

# **Dover Pedestrian Plan – Pedestrian Signals Feasibility Study**

Prepared for:

Dover/Kent County MPO

Prepared By:



McCormick Taylor, Inc.  
56 W. Main Street  
Suite 300  
Newark, DE 19702

February 2015

## TABLE OF CONTENTS

|   |    |
|---|----|
| INTRODUCTION .....  | 1  |
| US 13 & ROOSEVELT AVENUE.....                               | 2  |
| US 13 & SOUTH STATE STREET.....                             | 5  |
| US 13 & WEBBS LANE.....                                     | 7  |
| SOUTH STATE STREET & WEBBS LANE.....                        | 10 |
| NORTH STATE STREET / NORTH GOVERNORS AVE & WALKER ROAD..... | 12 |

### APPENDICES:

- A. Traffic Count Data
- B. Signal Timings
- C. Critical Movement Summation (CMS) Analysis

## INTRODUCTION

The Dover Pedestrian Signals Feasibility Study consists of evaluating five (5) existing signalized intersections in the City of Dover to determine if it is feasible and sensible to install pedestrian signals at these locations. This Study is the result of a recommendation from the Dover Pedestrian Plan Update. The Study does not include any design work, but rather focuses on existing intersection geometry, field conditions, vehicular and pedestrian volumes, and nearby land use to determine where pedestrian signals would be logical and feasible, and to analyze their impact on vehicular traffic.

The five study intersections included in this study are as follows:

1. US Route 13 & Roosevelt Avenue
2. US Route 13 & South State Street
3. US Route 13 & Webbs Lane
4. South State Street & Webbs Lane
5. Governors Avenue/State Street & Walker Road

A field view of each study intersection was conducted and the following conditions were evaluated:

- Intersection geometry, lane configurations, speed limits, signing and striping
- Existing pedestrian and bicycle facilities (if any), including worn paths, sidewalks, curb ramps, crosswalks and bike lanes
- Signal phasing and timings / traffic operations
- Vehicle and pedestrian volumes for weekday AM and PM peak hours
- Nearby land use
- Possible crosswalk and pedestrian signal layout options

Existing traffic counts for the study intersections are compiled in *Appendix A* while existing signal timings provided by DelDOT can be found in *Appendix B*.

Upon gathering the necessary information and conducting field views, the traffic impacts of the proposed pedestrian signals were analyzed using Critical Movement Summation (CMS) analysis. This basic analysis tool provides the critical lane volume, level of service for the overall intersection, and required green time for different scenarios based on traffic volumes and signal phasing. To account for pedestrians in the CMS analysis, an equivalent number of vehicles are essentially added to the phase during which pedestrians would cross in order to provide the appropriate amount of green time for that phase to safely cross pedestrians. Artificially inflating the vehicular volumes to account for the required pedestrian crossing time thereby degrades the level of service and allows the analyst to quantitatively assess how the addition of pedestrian signals would affect traffic operations. Using this methodology, the CMS analysis presents a true worst-case scenario in which a pedestrian call is made during each cycle. In reality, based on the traffic count data and nearby land use, the study intersections typically would not receive much more than 4 or 5 pedestrian calls per hour. The CMS analysis worksheets can be found in *Appendix C*.

Based on field observations, evaluation of nearby land use and traffic impact analysis, it is recommended that pedestrian signals be added to each of the study intersections with the exception of US Route 13 and South State Street. The evaluation and analysis for each intersection is outlined in the following study.

## **US ROUTE 13 & ROOSEVELT AVENUE**

### *Existing Intersection Geometry & Traffic Operations*

The skewed intersection of US 13 & Roosevelt Ave has two through lanes and exclusive left and right-turn lanes for both directions of US 13. The eastbound and westbound Roosevelt Avenue approaches each contain one left-turn lane and one shared through/right turn lane. The right turns are channelized by a concrete median on the eastbound approach and by a painted median on the westbound approach. Acceleration lanes do not exist for these movements. Northbound and southbound lefts from US 13 operate concurrently and are protected-permitted with flashing red arrows. All of the minor street movements operate concurrently. The posted speed limit on both approaches of US 13 is 50 MPH and the posted speed limit on both approaches of Roosevelt Avenue is 25 MPH.

### *Existing Pedestrian Facilities*

There are currently no pedestrian crossing accommodations at this intersection. Sidewalk exists at the southwest corner along the site frontage of an office/medical building, but the sidewalk along southbound US 13 ends at the entrance to the building roughly 300' from the intersection with Roosevelt Ave. The sidewalk along Roosevelt Avenue continues for about 750' west, but ends at a driveway before reaching the intersection with State Street. Sidewalk also exists along the site frontage of a car dealership on the southeast corner of the intersection. This sidewalk is limited to the dealership site and does not tie in with any existing pedestrian facilities along US 13 or Roosevelt Ave. Similarly, there is sidewalk along the northeast corner at the car wash site frontage, extending north along northbound US 13 and an adjacent strip mall. The sidewalk ends at the intersection with Evergreen Drive and picks back up past the used auto dealer along the McDonald's site frontage. The sidewalk ends at the end of the McDonald's property. No sidewalk or existing pedestrian facilities exist at the northwest corner of the intersection of US 13 & Roosevelt Avenue.

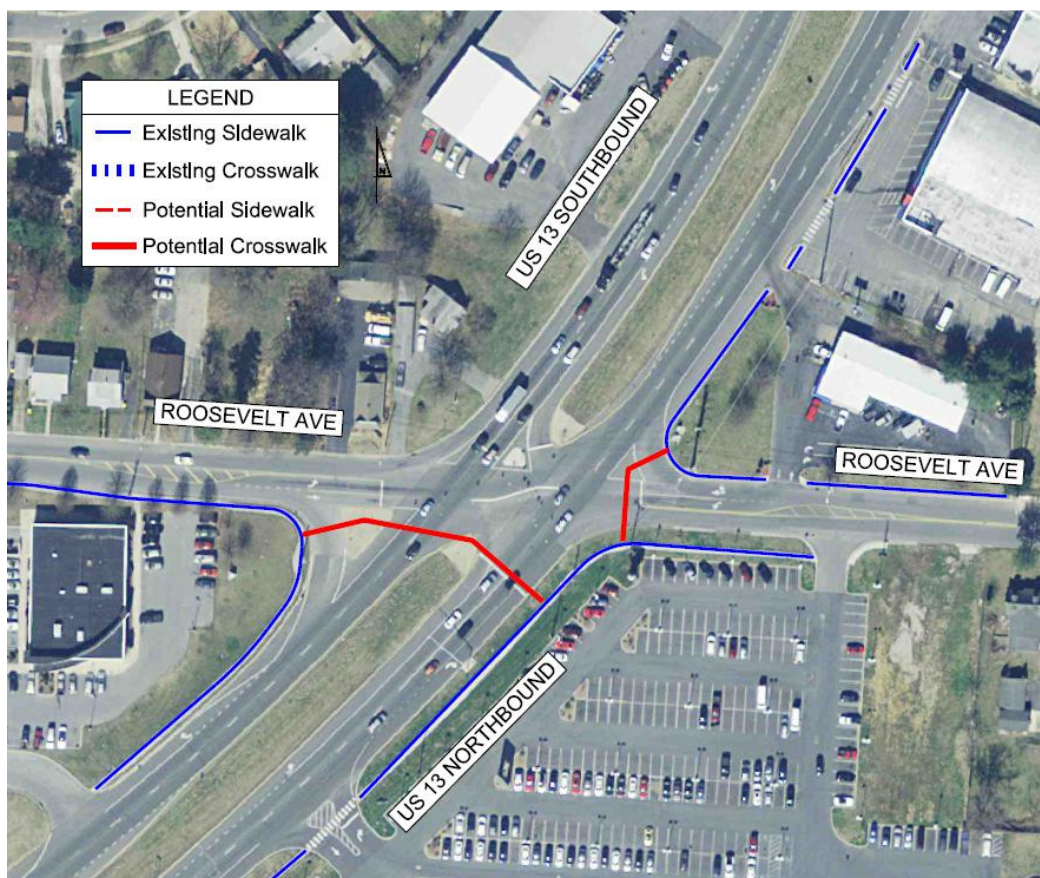
### *Nearby Land Use*

The general land use along the US 13 corridor in this area is mainly commercial and retail, although none of the businesses are big generators of pedestrian activity. The area to the west of US 13 is mainly residential behind the strip malls, and there is a small pocket of housing to the east of US 13, bound by the St. Jones River and Puncheon Run Connector. Although there is a McDonald's, a diner, and a liquor store close to the intersection of US 13 and Roosevelt Avenue, the overall feel is more commercial with the adjacent auto dealers and office buildings, and not much pedestrian activity is present as evidenced by the traffic count data and field observations.

### *Potential Pedestrian Facilities*

Since there are already existing pedestrian facilities along the northbound side of US 13, it would be feasible to provide a pedestrian crossing with pedestrian signals and upgraded curb ramps across the east leg of Roosevelt Avenue, although there are virtually no pedestrian destinations south of the car dealership. The other logical pedestrian crossing location is across the south leg of US 13, which would provide a link between the various businesses and residences on each side of US 13. There are also existing sidewalks on both sides of the south leg to tie in to. Three potential scenarios were analyzed for the south leg crossing: a single-stage crossing with the existing concurrent east-west phasing where westbound left turns must yield to pedestrians; a two-stage crossing with an exclusive pedestrian phase for crossing of the southbound US 13 lanes in order to eliminate the conflict with pedestrians and westbound left turns; and a two-stage crossing with split phasing for the east and west legs

**Figure 1 – US Route 13 and Roosevelt Avenue**



### *Critical Movement Summation (CMS) Analysis*

**Table 1: US Route 13 & Roosevelt Avenue CMS Analysis Results**

| Scenario   | Level of Service (Critical Movement Volume) |              |
|--|---|--------------|
|  | AM Peak Hour                                | PM Peak Hour |
| Existing Conditions (No Peds)                              | A (682)                                     | A (771)      |
| With Pedestrians (1 stage crossing)                        | F (2,170)                                   | F (2,081)    |
| With Pedestrians (2 stage crossing w/ exclusive ped phase) | F (1,813)                                   | F (1,779)    |
| With Pedestrians (2 stage crossing w/ split phase)         | D (1,411)                                   | D (1,449)    |

### *Recommendations*

A crosswalk with pedestrian signals can be added to the eastern leg of the intersection, linking the existing sidewalk that runs along US 13 northbound on both sides of Roosevelt Boulevard. Adding a pedestrian crossing to this leg has no effect on traffic operations as the green time for US 13 is more than enough to serve the minimum pedestrian crossing time.

Although the count data shows little pedestrian activity in this area, a pedestrian crossing of US 13 is recommended at this location based on the adjacent land use and the lack of nearby crossing locations. There are residential neighborhoods and various businesses on both sides of US 13 near the study intersection, however, the closest intersection along US 13 to the south is with State Street, where the addition of pedestrian facilities is not recommended due to the size, layout and lack of pedestrian infrastructure in the vicinity. In the northbound direction, pedestrians would have to walk approximately two-thirds of a mile to the intersection with River Road/Public Safety Boulevard in order to cross US 13.

Analysis of the different crossing scenarios resulted in severe service level degradation for the single-stage crossing option and the two-stage crossing with an exclusive pedestrian phase option. The green time required to cross pedestrians across US 13 severely impacts the heavy through movements on US 13 and drops the overall intersection level of service from an A to an F for both scenarios. On the other hand, converting the signal to split phase operation with a two-stage pedestrian crossing only degraded the level of service from an A to a D. In reality, the number of pedestrian calls would be very low and the worst-case results that the CMS analysis produces are not a good representation of how the signal would typically operate. Permanently changing the minor street phasing from concurrent to split-phase would take green time away from US 13 traffic during each cycle, and would have an overall worse effect on the intersection than one long pedestrian crossing once or twice an hour. Further coordination is required to determine the best course of action for this particular crossing.

## **US ROUTE 13 & SOUTH STATE STREET**

### *Existing Intersection Geometry & Traffic Operations*

The massive, skewed intersection of US 13 & South State Street is oriented in such a way that South State Street runs due north/south, and thus, US 13 is considered an east/west roadway for the discussion of this intersection. The eastbound and westbound approaches of US 13 each contain two through lanes, two left-turn lanes and a channelized right-turn lane. The left turn lanes and right turn lanes are channelized from the through lanes by concrete islands at both approaches. The northbound and southbound South State Street approaches each contain one left-turn lane, two-through lanes and one channelized right turn lane separated by a concrete island. The dual left turns from eastbound and westbound US 13 are protected-only and run concurrently, and the left turns from northbound and southbound South State Street are protected-only and run concurrently, as well. The posted speed limit on both approaches of US 13 is 50 MPH. The posted speed limit on the northbound approach of South State Street is 40 MPH, and the posted speed limit on the southbound approach of South State Street is 35 MPH.

### *Existing Pedestrian Facilities*

There are currently no pedestrian crossing accommodations at this intersection. A paved path exists along the southbound direction of South State Street and runs from the intersection of South State Street and Webbs Lane/Wolf Creek Boulevard, north under the Puncheon Run Connector overpass, and terminating at the southwest corner of the intersection of South State Street and US 13. The path dead-ends at the intersection of South State Street and US 13 and does not connect to anything as there are no other pedestrian facilities at this intersection. North/west of US 13, the sidewalk along southbound South State Street ends approximately 350 feet before reaching the intersection with US 13. No worn paths or evidence of pedestrian activity were noticed during field observations.

### *Nearby Land Use*

The general land use at this intersection is commercial and essentially no pedestrian destinations exist on the eastbound side of US 13. The residential area is mainly north and west of this intersection and pedestrians would utilize the Governors Avenue corridor, which has sidewalks on both sides of the street, to reach any of the various businesses and fast food establishments along the southbound direction of US 13 near the Webbs Lane intersection, which are the nearest pedestrian attractions.

### *Potential Pedestrian Facilities*

The installation of pedestrian crossings at the intersection of US 13 and South State Street are not feasible. The sheer size of the intersection and the skewed geometry would require very long pedestrian routes across many lanes of travel, which would negatively affect the level of service at the very busy intersection and promote a safety hazard to pedestrians, even with a legal signalized crossing. In addition, there are no nearby existing pedestrian facilities to tie in to, and no nearby pedestrian generating businesses. Safer, more accessible pedestrian routes on the lower volume local streets can be utilized for the residential area to the north and west of this intersection.



**Figure 2 – US Route 13 & South State Street**



*Critical Movement Summation (CMS) Analysis*

CMS analysis was not performed on the intersection of US 13 & South State Street given the infeasibility of adding pedestrian facilities to this intersection.

*Recommendations*

The installation of pedestrian crossings or pedestrian signals at this intersection is not recommended.



## **US ROUTE 13 & WEBBS LANE**

### *Existing Intersection Geometry & Traffic Operations*

The intersection of US 13 & Webbs Lane contains two through lanes, one left-turn lane and one right-turn lane in both directions of US 13. The left turn lanes and right turn lanes are channelized from the through lanes by concrete islands at both approaches. The eastbound Webbs Lane approach contains one left-turn lane, one shared through/left-turn lane and one right-turn lane with a channelizing concrete island. The westbound Webbs Lane approach contains one left-turn lane and one shared through/right-turn lane with a concrete channelizing island. The left turns from northbound and southbound US 13 operate concurrently and are protected-permitted with flashing red arrows. The eastbound and westbound movements are split-phased. The posted speed limit on both approaches of US 13 is 50 MPH, and the posted speed limit on the westbound approach of Webbs Lane is 40 MPH. On the eastbound Webbs Lane approach, the posted speed limit is 35 MPH west of Governors Ave. There is no posted speed limit east of Governors Avenue, but the westbound Webbs Lane departure from US 13 has a posted speed limit of 25 MPH.

### *Existing Pedestrian Facilities*

There are currently no pedestrian crossing accommodations at this intersection. Sidewalk exists on the northwest corner of the intersection along the Rite Aid site frontage, which ties into the pedestrian facilities at the intersection of Webbs Lane and South Governors Ave, which was recently upgraded to provide pedestrian crossings across all four legs complete with ADA compliant curb ramps and pedestrian signals. Existing sidewalk extends west along both sides of Webbs Lane and south and north along both sides of South Governors Ave in to the residential area. Besides the sidewalk along the Rite Aid frontage, no other pedestrian facilities exist at the intersection of US 13 and Webbs Lane. During a 20 minute field visit, two pedestrians were observed illegally crossing US 13 from the west to east. Two fatal pedestrian crashes have recently occurred near this intersection – one in June 2014 and one in November 2014. In both cases, the pedestrians were illegally crossing US 13 at night when they were fatally struck.

### *Nearby Land Use*

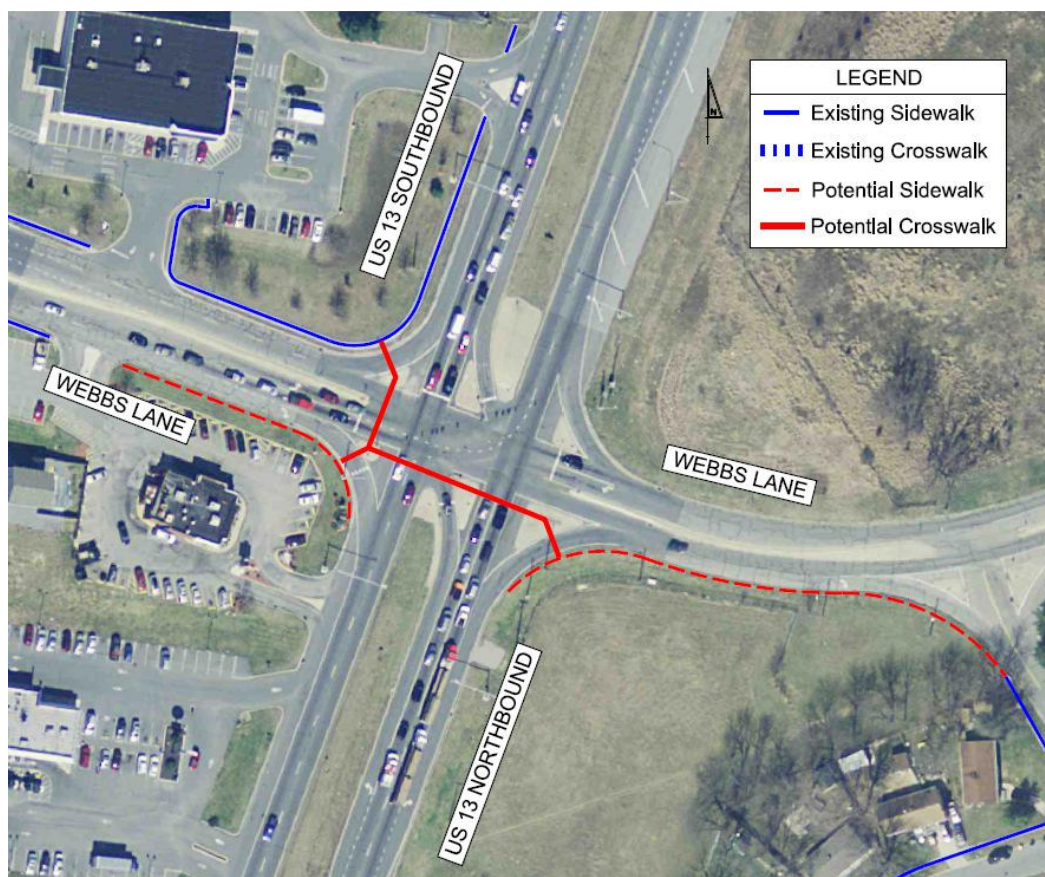
The land use near this intersection is generally retail and residential. Although there is essentially nothing along the northbound side of US 13, the southbound side contains several pedestrian attractions including a drug store, two fast-food restaurants and a gas station/convenience store. Located behind these businesses west of US 13 is the Rodney Village neighborhood, which contains a comprehensive network of sidewalks that connect the residential area to South Governors Avenue, providing walkable access to the various businesses along southbound US 13. Located east of US 13 and south of Webbs Lane is the Kent Acres neighborhood, as well as additional residences along Taylor Drive located behind the various businesses along northbound US 13. Pedestrians who want to cross US 13 from these residential neighborhoods located east of the major highway to access the businesses on the west side of the highway have no way to legally and safely cross US 13.

### *Potential Pedestrian Facilities*

The most sensible location for a pedestrian crossing at the intersection of US 13 and Webbs Lane is along the southern leg of the intersection, which would provide a legal crossing for pedestrians originating in the residential area east of US 13. This would be a long crossing distance for a single pedestrian phase, so a pedestrian refuge island in the US 13 median may be required in conjunction with a two-phase pedestrian crossing phase. Assuming that a pedestrian crossing is installed along the southern leg, it would also be beneficial to extend the existing sidewalk on the south side of Webbs Lane west of US 13 that currently ends at the Wendy's entrance, so that it connects with the proposed curb ramp at the southwest corner of US 13 & Webbs Lane. Similarly, new sidewalk could be installed on the south side

of Webb's Lane, east of US 13 to connect the Kent Acres neighborhood to the proposed curb ramp and crossing at the southeast corner of US 13 & Webb's Lane. With the installation of a pedestrian crossing across the south leg, it would also be feasible to provide a crossing of the west leg of Webb's Lane since sidewalk already exists on the northwest corner.

**Figure 3 – US Route 13 & Webb's Lane**



### *Critical Movement Summation (CMS) Analysis*

**Table 2: US Route 13 & Webb's Lane CMS Analysis Results**

| Scenario                            | Level of Service (Critical Movement Volume) |              |
|-------------------------------------|---|--------------|
|                                     | AM Peak Hour                                | PM Peak Hour |
| Existing Conditions (No Peds)       | A (947)                                     | C (1,229)    |
| With Pedestrians (1 stage crossing) | D (1,391)                                   | E (1,452)    |
| With Pedestrians (2 stage crossing) | C (1,243)                                   | D (1,316)    |

### *Recommendations*

Signalized pedestrian crossings can be added to the south and west legs of the intersection of US Route 13 and Webb's Lane. Providing a pedestrian crossing of US 13 at Webb's Lane is important given the history of pedestrian crashes at this location, as well as the existing land use which features residential areas on the east side of US 13 and various stores and restaurants on the west side of US 13. South of the

US 13 and Webbs Lane intersection, the nearest pedestrian crossing of US 13 is 2 miles away at the intersection of Voshells Mill Star Hill Road. Meanwhile, there is no way for pedestrians to cross US 13 north of Webbs Lane due to the Puncheon Run Connector ramps and the intersection with South State Street, which do not contain pedestrian facilities. Adding a single-stage pedestrian crossing of US 13 does add significant delay to the intersection, but the CMS service level still remains at E or better for both the AM and PM peak hours. Breaking the crossing into a two-phase crossing helps reduce this delay. The addition of a crossing across the west leg does not impact the traffic operations given the long green time for US 13, and it provides a link to the businesses on either side of Webbs Lane. Implementation of these pedestrian improvements would require extension of the sidewalk along the south side of Webbs Lane on both sides of US 13, in order to tie-in to existing pedestrian facilities. Curb ramps and pedestrian signals would need to be constructed on the northwest, southwest and southeast corners, and modifications to the concrete channelizing islands would be required for ADA compliance. It should be noted that a future US 13 Safety Project will add a third through lane to US 13 in both directions at this intersection, and may include new pedestrian signals among other facilities. The US 13 Safety Project is still in its infancy and design is not scheduled to begin until FY 2017 with construction likely starting a minimum of six years later. It is still recommended that pedestrian signals be installed in the interim given the long duration of the design and construction process, and the uncertainty of funding and scheduling at this point.

