn	46			0	0				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.28			0.56	0.10				

Intersection Summary

Area Type: Other
 Cycle Length: 70
 Actuated Cycle Length: 70
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: East Main Street & Pomery Avenue

13 s	29 s	14 s	14 s

HCM Signalized Intersection Capacity Analysis
 7: East Main Street & Pomery Avenue

Timing Plan: AM Peak Hour
 6/30/2010

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↘↙	
Volume (vph)	417	6	2	638	6	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			1.00	1.00	
Frt	1.00			1.00	0.91	
Flt Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3532			1862	1665	
Flt Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3532			1861	1665	
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.81	0.81
Adj. Flow (vph)	502	7	2	742	7	15
RTOR Reduction (vph)	1	0	0	0	13	0
Lane Group Flow (vph)	508	0	0	744	9	0
Turn Type			D.Pm			
Protected Phases	1 2			1 2 3	4	
Permitted Phases			1 2			
Actuated Green, G (s)	36.3			51.3	8.7	
Effective Green, g (s)	36.3			51.3	8.7	
Actuated g/C Ratio	0.52			0.73	0.12	
Clearance Time (s)					5.0	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)	1832			1364	207	
v/s Ratio Prot	0.14				c0.01	
v/s Ratio Perm				c0.40		
v/c Ratio	0.28			0.55	0.04	
Uniform Delay, d1	9.5			4.2	27.0	
Progression Factor	1.00			0.55	1.00	
Incremental Delay, d2	0.1			0.3	0.1	
Delay (s)	9.6			2.6	27.1	
Level of Service	A			A	C	
Approach Delay (s)	9.6			2.6	27.1	
Approach LOS	A			A	C	

Intersection Summary

HCM Average Control Delay	5.8	HCM Level of Service	A
HCM Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lanes, Volumes, Timings
1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
6/30/2010

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	423	445	166	2	276	50	85	68	10	71	126	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	0		100
Storage Lanes	1		0	0		0	0		0	0		1
Taper Length (ft)	25		25	25		25	25		25	25		50
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		0.959			0.979			0.992				0.850
Flt Protected	0.950							0.975			0.982	
Satd. Flow (prot)	1770	1786	0	0	1824	0	0	1802	0	0	1829	1583
Flt Permitted	0.260				0.996			0.500			0.797	
Satd. Flow (perm)	484	1786	0	0	1816	0	0	924	0	0	1485	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		43			10			3				175
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		104			913			284			1046	
Travel Time (s)		2.4			20.8			6.5			23.8	
Peak Hour Factor	0.88	0.88	0.88	0.86	0.86	0.86	0.91	0.91	0.91	0.84	0.84	0.84
Adj. Flow (vph)	481	506	189	2	321	58	93	75	11	85	150	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	481	695	0	0	381	0	0	179	0	0	235	175
Turn Type	D.P+P			Perm			Perm			Perm		custom
Protected Phases	1 4	1 2 4			2			3			3	1
Permitted Phases	2			2			3	3		3	3	3
Detector Phase	1 4	1 2 4		2	2		3	3		3	3	1
Switch Phase												
Minimum Initial (s)				8.0	8.0		8.0	8.0		8.0	8.0	15.0
Minimum Split (s)				14.0	14.0		14.0	14.0		14.0	14.0	21.0
Total Split (s)	37.0	65.0	0.0	28.0	28.0	0.0	25.0	25.0	0.0	25.0	25.0	23.0
Total Split (%)	41.1%	72.2%	0.0%	31.1%	31.1%	0.0%	27.8%	27.8%	0.0%	27.8%	27.8%	25.6%
Maximum Green (s)				22.0	22.0		20.0	20.0		20.0	20.0	17.0
Yellow Time (s)				4.0	4.0		3.0	3.0		3.0	3.0	4.0
All-Red Time (s)				2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.0	6.0	5.0	4.0	5.0	5.0	4.0	5.0	5.0	6.0
Lead/Lag				Lag	Lag		Lead	Lead		Lead	Lead	Lead
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode				C-Max	C-Max		None	None		None	None	None
v/c Ratio	0.64	0.58			0.81			0.91			0.76	0.24
Control Delay	18.6	4.2			45.6			81.2			49.8	2.4
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	18.6	4.2			45.6			81.2			49.8	2.4
Queue Length 50th (ft)	79	40			198			97			124	0
Queue Length 95th (ft)	163	57			#314			#218			#190	18
Internal Link Dist (ft)		24			833			204			966	
Turn Bay Length (ft)												100
Base Capacity (vph)	751	1208			472			208			330	720
Starvation Cap Reductn	0	0			0			0			0	0