## **SOUTH STATE STREET & WEBBS LANE/WOLF CREEK BOULEVARD**

### *Existing Intersection Geometry & Traffic Operations*

The intersection of South State Street & Webbs Lane contains one through lane, one left-turn lane and one right-turn lane on both South State Street approaches, and contains one shared through/left-turn lane and one right-turn lane on the eastbound Webbs Lane approach and the westbound Wolf Creek Boulevard approach. The right turn lanes contain concrete channelization islands, except at the northbound State Street approach. The left turns from northbound and southbound State Street operate concurrently and are protected-permitted. The eastbound and westbound movements are split-phased. The posted speed limit on both approaches on South State Street is 40 MPH. There are no posted speed limit signs on the eastbound Webbs Lane approach or the westbound Wolf Creek Boulevard approach, but the departure lanes have posted speed limits of 40 MPH and 25 MPH, respectively.

### *Existing Pedestrian Facilities*

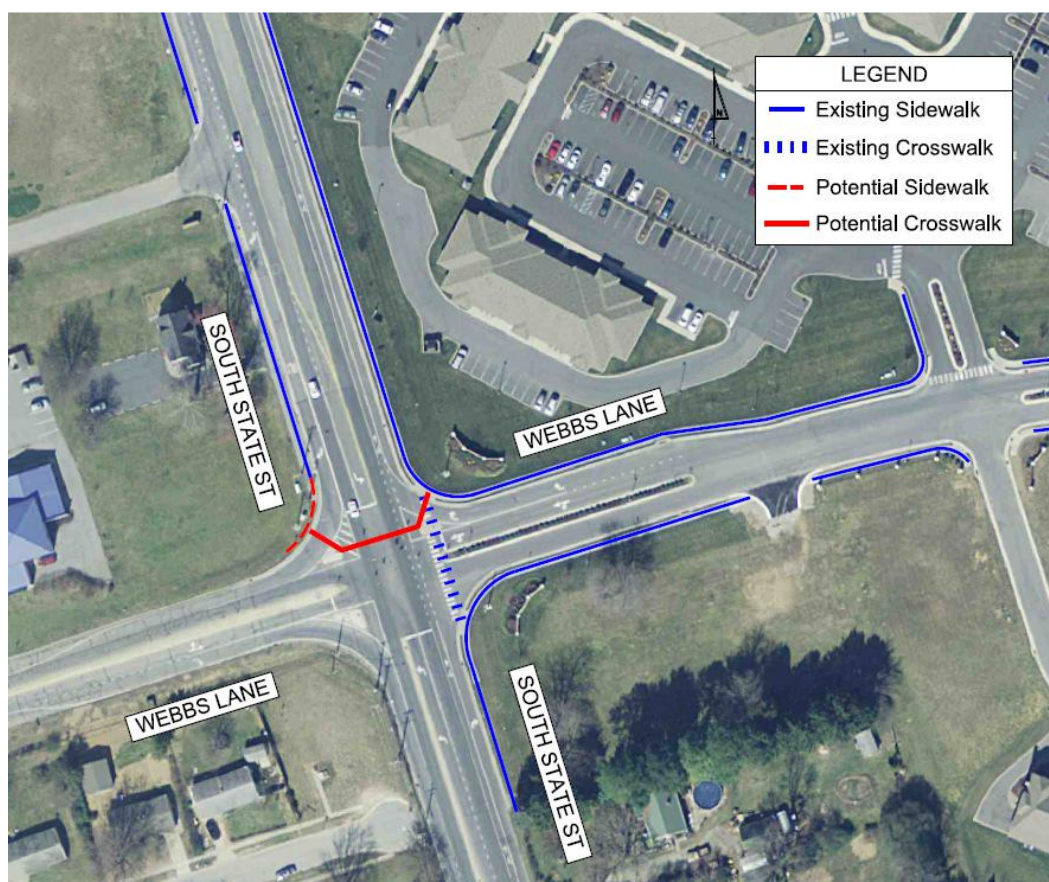
There is one marked crosswalk with curb ramps crossing the east leg (Wolf Creek Boulevard) of the intersection, but no pedestrian signals exist. Sidewalk exists along the northbound side of South State Street and both sides of Wolf Creek Boulevard which extend in to the office complex. On the southbound side of State Street is a paved path that ends at the northwest corner of the intersection of Webbs Lane and South State Street. There are no pedestrian facilities on the northwest or southwest corners of the intersection or along the eastbound Webbs Lane approach.

### *Nearby Land Use*

The land use near this intersection is generally residential, especially south of Webbs Lane/Wolf Creek Boulevard. There is an office complex on the northeast corner of the intersection and a separate office complex near the northwest corner of the intersection/westbound Webbs Lane. In general, there is not much in the area of the intersection that would attract pedestrians, besides those who may live nearby and walk to work at one of the office complexes.

### *Potential Pedestrian Facilities*

The existing pedestrian crossing across the east leg of the intersection could be upgraded with the installation of pedestrian signals, which would improve safety for pedestrians. A pedestrian crossing of South State Street could also be added. The most sensible location for this crossing is along the northern leg of the intersection, which would connect the sidewalk along Wolf Creek Boulevard and the office complex frontage to the paved path along southbound State Street.

**Figure 4 – South State Street & Webbs Lane***Critical Movement Summation (CMS) Analysis***Table 3: South State Street & Webbs Lane CMS Analysis Results**

| Scenario                            | Level of Service (Critical Movement Volume) |              |
|-------------------------------------|---|--------------|
|                                     | AM Peak Hour                                | PM Peak Hour |
| Existing Conditions (No Peds)       | A (954)                                     | C (1,183)    |
| With Pedestrians (1 stage crossing) | C (1,175)                                   | C (1,285)    |

*Recommendations*

A crosswalk with pedestrian signals can be added to the northern leg of the intersection, and pedestrian signals can be installed for the existing east leg crossing. Although there does not appear to be much pedestrian activity in this area, the new north leg crossing would link the pedestrian facilities throughout the office complex and adjacent neighborhood to the east of State Street with the business complex and paved path on the west side of State Street. The addition of two signalized pedestrian crossings in the CMS analysis did not have much of an impact on the level of service. Implementation of these pedestrian improvements would require installation of pedestrian signals and new sidewalk/curb ramps on the northwest corner of the intersection, which would tie in to the existing paved path.



## **NORTH STATE STREET, NORTH GOVERNORS AVENUE & WALKER ROAD**

### *Existing Intersection Geometry & Traffic Operations*

The signalized intersection of North State Street, North Governors Avenue and Walker Road has an odd geometric layout. The northbound State Street approach contains one through lane and one left-turn lane for the left onto Walker Road or the sharp left onto Governors Avenue. The southbound State Street approach contains two lanes: one through lane for State Street and one right-turn lane for the slight right onto Governors Avenue and the standard right to Walker Road. The eastbound Walker Road approach contains one left-turn lane and one right-turn lane that serves the sharp right onto Governors Avenue and the standard right onto North State Street. The northeast approach of North Governors Avenue contains one through lane that serves the movement to northbound State Street. The northbound through movement on North State Street is a free movement, while the northbound State Street left turn movement is protected only. The right lane of southbound State Street has a dedicated signal that serves movements to Governors Avenue and Walker Road, which runs concurrently with the northeast-bound Governors Avenue movement to State Street (the left turn from Governors Avenue to Walker Road is prohibited at all times). The left lane of southbound State Street also has a designated signal and phase that serves the southbound through movement to State Street. The westbound Walker Road approach also has a separate phase that serves all movements. The speed limit on northbound and southbound State Street is 35 MPH, the Walker Road speed limit is 30 MPH and the Governors Avenue speed limit is 25 MPH.

### *Existing Pedestrian Facilities*

Sidewalk exists along the northbound side of North State Street and continues north across the bridge over Silver Lake. Sidewalk also exists along the southbound side of State Street across the bridge and continues along westbound Walker Road. There is also sidewalk along westbound Walker Road which connects with sidewalk running along southbound Governors Avenue. There is sidewalk along northbound Governor's Avenue and southbound State Street, but they connect south of the intersection and do not extend up to the intersection. There are no pedestrian crossings across any of the four legs of the intersection.

### *Nearby Land Use*

The land use near this intersection is residential, especially south west of the intersection. There is a cemetery east of State Street and Silver Lake separates the residential area from the US 13 commercial corridor to the north/east of the intersection area. A park is also located near the northwest corner of the intersection between Walker Road and Silver Lake. Nearby pedestrian attractions include stores and restaurants north of Silver Lake, an office complex a few blocks west down Walker Road, and a dense residential area along with Wesley College and downtown Dover businesses and offices located less than one mile to the south.

### *Potential Pedestrian Facilities*

Given the intersection geometry and nearby land use, the most sensible location for a pedestrian crossing is across the Walker Road leg and the North Governors Avenue leg. The northbound and southbound State Street approaches are not ideal for pedestrian crossings since the northbound through movement is free and the northern leg contains four travel lanes. It is assumed that pedestrians can cross North State Street a block or two south of the intersection in the low speed, residential area that only contains one lane in each direction. The Governors Avenue crosswalk would require extending the sidewalks along southbound State Street and northbound Governors Avenue up to the intersection, along with new curb ramps at the corner of Governors Avenue and State Street and Governors Avenue and Walker Road. The new curb ramp at Governors Avenue and Walker Road would also serve the proposed Walker Road

crossing, which would connect the residential area to the south to the lake and park to the north. The proposed Walker Road crosswalk presents a sight-distance issue where southbound State Street motorists have limited vision due to the trees and fence on the northwest corner of the intersection along the lake. In order to safely cross pedestrians across Walker Road, the southbound right-turn movement would need to be restricted via a separate phase. Another option is to add a separate pedestrian phase for both of the proposed crossings.

**Figure 5 – North State Street, North Governors Avenue & Walker Road**



*Critical Movement Summation (CMS) Analysis*

**Table 4: North State Street, North Governors Ave, & Walker Road CMS Analysis Results**

| Scenario                            | Level of Service (Critical Movement Volume) |              |
|-------------------------------------|---|--------------|
|                                     | AM Peak Hour                                | PM Peak Hour |
| Existing Conditions (No Peds)       | B (1,004)                                   | B (1,016)    |
| With Pedestrians (1 stage crossing) | C (1,214)                                   | D (1,359)    |



*Recommendations*

Crosswalks can be added to the Governors Avenue leg and Walker Road leg of the intersection in order to provide safe pedestrian access from the heavily residential area to the south and to Richardson Park and the US 13 commercial corridor to the north. To safely cross pedestrians across the Walker Road leg, a separate pedestrian phase would be required. The separate pedestrian phase was taken into account in the CMS analysis, and the level of service was moderately impacted. Implementation of these pedestrian improvements would require the extension of the sidewalks along Governors Avenue and North State Street up to the intersection, and construction of curb ramps and pedestrian signals for the two proposed crossings. Other signal modifications may be necessary to accommodate the proposed phasing.

# **Dover Pedestrian Signals Feasibility Study**

## **Appendix A**

### **Traffic Count Data**

# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: Rt 13/Roosevelt Ave

Date: Tuesday, May 20, 2014

Counter: WC LD

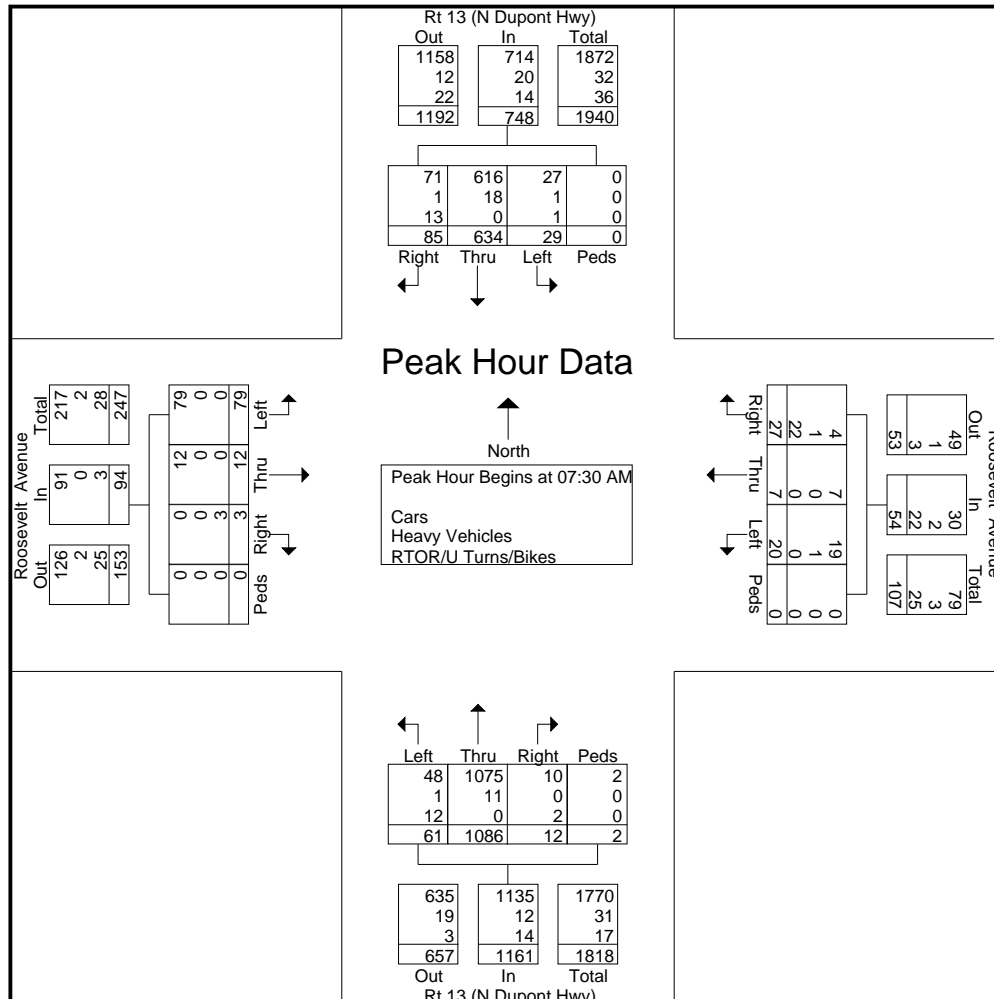
File Name : Dover Weekday 22

Site Code : 22

Start Date : 5/20/2014

Page No : 4

|  | Rt 13 (N Dupont Hwy)<br>Southbound |      |      |      |            | Roosevelt Avenue<br>Westbound |      |      |      |            | Rt 13 (N Dupont Hwy)<br>Northbound |      |      |      |            | Roosevelt Avenue<br>Eastbound |      |      |      |            |            |
|--|------------------------------------|------|------|------|------------|-------------------------------|------|------|------|------------|------------------------------------|------|------|------|------------|-------------------------------|------|------|------|------------|------------|
| Start Time   | Right                              | Thru | Left | Peds | App. Total | Right                         | Thru | Left | Peds | App. Total | Right                              | Thru | Left | Peds | App. Total | Right                         | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 |                                    |      |      |      |            |                               |      |      |      |            |                                    |      |      |      |            |                               |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                                    |      |      |      |            |                               |      |      |      |            |                                    |      |      |      |            |                               |      |      |      |            |            |
| 07:30 AM   | 24                                 | 178  | 10   | 0    | 212        | 4                             | 1    | 6    | 0    | 11         | 2                                  | 278  | 13   | 0    | 293        | 2                             | 1    | 18   | 0    | 21         | 537        |
| 07:45 AM   | 25                                 | 155  | 6    | 0    | 186        | 14                            | 2    | 5    | 0    | 21         | 1                                  | 317  | 27   | 0    | 345        | 1                             | 3    | 23   | 0    | 27         | 579        |
| 08:00 AM   | 15                                 | 119  | 6    | 0    | 140        | 6                             | 0    | 4    | 0    | 10         | 6                                  | 256  | 7    | 2    | 271        | 0                             | 4    | 19   | 0    | 23         | 444        |
| 08:15 AM   | 21                                 | 182  | 7    | 0    | 210        | 3                             | 4    | 5    | 0    | 12         | 3                                  | 235  | 14   | 0    | 252        | 0                             | 4    | 19   | 0    | 23         | 497        |
| Total Volume   | 85                                 | 634  | 29   | 0    | 748        | 27                            | 7    | 20   | 0    | 54         | 12                                 | 1086 | 61   | 2    | 1161       | 3                             | 12   | 79   | 0    | 94         | 2057       |
| % App. Total   | 11.4                               | 84.8 | 3.9  | 0    |            | 50                            | 13   | 37   | 0    |            | 1                                  | 93.5 | 5.3  | 0.2  |            | 3.2                           | 12.8 | 84   | 0    |            |            |
| PHF  | .850                               | .871 | .725 | .000 | .882       | .482                          | .438 | .833 | .000 | .643       | .500                               | .856 | .565 | .250 | .841       | .375                          | .750 | .859 | .000 | .870       | .888       |
| Cars   | 71                                 | 616  | 27   | 0    | 714        | 4                             | 7    | 19   | 0    | 30         | 10                                 | 1075 |      |      |            |                               |      |      |      |            |            |
| % Cars   | 83.5                               | 97.2 | 93.1 | 0    | 95.5       | 14.8                          | 100  | 95.0 | 0    | 55.6       | 83.3                               | 99.0 | 78.7 | 100  | 97.8       | 0                             | 100  | 100  | 0    | 96.8       | 95.8       |
| Heavy Vehicles   | 1                                  | 18   | 1    | 0    | 20         | 1                             | 0    | 1    | 0    | 2          | 0                                  | 11   | 1    | 0    | 12         | 0                             | 0    | 0    | 0    | 0          | 34         |
| % Heavy Vehicles   | 1.2                                | 2.8  | 3.4  | 0    | 2.7        | 3.7                           | 0    | 5.0  | 0    | 3.7        | 0                                  | 1.0  | 1.6  | 0    | 1.0        | 0                             | 0    | 0    | 0    | 0          | 1.7        |
| RTOR/U Turns/Bikes   | 13                                 | 0    | 1    | 0    | 14         | 22                            | 0    | 0    | 0    | 22         | 2                                  | 0    | 12   | 0    | 14         | 3                             | 0    | 0    | 0    | 3          | 53         |
| % RTOR/U Turns/Bikes                                       | 15.3                               | 0    | 3.4  | 0    | 1.9        | 81.5                          | 0    | 0    | 0    | 40.7       | 16.7                               | 0    | 19.7 | 0    | 1.2        | 100                           | 0    | 0    | 0    | 3.2        | 2.6        |



# Tri-State Traffic Data, Inc.

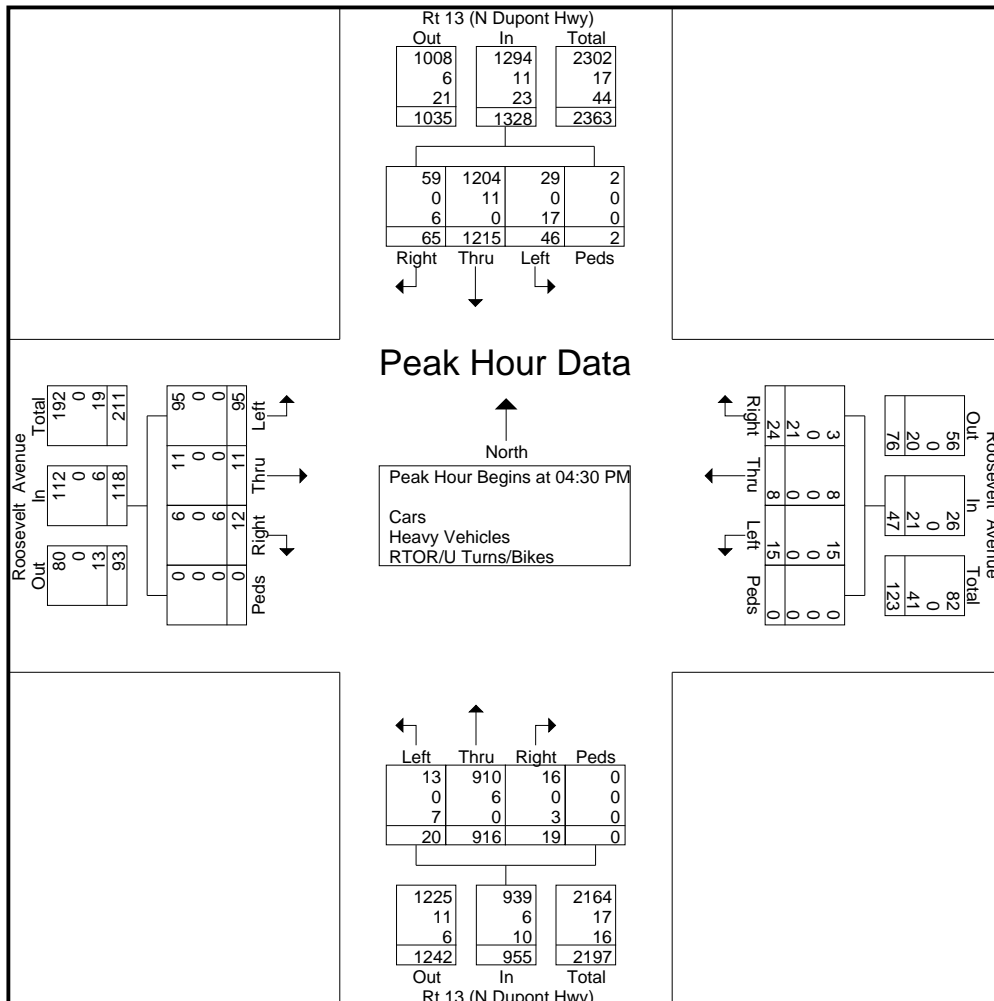
610 466-1469

TSTData.com

Location: Dover, Delaware  
Intersection: Rt 13/Roosevelt Ave  
Date: Tuesday, May 20, 2014  
Counter: WC LD

File Name : Dover Weekday 22  
Site Code : 22  
Start Date : 5/20/2014  
Page No : 5

|  | Rt 13 (N Dupont Hwy)<br>Southbound |      |      |      |            | Roosevelt Avenue<br>Westbound |      |      |      |            | Rt 13 (N Dupont Hwy)<br>Northbound |      |      |      |            | Roosevelt Avenue<br>Eastbound |      |      |      |            |            |
|--|------------------------------------|------|------|------|------------|-------------------------------|------|------|------|------------|------------------------------------|------|------|------|------------|-------------------------------|------|------|------|------------|------------|
| Start Time   | Right                              | Thru | Left | Peds | App. Total | Right                         | Thru | Left | Peds | App. Total | Right                              | Thru | Left | Peds | App. Total | Right                         | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 |                                    |      |      |      |            |                               |      |      |      |            |                                    |      |      |      |            |                               |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                                    |      |      |      |            |                               |      |      |      |            |                                    |      |      |      |            |                               |      |      |      |            |            |
| 04:30 PM   | 16                                 | 337  | 6    | 0    | 359        | 10                            | 0    | 2    | 0    | 12         | 3                                  | 206  | 4    | 0    | 213        | 4                             | 1    | 29   | 0    | 34         | 618        |
| 04:45 PM   | 18                                 | 308  | 15   | 0    | 341        | 2                             | 3    | 3    | 0    | 8          | 4                                  | 239  | 5    | 0    | 248        | 3                             | 3    | 23   | 0    | 29         | 626        |
| 05:00 PM   | 17                                 | 286  | 11   | 0    | 314        | 7                             | 1    | 3    | 0    | 11         | 8                                  | 263  | 5    | 0    | 276        | 3                             | 5    | 22   | 0    | 30         | 631        |
| 05:15 PM   | 14                                 | 284  | 14   | 2    | 314        | 5                             | 4    | 7    | 0    | 16         | 4                                  | 208  | 6    | 0    | 218        | 2                             | 2    | 21   | 0    | 25         | 573        |
| Total Volume   | 65                                 | 1215 | 46   | 2    | 1328       | 24                            | 8    | 15   | 0    | 47         | 19                                 | 916  | 20   | 0    | 955        | 12                            | 11   | 95   | 0    | 118        | 2448       |
| % App. Total   | 4.9                                | 91.5 | 3.5  | 0.2  |            | 51.1                          | 17   | 31.9 | 0    |            | 2                                  | 95.9 | 2.1  | 0    |            | 10.2                          | 9.3  | 80.5 | 0    |            |            |
| PHF  | .903                               | .901 | .767 | .250 | .925       | .600                          | .500 | .536 | .000 | .734       | .594                               | .871 | .833 | .000 | .865       | .750                          | .550 | .819 | .000 | .868       | .970       |
| Cars   | 59                                 | 1204 |      |      |            | 12.5                          | 100  | 100  | 0    | 55.3       | 84.2                               | 99.3 | 65.0 | 0    | 98.3       | 50.0                          | 100  | 100  | 0    | 94.9       | 96.9       |
| % Cars   | 90.8                               | 99.1 | 63.0 | 100  | 97.4       |                               |      |      |      |            |                                    |      |      |      |            |                               |      |      |      |            |            |
| Heavy Vehicles   | 0                                  | 11   | 0    | 0    | 11         | 0                             | 0    | 0    | 0    | 0          | 0                                  | 6    | 0    | 0    | 6          | 0                             | 0    | 0    | 0    | 0          | 17         |
| % Heavy Vehicles   | 0                                  | 0.9  | 0    | 0    | 0.8        | 0                             | 0    | 0    | 0    | 0          | 0                                  | 0.7  | 0    | 0    | 0.6        | 0                             | 0    | 0    | 0    | 0          | 0.7        |
| RTOR/U Turns/Bikes   | 6                                  | 0    | 17   | 0    | 23         | 21                            | 0    | 0    | 0    | 21         | 3                                  | 0    | 7    | 0    | 10         | 6                             | 0    | 0    | 0    | 6          | 60         |
| % RTOR/U Turns/Bikes                                       | 9.2                                | 0    | 37.0 | 0    | 1.7        | 87.5                          | 0    | 0    | 0    | 44.7       | 15.8                               | 0    | 35.0 | 0    | 1.0        | 50.0                          | 0    | 0    | 0    | 5.1        | 2.5        |



# Tri-State Traffic Data, Inc.

610 466-1469

TSTDData.com

Location: Dover, Delaware

Intersection: Rte 13/S State St

Date: Wednesday, May 21, 2014

Counter: WC LD

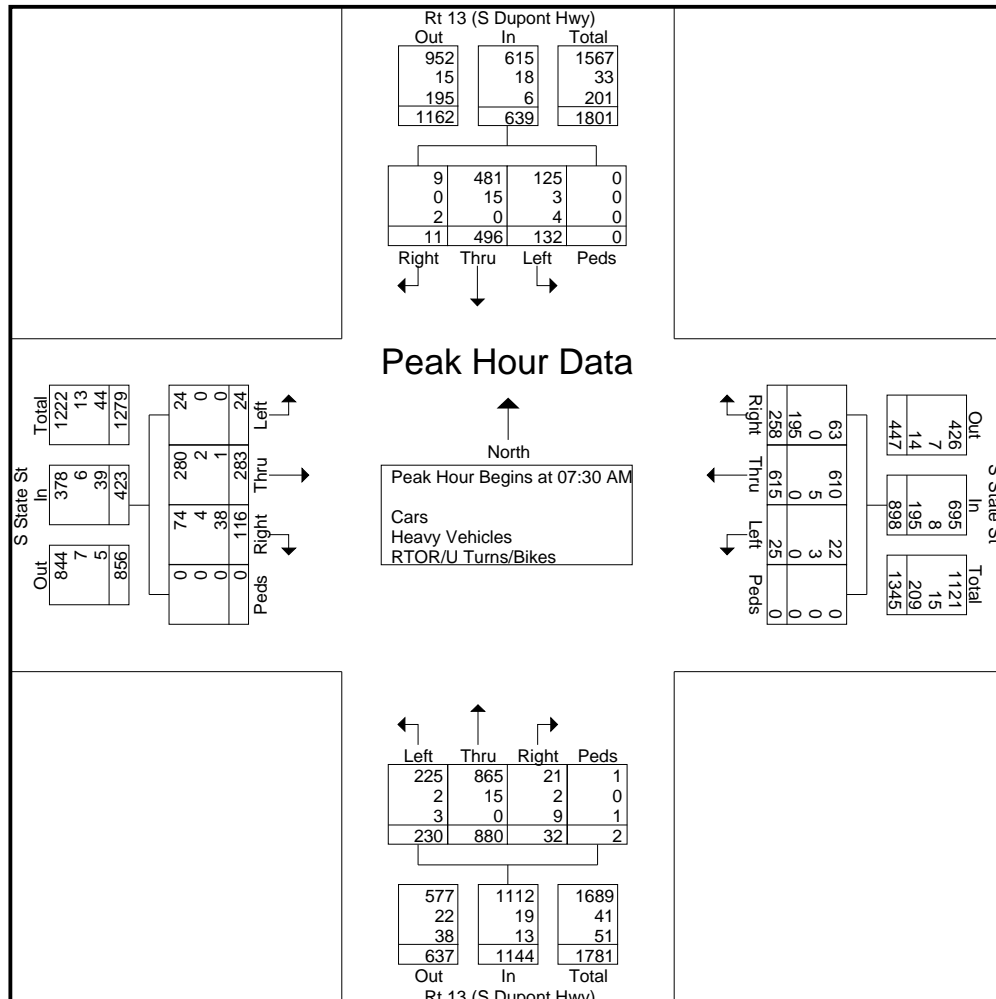
File Name : Dover Weekday 23

Site Code : 23

Start Date : 5/21/2014

Page No : 4

|  | Rt 13 (S Dupont Hwy)<br>Southbound |            |           |      |            | S State St<br>Westbound |            |           |      |            | Rt 13 (S Dupont Hwy)<br>Northbound |            |           |          |            | S State St<br>Eastbound |           |          |      |            |            |
|--|------------------------------------|------------|-----------|------|------------|-------------------------|------------|-----------|------|------------|------------------------------------|------------|-----------|----------|------------|-------------------------|-----------|----------|------|------------|------------|
| Start Time   | Right                              | Thru       | Left      | Peds | App. Total | Right                   | Thru       | Left      | Peds | App. Total | Right                              | Thru       | Left      | Peds     | App. Total | Right                   | Thru      | Left     | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 |                                    |            |           |      |            |                         |            |           |      |            |                                    |            |           |          |            |                         |           |          |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:30 AM       |                                    |            |           |      |            |                         |            |           |      |            |                                    |            |           |          |            |                         |           |          |      |            |            |
| 07:30 AM   | 1                                  | <b>140</b> | 27        | 0    | 168        | 73                      | 161        | 6         | 0    | 240        | 7                                  | 226        | 52        | <b>1</b> | 286        | 16                      | 50        | 5        | 0    | 71         | 765        |
| 07:45 AM   | 3                                  | 110        | <b>40</b> | 0    | 153        | <b>76</b>               | <b>184</b> | 5         | 0    | <b>265</b> | <b>12</b>                          | <b>257</b> | <b>84</b> | 0        | <b>353</b> | <b>42</b>               | 81        | 6        | 0    | 129        | <b>900</b> |
| 08:00 AM   | <b>4</b>                           | 114        | 28        | 0    | 146        | 43                      | 133        | 4         | 0    | 180        | 10                                 | 206        | 50        | 1        | 267        | 30                      | <b>94</b> | <b>9</b> | 0    | <b>133</b> | 726        |
| 08:15 AM   | 3                                  | 132        | 37        | 0    | <b>172</b> | 66                      | 137        | <b>10</b> | 0    | 213        | 3                                  | 191        | 44        | 0        | 238        | 28                      | 58        | 4        | 0    | 90         | 713        |
| Total Volume   | 11                                 | 496        | 132       | 0    | 639        | 258                     | 615        | 25        | 0    | 898        | 32                                 | 880        | 230       | 2        | 1144       | 116                     | 283       | 24       | 0    | 423        | 3104       |
| % App. Total   | 1.7                                | 77.6       | 20.7      | 0    |            | 28.7                    | 68.5       | 2.8       | 0    |            | 2.8                                | 76.9       | 20.1      | 0.2      |            | 27.4                    | 66.9      | 5.7      | 0    |            |            |
| PHF  | .688                               | .886       | .825      | .000 | .929       | .849                    | .836       | .625      | .000 | .847       | .667                               | .856       | .685      | .500     | .810       | .690                    | .753      | .667     | .000 | .795       | .862       |
| Cars   | 9                                  | 481        | 125       | 0    | 615        | 63                      | 610        | 22        | 0    | 695        | 21                                 | 865        | 225       | 1        | 1112       | 74                      | 280       | 24       | 0    | 378        | 2800       |
| % Cars   | 81.8                               | 97.0       | 94.7      | 0    | 96.2       | 24.4                    | 99.2       | 88.0      | 0    | 77.4       | 65.6                               | 98.3       | 97.8      | 50.0     | 97.2       | 63.8                    | 98.9      | 100      | 0    | 89.4       | 90.2       |
| Heavy Vehicles   |                                    |            |           |      |            |                         |            |           |      |            |                                    |            |           |          |            |                         |           |          |      |            |            |
| % Heavy Vehicles   | 0                                  | 3.0        | 2.3       | 0    | 2.8        | 0                       | 0.8        | 12.0      | 0    | 0.9        | 6.3                                | 1.7        | 0.9       | 0        | 1.7        | 3.4                     | 0.7       | 0        | 0    | 1.4        | 1.6        |
| RTOR/U Turns/Bikes   | 2                                  | 0          | 4         | 0    | 6          | 195                     | 0          | 0         | 0    | 195        | 9                                  | 0          | 3         | 1        | 13         | 38                      | 1         | 0        | 0    | 39         | 253        |
| % RTOR/U Turns/Bikes                                       | 18.2                               | 0          | 3.0       | 0    | 0.9        | 75.6                    | 0          | 0         | 0    | 21.7       | 28.1                               | 0          | 1.3       | 50.0     | 1.1        | 32.8                    | 0.4       | 0        | 0    | 9.2        | 8.2        |



# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: Rte 13/S State St

Date: Wednesday, May 21, 2014

Counter: WC LD

File Name : Dover Weekday 23

Site Code : 23

Start Date : 5/21/2014

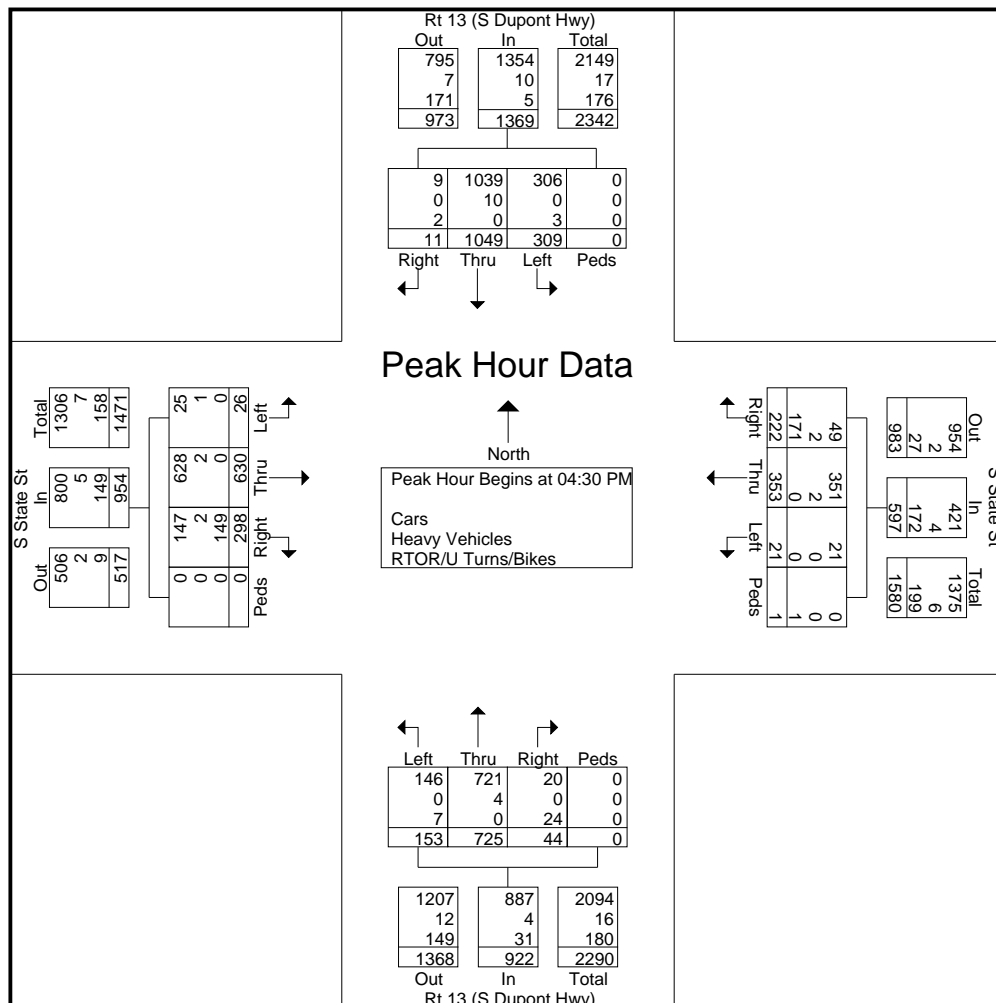
Page No : 5

|            | Rt 13 (S Dupont Hwy)<br>Southbound |      |      |      |            | S State St<br>Westbound |      |      |      |            | Rt 13 (S Dupont Hwy)<br>Northbound |      |      |      |            | S State St<br>Eastbound |      |      |      |            |            |
|------------|------------------------------------|------|------|------|------------|-------------------------|------|------|------|------------|------------------------------------|------|------|------|------------|-------------------------|------|------|------|------------|------------|
| Start Time | Right                              | Thru | Left | Peds | App. Total | Right                   | Thru | Left | Peds | App. Total | Right                              | Thru | Left | Peds | App. Total | Right                   | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Entire Intersection Begins at 04:30 PM

|                      |          |            |           |      |            |           |           |          |          |            |           |            |           |      |            |           |            |          |      |            |             |
|----------------------|----------|------------|-----------|------|------------|-----------|-----------|----------|----------|------------|-----------|------------|-----------|------|------------|-----------|------------|----------|------|------------|-------------|
| 04:30 PM             | 2        | <b>314</b> | <b>82</b> | 0    | <b>398</b> | 43        | 89        | 3        | 0        | 135        | 6         | <b>200</b> | 30        | 0    | 236        | 77        | 151        | 6        | 0    | 234        | <b>1003</b> |
| 04:45 PM             | 0        | 231        | 80        | 0    | 311        | <b>68</b> | <b>94</b> | <b>6</b> | <b>1</b> | <b>169</b> | 13        | 170        | <b>46</b> | 0    | 229        | 75        | <b>184</b> | 6        | 0    | <b>265</b> | 974         |
| 05:00 PM             | 4        | 255        | 70        | 0    | 329        | 62        | 90        | 6        | 0        | 158        | <b>20</b> | 186        | 33        | 0    | <b>239</b> | <b>85</b> | 149        | <b>8</b> | 0    | 242        | 968         |
| 05:15 PM             | <b>5</b> | 249        | 77        | 0    | 331        | 49        | 80        | 6        | 0        | 135        | 5         | 169        | 44        | 0    | 218        | 61        | 146        | 6        | 0    | 213        | 897         |
| Total Volume         | 11       | 1049       | 309       | 0    | 1369       | 222       | 353       | 21       | 1        | 597        | 44        | 725        | 153       | 0    | 922        | 298       | 630        | 26       | 0    | 954        | 3842        |
| % App. Total         | 0.8      | 76.6       | 22.6      | 0    |            | 37.2      | 59.1      | 3.5      | 0.2      |            | 4.8       | 78.6       | 16.6      | 0    |            | 31.2      | 66         | 2.7      | 0    |            |             |
| PHF                  | .550     | .835       | .942      | .000 | .860       | .816      | .939      | .875     | .250     | .883       | .550      | .906       | .832      | .000 | .964       | .876      | .856       | .813     | .000 | .900       | .958        |
| Cars                 | 9        | 1039       |           |      |            |           |           |          |          |            |           |            |           |      |            |           |            |          |      |            |             |
| % Cars               | 81.8     | 99.0       | 99.0      | 0    | 98.9       | 22.1      | 99.4      | 100      | 0        | 70.5       | 45.5      | 99.4       | 95.4      | 0    | 96.2       | 49.3      | 99.7       | 96.2     | 0    | 83.9       | 90.1        |
| Heavy Vehicles       | 0        | 10         | 0         | 0    | 10         | 2         | 2         | 0        | 0        | 4          | 0         | 4          | 0         | 0    | 4          | 2         | 2          | 1        | 0    | 5          | 23          |
| % Heavy Vehicles     | 0        | 1.0        | 0         | 0    | 0.7        | 0.9       | 0.6       | 0        | 0        | 0.7        | 0         | 0.6        | 0         | 0    | 0.4        | 0.7       | 0.3        | 3.8      | 0    | 0.5        | 0.6         |
| RTOR/U Turns/Bikes   | 2        | 0          | 3         | 0    | 5          | 171       | 0         | 0        | 1        | 172        | 24        | 0          | 7         | 0    | 31         | 149       | 0          | 0        | 0    | 149        | 357         |
| % RTOR/U Turns/Bikes | 18.2     | 0          | 1.0       | 0    | 0.4        | 77.0      | 0         | 0        | 100      | 28.8       | 54.5      | 0          | 4.6       | 0    | 3.4        | 50.0      | 0          | 0        | 0    | 15.6       | 9.3         |



# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: US 13/Webb's Lane

Date: Wednesday, June 4th, 2014

Counter: MIO CT

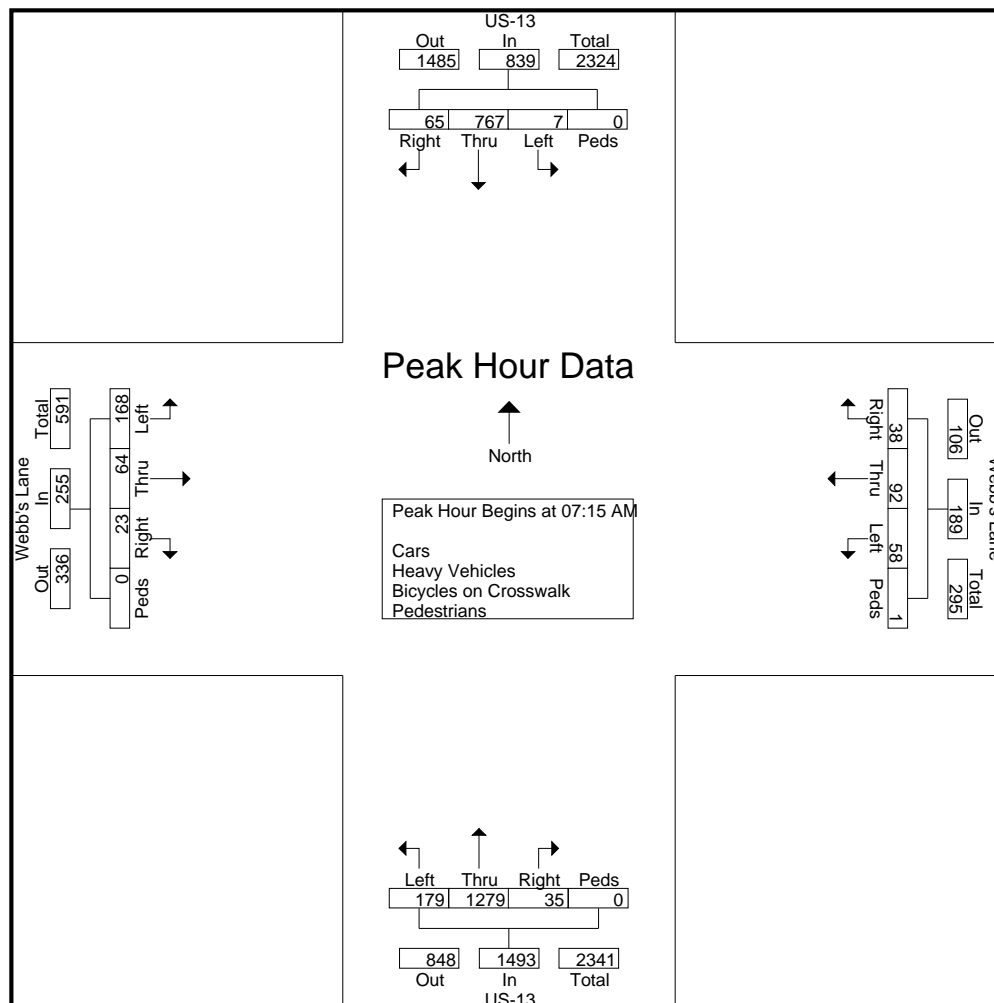
File Name : Dover Weekday 26

Site Code : 26

Start Date : 6/4/2014

Page No : 4

|  | US-13 Southbound |      |      |      |            | Webb's Lane Westbound |      |      |      |            | US-13 Northbound |      |      |      |            | Webb's Lane Eastbound |      |      |      |            |            |
|--|------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| Start Time   | Right            | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Right            | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 |                  |      |      |      |            |                       |      |      |      |            |                  |      |      |      |            |                       |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                  |      |      |      |            |                       |      |      |      |            |                  |      |      |      |            |                       |      |      |      |            |            |
| 07:15 AM   | 11               | 180  | 1    | 0    | 192        | 13                    | 17   | 13   | 0    | 43         | 7                | 285  | 38   | 0    | 330        | 4                     | 15   | 47   | 0    | 66         | 631        |
| 07:30 AM   | 16               | 210  | 1    | 0    | 227        | 9                     | 15   | 12   | 0    | 36         | 13               | 325  | 54   | 0    | 392        | 9                     | 11   | 40   | 0    | 60         | 715        |
| 07:45 AM   | 25               | 200  | 1    | 0    | 226        | 12                    | 29   | 22   | 0    | 63         | 13               | 353  | 52   | 0    | 418        | 5                     | 20   | 46   | 0    | 71         | 778        |
| 08:00 AM   | 13               | 177  | 4    | 0    | 194        | 4                     | 31   | 11   | 1    | 47         | 2                | 316  | 35   | 0    | 353        | 5                     | 18   | 35   | 0    | 58         | 652        |
| Total Volume   | 65               | 767  | 7    | 0    | 839        | 38                    | 92   | 58   | 1    | 189        | 35               | 1279 | 179  | 0    | 1493       | 23                    | 64   | 168  | 0    | 255        | 2776       |
| % App. Total   | 7.7              | 91.4 | 0.8  | 0    |            | 20.1                  | 48.7 | 30.7 | 0.5  |            | 2.3              | 85.7 | 12   | 0    |            | 9                     | 25.1 | 65.9 | 0    |            |            |
| PHF  | .650             | .913 | .438 | .000 | .924       | .731                  | .742 | .659 | .250 | .750       | .673             | .906 | .829 | .000 | .893       | .639                  | .800 | .894 | .000 | .898       | .892       |





# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: US 13/Webb's Lane

Date: Wednesday, June 4th, 2014

Counter: MIO CT

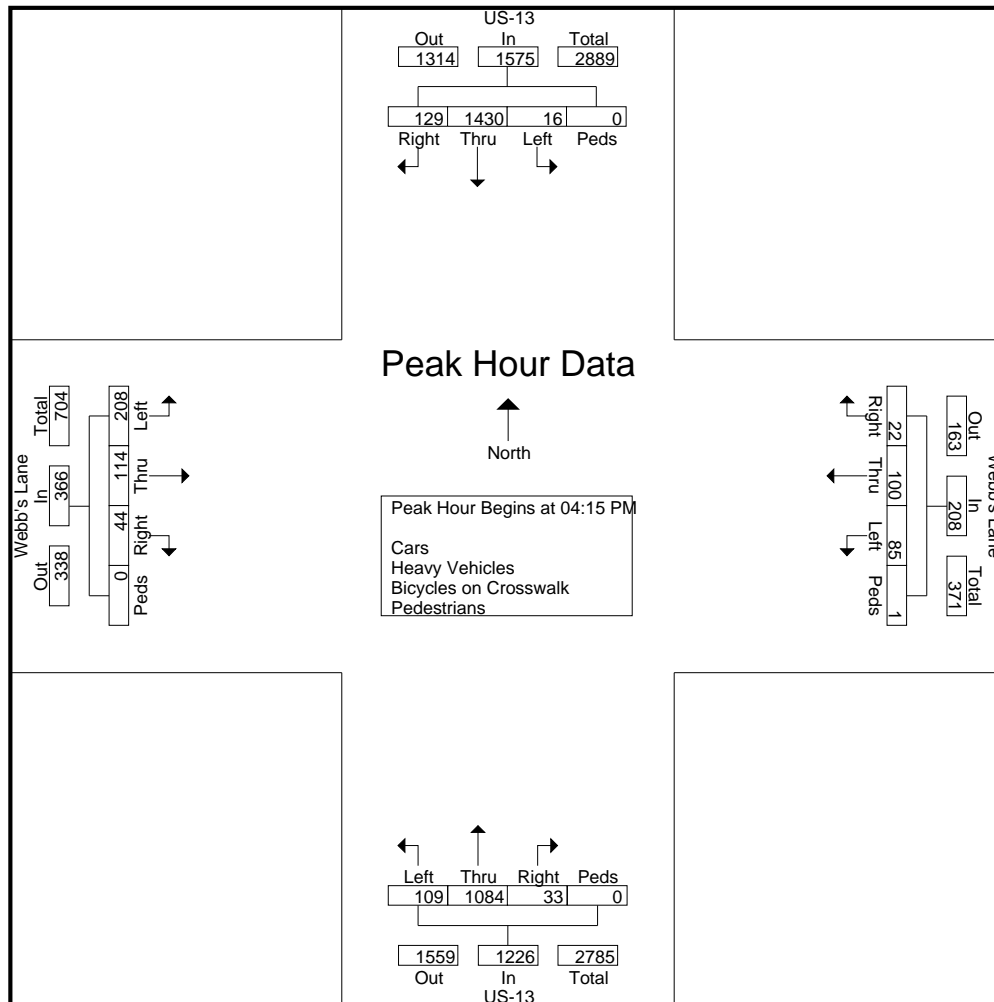
File Name : Dover Weekday 26

Site Code : 26

Start Date : 6/4/2014

Page No : 5

|  | US-13 Southbound |      |      |      |            | Webb's Lane Westbound |      |      |      |            | US-13 Northbound |      |      |      |            | Webb's Lane Eastbound |      |      |      |            |            |
|--|------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------------|------|------|------|------------|-----------------------|------|------|------|------------|------------|
| Start Time   | Right            | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Right            | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 |                  |      |      |      |            |                       |      |      |      |            |                  |      |      |      |            |                       |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:15 PM       |                  |      |      |      |            |                       |      |      |      |            |                  |      |      |      |            |                       |      |      |      |            |            |
| 04:15 PM   | 27               | 348  | 3    | 0    | 378        | 2                     | 22   | 21   | 0    | 45         | 5                | 249  | 33   | 0    | 287        | 11                    | 22   | 31   | 0    | 64         | 774        |
| 04:30 PM   | 39               | 372  | 2    | 0    | 413        | 0                     | 27   | 20   | 0    | 47         | 6                | 223  | 21   | 0    | 250        | 10                    | 35   | 53   | 0    | 98         | 808        |
| 04:45 PM   | 28               | 371  | 6    | 0    | 405        | 0                     | 27   | 21   | 0    | 48         | 1                | 325  | 34   | 0    | 360        | 13                    | 32   | 62   | 0    | 107        | 920        |
| 05:00 PM   | 35               | 339  | 5    | 0    | 379        | 20                    | 24   | 23   | 1    | 68         | 21               | 287  | 21   | 0    | 329        | 10                    | 25   | 62   | 0    | 97         | 873        |
| Total Volume   | 129              | 1430 | 16   | 0    | 1575       | 22                    | 100  | 85   | 1    | 208        | 33               | 1084 | 109  | 0    | 1226       | 44                    | 114  | 208  | 0    | 366        | 3375       |
| % App. Total   | 8.2              | 90.8 | 1    | 0    |            | 10.6                  | 48.1 | 40.9 | 0.5  |            | 2.7              | 88.4 | 8.9  | 0    |            | 12                    | 31.1 | 56.8 | 0    |            |            |
| PHF  | .827             | .961 | .667 | .000 | .953       | .275                  | .926 | .924 | .250 | .765       | .393             | .834 | .801 | .000 | .851       | .846                  | .814 | .839 | .000 | .855       | .917       |



# DelDOT- Traffic Management Center

169 Brick Store Landing Road

Smyrna, DE 19977

Telephone: 302-659-4066

Counter No.: T-2923

Counted By: Heather Mantz

Weather: Daylight/Clear/Dry

Day of Week: Wednesday

File Name : S.StateSt-WebbsLane

Site Code : 00000000

Start Date : 10/5/2011

Page No : 4

|  | S. State Street (K25)<br>Southbound |      |      |      |            | Wolf Creek<br>Westbound |      |      |      |            | S. State Street (K25)<br>Northbound |      |      |      |            | Webbs Lane (K192)<br>Eastbound |      |      |      |            |            |
|--|-------------------------------------|------|------|------|------------|-------------------------|------|------|------|------------|-------------------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|------------|
| Start Time   | Right                               | Thru | Left | Peds | App. Total | Right                   | Thru | Left | Peds | App. Total | Right                               | Thru | Left | Peds | App. Total | Right                          | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 06:00 AM to 08:45 AM - Peak 1 of 1 |                                     |      |      |      |            |                         |      |      |      |            |                                     |      |      |      |            |                                |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                                     |      |      |      |            |                         |      |      |      |            |                                     |      |      |      |            |                                |      |      |      |            |            |
| 07:15 AM   | 4                                   | 63   | 2    | 0    | 69         | 4                       | 1    | 1    | 0    | 6          | 0                                   | 149  | 35   | 1    | 185        | 15                             | 2    | 5    | 0    | 22         | 282        |
| 07:30 AM   | 3                                   | 70   | 12   | 0    | 85         | 6                       | 6    | 5    | 0    | 17         | 1                                   | 202  | 42   | 2    | 247        | 29                             | 1    | 5    | 0    | 35         | 384        |
| 07:45 AM   | 6                                   | 76   | 7    | 0    | 89         | 10                      | 11   | 7    | 1    | 29         | 6                                   | 261  | 30   | 0    | 297        | 71                             | 3    | 6    | 0    | 80         | 495        |
| 08:00 AM   | 5                                   | 65   | 15   | 0    | 85         | 20                      | 9    | 4    | 0    | 33         | 7                                   | 187  | 26   | 1    | 221        | 64                             | 15   | 11   | 0    | 90         | 429        |
| Total Volume   | 18                                  | 274  | 36   | 0    | 328        | 40                      | 27   | 17   | 1    | 85         | 14                                  | 799  | 133  | 4    | 950        | 179                            | 21   | 27   | 0    | 227        | 1590       |
| % App. Total   | 5.5                                 | 83.5 | 11   | 0    |            | 47.1                    | 31.8 | 20   | 1.2  |            | 1.5                                 | 84.1 | 14   | 0.4  |            | 78.9                           | 9.3  | 11.9 | 0    |            |            |
| PHF  | .750                                | .901 | .600 | .000 | .921       | .500                    | .614 | .607 | .250 | .644       | .500                                | .765 | .792 | .500 | .800       | .630                           | .350 | .614 | .000 | .631       | .803       |

# DelDOT- Traffic Management Center

169 Brick Store Landing Road

Smyrna, DE 19977

Telephone: 302-659-4066

Counter No.: T-2923

Counted By: Heather Mantz

Weather: Daylight/Clear/Dry

Day of Week: Wednesday

File Name : S.StateSt-WebbsLane

Site Code : 00000000

Start Date : 10/5/2011

Page No : 8

|  | S. State Street (K25)<br>Southbound |      |      |      |            | Wolf Creek<br>Westbound |      |      |      |            | S. State Street (K25)<br>Northbound |      |      |      |            | Webbs Lane (K192)<br>Eastbound |      |      |      |            |            |
|--|-------------------------------------|------|------|------|------------|-------------------------|------|------|------|------------|-------------------------------------|------|------|------|------------|--------------------------------|------|------|------|------------|------------|
| Start Time   | Right                               | Thru | Left | Peds | App. Total | Right                   | Thru | Left | Peds | App. Total | Right                               | Thru | Left | Peds | App. Total | Right                          | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1 |                                     |      |      |      |            |                         |      |      |      |            |                                     |      |      |      |            |                                |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 04:45 PM       |                                     |      |      |      |            |                         |      |      |      |            |                                     |      |      |      |            |                                |      |      |      |            |            |
| 04:45 PM   | 21                                  | 258  | 10   | 0    | 289        | 12                      | 11   | 7    | 0    | 30         | 2                                   | 154  | 32   | 0    | 188        | 36                             | 3    | 6    | 0    | 45         | 552        |
| 05:00 PM   | 10                                  | 234  | 4    | 0    | 248        | 18                      | 12   | 8    | 0    | 38         | 1                                   | 98   | 30   | 0    | 129        | 46                             | 5    | 7    | 0    | 58         | 473        |
| 05:15 PM   | 8                                   | 232  | 9    | 0    | 249        | 13                      | 16   | 6    | 0    | 35         | 2                                   | 126  | 29   | 0    | 157        | 43                             | 6    | 5    | 0    | 54         | 495        |
| 05:30 PM   | 6                                   | 187  | 7    | 0    | 200        | 7                       | 8    | 5    | 1    | 21         | 1                                   | 112  | 44   | 0    | 157        | 46                             | 2    | 5    | 0    | 53         | 431        |
| Total Volume   | 45                                  | 911  | 30   | 0    | 986        | 50                      | 47   | 26   | 1    | 124        | 6                                   | 490  | 135  | 0    | 631        | 171                            | 16   | 23   | 0    | 210        | 1951       |
| % App. Total   | 4.6                                 | 92.4 | 3    | 0    |            | 40.3                    | 37.9 | 21   | 0.8  |            | 1                                   | 77.7 | 21.4 | 0    |            | 81.4                           | 7.6  | 11   | 0    |            |            |
| PHF  | .536                                | .883 | .750 | .000 | .853       | .694                    | .734 | .813 | .250 | .816       | .750                                | .795 | .767 | .000 | .839       | .929                           | .667 | .821 | .000 | .905       | .884       |

# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: State St/Walker Rd

Date: Tuesday, May 20, 2014

Counter: RZ

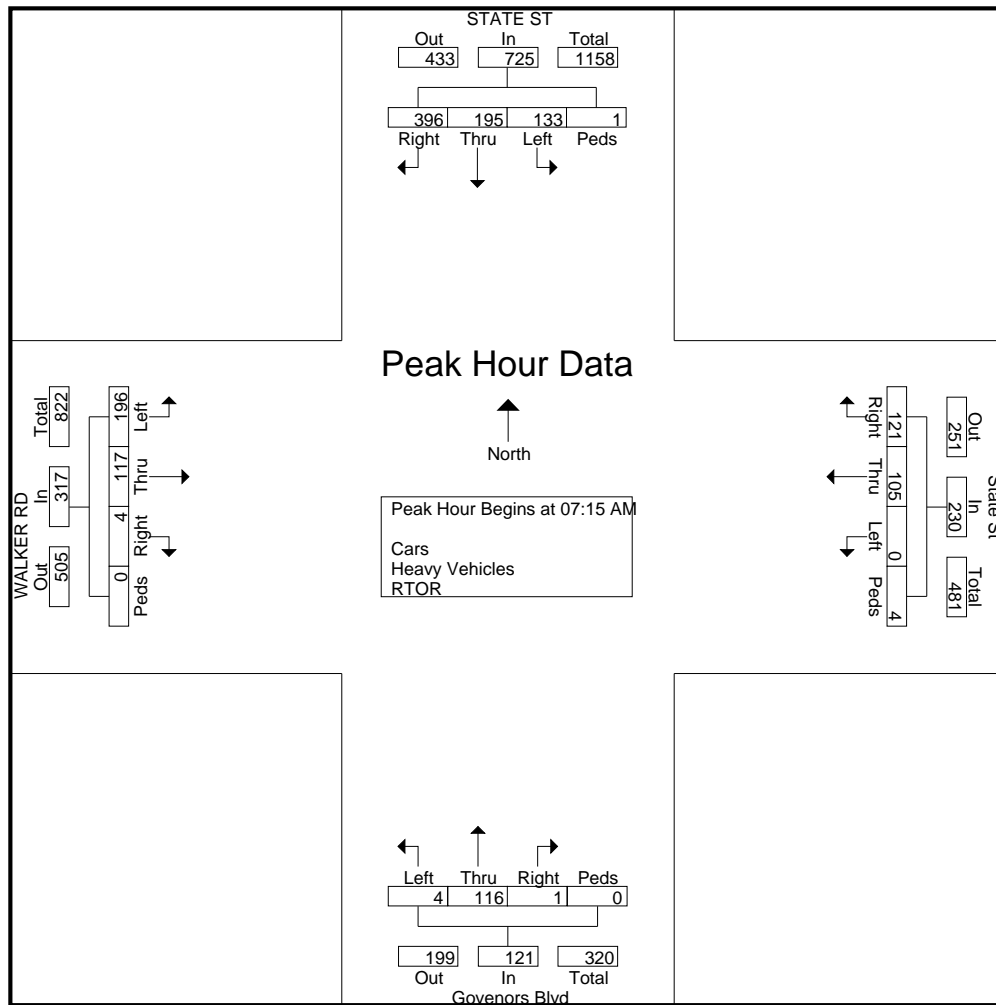
File Name : Dover Weekday 43

Site Code : 43

Start Date : 5/20/2014

Page No : 4

|  | STATE ST<br>Southbound |      |      |      |            | State St<br>Westbound |      |      |      |            | Govenors Blvd<br>Northbound |      |      |      |            | WALKER RD<br>Eastbound |      |      |      |            |            |
|--|------------------------|------|------|------|------------|-----------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------|------|------|------|------------|------------|
| Start Time   | Right                  | Thru | Left | Peds | App. Total | Right                 | Thru | Left | Peds | App. Total | Right                       | Thru | Left | Peds | App. Total | Right                  | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 11:45 AM - Peak 1 of 1 |                        |      |      |      |            |                       |      |      |      |            |                             |      |      |      |            |                        |      |      |      |            |            |
| Peak Hour for Entire Intersection Begins at 07:15 AM       |                        |      |      |      |            |                       |      |      |      |            |                             |      |      |      |            |                        |      |      |      |            |            |
| 07:15 AM   | 84                     | 39   | 32   | 0    | 155        | 25                    | 26   | 0    | 3    | 54         | 0                           | 22   | 0    | 0    | 22         | 0                      | 50   | 57   | 0    | 107        | 338        |
| 07:30 AM   | 86                     | 58   | 41   | 1    | 186        | 31                    | 30   | 0    | 1    | 62         | 0                           | 27   | 4    | 0    | 31         | 2                      | 28   | 47   | 0    | 77         | 356        |
| 07:45 AM   | 120                    | 52   | 30   | 0    | 202        | 37                    | 30   | 0    | 0    | 67         | 0                           | 38   | 0    | 0    | 38         | 2                      | 23   | 54   | 0    | 79         | 386        |
| 08:00 AM   | 106                    | 46   | 30   | 0    | 182        | 28                    | 19   | 0    | 0    | 47         | 1                           | 29   | 0    | 0    | 30         | 0                      | 16   | 38   | 0    | 54         | 313        |
| Total Volume   | 396                    | 195  | 133  | 1    | 725        | 121                   | 105  | 0    | 4    | 230        | 1                           | 116  | 4    | 0    | 121        | 4                      | 117  | 196  | 0    | 317        | 1393       |
| % App. Total   | 54.6                   | 26.9 | 18.3 | 0.1  |            | 52.6                  | 45.7 | 0    | 1.7  |            | 0.8                         | 95.9 | 3.3  | 0    |            | 1.3                    | 36.9 | 61.8 | 0    |            |            |
| PHF  | .825                   | .841 | .811 | .250 | .897       | .818                  | .875 | .000 | .333 | .858       | .250                        | .763 | .250 | .000 | .796       | .500                   | .585 | .860 | .000 | .741       | .902       |