Lane Group	ø4
Lane Configurations	
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	4
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	8.0
Minimum Split (s)	14.0
Total Split (s)	14.0
Total Split (%)	16%
Maximum Green (s)	9.0
Yellow Time (s)	3.0
All-Red Time (s)	2.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	Lag
Lead-Lag Optimize?	
Vehicle Extension (s)	3.0
Recall Mode	None
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
Queue Length 50th (ft)	
Queue Length 95th (ft)	
Internal Link Dist (ft)	
Turn Bay Length (ft)	
Base Capacity (vph)	
Starvation Cap Reductn	

Lanes, Volumes, Timings
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Spillback Cap Reductn	0	0			0			0			0	13
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.64	0.58			0.81			0.86			0.71	0.25

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 1: East Main Street & Preston Avenue

#1 #7	#1 #7	#1 #7	#1 #7
ø1	ø2	ø3	ø4
23 s	28 s	25 s	14 s

Lane Group	ø4
Spillback Cap Reductn	
Storage Cap Reductn	
Reduced v/c Ratio	

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 1: East Main Street & Preston Avenue

Timing Plan: PM Peak Hour
 6/30/2010

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	423	445	166	2	276	50	85	68	10	71	126	147
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			5.0			5.0			5.0	6.0
Lane Util. Factor	1.00	1.00			1.00			1.00			1.00	1.00
Frt	1.00	0.96			0.98			0.99			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.97			0.98	1.00
Satd. Flow (prot)	1770	1787			1824			1801			1830	1583
Flt Permitted	0.26	1.00			1.00			0.50			0.80	1.00
Satd. Flow (perm)	484	1787			1818			923			1484	1583
Peak-hour factor, PHF	0.88	0.88	0.88	0.86	0.86	0.86	0.91	0.91	0.91	0.84	0.84	0.84
Adj. Flow (vph)	481	506	189	2	321	58	93	75	11	85	150	175
RTOR Reduction (vph)	0	17	0	0	7	0	0	2	0	0	0	105
Lane Group Flow (vph)	481	678	0	0	374	0	0	177	0	0	235	70
Turn Type	D.P+P			Perm			Perm			Perm		custom
Protected Phases	1 4	1 2 4			2			3			3	1
Permitted Phases	2			2			3	3		3	3	3
Actuated Green, G (s)	54.2	60.2			22.0			18.8			18.8	35.8
Effective Green, g (s)	49.2	55.2			23.0			18.8			18.8	35.8
Actuated g/C Ratio	0.55	0.61			0.26			0.21			0.21	0.40
Clearance Time (s)					6.0			5.0			5.0	6.0
Vehicle Extension (s)					3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	653	1096			465			193			310	630
v/s Ratio Prot	c0.22	c0.38										0.02
v/s Ratio Perm	0.18				c0.21			c0.19			0.16	0.02
v/c Ratio	0.74	0.62			0.80			0.92			0.76	0.11
Uniform Delay, d1	14.5	10.8			31.4			34.8			33.5	17.1
Progression Factor	1.22	0.33			1.00			1.00			1.00	1.00
Incremental Delay, d2	3.3	0.8			13.7			41.3			10.2	0.1
Delay (s)	21.0	4.4			45.1			76.2			43.6	17.1
Level of Service	C	A			D			E			D	B
Approach Delay (s)		11.2			45.1			76.2			32.3	
Approach LOS		B			D			E			C	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings
7: East Main Street & Pomery Avenue