# Tri-State Traffic Data, Inc.

610 466-1469

TSTData.com

Location: Dover, Delaware

Intersection: State St/Walker Rd

Date: Tuesday, May 20, 2014

Counter: RZ

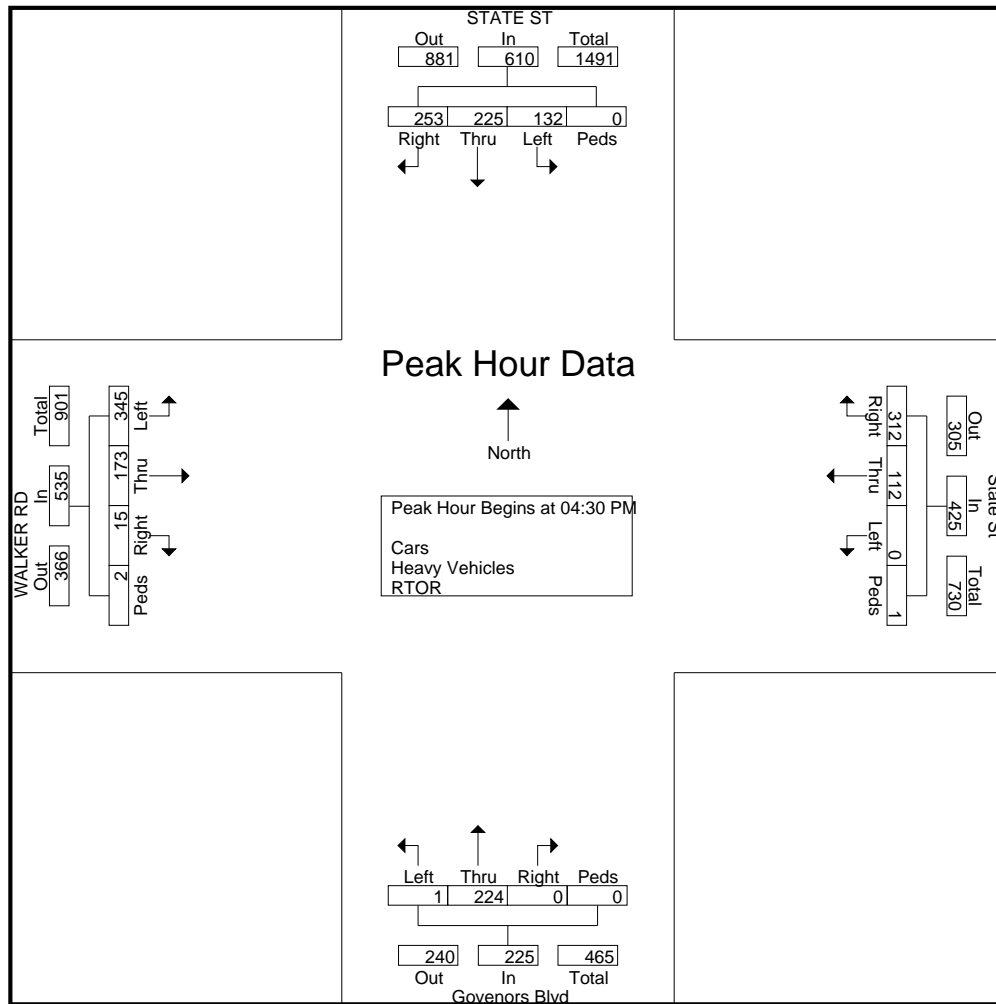
File Name : Dover Weekday 43

Site Code : 43

Start Date : 5/20/2014

Page No : 5

|  | STATE ST<br>Southbound |           |           |          |            | State St<br>Westbound |           |      |          |            | Govenors Blvd<br>Northbound |           |          |      |            | WALKER RD<br>Eastbound |           |            |          |            |            |
|--|------------------------|-----------|-----------|----------|------------|-----------------------|-----------|------|----------|------------|-----------------------------|-----------|----------|------|------------|------------------------|-----------|------------|----------|------------|------------|
| Start Time   | Rig<br>ht              | Thr<br>u  | Left      | Ped<br>s | App. Total | Rig<br>ht             | Thr<br>u  | Left | Ped<br>s | App. Total | Right                       | Thr<br>u  | Left     | Peds | App. Total | Right                  | Thr<br>u  | Left       | Peds     | App. Total | Int. Total |
| Peak Hour Analysis From 12:00 PM to 05:45 PM - Peak 1 of 1 |                        |           |           |          |            |                       |           |      |          |            |                             |           |          |      |            |                        |           |            |          |            |            |
| Peak Hour for Entire Intersection Begins at 04:30 PM       |                        |           |           |          |            |                       |           |      |          |            |                             |           |          |      |            |                        |           |            |          |            |            |
| 04:30 PM   | 62                     | <b>60</b> | 30        | 0        | 152        | 77                    | 24        | 0    | 0        | 101        | 0                           | 60        | 0        | 0    | 60         | 1                      | <b>65</b> | 93         | 0        | <b>159</b> | <b>472</b> |
| 04:45 PM   | 62                     | 53        | 34        | 0        | 149        | <b>92</b>             | <b>38</b> | 0    | <b>1</b> | <b>131</b> | 0                           | <b>65</b> | <b>1</b> | 0    | <b>66</b>  | 5                      | 28        | 81         | <b>2</b> | 116        | 462        |
| 05:00 PM   | 63                     | 56        | 27        | 0        | 146        | 63                    | 28        | 0    | 0        | 91         | 0                           | 52        | 0        | 0    | 52         | 1                      | 40        | <b>104</b> | 0        | 145        | 434        |
| 05:15 PM   | <b>66</b>              | 56        | <b>41</b> | 0        | <b>163</b> | 80                    | 22        | 0    | 0        | 102        | 0                           | 47        | 0        | 0    | 47         | <b>8</b>               | 40        | 67         | 0        | 115        | 427        |
| Total Volume   | 253                    | 225       | 132       | 0        | 610        | 312                   | 112       | 0    | 1        | 425        | 0                           | 224       | 1        | 0    | 225        | 15                     | 173       | 345        | 2        | 535        | 1795       |
| % App. Total   | 41.5                   | 36.9      | 21.6      | 0        |            | 73.4                  | 26.4      | 0    | 0.2      |            | 0                           | 99.6      | 0.4      | 0    |            | 2.8                    | 32.3      | 64.5       | 0.4      |            |            |
| PHF  | .958                   | .938      | .805      | .000     | .936       | .848                  | .737      | .000 | .250     | .811       | .000                        | .862      | .250     | .000 | .852       | .469                   | .665      | .829       | .250     | .841       | .951       |



# **Dover Pedestrian Signals Feasibility Study**

## **Appendix B**

### **Signal Timings**

PERMIT # K148

LOCATION OF SIGNAL: US 13 &amp; ROOSEVELT AVE

DATE OF CHART : 4/19/2005  
 DATE INSTALLED: 9/12/1985  
 CONTROLLER TYPE: EPAC  
 COORDINATION TYPE: ACTRA  
 COORDINATION ADDRESS: 2

CHART REVISION: A.1  
 CABINET TYPE: PCOM  
 MONITOR TYPE: NEMA+

| PHASE NUMBER     | 1     | 2        | 3  | 4  | 5         | 6        | 7         | 8  |
|------------------|-------|----------|----|----|-----------|----------|-----------|----|
| PHASE LOCATION   | SB LT | NB RT 13 |    | EB | NB LT     | SB RT 13 |           | WB |
| MIN GRN          | 5     | 10       |    | 5  | 5         | 10       |           | 5  |
| PASS/10          | 30    | 50       |    | 40 | 30        | 50       |           | 40 |
| MAX #1           | 30    | 60       |    | 30 | 30        | 60       |           | 30 |
| MAX #2           | 30    | 60       |    | 30 | 30        | 60       |           | 30 |
| YEL/10           | 50    | 50       |    | 40 | 50        | 50       |           | 40 |
| RED/10           | 20    | 20       |    | 20 | 20        | 20       |           | 20 |
| AINI/10          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| MAX INI          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| TIM BEF          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| CAR BEF          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| TIME TO          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| MGAP/10          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| WALK             | 0     | 15       |    | 0  | 0         | 15       |           | 0  |
| PED CLR          | 0     | 15       |    | 0  | 0         | 15       |           | 0  |
| EXT PCL          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| INITIAL          | 1     | 4        | 0  | 1  | 1         | 4        | 0         | 0  |
| NA RESP          | 0     | 0        |    | 0  | 0         | 0        |           | 0  |
| V. RECALL        | 0     | 2        |    | 0  | 0         | 2        |           | 0  |
| P. RECALL        | 0     | 2        |    | 0  | 0         | 2        |           | 0  |
| NL MEM           | 1     | 0        |    | 0  | 1         | 0        |           | 0  |
| 2 ENTRY          | 0     | 1        |    | 1  | 0         | 1        |           | 1  |
| OVERLAP/LOCATION | A=    |          | B= |    | C= SB FLT |          | D= NB FLT |    |
| PHASES           |       |          |    |    |           |          |           |    |

## \*\* INTERSECTION NOTES \*\*

- 1 RED LIGHT RUNNING CAMERA LOCATION
- 2 T-HEAD [FLASHING LEFT TURN ARROWS] INSTALLED ON SBLT & NBLTS
- 3 PREEMPT, TRANS.= NB & SB, OR EB & WB
- 4 THIS TIMESHEET REFLECTS A CHANGE TO ACTRA SIGNAL SYSTEM NO TIMING ADJUSTMENTS TO YELLOW OR RED TIMES
- 5
- 6



# TOD by Zone

10/28/2014

## **ZONE/GROUP: K035 US13 LOCHMEATH WAY > ROOSI**

### **Everyday**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

00:01      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### **Weekdays**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

06:30      Pattern Change to 331 - 180 NB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

15:30      Pattern Change to 311 - 180 SB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### **Weekends**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30      Pattern Change to 141 - 120 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

## Dial 1/Split 1

Cycle Length 90

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 14     | 58     | 0      | 18     | 14     | 58     | 0      | 18     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     |        | 12     | 13     | 18     |        | 12     |
| Min Ped Time | 0      | 30     |        | 0      | 0      | 30     |        | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

## Dial 1/Split 4

Cycle Length 120

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 18     | 78     | 0      | 24     | 18     | 78     | 0      | 24     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     |        | 12     | 13     | 18     |        | 12     |
| Min Ped Time | 0      | 30     |        | 0      | 0      | 30     |        | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 61         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 2/Split 2

Cycle Length 150

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 21     | 103    | 0      | 26     | 21     | 103    | 0      | 26     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     |        | 12     | 13     | 18     |        | 12     |
| Min Ped Time | 0      | 30     |        | 0      | 0      | 30     |        | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 143        | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 1

|                     |     |
|---------------------|-----|
| <b>Cycle Length</b> | 180 |
|---------------------|-----|

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 15     | 140    | 0      | 25     | 18     | 137    | 0      | 25     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     |        | 12     | 13     | 18     |        | 12     |
| Min Ped Time | 0      | 30     |        | 0      | 0      | 30     |        | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 52         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 3

**Cycle Length** 180

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 15     | 140    | 0      | 25     | 18     | 137    | 0      | 25     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     |        | 12     | 13     | 18     |        | 12     |
| Min Ped Time | 0      | 30     |        | 0      | 0      | 30     |        | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 173        | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

INTERSECTION TIMESHEET PACKET  
NOTICE TO PROCEED

Signal Permit Number: K113  
Date of Timesheet: 7/2/13  
Controller Type: EPAC  
Coordination Type: ACTRA

Location: US13 @ SOUTH STATE ST  
Revision Number: B.2  
Monitor Type: NEMAX  
Coordination Address: 3  
Baud Rate: 1200

Phase Data

| PHASE #   | 1  | 2    | 3  | 4  | 5  | 6    | 7  | 8  |
|-----------|----|------|----|----|----|------|----|----|
| PHASE     | SB | NB   | EB | WB | NB | SB   | WB | EB |
| LOCATION  | LT | US13 | LT | WB | LT | US13 | LT | EB |
| MIN GRN   | 5  | 10   | 5  | 5  | 5  | 10   | 5  | 5  |
| PASS/10   | 40 | 50   | 30 | 40 | 40 | 50   | 30 | 40 |
| MAX I     | 20 | 45   | 20 | 25 | 20 | 45   | 20 | 25 |
| MAX II    | 20 | 45   | 20 | 25 | 20 | 45   | 20 | 25 |
| YEL/10    | 40 | 50   | 40 | 50 | 40 | 50   | 40 | 50 |
| RED/10    | 20 | 20   | 20 | 20 | 20 | 20   | 20 | 20 |
| AINI/10   |    |      |    |    |    |      |    |    |
| MAX INI   |    |      |    |    |    |      |    |    |
| CAR BEF   |    |      |    |    |    |      |    |    |
| REDUCE    |    |      |    |    |    |      |    |    |
| MGAP/10   |    |      |    |    |    |      |    |    |
| WALK      |    |      |    |    |    |      |    |    |
| PED CLR   |    |      |    |    |    |      |    |    |
| EXT PCL   |    |      |    |    |    |      |    |    |
| INITIAL   | 1  | 4    | 1  | 1  | 1  | 4    | 1  | 1  |
| NA RESP   |    |      |    |    |    |      |    |    |
| V. RECALL |    | 2    |    |    |    | 2    |    |    |
| P. RECALL |    |      |    |    |    |      |    |    |
| NL MEM    |    |      | 1  |    |    |      | 1  |    |
| 2 ENTRY   |    | 1    |    | 1  |    | 1    |    | 1  |
| SPCL SEQ  |    |      |    |    |    |      |    |    |
| OMIT Ø    |    |      |    |    |    |      |    |    |
| OCAL Ø    |    |      |    |    |    |      |    |    |

OVERLAP DATA

|                  | A | B | C | D |
|------------------|---|---|---|---|
| OVERLAP LOCATION |   |   |   |   |
| OVERLAP PHASES   |   |   |   |   |

\*\*DO NOT USE TIMESHEET\*\*  
\*\*UNDER CONSTRUCTION\*\*

✓ 8/26/13  
OK TO USE TIMESHEET  
9/30/13 @ 939 AM



# TOD by Zone

10/28/2014

## **ZONE/GROUP: K035 US13 LOCHMEATH WAY > ROOSEVELT AVE**

### Everyday Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

00:01 Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### Weekdays Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

06:30 Pattern Change to 331 - 180 NB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00 Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

15:30 Pattern Change to 311 - 180 SB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30 Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00 Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### Weekends Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00 Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30 Pattern Change to 141 - 120 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00 Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

## Dial 1/Split 1

Cycle Length 90

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 12     | 42     | 12     | 24     | 12     | 42     | 12     | 24     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 12     | 18     | 12     | 13     | 12     | 18     | 12     | 13     |
| Min Ped Time | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

## Dial 1/Split 4

Cycle Length 120

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 20     | 58     | 12     | 30     | 18     | 60     | 12     | 25     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 12     | 18     | 12     | 13     | 12     | 18     | 12     | 13     |
| Min Ped Time | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 66         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 2/Split 2

|              |     |
|--------------|-----|
| Cycle Length | 150 |
|--------------|-----|

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 24     | 79     | 13     | 34     | 30     | 72     | 14     | 34     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 12     | 18     | 12     | 13     | 12     | 18     | 12     | 13     |
| Min Ped Time | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 149        | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 1

|                     |     |
|---------------------|-----|
| <b>Cycle Length</b> | 180 |
|---------------------|-----|

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 25     | 94     | 13     | 48     | 22     | 95     | 15     | 48     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 12     | 18     | 12     | 13     | 12     | 18     | 12     | 13     |
| Min Ped Time | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 83         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 3

**Cycle Length** 180

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 25     | 81     | 15     | 59     | 35     | 71     | 15     | 59     |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 3 - XR | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 12     | 18     | 12     | 13     | 12     | 18     | 12     | 13     |
| Min Ped Time | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 156        | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

**INTERSECTION TIMESHEET PACKET  
NOTICE TO PROCEED**

Signal Permit Number: K 118  
 Date of Timesheet: 11-02-04  
 Controller Type: EPAC  
 Coordination Type: ACT10

Location: USRT13 + Webb's Ln  
 Revision Number: A11  
 Monitor Type: NEMAT  
 Coordination Address: 5

**Phase Data**

| PHASE #   | 1           | 2         | 3         | 4         | 5           | 6         | 7 | 8 |
|-----------|-------------|-----------|-----------|-----------|-------------|-----------|---|---|
| PHASE     |             |           |           |           |             |           |   |   |
| LOCATION  | <u>SBLT</u> | <u>NB</u> | <u>EB</u> | <u>WB</u> | <u>NBLT</u> | <u>SB</u> |   |   |
| MIN GRN   | <u>5</u>    | <u>10</u> | <u>5</u>  | <u>5</u>  | <u>5</u>    | <u>10</u> |   |   |
| PASS/10   | <u>30</u>   | <u>50</u> | <u>40</u> | <u>40</u> | <u>30</u>   | <u>50</u> |   |   |
| MAX I     | <u>30</u>   | <u>60</u> | <u>30</u> | <u>30</u> | <u>30</u>   | <u>60</u> |   |   |
| MAX II    | <u>30</u>   | <u>60</u> | <u>30</u> | <u>30</u> | <u>30</u>   | <u>60</u> |   |   |
| YEL/10    | <u>50</u>   | <u>50</u> | <u>40</u> | <u>40</u> | <u>50</u>   | <u>50</u> |   |   |
| RED/10    | <u>20</u>   | <u>20</u> | <u>20</u> | <u>20</u> | <u>20</u>   | <u>20</u> |   |   |
| AINI/10   |             |           |           |           |             |           |   |   |
| MAX INI   |             |           |           |           |             |           |   |   |
| CAR BEF   |             |           |           |           |             |           |   |   |
| REDUCE    |             |           |           |           |             |           |   |   |
| MGAP/10   |             |           |           |           |             |           |   |   |
| WALK      |             | <u>15</u> |           |           |             | <u>15</u> |   |   |
| PED CLR   |             | <u>15</u> |           |           |             | <u>15</u> |   |   |
| EXT PCL   |             | <u>0</u>  |           |           |             | <u>0</u>  |   |   |
| INITIAL   | <u>1</u>    | <u>4</u>  | <u>1</u>  | <u>1</u>  | <u>1</u>    | <u>4</u>  |   |   |
| NA RESP   |             | <u>0</u>  |           |           |             | <u>0</u>  |   |   |
| V. RECALL |             | <u>2</u>  |           |           |             | <u>2</u>  |   |   |
| P. RECALL |             | <u>2</u>  |           |           |             | <u>2</u>  |   |   |
| NL MEM    | <u>1</u>    |           |           |           | <u>1</u>    |           |   |   |
| 2 ENTRY   |             | <u>1</u>  |           |           |             | <u>1</u>  |   |   |

**OVERLAP DATA**

|                  | A | B | C             | D             |
|------------------|---|---|---------------|---------------|
| OVERLAP LOCATION |   |   | <u>SB FLT</u> | <u>NB FLT</u> |
| OVERLAP PHASES   |   |   |               |               |

# TOD by Zone

10/28/2014

## **ZONE/GROUP: K035 US13 LOCHMEATH WAY > ROOSI**

### **Everyday**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

00:01      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### **Weekdays**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

06:30      Pattern Change to 331 - 180 NB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

15:30      Pattern Change to 311 - 180 SB for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

### **Weekends**      Time of Day Changes for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

09:00      Pattern Change to 221 - 150 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

18:30      Pattern Change to 141 - 120 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE

21:00      Pattern Change to 111 - 90 BAL for K035 US13 LOCHMEATH WAY > ROOSEVELT AVE



## Dial 1/Split 1

Cycle Length 90

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 14     | 46     | 15     | 15     | 14     | 46     | 0      | 0      |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     | 12     | 12     | 13     | 18     |        |        |
| Min Ped Time | 0      | 30     | 0      | 0      | 0      | 30     |        |        |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

## Dial 1/Split 4

|                     |     |
|---------------------|-----|
| <b>Cycle Length</b> | 120 |
|---------------------|-----|

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 15     | 67     | 20     | 18     | 18     | 64     | 0      | 0      |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     | 12     | 12     | 13     | 18     |        |        |
| Min Ped Time | 0      | 30     | 0      | 0      | 0      | 30     |        |        |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 9          | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 2/Split 2

|                     |     |
|---------------------|-----|
| <b>Cycle Length</b> | 150 |
|---------------------|-----|

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 23     | 80     | 27     | 20     | 24     | 79     | 0      | 0      |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     | 12     | 12     | 13     | 18     |        |        |
| Min Ped Time | 0      | 30     | 0      | 0      | 0      | 30     |        |        |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 67         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 1

Cycle Length 180

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 18     | 112    | 29     | 21     | 24     | 106    | 0      | 0      |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     | 12     | 12     | 13     | 18     |        |        |
| Min Ped Time | 0      | 30     | 0      | 0      | 0      | 30     |        |        |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 98         | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

## Dial 3/Split 3

**Cycle Length** 180

| Phase        | 1      | 2      | 3      | 4      | 5      | 6      | 7      | 8      |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 20     | 101    | 37     | 22     | 20     | 101    | 0      | 0      |
| Mode         | 0 - AP | 1 - CP | 0 - AP | 0 - AP | 0 - AP | 1 - CP | 0 - AP | 0 - AP |
| Min Veh Time | 13     | 18     | 12     | 12     | 13     | 18     |        |        |
| Min Ped Time | 0      | 30     | 0      | 0      | 0      | 30     |        |        |

| Phase        | 9      | 10     | 11     | 12     | 13     | 14     | 15     | 16     |
|--------------|--------|--------|--------|--------|--------|--------|--------|--------|
| Time         | 0      | 0      | 0      | 0      | 0      | 0      | 0      | 0      |
| Mode         | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP | 0 - AP |
| Min Veh Time |        |        |        |        |        |        |        |        |
| Min Ped Time |        |        |        |        |        |        |        |        |

| Offset          | 1          | 2          | 3          |
|-----------------|------------|------------|------------|
| Time            | 106        | 0          | 0          |
| Mode            | 0 - Normal | 0 - Normal | 0 - Normal |
| Alt Sequence    | 0          | 0          | 0          |
| Ring 2 Lag Time | 0          | 0          | 0          |
| Ring 3 Lag Time | 0          | 0          | 0          |
| Ring 4 Lag Time | 0          | 0          | 0          |

PERMIT # K273

## LOCATION OF SIGNAL: S. STATE ST &amp; WEBBS LANE

DATE OF CHART : 8/22/2005  
 DATE INSTALLED: 3/31/2006  
 CONTROLLER TYPE: EPAC  
 COORDINATION TYPE: ACTRA  
 COORDINATION ADDRESS: 10

CHART REVISION: A.1  
 CABINET TYPE: PCOM  
 MONITOR TYPE: NEMA+

*\*\* FREE ONLY \*\**

| PHASE NUMBER             | 1     | 2        | 3  | 4  | 5    | 6        | 7  | 8 |
|--------------------------|-------|----------|----|----|------|----------|----|---|
| PHASE LOCATION           | SB LT | NB STATE | WB | EB | NBLT | SB STATE | 0  | 0 |
| MIN GRN                  | 5     | 15       | 5  | 5  | 5    | 15       | 0  | 0 |
| PASS/10                  | 30    | 40       | 40 | 40 | 30   | 40       | 0  | 0 |
| MAX #1                   | 20    | 60       | 30 | 30 | 20   | 60       | 0  | 0 |
| MAX #2                   | 20    | 60       | 30 | 30 | 20   | 60       | 0  | 0 |
| YEL/10                   | 30    | 40       | 40 | 40 | 30   | 40       | 0  | 0 |
| RED/10                   | 20    | 20       | 20 | 20 | 20   | 20       | 0  | 0 |
| AINI/10                  | 0     | 20       | 0  | 0  | 0    | 20       | 0  | 0 |
| MAX INI                  | 0     | 30       | 0  | 0  | 0    | 30       | 0  | 0 |
| TIM BEF                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| CAR BEF                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| TIME TO                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| MGAP/10                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| WALK                     | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| PED CLR                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| EXT PCL                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| INITIAL                  | 1     | 4        | 1  | 1  | 1    | 4        | 0  | 0 |
| NA RESP                  | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| V. RECALL                | 0     | 2        | 0  | 0  | 0    | 2        | 0  | 0 |
| P. RECALL                | 0     | 0        | 0  | 0  | 0    | 0        | 0  | 0 |
| NL MEM.                  | 1     | 0        | 0  | 0  | 1    | 0        | 0  | 0 |
| 2 ENTRY                  | 0     | 1        | 0  | 0  | 0    | 1        | 0  | 0 |
| OVERLAP/ LOCATION PHASES | A=    |          | B= |    | C=   |          | D= |   |
|                          |       |          |    |    |      |          |    |   |