Timing Plan: PM Peak Hour
6/30/2010

	→	↘	↙	←	↖	↗			
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR	ø1	ø2	ø3
Lane Configurations	↑↑			↑	↖				
Volume (vph)	1022	6	2	506	6	12			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00			
Frt	0.999				0.912				
Flt Protected					0.983				
Satd. Flow (prot)	3536	0	0	1863	1670	0			
Flt Permitted				0.997	0.983				
Satd. Flow (perm)	3536	0	0	1857	1670	0			
Right Turn on Red		Yes				Yes			
Satd. Flow (RTOR)	1				13				
Link Speed (mph)	30			30	30				
Link Distance (ft)	285			104	347				
Travel Time (s)	6.5			2.4	7.9				
Peak Hour Factor	0.88	0.88	0.86	0.86	0.91	0.91			
Adj. Flow (vph)	1161	7	2	588	7	13			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	1168	0	0	590	20	0			
Turn Type			D.Pm						
Protected Phases	1 2			1 2 3	4		1	2	3
Permitted Phases			1 2						
Detector Phase	1 2		1 2	1 2 3	4				
Switch Phase									
Minimum Initial (s)					8.0		15.0	8.0	8.0
Minimum Split (s)					14.0		21.0	14.0	14.0
Total Split (s)	51.0	0.0	51.0	76.0	14.0	0.0	23.0	28.0	25.0
Total Split (%)	56.7%	0.0%	56.7%	84.4%	15.6%	0.0%	26%	31%	28%
Maximum Green (s)					9.0		17.0	22.0	20.0
Yellow Time (s)					3.0		4.0	4.0	3.0
All-Red Time (s)					2.0		2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)	6.0	4.0	6.0	6.0	5.0	4.0			
Lead/Lag					Lag		Lead	Lag	Lead
Lead-Lag Optimize?									
Vehicle Extension (s)					3.0		3.0	3.0	3.0
Recall Mode					None		None	C-Max	None
v/c Ratio	0.66			0.42	0.10				
Control Delay	19.0			1.8	24.1				
Queue Delay	0.4			0.0	0.0				
Total Delay	19.5			1.8	24.1				
Queue Length 50th (ft)	248			23	4				
Queue Length 95th (ft)	307			m30	25				
Internal Link Dist (ft)	205			24	267				
Turn Bay Length (ft)									
Base Capacity (vph)	1769			1444	200				
Starvation Cap Reductn	0			0	0				
Spillback Cap Reductn	213			0	3				
Storage Cap Reductn	0			0	0				
Reduced v/c Ratio	0.75			0.41	0.10				

Intersection Summary

Area Type: Other
 Cycle Length: 90
 Actuated Cycle Length: 90
 Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
 Natural Cycle: 80
 Control Type: Actuated-Coordinated
 m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: East Main Street & Pomery Avenue

<p>#1 #7 23 s</p>	<p>#1 #7 28 s</p>	<p>#1 #7 25 s</p>	<p>#1 #7 14 s</p>
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HCM Signalized Intersection Capacity Analysis
7: East Main Street & Pomery Avenue

Timing Plan: PM Peak Hour
6/30/2010

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑			↑	↑	
Volume (vph)	1022	6	2	506	6	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0			6.0	5.0	
Lane Util. Factor	0.95			1.00	1.00	
Fr _t	1.00			1.00	0.91	
Fl _t Protected	1.00			1.00	0.98	
Satd. Flow (prot)	3536			1862	1670	
Fl _t Permitted	1.00			1.00	0.98	
Satd. Flow (perm)	3536			1858	1670	
Peak-hour factor, PHF	0.88	0.88	0.86	0.86	0.91	0.91
Adj. Flow (vph)	1161	7	2	588	7	13
RTOR Reduction (vph)	1	0	0	0	12	0
Lane Group Flow (vph)	1168	0	0	590	8	0
Turn Type			D.Pm			
Protected Phases	1 2			1 2 3	4	
Permitted Phases			1 2			
Actuated Green, G (s)	45.0			69.8	10.2	
Effective Green, g (s)	45.0			69.8	10.2	
Actuated g/C Ratio	0.50			0.78	0.11	
Clearance Time (s)					5.0	
Vehicle Extension (s)					3.0	
Lane Grp Cap (vph)	1768			1441	189	
v/s Ratio Prot	c0.33				c0.01	
v/s Ratio Perm				c0.32		
v/c Ratio	0.66			0.41	0.04	
Uniform Delay, d ₁	16.8			3.3	35.6	
Progression Factor	1.00			0.31	1.00	
Incremental Delay, d ₂	0.9			0.1	0.1	
Delay (s)	17.7			1.2	35.7	
Level of Service	B			A	D	
Approach Delay (s)	17.7			1.2	35.7	
Approach LOS	B			A	D	

Intersection Summary

HCM Average Control Delay	12.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Appendix D

Construction Cost Estimates



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: PRESTON AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: BETWEEN EAST MAIN STREET AND PARKER ROAD - ALTERNATIVE #1	From Sta.	To Sta.
	LENGTH: 1,150	WIDTH: 26
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s) methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	4300	c.y.	\$25.00	\$107,500
Rock Excavation	25	c.y.	\$90.00	\$2,250
Trench Excavation 0-4' Deep	590	c.y.	\$20.00	\$11,800
Trench Excavation 0-10' Deep	240	c.y.	\$25.00	\$6,000
Rock in Trench Excavation	45	c.y.	\$150.00	\$6,750
Subbase	2350	c.y.	\$38.00	\$89,300
Sedimentation Control System	2400	l.f.	\$4.00	\$9,600
H.M.A.	3490	ton	\$100.00	\$349,000
Bedding Material	90	c.y.	\$35.00	\$3,150
12" R.C.P.	375	l.f.	\$55.00	\$20,625
15" R.C.P.	600	l.f.	\$65.00	\$39,000
18" R.C.P.	300	l.f.	\$75.00	\$22,500
6" P.V.C. Underdrain	1100	l.f.	\$30.00	\$33,000
Simple Catch Basin	12	ea.	\$3,000.00	\$36,000
Structure Resetting (Storm and Sanitary)	2	ea.	\$1,000.00	\$2,000
Bituminous Concrete Lip Curbing	2850	l.f.	\$7.00	\$19,950
Concrete Sidewalk	5500	s.f.	\$14.00	\$77,000
Bituminous Concrete Driveway - Residential	400	s.y.	\$40.00	\$16,000
Furnishing and Placing Topsoil	1350	s.y.	\$8.00	\$10,800
Turf Establishment	1350	s.y.	\$3.00	\$4,050
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	640	hr.	\$75.00	\$48,000
Trafficmen - Uniformed Flagger	1280	hr.	\$55.00	\$70,400
New Signal	2	ea.	\$110,000.00	\$220,000
Contract Items			SUBTOTAL	\$1,204,700
Clearing and Grubbing Roadway		2.0%		\$24,100
M & P of Traffic		4.0%		\$48,200
Mobilization		7.5%		\$90,400
Construction Staking		1.0%		\$12,000
Minor Items		25.0%		\$301,200
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$1,680,000
CONTINGENCIES		10.0%		\$168,000
INCIDENTALS		25.0%		\$420,000
UTILITIES		15.0%		\$252,000
RIGHTS OF WAY				\$100,000
			TOTAL ESTIMATED COST	\$2,620,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: PRESTON AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: BETWEEN EAST MAIN STREET AND PARKER ROAD - ALTERNATIVE #2	From Sta.	To Sta.
	LENGTH: 1,150	WIDTH: 26
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	4500	c.y.	\$25.00	\$112,500
Rock Excavation	25	c.y.	\$90.00	\$2,250
Trench Excavation 0-4' Deep	590	c.y.	\$20.00	\$11,800
Trench Excavation 0-10' Deep	240	c.y.	\$25.00	\$6,000
Rock in Trench Excavation	45	c.y.	\$150.00	\$6,750
Subbase	2400	c.y.	\$38.00	\$91,200
Sedimentation Control System	2400	l.f.	\$4.00	\$9,600
H.M.A.	3570	ton	\$100.00	\$357,000
Bedding Material	90	c.y.	\$35.00	\$3,150
12" R.C.P.	375	l.f.	\$55.00	\$20,625
15" R.C.P.	600	l.f.	\$65.00	\$39,000
18" R.C.P.	300	l.f.	\$75.00	\$22,500
6" P.V.C. Underdrain	1100	l.f.	\$30.00	\$33,000
Simple Catch Basin	12	ea.	\$3,000.00	\$36,000
Structure Resetting (Storm and Sanitary)	2	ea.	\$1,000.00	\$2,000
Bituminous Concrete Lip Curbing	2850	l.f.	\$7.00	\$19,950
Concrete Sidewalk	5500	s.f.	\$14.00	\$77,000
Bituminous Concrete Driveway - Residential	400	s.y.	\$40.00	\$16,000
Furnishing and Placing Topsoil	1350	s.y.	\$8.00	\$10,800