## \*\* INTERSECTION NOTES \*\*

1 PHASES 1 & 5 ARE PERMISSIVE LEFT TURNS (5-SECTION)

2 PREEMPT: TRANS (PRIORITY) = NB + SB, EB, OR WB  
 EMERG (PREEMPT) = SB + SBLT, NB + NBLT, EB OR WB

3

4

5

6



DATE OF CHART : 1/22/02  
 DATE INSTALLED: 10/1/57  
 CONTROLLER TYPE: EPAC  
 COORDINATION TYPE: ACTRA  
 COORDINATION ADDRESS: 25

CHART REVISION: 2  
 CABINET TYPE: PCOM  
 MONITOR TYPE: NEMA+

*\*\* FREE ONLY \*\**

| PHASE NUMBER      | 1              | 2          | 3         | 4          | 5  | 6            | 7  | 8 |
|-------------------|----------------|------------|-----------|------------|----|--------------|----|---|
| PHASE LOCATION    | SB to State St | NB GOVENOR | WALKER RD | NBLT STATE |    | SB to Govr's |    |   |
| MIN GRN           | 5              | 10         | 10        | 5          |    | 10           |    |   |
| PASS/10           | 50             | 50         | 40        | 50         |    | 50           |    |   |
| MAX #1            | 99             | 99         | 60        | 30         |    | 99           |    |   |
| MAX #2            | 99             | 99         | 60        | 30         |    | 99           |    |   |
| YEL/10            | 40             | 40         | 40        | 40         |    | 50           |    |   |
| RED/10            | 20             | 20         | 20        | 20         |    | 70           |    |   |
| AINI/10           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| MAX INI           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| TIM BEF           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| CAR BEF           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| TIME TO           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| MGAP/10           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| WALK              | 0              | 0          | 0         | 0          |    | 0            |    |   |
| PED CLR           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| EXT PCL           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| INITIAL           | 1              | 4          | 1         | 1          | 0  | 4            | 0  | 0 |
| NA RESP           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| V. RECALL         | 0              | 2          | 0         | 0          |    | 2            |    |   |
| P. RECALL         | 0              | 0          | 0         | 0          |    | 0            |    |   |
| NL MEM.           | 0              | 0          | 0         | 0          |    | 0            |    |   |
| 2 ENTRY           | 0              | 1          | 0         | 0          |    | 1            |    |   |
| OVERLAP/ LOCATION | A=             |            | B=        |            | C= |              | D= |   |
| PHASES            |                |            |           |            |    |              |    |   |

**\*\* INTERSECTION NOTES \*\***

- 1 NB STATE ST. IS FLASHING YELLOW
- 2 PRIORITIES: SB to State & SB to Govr's or NB & SB to Govr's or EBRT & EBLT or NBLT
- 3 PRE-EMPTS: SB to State & SB to Govr's or NB & SB to Govr's or EBRT & EBLT or NBLT
- 4
- 5
- 6

**Dover Pedestrian Signals  
Feasibility Study**

**Appendix C**

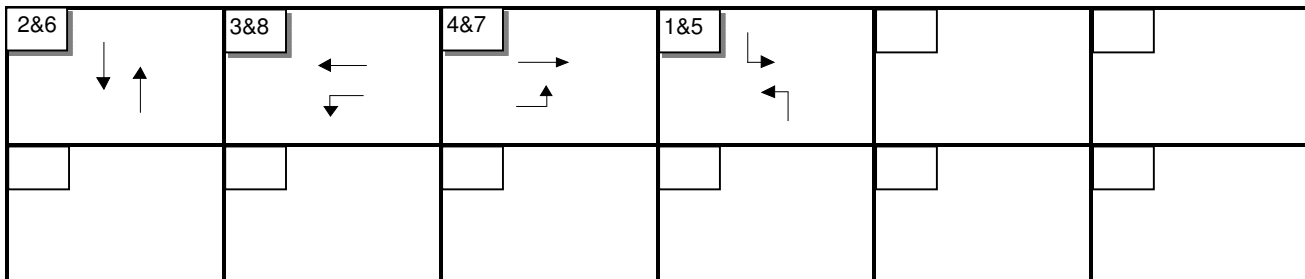
**Critical Movement Summation (CMS)  
Analysis**



# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV |
|---------------|----------|--------|------------|------------------|-----|
| 2             | NB       | 1092   | 2          | 32               | 569 |
| 6             | SB       | 678    | 2          | 0                | 373 |
| 3             | WBLT     | 0      | 0          | 0                | 0   |
| 7             | EBLT     | 0      | 0          | 0                | 0   |
| 4             | EB       | 94     | 2          | 0                | 52  |
| 8             | WB       | 54     | 2          | 0                | 30  |
| 1             | SBLT     | 29     | 1          | 0                | 29  |
| 5             | NBLT     | 61     | 1          | 0                | 61  |
| TOTAL         |          |        |            |                  | 682 |
| SERVICE LEVEL |          |        |            |                  | A   |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 TIME OF DAY: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: 45      CYCLES/HR: 80

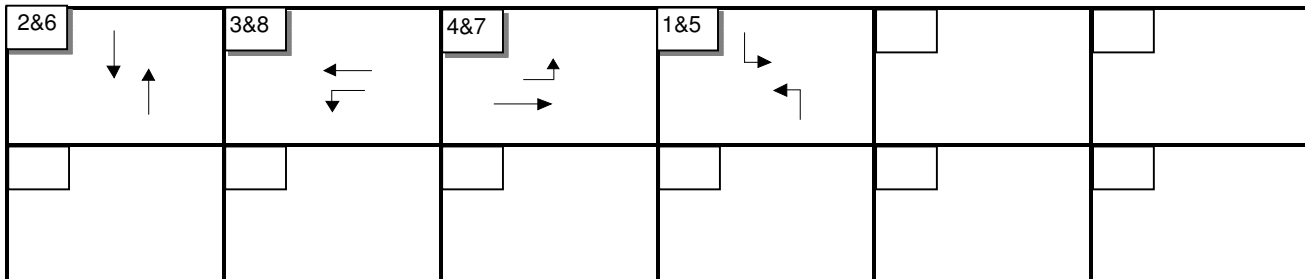
| PHASES                         | MOVEMENT | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %    | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|----------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|------|---------------------|---------------------|
| 2                              | NB       | 569                  | 8                  | 20.5                          | 20.5                          |                  | 59%  | 35.2                |                     |
| 6                              | SB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 26.4                |
| 3                              | WBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 0.0                 |                     |
| 7                              | EBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 0.0                 |
| 4                              | EB       | 52                   | 1                  | 3.8                           | 3.8                           |                  | 22%  | 9.8                 |                     |
| 8                              | WB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 9.8                 |
| 1                              | SBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 0.0                 |                     |
| 5                              | NBLT     | 61                   | 1                  | 3.8                           | 3.8                           |                  | 20%  |                     | 8.8                 |
| TOTAL GREEN                    |          |                      |                    | 28.1                          |                               |                  | 100% | 45                  | 45                  |
| TOTAL CLEARANCE (RED + YELLOW) |          |                      |                    | 17.0                          |                               |                  |      |                     |                     |
| TOTAL TIME REQUIRED            |          |                      |                    | 45.1                          |                               |                  |      |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV |
|---------------|----------|--------|------------|------------------|-----|
| 2             | NB       | 925    | 2          | 0                | 509 |
| 6             | SB       | 1247   | 2          | 26               | 660 |
| 3             | WBLT     | 0      | 0          | 0                | 0   |
| 7             | EBLT     | 0      | 0          | 0                | 0   |
| 4             | EB       | 118    | 2          | 0                | 65  |
| 8             | WB       | 47     | 2          | 0                | 26  |
| 1             | SBLT     | 46     | 1          | 0                | 46  |
| 5             | NBLT     | 20     | 1          | 0                | 20  |
| TOTAL         |          |        |            |                  | 771 |
| SERVICE LEVEL |          |        |            |                  | A   |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB  
 SBLT \*  
 NBLT

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 TIME OF DAY: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: 50                      CYCLES/HR: 72

| PHASES                         | MOVEMENT | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %    | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|----------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|------|---------------------|---------------------|
| 2                              | NB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 31.1                |                     |
| 6                              | SB       | 660                  | 10                 | 24.7                          | 24.7                          |                  | 62%  |                     | 40.0                |
| 3                              | WBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 0.0                 |                     |
| 7                              | EBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 0.0                 |
| 4                              | EB       | 65                   | 1                  | 3.8                           | 3.8                           |                  | 20%  | 9.9                 |                     |
| 8                              | WB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 9.9                 |
| 1                              | SBLT     | 46                   | 1                  | 3.8                           | 3.8                           |                  | 18%  | 8.9                 |                     |
| 5                              | NBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 0.0                 |
| TOTAL GREEN                    |          |                      |                    | 32.3                          |                               |                  | 100% | 50                  | 50                  |
| TOTAL CLEARANCE (RED + YELLOW) |          |                      |                    | 17.0                          |                               |                  |      |                     |                     |
| TOTAL TIME REQUIRED            |          |                      |                    | 49.3                          |                               |                  |      |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**

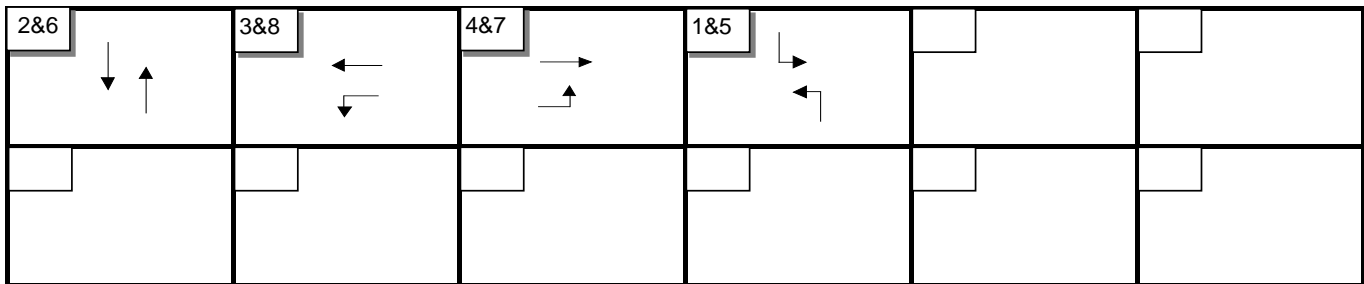
ALTERNATIVE: **One-Stage Pedestrian Crossing w/ Concurrent E-W Phasing**

HOUR: **AM Peak Hour**

DONE BY: **KOC**

CHECKED BY: **AJP**

DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 1092   | 2          | 32               | 569  |
| 6             | SB       | 678    | 2          | 0                | 373  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 2800   | 2          | 0                | 1540 |
| 8             | WB       | 54     | 2          | 0                | 30   |
| 1             | SBLT     | 29     | 1          | 0                | 29   |
| 5             | NBLT     | 61     | 1          | 0                | 61   |
| TOTAL         |          |        |            |                  | 2170 |
| SERVICE LEVEL |          |        |            |                  | F    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **One-Stage Pedestrian Crossing w/ Concurrent E-W Phasing**  
 TIME OF DAY: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH:     **45**                      CYCLES/HR: **80**

| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>569</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>13</b>        | <b>30%</b>  | <b>18.3</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>13.7</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | <b>EB</b>   | <b>1540</b>          | <b>20</b>          | <b>45.7</b>                   | <b>45.7</b>                   | <b>45</b>        | <b>59%</b>  | <b>26.7</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>26.7</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>61</b>            | <b>1</b>           | <b>3.8</b>                    | <b>3.8</b>                    |                  | <b>10%</b>  |                     | <b>4.6</b>          |
| TOTAL GREEN                    |             |                      |                    | <b>70.0</b>                   |                               |                  | <b>100%</b> | <b>45</b>           | <b>45</b>           |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>17.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>87.0</b>                   |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**

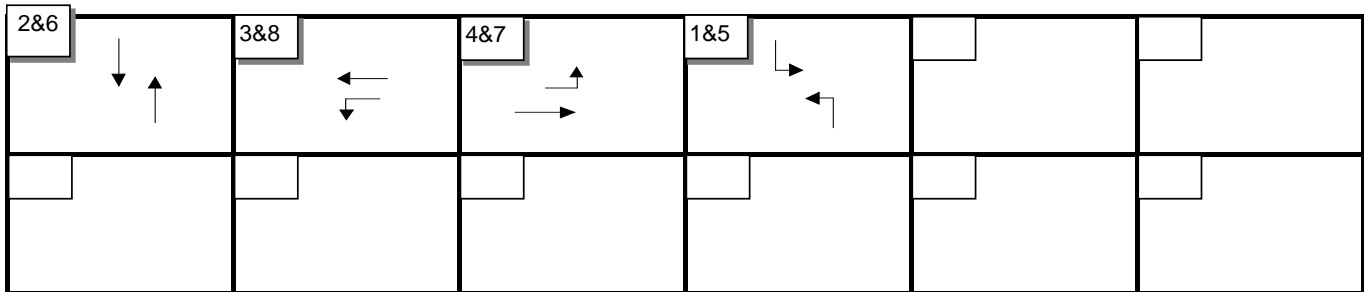
ALTERNATIVE: **One-Stage Pedestrian Crossing w/ Concurrent E-W Phasing**

HOUR: **PM Peak Hour**

DONE BY: **KOC**

CHECKED BY: **AJP**

DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 925    | 2          | 0                | 509  |
| 6             | SB       | 1247   | 2          | 26               | 660  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 2500   | 2          | 0                | 1375 |
| 8             | WB       | 47     | 2          | 0                | 26   |
| 1             | SBLT     | 46     | 1          | 0                | 46   |
| 5             | NBLT     | 20     | 1          | 0                | 20   |
| TOTAL         |          |        |            |                  | 2081 |
| SERVICE LEVEL |          |        |            |                  | F    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB  
 SBLT \*  
 NBLT

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **One-Stage Pedestrian Crossing w/ Concurrent E-W Phasing**  
 TIME OF DAY: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH:     50                      CYCLES/HR: 72

| PHASES                         | MOVEMENT | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %    | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|----------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|------|---------------------|---------------------|
| 2                              | NB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 16.8                |                     |
| 6                              | SB       | 660                  | 10                 | 24.7                          | 24.7                          | 13               | 34%  |                     | 21.6                |
| 3                              | WBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   | 0.0                 |                     |
| 7                              | EBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 0.0                 |
| 4                              | EB       | 1375                 | 20                 | 45.7                          | 45.7                          | 45               | 57%  | 28.3                |                     |
| 8                              | WB       | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 28.3                |
| 1                              | SBLT     | 46                   | 1                  | 3.8                           | 3.8                           |                  | 10%  | 4.8                 |                     |
| 5                              | NBLT     | 0                    | 0                  | 0.0                           | 0.0                           |                  | 0%   |                     | 0.0                 |
| TOTAL GREEN                    |          |                      |                    | 74.2                          |                               |                  | 100% | 50                  | 50                  |
| TOTAL CLEARANCE (RED + YELLOW) |          |                      |                    | 17.0                          |                               |                  |      |                     |                     |
| TOTAL TIME REQUIRED            |          |                      |                    | 91.2                          |                               |                  |      |                     |                     |

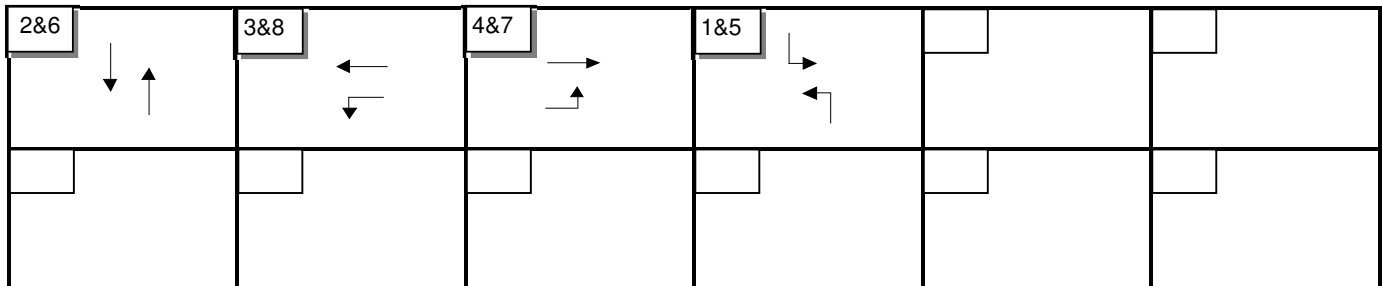
| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |



# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Two-Stage Crossing with Exclusive Pedestrian Phase**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 1092   | 2          | 32               | 569  |
| 6             | SB       | 678    | 2          | 0                | 373  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | PEDS     | 600    | 1          | 0                | 600  |
| 4             | EB       | 2150   | 2          | 600              | 583  |
| 8             | WB       | 54     | 2          | 0                | 30   |
| 1             | SBLT     | 29     | 1          | 0                | 29   |
| 5             | NBLT     | 61     | 1          | 0                | 61   |
| TOTAL         |          |        |            |                  | 1813 |
| SERVICE LEVEL |          |        |            |                  | F    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB \*  
 SB  
 WBLT  
 PEDS \*  
 EB \*  
 WB  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Two-Stage Crossing with Exclusive Pedestrian Phase**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH:     45                      CYCLES/HR: 80





| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>569</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>13</b>        | <b>32%</b>  | <b>19.3</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>14.5</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>PEDS</b> | <b>600</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>20</b>        | <b>25%</b>  |                     | <b>11.2</b>         |
| <b>4</b>                       | <b>EB</b>   | <b>583</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>20</b>        | <b>32%</b>  | <b>25.7</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>14.5</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>61</b>            | <b>1</b>           | <b>3.8</b>                    | <b>3.8</b>                    |                  | <b>11%</b>  |                     | <b>4.8</b>          |
| TOTAL GREEN                    |             |                      |                    | <b>65.3</b>                   |                               |                  | <b>100%</b> | <b>45</b>           | <b>45</b>           |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>17.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>82.3</b>                   |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **Two-Stage Crossing with Exclusive Pedestrian Phase**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| 2&6<br> | 3&8<br> | 4&7<br> | 1&5<br> |  |  |
|  |  |  |  |  |  |

| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 925    | 2          | 0                | 509  |
| 6             | SB       | 1247   | 2          | 26               | 660  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | PEDS     | 550    | 1          | 0                | 550  |
| 4             | EB       | 1950   | 2          | 550              | 523  |
| 8             | WB       | 47     | 2          | 0                | 26   |
| 1             | SBLT     | 46     | 1          | 0                | 46   |
| 5             | NBLT     | 20     | 1          | 0                | 20   |
| TOTAL         |          |        |            |                  | 1779 |
| SERVICE LEVEL |          |        |            |                  | F    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB  
 SB \*  
 WBLT  
 PEDS \*  
 EB \*  
 WB  
 SBLT \*  
 NBLT

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**

ALTERNATIVE: **Two-Stage Crossing with Exclusive Pedestrian Phase**

HOURL: **PM Peak Hour**

DONE BY: **KOC**

CHECKED BY: **AJP**

DATE: **12/16/2014**

CYCLE LENGTH: 50

CYCLES/HR: 72

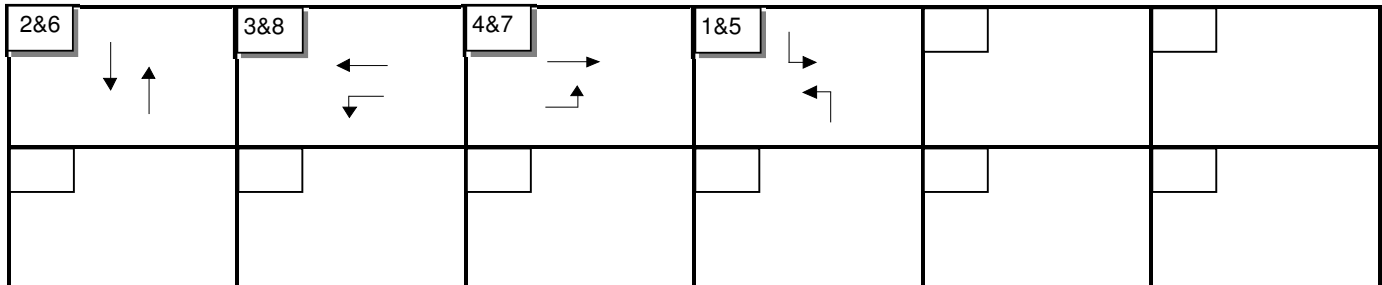
| PHASES                               | MOVEMENT | CRITICAL LANE<br>VOLUME | VEHICLES<br>PER CYCLE | GREEN TIME<br>REQUIRED FOR<br>CYCLE | GREEN TIME<br>REQUIRED FOR<br>PHASE | WALK +<br>DONT<br>WALK | %    | ACTUAL<br>RING 1 SPLIT | ACTUAL<br>RING 2 SPLIT |
|--------------------------------------|----------|-------------------------|-----------------------|-------------------------------------|-------------------------------------|------------------------|------|------------------------|------------------------|
| 2                                    | NB       | 0                       | 0                     | 0.0                                 | 0.0                                 |                        | 0%   | 17.7                   |                        |
| 6                                    | SB       | 660                     | 10                    | 24.7                                | 24.7                                | 13                     | 35%  |                        | 22.8                   |
| 3                                    | WBLT     | 0                       | 0                     | 0.0                                 | 0.0                                 |                        | 0%   | 0.0                    |                        |
| 7                                    | PEDS     | 550                     | 8                     | 20.5                                | 20.5                                | 20                     | 24%  |                        | 11.8                   |
| 4                                    | EB       | 523                     | 8                     | 20.5                                | 20.5                                | 20                     | 31%  | 27.1                   |                        |
| 8                                    | WB       | 0                       | 0                     | 0.0                                 | 0.0                                 |                        | 0%   |                        | 15.3                   |
| 1                                    | SBLT     | 46                      | 1                     | 3.8                                 | 3.8                                 |                        | 10%  | 5.1                    |                        |
| 5                                    | NBLT     | 0                       | 0                     | 0.0                                 | 0.0                                 |                        | 0%   |                        | 0.0                    |
| TOTAL GREEN                          |          |                         |                       | 69.5                                |                                     |                        | 100% | 50                     | 50                     |
| TOTAL CLEARANCE<br>(RED +<br>YELLOW) |          |                         |                       | 17.0                                |                                     |                        |      |                        |                        |
| TOTAL TIME<br>REQUIRED               |          |                         |                       | 86.5                                |                                     |                        |      |                        |                        |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **2-Stage Pedestrian Crossing with E-W Split Phase**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 1092   | 2          | 32               | 569  |
| 6             | SB       | 678    | 2          | 0                | 373  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 709    | 2          | 0                | 390  |
| 8             | WB       | 710    | 2          | 0                | 391  |
| 1             | SBLT     | 29     | 1          | 0                | 29   |
| 5             | NBLT     | 61     | 1          | 0                | 61   |
| TOTAL         |          |        |            |                  | 1411 |
| SERVICE LEVEL |          |        |            |                  | D    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**