Turf Establishment	1350	s.y.	\$3.00	\$4,050
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	640	hr.	\$75.00	\$48,000
Trafficmen - Uniformed Flagger	1280	hr.	\$55.00	\$70,400
New Signal	1	ea.	\$110,000.00	\$110,000
Contract Items			SUBTOTAL	\$1,109,600
Clearing and Grubbing Roadway		2.0%		\$22,200
M & P of Traffic		4.0%		\$44,400
Mobilization		7.5%		\$83,200
Construction Staking		1.0%		\$11,100
Minor Items		25.0%		\$277,400
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$1,550,000
CONTINGENCIES		10.0%		\$155,000
INCIDENTALS		25.0%		\$388,000
UTILITIES		15.0%		\$233,000
RIGHTS OF WAY				\$500,000
			TOTAL ESTIMATED COST	\$2,826,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: PRESTON AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: BETWEEN PARKER ROAD AND ROUTE 66 OFF-RAMP	From Sta.	To Sta.
PROJECT NO.: 20090602.A10	LENGTH: 750	WIDTH: 26
	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	1900	c.y.	\$25.00	\$47,500
Trench Excavation 0-4' Deep	15	c.y.	\$20.00	\$300
Trench Excavation 0-10' Deep	25	c.y.	\$25.00	\$625
Subbase	1080	c.y.	\$38.00	\$41,040
Sedimentation Control System	1500	l.f.	\$4.00	\$6,000
H.M.A.	1600	ton	\$100.00	\$160,000
Bedding Material	2	c.y.	\$35.00	\$70
12" R.C.P.	25	l.f.	\$55.00	\$1,375
6" P.V.C. Underdrain	750	l.f.	\$30.00	\$22,500
Simple Catch Basin	1	ea.	\$3,000.00	\$3,000
Structure Resetting (Storm and Sanitary)	2	ea.	\$1,000.00	\$2,000
Bituminous Concrete Lip Curbing	1725	l.f.	\$7.00	\$12,075
Metal Beam Rail (Type R-B 350)	240	l.f.	\$30.00	\$7,200
R-B End Anchorage Type I	1	ea.	\$1,200.00	\$1,200
Tangential Impact Attenuator	1	ea.	\$4,000.00	\$4,000
Concrete Sidewalk	1250	s.f.	\$14.00	\$17,500
Bituminous Concrete Driveway - Residential	350	s.y.	\$40.00	\$14,000
Furnishing and Placing Topsoil	850	s.y.	\$8.00	\$6,800
Turf Establishment	850	s.y.	\$3.00	\$2,550
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	240	hr.	\$75.00	\$18,000
Trafficmen - Uniformed Flagger	480	hr.	\$55.00	\$26,400
Contract Items			SUBTOTAL	\$394,100
Clearing and Grubbing Roadway		2.0%		\$7,900
M & P of Traffic		4.0%		\$15,800
Mobilization		7.5%		\$29,600
Construction Staking		1.0%		\$3,900
Minor Items		25.0%		\$98,500
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$550,000
CONTINGENCIES		10.0%		\$55,000
INCIDENTALS		30.0%		\$165,000
UTILITIES		15.0%		\$83,000
			TOTAL ESTIMATED COST	\$853,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: PRESTON AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: ROUTE 66 OFF-RAMP TO PATTON DRIVE	From Sta.	To Sta.
	LENGTH: 2,450	WIDTH: 26
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s) methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	4650	c.y.	\$25.00	\$116,250
Trench Excavation 0-4' Deep	950	c.y.	\$20.00	\$19,000
Trench Excavation 0-10' Deep	310	c.y.	\$25.00	\$7,750
Rock in Trench Excavation	65	c.y.	\$150.00	\$9,750
Subbase	2470	c.y.	\$38.00	\$93,860
Sedimentation Control System	4900	l.f.	\$4.00	\$19,600
Milling of Bituminous Concrete Pavement	1700	s.y.	\$7.50	\$12,750
H.M.A.	3850	ton	\$100.00	\$385,000
Bedding Material	150	c.y.	\$35.00	\$5,250
12" R.C.P.	825	l.f.	\$55.00	\$45,375
15" R.C.P.	875	l.f.	\$65.00	\$56,875
24" R.C.P.	350	l.f.	\$100.00	\$35,000
6" P.V.C. Underdrain	1900	l.f.	\$30.00	\$57,000
Simple Catch Basin	14	ea.	\$3,000.00	\$42,000
Double Catch Basin	2	ea.	\$3,500.00	\$7,000
Structure Resetting (Storm and Sanitary)	15	ea.	\$1,000.00	\$15,000
Bituminous Concrete Lip Curbing	4000	l.f.	\$7.00	\$28,000
Metal Beam Rail (Type R-B 350)	700	l.f.	\$30.00	\$21,000
R-B End Anchorage Type I	1	ea.	\$1,200.00	\$1,200
Tangential Impact Attenuator	2	ea.	\$4,000.00	\$8,000
Bituminous Concrete Driveway - Residential	180	s.y.	\$40.00	\$7,200
Furnishing and Placing Topsoil	2750	s.y.	\$8.00	\$22,000
Turf Establishment	2750	s.y.	\$3.00	\$8,250
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	640	hr.	\$75.00	\$48,000
Trafficmen - Uniformed Flagger	1280	hr.	\$55.00	\$70,400
Contract Items			SUBTOTAL	\$1,141,500
Clearing and Grubbing Roadway		2.0%		\$22,800
M & P of Traffic		4.0%		\$45,700
Mobilization		7.5%		\$85,600
Construction Staking		1.0%		\$11,400
Minor Items		25.0%		\$285,400
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$1,590,000
CONTINGENCIES		10.0%		\$159,000
INCIDENTALS		25.0%		\$398,000
UTILITIES		15.0%		\$239,000
			TOTAL ESTIMATED COST	\$2,386,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: PRESTON AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: PATTON DRIVE TO BALDWIN AVENUE	From Sta.	To Sta.
	LENGTH: 1,650	WIDTH: 26
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	3750	c.y.	\$25.00	\$93,750
Trench Excavation 0-4' Deep	500	c.y.	\$20.00	\$10,000
Trench Excavation 0-10' Deep	300	c.y.	\$25.00	\$7,500
Subbase	2125	c.y.	\$38.00	\$80,750
Sedimentation Control System	3300	l.f.	\$4.00	\$13,200
H.M.A.	3160	ton	\$100.00	\$316,000
Bedding Material	75	c.y.	\$35.00	\$2,625
15" R.C.P.	1000	l.f.	\$65.00	\$65,000
18" R.C.P.	25	l.f.	\$75.00	\$1,875
6" P.V.C. Underdrain	1600	l.f.	\$30.00	\$48,000
Simple Catch Basin	12	ea.	\$3,000.00	\$36,000
Double Catch Basin	2	ea.	\$3,500.00	\$7,000
Structure Resetting (Storm and Sanitary)	6	ea.	\$1,000.00	\$6,000
Bituminous Concrete Lip Curbing	3100	l.f.	\$7.00	\$21,700
Metal Beam Rail (Type R-B 350)	480	l.f.	\$30.00	\$14,400
R-B End Anchorage Type I	2	ea.	\$1,200.00	\$2,400
Bituminous Concrete Driveway - Residential	350	s.y.	\$40.00	\$14,000
Furnishing and Placing Topsoil	1850	s.y.	\$8.00	\$14,800
Turf Establishment	1850	s.y.	\$3.00	\$5,550
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	480	hr.	\$75.00	\$36,000
Trafficmen - Uniformed Flagger	960	hr.	\$55.00	\$52,800
Contract Items			SUBTOTAL	\$849,400
Clearing and Grubbing Roadway		2.0%		\$17,000
M & P of Traffic		4.0%		\$34,000
Mobilization		7.5%		\$63,700
Construction Staking		1.0%		\$8,500
Minor Items		25.0%		\$212,400
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$1,190,000
CONTINGENCIES		10.0%		\$119,000
INCIDENTALS		25.0%		\$298,000
UTILITIES		15.0%		\$179,000
			TOTAL ESTIMATED COST	\$1,786,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY		DATE PREPARED: 06/18/2010	
LOCATION: BALDWIN AVENUE		BASIS: ConnDOT 2010	
DESCRIPTION: PRESTON AVENUE TO PRESTON DRIVE		From Sta.	To Sta.
PROJECT NO.: 20090602.A10		LENGTH: 1,200	WIDTH: 24
		ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s) methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Trench Excavation 0-4' Deep	20	c.y.	\$20.00	\$400
Trench Excavation 0-10' Deep	25	c.y.	\$25.00	\$625
Sedimentation Control System	2400	l.f.	\$4.00	\$9,600
Milling of Bituminous Concrete Pavement	5500	s.y.	\$7.50	\$41,250
H.M.A.	650	ton	\$100.00	\$65,000
Bedding Material	5	c.y.	\$35.00	\$175
12" R.C.P.	40	l.f.	\$55.00	\$2,200
Simple Catch Basin	1	ea.	\$3,000.00	\$3,000
Structure Resetting (Storm and Sanitary)	12	ea.	\$1,000.00	\$12,000
Bituminous Concrete Lip Curbing	1280	l.f.	\$7.00	\$8,960
Metal Beam Rail (Type R-B 350)	470	l.f.	\$30.00	\$14,100
R-B End Anchorage Type I	4	ea.	\$1,200.00	\$4,800
Concrete Sidewalk	5500	s.f.	\$14.00	\$77,000
Bituminous Concrete Driveway - Residential	200	s.y.	\$40.00	\$8,000
Furnishing and Placing Topsoil	1230	s.y.	\$8.00	\$9,840
Turf Establishment	1230	s.y.	\$3.00	\$3,690
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	160	hr.	\$75.00	\$12,000
Trafficmen - Uniformed Flagger	320	hr.	\$55.00	\$17,600
Contract Items			SUBTOTAL	\$290,200
Clearing and Grubbing Roadway		2.0%		\$5,800
M & P of Traffic		4.0%		\$11,600
Mobilization		7.5%		\$21,800
Construction Staking		1.0%		\$2,900
Minor Items		25.0%		\$72,600
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$400,000
CONTINGENCIES		10.0%		\$40,000
INCIDENTALS		30.0%		\$120,000
UTILITIES		15.0%		\$60,000
			TOTAL ESTIMATED COST	\$620,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: BALDWIN AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: PRESTON DRIVE TO HIGBY DRIVE	From Sta.	To Sta.
	LENGTH: 1,350	WIDTH: 24
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s) methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	1100	c.y.	\$25.00	\$27,500
Trench Excavation 0-4' Deep	350	c.y.	\$20.00	\$7,000
Trench Excavation 0-10' Deep	175	c.y.	\$25.00	\$4,375
Subbase	675	c.y.	\$38.00	\$25,650
Sedimentation Control System	2700	l.f.	\$4.00	\$10,800
Milling of Bituminous Concrete Pavement	1700	s.y.	\$7.50	\$12,750
H.M.A.	1440	ton	\$100.00	\$144,000
Bedding Material	50	c.y.	\$35.00	\$1,750
12" R.C.P.	75	l.f.	\$55.00	\$4,125
15" R.C.P.	575	l.f.	\$65.00	\$37,375
18" R.C.P.	50	l.f.	\$75.00	\$3,750
Simple Catch Basin	8	ea.	\$3,000.00	\$24,000
Structure Resetting (Storm and Sanitary)	5	ea.	\$1,000.00	\$5,000
Bituminous Concrete Lip Curbing	2570	l.f.	\$7.00	\$17,990
Concrete Curbing	100	l.f.	\$35.00	\$3,500
Concrete Sidewalk	9350	s.f.	\$14.00	\$130,900
Bituminous Concrete Driveway - Residential	275	s.y.	\$40.00	\$11,000
Furnishing and Placing Topsoil	1500	s.y.	\$8.00	\$12,000
Turf Establishment	1500	s.y.	\$3.00	\$4,500
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	320	hr.	\$75.00	\$24,000
Trafficmen - Uniformed Flagger	640	hr.	\$55.00	\$35,200
Contract Items			SUBTOTAL	\$547,200
Clearing and Grubbing Roadway		2.0%		\$10,900
M & P of Traffic		4.0%		\$21,900
Mobilization		7.5%		\$41,000
Construction Staking		1.0%		\$5,500
Minor Items		25.0%		\$136,800
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$760,000
CONTINGENCIES		10.0%		\$76,000
INCIDENTALS		30.0%		\$228,000
UTILITIES		15.0%		\$114,000
			TOTAL ESTIMATED COST	\$1,178,000