ALTERNATIVE: **2-Stage Pedestrian Crossing with E-W Split Phase**

HOURLY: **AM Peak Hour**

DONE BY: **KOC**

CHECKED BY: **AJP**

DATE: **12/16/2014**

CYCLE LENGTH: **65**

CYCLES/HR: **55**

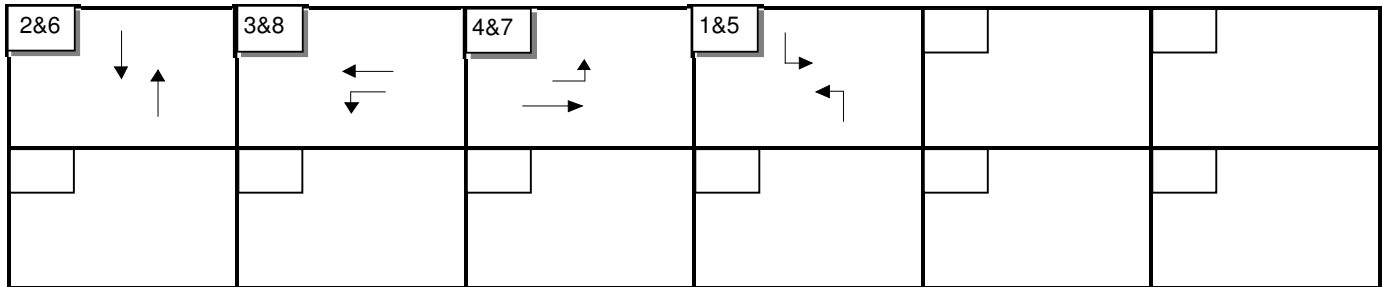
| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>569</b>           | <b>11</b>          | <b>26.8</b>                   | <b>26.8</b>                   | <b>13</b>        | <b>34%</b>  | <b>23.8</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>21.8</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | <b>EB</b>   | <b>390</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>20</b>        | <b>27%</b>  | <b>17.6</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>391</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>20</b>        | <b>27%</b>  |                     | <b>17.6</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>29</b>            | <b>1</b>           | <b>0.0</b>                    | <b>3.8</b>                    |                  | <b>0%</b>   | <b>5.9</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>61</b>            | <b>2</b>           | <b>6.9</b>                    | <b>6.9</b>                    |                  | <b>12%</b>  |                     | <b>7.9</b>          |
| TOTAL GREEN                    |             |                      |                    | <b>74.7</b>                   |                               |                  | <b>100%</b> | <b>47</b>           | <b>47</b>           |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>23.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>97.7</b>                   |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Roosevelt Ave**  
 ALTERNATIVE: **2-Stage Pedestrian Crossing with E-W Split Phase**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 925    | 2          | 0                | 509  |
| 6             | SB       | 1247   | 2          | 26               | 660  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 674    | 2          | 0                | 371  |
| 8             | WB       | 675    | 2          | 0                | 372  |
| 1             | SBLT     | 46     | 1          | 0                | 46   |
| 5             | NBLT     | 20     | 1          | 0                | 20   |
| TOTAL         |          |        |            |                  | 1449 |
| SERVICE LEVEL |          |        |            |                  | D    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT \*  
 NBLT

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Roosevelt Ave**

ALTERNATIVE: **2-Stage Pedestrian Crossing with E-W Split Phase**

HOUR: **PM Peak Hour**

DONE BY: **KOC**

CHECKED BY: **AJP**

DATE: **12/16/2014**

CYCLE LENGTH: **68**

CYCLES/HR: **53**

| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %          | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|------------------|------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  | <b>25.5</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>660</b>           | <b>13</b>          | <b>31.0</b>                           | <b>31.0</b>                   | <b>13</b>        | <b>37%</b> |                     | <b>25.5</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>371</b>           | <b>8</b>           | <b>20.5</b>                           | <b>20.5</b>                   | <b>20</b>        | <b>27%</b> | <b>18.2</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>372</b>           | <b>8</b>           | <b>20.5</b>                           | <b>20.5</b>                   | <b>20</b>        | <b>27%</b> |                     | <b>18.2</b>         |
| <b>1</b> | <b>SBLT</b> | <b>46</b>            | <b>1</b>           | <b>0.0</b>                            | <b>3.8</b>                    |                  | <b>4%</b>  | <b>2.6</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>20</b>            | <b>1</b>           | <b>3.8</b>                            | <b>3.8</b>                    |                  | <b>0%</b>  |                     | <b>2.6</b>          |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>75.8</b>                   |                  |            | <b>95%</b>          | <b>46</b>           |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |                  |            |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>98.8</b>                   |                  |            |                     |                     |

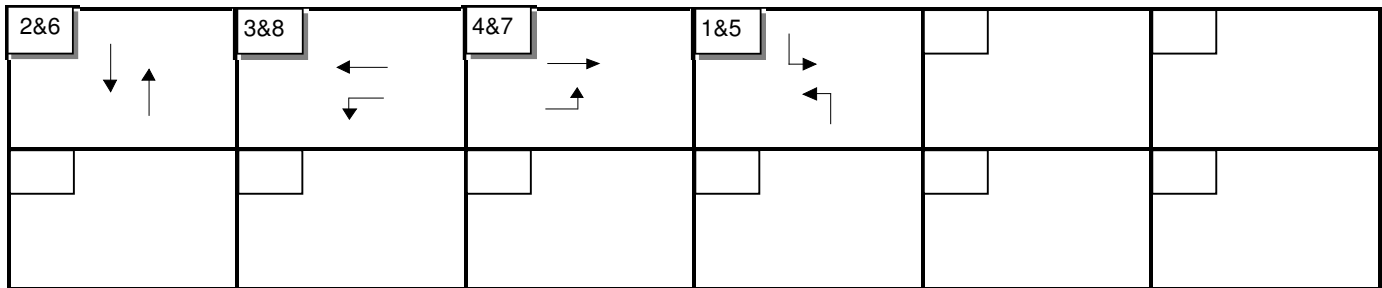
| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |



# CRITICAL MOVEMENT SUMMATION

LOCATION: **US Route 13 & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV |
|---------------|----------|--------|------------|------------------|-----|
| 2             | NB       | 1296   | 2          | 172              | 541 |
| 6             | SB       | 799    | 2          | 0                | 440 |
| 3             | WBLT     | 0      | 0          | 0                | 0   |
| 7             | EBLT     | 0      | 0          | 0                | 0   |
| 4             | EB       | 243    | 2          | 0                | 134 |
| 8             | WB       | 169    | 2          | 0                | 93  |
| 1             | SBLT     | 7      | 1          | 0                | 7   |
| 5             | NBLT     | 179    | 1          | 0                | 179 |
| TOTAL         |          |        |            |                  | 947 |
| SERVICE LEVEL |          |        |            |                  | A   |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US Route 13 & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **90**

CYCLES/HR: **40**

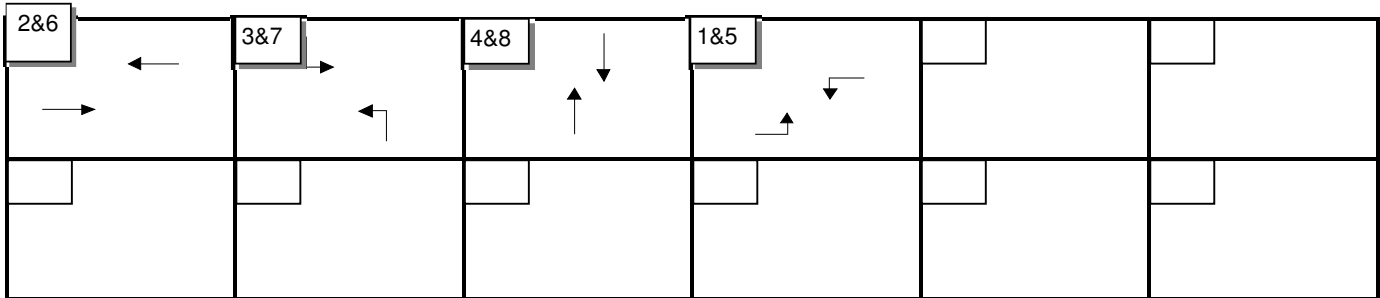
| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>541</b>           | <b>14</b>          | <b>33.1</b>                   | <b>33.1</b>                   |                  | <b>43%</b>  | <b>48.5</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>38.3</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | <b>EB</b>   | <b>134</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>20%</b>  | <b>17.6</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>93</b>            | <b>3</b>           | <b>9.6</b>                    | <b>9.6</b>                    |                  | <b>17%</b>  |                     | <b>17.6</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>7</b>             | <b>1</b>           | <b>0.0</b>                    | <b>3.8</b>                    |                  | <b>0%</b>   | <b>8.6</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>179</b>           | <b>5</b>           | <b>14.2</b>                   | <b>14.2</b>                   |                  | <b>21%</b>  |                     | <b>18.8</b>         |
| TOTAL GREEN                    |             |                      |                    | <b>68.9</b>                   |                               |                  | <b>100%</b> | <b>75</b>           | <b>75</b>           |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>23.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>91.9</b>                   |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US Route 13 & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 1100   | 2          | 93               | 512  |
| 6             | SB       | 1494   | 2          | 0                | 822  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 344    | 2          | 0                | 190  |
| 8             | WB       | 196    | 2          | 0                | 108  |
| 1             | SBLT     | 16     | 1          | 0                | 16   |
| 5             | NBLT     | 109    | 1          | 0                | 109  |
| TOTAL         |          |        |            |                  | 1229 |
| SERVICE LEVEL |          |        |            |                  | C    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **130**      CYCLES/HR: **28**

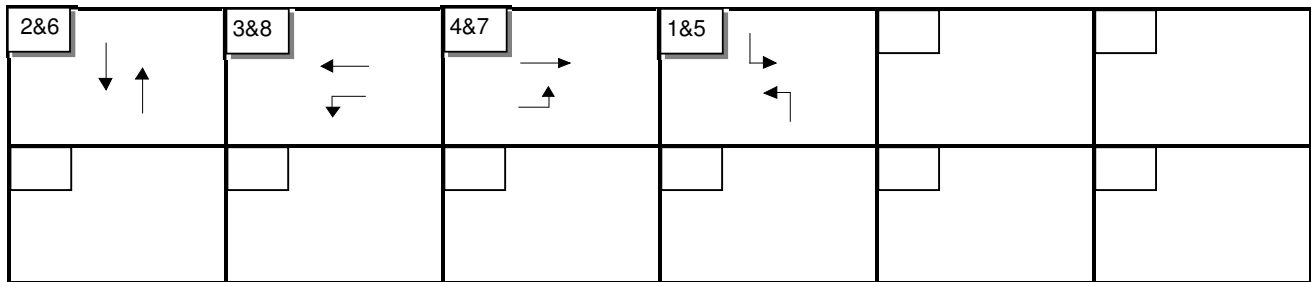
| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE             | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>79.5</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>822</b>           | <b>30</b>                      | <b>66.7</b>                   | <b>66.7</b>                   |                  | <b>55%</b>  |                     | <b>71.5</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>190</b>           | <b>7</b>                       | <b>18.4</b>                   | <b>18.4</b>                   |                  | <b>18%</b>  | <b>24.0</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>108</b>           | <b>4</b>                       | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>14%</b>  |                     | <b>24.0</b>         |
| <b>1</b> | <b>SBLT</b> | <b>16</b>            | <b>1</b>                       | <b>0.0</b>                    | <b>3.8</b>                    |                  | <b>0%</b>   | <b>8.7</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>109</b>           | <b>4</b>                       | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>13%</b>  |                     | <b>16.7</b>         |
|          |             |                      | TOTAL GREEN                    | <b>109.1</b>                  |                               |                  | <b>100%</b> | <b>112</b>          | <b>112</b>          |
|          |             |                      | TOTAL CLEARANCE (RED + YELLOW) | <b>23.0</b>                   |                               |                  |             |                     |                     |
|          |             |                      | TOTAL TIME REQUIRED            | <b>132.1</b>                  |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 1296   | 2          | 172              | 541  |
|               | 6 SB     | 799    | 2          | 0                | 440  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 1050   | 2          | 0                | 578  |
|               | 8 WB     | 169    | 2          | 0                | 93   |
|               | 1 SBLT   | 7      | 1          | 0                | 7    |
|               | 5 NBLT   | 179    | 1          | 0                | 179  |
| TOTAL         |          |        |            |                  | 1391 |
| SERVICE LEVEL |          |        |            |                  | D    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **90** CYCLES/HR: **40**





| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %          | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|------------------|------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>541</b>           | <b>14</b>          | <b>33.1</b>                           | <b>33.1</b>                   | <b>16</b>        | <b>34%</b> | <b>38.7</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  |                     | <b>30.6</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>578</b>           | <b>15</b>          | <b>35.2</b>                           | <b>35.2</b>                   | <b>35</b>        | <b>36%</b> | <b>32.2</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>93</b>            | <b>3</b>           | <b>9.6</b>                            | <b>9.6</b>                    |                  | <b>14%</b> |                     | <b>32.2</b>         |
| <b>1</b> | <b>SBLT</b> | <b>7</b>             | <b>1</b>           | <b>0.0</b>                            | <b>3.8</b>                    |                  | <b>0%</b>  | <b>6.9</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>179</b>           | <b>5</b>           | <b>14.2</b>                           | <b>14.2</b>                   |                  | <b>17%</b> |                     | <b>15.0</b>         |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>92.1</b>                   |                  |            | <b>100%</b>         | <b>78</b>           |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |                  |            |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>115.1</b>                  |                  |            |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| 2&6<br> | 3&8<br> | 4&7<br> | 1&5<br> |  |  |
|  |  |  |  |  |  |

| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 1100   | 2          | 93               | 512  |
|               | 6 SB     | 1494   | 2          | 0                | 822  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 750    | 2          | 0                | 413  |
|               | 8 WB     | 196    | 2          | 0                | 108  |
|               | 1 SBLT   | 16     | 1          | 0                | 16   |
|               | 5 NBLT   | 109    | 1          | 0                | 109  |
| TOTAL         |          |        |            |                  | 1452 |
| SERVICE LEVEL |          |        |            |                  | E    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **130** CYCLES/HR: **28**

| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>70.6</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>822</b>           | <b>30</b>          | <b>66.7</b>                   | <b>66.7</b>                   | <b>16</b>        | <b>49%</b>  |                     | <b>63.5</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | <b>EB</b>   | <b>413</b>           | <b>15</b>          | <b>35.2</b>                   | <b>35.2</b>                   | <b>35</b>        | <b>28%</b>  | <b>36.0</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>108</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>12%</b>  |                     | <b>36.0</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>16</b>            | <b>1</b>           | <b>0.0</b>                    | <b>3.8</b>                    |                  | <b>0%</b>   | <b>7.7</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>109</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>11%</b>  |                     | <b>14.8</b>         |
| TOTAL GREEN                    |             |                      |                    | <b>125.9</b>                  |                               |                  |             |                     |                     |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>23.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>148.9</b>                  |                               |                  |             |                     |                     |
|                                |             |                      |                    |                               |                               |                  | <b>100%</b> | <b>114</b>          | <b>114</b>          |

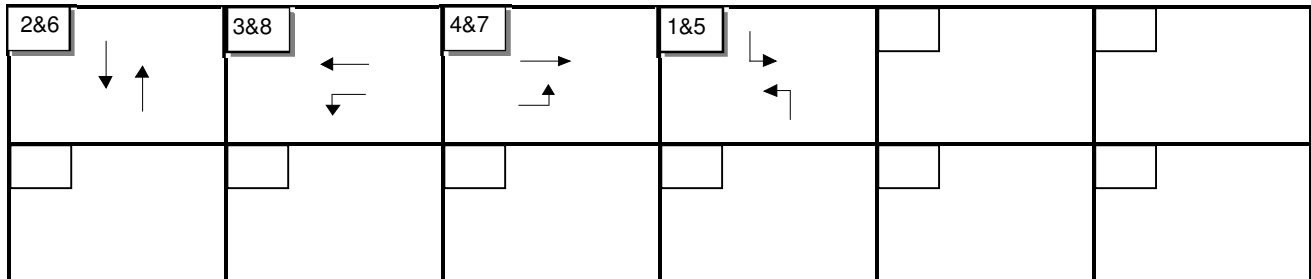
| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |



# CRITICAL MOVEMENT SUMMATION

LOCATION: US 13 & Webbs Lane  
 ALTERNATIVE: 2-Stage Pedestrian Crossing  
 HOUR: AM Peak Hour

DONE BY: KOC  
 CHECKED BY: AJP  
 DATE: 12/16/2014



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 1296   | 2          | 172              | 541  |
|               | 6 SB     | 799    | 2          | 0                | 440  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 550    | 2          | 0                | 303  |
|               | 8 WB     | 400    | 2          | 0                | 220  |
|               | 1 SBLT   | 7      | 1          | 0                | 7    |
|               | 5 NBLT   | 179    | 1          | 0                | 179  |
| TOTAL         |          |        |            |                  | 1243 |
| SERVICE LEVEL |          |        |            |                  | C    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **2-Stage Pedestrian Crossing**  
 TIME OF DAY: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **90**      CYCLES/HR: **40**





| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>541</b>           | <b>14</b>          | <b>33.1</b>                           | <b>33.1</b>                   | <b>16</b>        | <b>37%</b>  | <b>41.6</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>32.9</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>303</b>           | <b>8</b>           | <b>20.5</b>                           | <b>20.5</b>                   | <b>20</b>        | <b>25%</b>  | <b>22.3</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>220</b>           | <b>6</b>           | <b>16.3</b>                           | <b>16.3</b>                   | <b>16</b>        | <b>21%</b>  |                     | <b>22.3</b>         |
| <b>1</b> | <b>SBLT</b> | <b>7</b>             | <b>1</b>           | <b>0.0</b>                            | <b>3.8</b>                    |                  | <b>0%</b>   | <b>7.4</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>179</b>           | <b>5</b>           | <b>14.2</b>                           | <b>14.2</b>                   |                  | <b>18%</b>  |                     | <b>16.1</b>         |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>84.1</b>                   |                  |             |                     |                     |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |                  |             |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>107.1</b>                  |                  |             |                     |                     |
|          |             |                      |                    |                                       |                               |                  | <b>100%</b> | <b>71</b>           | <b>71</b>           |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **2-Stage Pedestrian Crossing**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

|  |  |  |  |  |  |
|--|--|--|--|--|--|
| 2&6<br> | 3&8<br> | 4&7<br> | 1&5<br> |  |  |
|  |  |  |  |  |  |

| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 1100   | 2          | 93               | 512  |
|               | 6 SB     | 1494   | 2          | 0                | 822  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 400    | 2          | 0                | 220  |
|               | 8 WB     | 300    | 2          | 0                | 165  |
|               | 1 SBLT   | 16     | 1          | 0                | 16   |
|               | 5 NBLT   | 109    | 1          | 0                | 109  |
| TOTAL         |          |        |            |                  | 1316 |
| SERVICE LEVEL |          |        |            |                  | D    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **US 13 & Webbs Lane**  
 ALTERNATIVE: **2-Stage Pedestrian Crossing**  
 TIME OF DAY: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **130**      CYCLES/HR: **28**

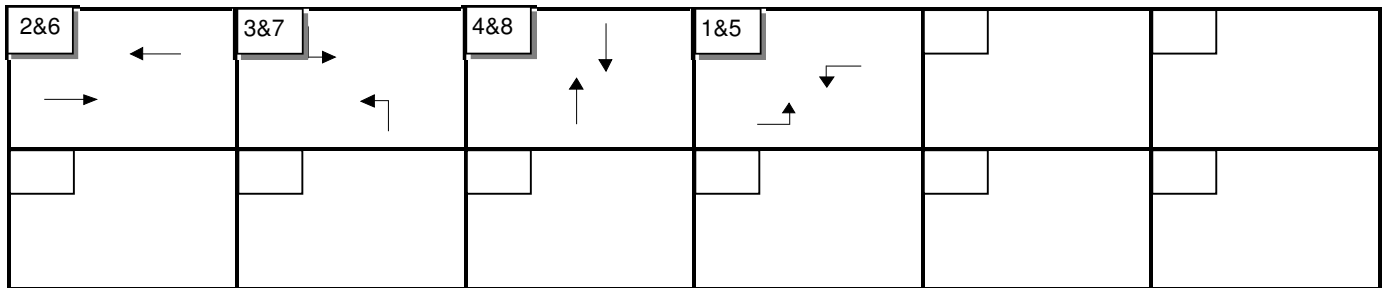
| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %          | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|------------------|------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  | <b>75.9</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>822</b>           | <b>30</b>          | <b>66.7</b>                           | <b>66.7</b>                   | <b>16</b>        | <b>52%</b> |                     | <b>68.2</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |                  | <b>0%</b>  |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>220</b>           | <b>8</b>           | <b>20.5</b>                           | <b>20.5</b>                   | <b>20</b>        | <b>19%</b> | <b>24.9</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>165</b>           | <b>6</b>           | <b>16.3</b>                           | <b>16.3</b>                   | <b>16</b>        | <b>16%</b> |                     | <b>24.9</b>         |
| <b>1</b> | <b>SBLT</b> | <b>16</b>            | <b>1</b>           | <b>0.0</b>                            | <b>3.8</b>                    |                  | <b>0%</b>  | <b>8.3</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>109</b>           | <b>4</b>           | <b>12.0</b>                           | <b>12.0</b>                   |                  | <b>12%</b> |                     | <b>16.0</b>         |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>115.5</b>                  |                  |            | <b>100%</b>         | <b>109</b>          |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |                  |            |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>138.5</b>                  |                  |            |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **Existing (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV |
|---------------|----------|--------|------------|------------------|-----|
| 2             | NB       | 806    | 1          | 97               | 709 |
| 6             | SB       | 274    | 1          | 0                | 274 |
| 3             | WBLT     | 0      | 0          | 0                | 0   |
| 7             | EBLT     | 0      | 0          | 0                | 0   |
| 4             | EB       | 48     | 1          | 0                | 48  |
| 8             | WB       | 64     | 1          | 0                | 64  |
| 1             | SBLT     | 36     | 1          | 0                | 36  |
| 5             | NBLT     | 133    | 1          | 0                | 133 |
| TOTAL         |          |        |            |                  | 954 |
| SERVICE LEVEL |          |        |            |                  | A   |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **90**      CYCLES/HR: **40**

| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | COMMENTS | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|----------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>709</b>           | <b>18</b>          | <b>41.5</b>                           | <b>41.5</b>                   |          |                  | <b>53%</b>  | <b>55.4</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   |                     | <b>47.3</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>48</b>            | <b>2</b>           | <b>6.9</b>                            | <b>6.9</b>                    |          |                  | <b>14%</b>  | <b>12.9</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>64</b>            | <b>2</b>           | <b>6.9</b>                            | <b>6.9</b>                    |          |                  | <b>14%</b>  |                     | <b>12.9</b>         |
| <b>1</b> | <b>SBLT</b> | <b>36</b>            | <b>1</b>           | <b>0.0</b>                            | <b>3.8</b>                    |          |                  | <b>0%</b>   | <b>8.8</b>          |                     |
| <b>5</b> | <b>NBLT</b> | <b>133</b>           | <b>4</b>           | <b>12.0</b>                           | <b>12.0</b>                   |          |                  | <b>19%</b>  |                     | <b>16.9</b>         |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>67.3</b>                   |          |                  | <b>100%</b> | <b>77</b>           | <b>77</b>           |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |          |                  |             |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>90.3</b>                   |          |                  |             |                     |                     |