ORDER OF MAGNITUDE OPINION OF COST

PROJECT: PRESTON AVENUE/BALDWIN AVENUE CORRIDOR STUDY	DATE PREPARED: 06/18/2010	
LOCATION: BALDWIN AVENUE	BASIS: ConnDOT 2010	
DESCRIPTION: HIGBY DRIVE TO BEE STREET	From Sta.	To Sta.
	LENGTH: 1,450	WIDTH: 24
PROJECT NO.: 20090602.A10	ESTIMATOR: SNB/MSR	CHECKED BY: KPC

Since Fuss & O'Neill has no control over the cost of labor, materials, equipment or services furnished by others, or over the Contractor(s)' methods of determining prices, or over competitive bidding or market conditions, Fuss & O'Neill's opinion of probable Total Project Costs and Construction Cost are made on the basis of Fuss & O'Neill's experience and qualifications and represent Fuss & O'Neill's best judgment as an experienced and qualified professional engineer, familiar with the construction industry; but Fuss & O'Neill cannot and does not guarantee that proposals, bids or actual Total Project or Construction Costs will not vary from opinions of probable cost prepared by Fuss & O'Neill. If prior to the bidding or negotiating Phase the Owner wishes greater assurance as to Total Project or Construction Costs, the Owner shall employ an independent cost estimator.

Item	Est. Quant.	Unit	Unit Price	Total
ROADWAY ITEMS				
Earth Excavation	1900	c.y.	\$25.00	\$47,500
Trench Excavation 0-4' Deep	520	c.y.	\$20.00	\$10,400
Trench Excavation 0-10' Deep	340	c.y.	\$25.00	\$8,500
Trench Excavation 0-15' Deep	0	c.y.	\$40.00	\$0
Subbase	910	c.y.	\$38.00	\$34,580
Sedimentation Control System	2900	l.f.	\$4.00	\$11,600
Milling of Bituminous Concrete Pavement	920	s.y.	\$7.50	\$6,900
H.M.A.	1810	ton	\$100.00	\$181,000
Bedding Material	75	c.y.	\$35.00	\$2,625
15" R.C.P.	1050	l.f.	\$65.00	\$68,250
Simple Catch Basin	14	ea.	\$3,000.00	\$42,000
Manhole	2	ea.	\$3,000.00	\$6,000
Structure Resetting (Storm and Sanitary)	8	ea.	\$1,000.00	\$8,000
Bituminous Concrete Lip Curbing	1350	l.f.	\$7.00	\$9,450
Concrete Curbing	1350	l.f.	\$35.00	\$47,250
Concrete Sidewalk	7500	s.f.	\$14.00	\$105,000
Bituminous Concrete Driveway - Residential	550	s.y.	\$40.00	\$22,000
Furnishing and Placing Topsoil	1625	s.y.	\$8.00	\$13,000
Turf Establishment	1625	s.y.	\$3.00	\$4,875
Stone Retaining Wall (From Baldwin Ave Improv. Plans)	1	l.s.	\$45,000.00	\$45,000
TRAFFIC ITEMS				
Trafficmen - Town (City) Police Officer	480	hr.	\$75.00	\$36,000
Trafficmen - Uniformed Flagger	960	hr.	\$55.00	\$52,800
Contract Items			SUBTOTAL	\$762,700
Clearing and Grubbing Roadway		2.0%		\$15,300
M & P of Traffic		4.0%		\$30,500
Mobilization		7.5%		\$57,200
Construction Staking		1.0%		\$7,600
Minor Items		25.0%		\$190,700
Inflation Factor	0	5.0%		\$0
			CONSTRUCTION TOTALS	\$1,060,000
CONTINGENCIES		10.0%		\$106,000
INCIDENTALS		25.0%		\$265,000
UTILITIES		15.0%		\$159,000
			TOTAL ESTIMATED COST	\$1,590,000