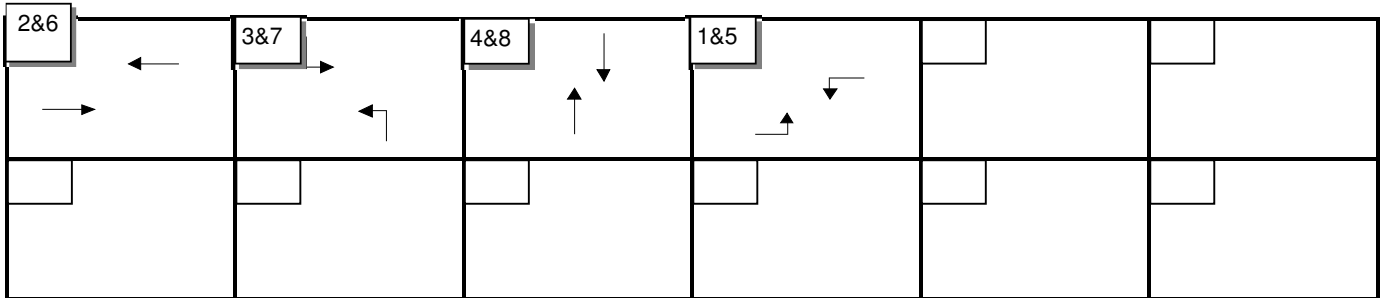
| CYCLE LENGTH | CYCLES/HR |
|--------------|-----------|
| 45           | 80        |
| 60           | 60        |
| 75           | 48        |
| 90           | 40        |
| 100          | 36        |
| 120          | 30        |
| 150          | 24        |
| 180          | 20        |

| PHASE | YELLOW | RED | TOTAL | MIN GRN |
|-------|--------|-----|-------|---------|
| 2     | 4.0    | 2.0 | 6     | 7       |
| 6     | 4.0    | 2.0 | 0     | 7       |
| 3     | 0.0    | 0.0 | 0     | 7       |
| 7     | 0.0    | 0.0 | 0     | 0       |
| 4     | 4.0    | 2.0 | 6     | 7       |
| 8     | 4.0    | 2.0 | 6     | 0       |
| 1     | 3.0    | 2.0 | 0     | 5       |
| 5     | 3.0    | 2.0 | 5     | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **Existing (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
| 2             | NB       | 493    | 1          | 105              | 388  |
| 6             | SB       | 911    | 1          | 0                | 911  |
| 3             | WBLT     | 0      | 0          | 0                | 0    |
| 7             | EBLT     | 0      | 0          | 0                | 0    |
| 4             | EB       | 39     | 1          | 0                | 39   |
| 8             | WB       | 98     | 1          | 0                | 98   |
| 1             | SBLT     | 30     | 1          | 0                | 30   |
| 5             | NBLT     | 135    | 1          | 0                | 135  |
| TOTAL         |          |        |            |                  | 1183 |
| SERVICE LEVEL |          |        |            |                  | C    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **130**      CYCLES/HR: **28**

| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | COMMENTS | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------|---------------------------------------|-------------------------------|----------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   | <b>86.9</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>911</b>           | <b>33</b>          | <b>73.0</b>                           | <b>73.0</b>                   |          |                  | <b>61%</b>  |                     | <b>79.6</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>39</b>            | <b>2</b>           | <b>6.9</b>                            | <b>6.9</b>                    |          |                  | <b>10%</b>  | <b>18.1</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>98</b>            | <b>4</b>           | <b>12.0</b>                           | <b>12.0</b>                   |          |                  | <b>14%</b>  |                     | <b>18.1</b>         |
| <b>1</b> | <b>SBLT</b> | <b>30</b>            | <b>2</b>           | <b>0.0</b>                            | <b>6.9</b>                    |          |                  | <b>0%</b>   | <b>12.0</b>         |                     |
| <b>5</b> | <b>NBLT</b> | <b>135</b>           | <b>5</b>           | <b>14.2</b>                           | <b>14.2</b>                   |          |                  | <b>15%</b>  |                     | <b>19.3</b>         |
|          |             |                      |                    | <b>TOTAL GREEN</b>                    | <b>106.1</b>                  |          |                  | <b>100%</b> | <b>117</b>          | <b>117</b>          |
|          |             |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>23.0</b>                   |          |                  |             |                     |                     |
|          |             |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>129.1</b>                  |          |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR |
|--------------|-----------|
| 45           | 80        |
| 60           | 60        |
| 75           | 48        |
| 90           | 40        |
| 100          | 36        |
| 120          | 30        |
| 150          | 24        |
| 180          | 20        |

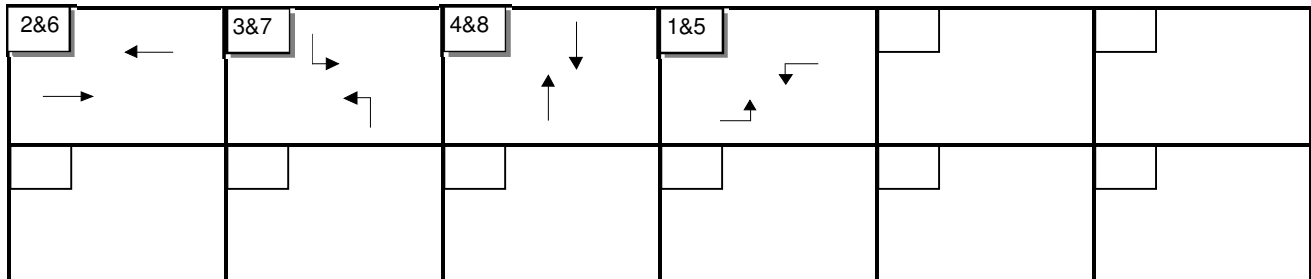
| PHASE | YELLOW | RED | TOTAL | MIN GRN |
|-------|--------|-----|-------|---------|
| 2     | 4.0    | 2.0 | 0     | 7       |
| 6     | 4.0    | 2.0 | 6     | 7       |
| 3     | 0.0    | 0.0 | 0     | 7       |
| 7     | 0.0    | 0.0 | 0     | 0       |
| 4     | 4.0    | 2.0 | 6     | 7       |
| 8     | 4.0    | 2.0 | 6     | 0       |
| 1     | 3.0    | 2.0 | 0     | 5       |
| 5     | 3.0    | 2.0 | 5     | 5       |



# CRITICAL MOVEMENT SUMMATION

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 806    | 1          | 97               | 709  |
|               | 6 SB     | 274    | 1          | 0                | 274  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 48     | 1          | 0                | 48   |
|               | 8 WB     | 285    | 1          | 0                | 285  |
|               | 1 SBLT   | 36     | 1          | 0                | 36   |
|               | 5 NBLT   | 133    | 1          | 0                | 133  |
| TOTAL         |          |        |            |                  | 1175 |
| SERVICE LEVEL |          |        |            |                  | C    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB \*  
 SB  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **90** CYCLES/HR: **40**

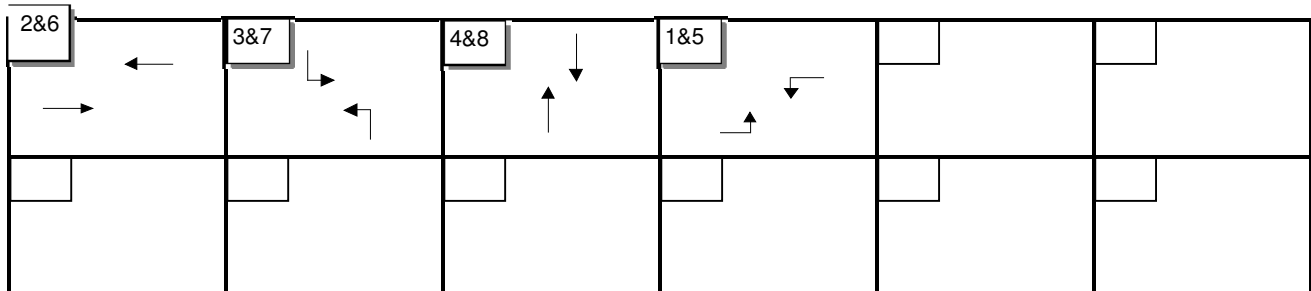
| PHASES                         | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|-------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | <b>NB</b>   | <b>709</b>           | <b>18</b>          | <b>41.5</b>                   | <b>41.5</b>                   | <b>24</b>        | <b>46%</b>  | <b>48.2</b>         |                     |
| <b>6</b>                       | <b>SB</b>   | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>41.1</b>         |
| <b>3</b>                       | <b>WBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b>                       | <b>EBLT</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | <b>EB</b>   | <b>48</b>            | <b>2</b>           | <b>6.9</b>                    | <b>6.9</b>                    |                  | <b>12%</b>  | <b>23.0</b>         |                     |
| <b>8</b>                       | <b>WB</b>   | <b>285</b>           | <b>8</b>           | <b>20.5</b>                   | <b>20.5</b>                   | <b>19</b>        | <b>26%</b>  |                     | <b>23.0</b>         |
| <b>1</b>                       | <b>SBLT</b> | <b>36</b>            | <b>1</b>           | <b>0.0</b>                    | <b>3.8</b>                    |                  | <b>0%</b>   | <b>7.6</b>          |                     |
| <b>5</b>                       | <b>NBLT</b> | <b>133</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>16%</b>  |                     | <b>14.7</b>         |
| TOTAL GREEN                    |             |                      |                    | <b>80.9</b>                   |                               |                  | <b>100%</b> | <b>79</b>           | <b>79</b>           |
| TOTAL CLEARANCE (RED + YELLOW) |             |                      |                    | <b>23.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |             |                      |                    | <b>103.9</b>                  |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **1-Stage Pedestrian Crossing**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------|--------|------------|------------------|------|
|               | 2 NB     | 493    | 1          | 105              | 388  |
|               | 6 SB     | 911    | 1          | 0                | 911  |
|               | 3 WBLT   | 0      | 0          | 0                | 0    |
|               | 7 EBLT   | 0      | 0          | 0                | 0    |
|               | 4 EB     | 39     | 1          | 0                | 39   |
|               | 8 WB     | 200    | 1          | 0                | 200  |
|               | 1 SBLT   | 30     | 1          | 0                | 30   |
|               | 5 NBLT   | 135    | 1          | 0                | 135  |
| TOTAL         |          |        |            |                  | 1285 |
| SERVICE LEVEL |          |        |            |                  | C    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB  
 SB \*  
 WBLT  
 EBLT  
 EB \*  
 WB \*  
 SBLT  
 NBLT \*

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **South State St & Webbs Lane**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **130**

CYCLES/HR: **28**

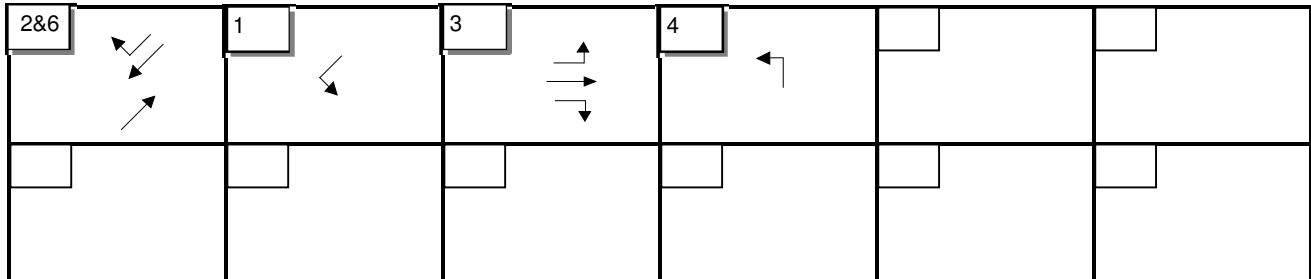
| PHASES   | MOVEMENT    | CRITICAL LANE VOLUME | VEHICLES PER CYCLE             | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------|----------------------|--------------------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>NB</b>   | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>81.5</b>         |                     |
| <b>6</b> | <b>SB</b>   | <b>911</b>           | <b>33</b>                      | <b>73.0</b>                   | <b>73.0</b>                   | <b>24</b>        | <b>57%</b>  |                     | <b>74.6</b>         |
| <b>3</b> | <b>WBLT</b> | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>0.0</b>          |                     |
| <b>7</b> | <b>EBLT</b> | <b>0</b>             | <b>0</b>                       | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b> | <b>EB</b>   | <b>39</b>            | <b>2</b>                       | <b>6.9</b>                    | <b>6.9</b>                    |                  | <b>9%</b>   | <b>25.0</b>         |                     |
| <b>8</b> | <b>WB</b>   | <b>200</b>           | <b>8</b>                       | <b>20.5</b>                   | <b>20.5</b>                   | <b>19</b>        | <b>19%</b>  |                     | <b>25.0</b>         |
| <b>1</b> | <b>SBLT</b> | <b>30</b>            | <b>2</b>                       | <b>0.0</b>                    | <b>6.9</b>                    |                  | <b>0%</b>   | <b>11.2</b>         |                     |
| <b>5</b> | <b>NBLT</b> | <b>135</b>           | <b>5</b>                       | <b>14.2</b>                   | <b>14.2</b>                   |                  | <b>14%</b>  |                     | <b>18.1</b>         |
|          |             |                      | TOTAL GREEN                    | <b>114.6</b>                  |                               |                  | <b>100%</b> | <b>118</b>          | <b>118</b>          |
|          |             |                      | TOTAL CLEARANCE (RED + YELLOW) | <b>23.0</b>                   |                               |                  |             |                     |                     |
|          |             |                      | TOTAL TIME REQUIRED            | <b>137.6</b>                  |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 4.0    | 2.0 | 7       |
| 75           | 48        | 3     | 0.0    | 0.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 4.0    | 2.0 | 0       |
| 150          | 24        | 1     | 3.0    | 2.0 | 5       |
| 180          | 20        | 5     | 3.0    | 2.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **Existing (No Ped Signals)**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT         | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|------------------|--------|------------|------------------|------|
|               | 2 NB (Governors) | 121    | 1          | 0                | 121  |
|               | 6 SB (RT)        | 591    | 1          | 0                | 591  |
|               | 3 EB             | 317    | 2          | 0                | 175  |
|               | 7                | 0      | 0          | 0                | 0    |
|               | 4 NBLT (State)   | 105    | 1          | 0                | 105  |
|               | 8                | 0      | 0          | 0                | 0    |
|               | 1 SBLT           | 133    | 1          | 0                | 133  |
|               | 5                | 0      | 0          | 0                | 0    |
| TOTAL         |                  |        |            |                  | 1004 |
| SERVICE LEVEL |                  |        |            |                  | B    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB (Governors)  
     SB (RT) \*  
         EB \*  
             0  
 NBLT (State) \*  
     0  
 SBLT \*  
     0

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 TIME OF DAY: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **120**

CYCLES/HR: **30**

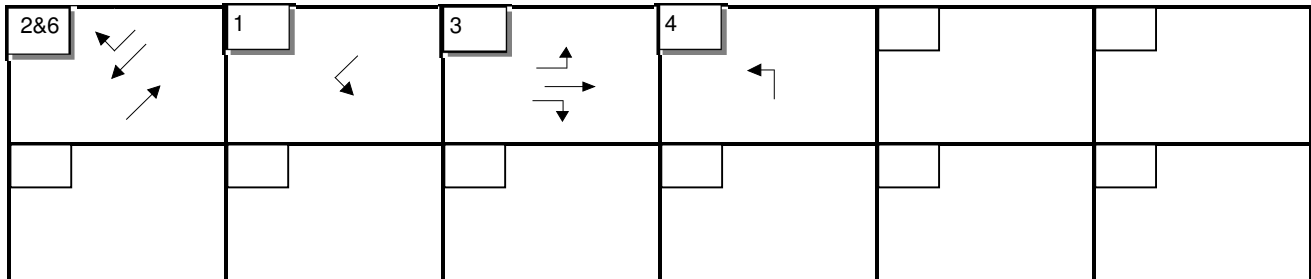
| PHASES                         | MOVEMENT       | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|----------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | NB (Governors) | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>58.6</b>         |                     |
| <b>6</b>                       | SB (RT)        | <b>591</b>           | <b>20</b>          | <b>45.7</b>                   | <b>45.7</b>                   |                  | <b>49%</b>  |                     | <b>79.1</b>         |
| <b>3</b>                       | EB             | <b>175</b>           | <b>6</b>           | <b>16.3</b>                   | <b>16.3</b>                   |                  | <b>19%</b>  | <b>22.6</b>         |                     |
| <b>7</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | NBLT (State)   | <b>105</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>15%</b>  | <b>18.3</b>         |                     |
| <b>8</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>40.9</b>         |
| <b>1</b>                       | SBLT           | <b>133</b>           | <b>5</b>           | <b>14.2</b>                   | <b>14.2</b>                   |                  | <b>17%</b>  | <b>20.5</b>         |                     |
| <b>5</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| TOTAL GREEN                    |                |                      |                    | <b>88.2</b>                   |                               |                  | <b>100%</b> | <b>120</b>          | <b>120</b>          |
| TOTAL CLEARANCE (RED + YELLOW) |                |                      |                    | <b>30.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |                |                      |                    | <b>118.2</b>                  |                               |                  |             |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 5.0    | 7.0 | 7       |
| 75           | 48        | 3     | 4.0    | 2.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 0.0    | 0.0 | 0       |
| 150          | 24        | 1     | 4.0    | 2.0 | 5       |
| 180          | 20        | 5     | 0.0    | 0.0 | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **Existing (No Ped Signals)**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT         | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|------------------|--------|------------|------------------|------|
|               | 2 NB (Governors) | 225    | 1          | 0                | 225  |
|               | 6 SB (RT)        | 478    | 1          | 0                | 478  |
|               | 3 EB             | 533    | 2          | 0                | 294  |
|               | 7                | 0      | 0          | 0                | 0    |
|               | 4 NBLT (State)   | 112    | 1          | 0                | 112  |
|               | 8                | 0      | 0          | 0                | 0    |
|               | 1 SBLT           | 132    | 1          | 0                | 132  |
|               | 5                | 0      | 0          | 0                | 0    |
| TOTAL         |                  |        |            |                  | 1016 |
| SERVICE LEVEL |                  |        |            |                  | B    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB (Governors)  
 SB (RT) \*  
 EB \*  
 0  
 NBLT (State) \*  
 0  
 SBLT \*  
 0

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **Existing Conditions (No Ped Signals)**  
 TIME OF DAY: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: 120

CYCLES/HR: 30

| PHASES                         | MOVEMENT       | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE | GREEN TIME REQUIRED FOR PHASE | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|--------------------------------|----------------|----------------------|--------------------|-------------------------------|-------------------------------|------------------|-------------|---------------------|---------------------|
| <b>2</b>                       | NB (Governors) | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   | <b>50.1</b>         |                     |
| <b>6</b>                       | SB (RT)        | <b>478</b>           | <b>16</b>          | <b>37.3</b>                   | <b>37.3</b>                   |                  | <b>42%</b>  |                     | <b>70.6</b>         |
| <b>3</b>                       | EB             | <b>294</b>           | <b>10</b>          | <b>24.7</b>                   | <b>24.7</b>                   |                  | <b>26%</b>  | <b>31.2</b>         |                     |
| <b>7</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| <b>4</b>                       | NBLT (State)   | <b>112</b>           | <b>4</b>           | <b>12.0</b>                   | <b>12.0</b>                   |                  | <b>15%</b>  | <b>18.3</b>         |                     |
| <b>8</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>49.5</b>         |
| <b>1</b>                       | SBLT           | <b>132</b>           | <b>5</b>           | <b>14.2</b>                   | <b>14.2</b>                   |                  | <b>17%</b>  | <b>20.5</b>         |                     |
| <b>5</b>                       | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                    | <b>0.0</b>                    |                  | <b>0%</b>   |                     | <b>0.0</b>          |
| TOTAL GREEN                    |                |                      |                    | <b>88.2</b>                   |                               |                  | <b>100%</b> | <b>120</b>          | <b>120</b>          |
| TOTAL CLEARANCE (RED + YELLOW) |                |                      |                    | <b>30.0</b>                   |                               |                  |             |                     |                     |
| TOTAL TIME REQUIRED            |                |                      |                    | <b>118.2</b>                  |                               |                  |             |                     |                     |

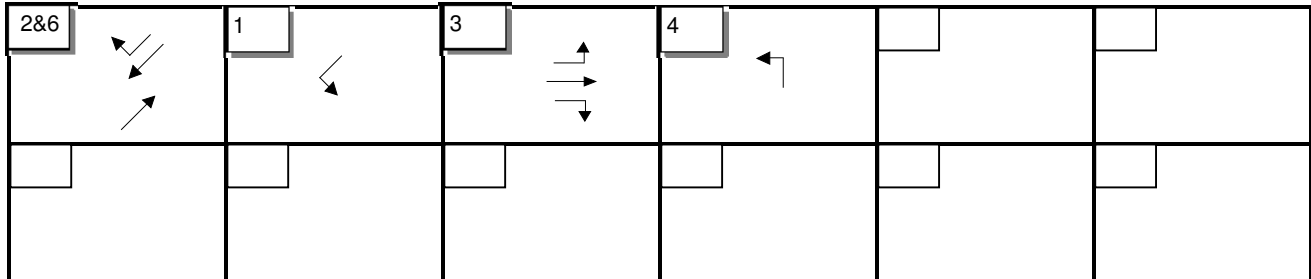
| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | MIN GRN |
|--------------|-----------|-------|--------|-----|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 7       |
| 60           | 60        | 6     | 5.0    | 7.0 | 7       |
| 75           | 48        | 3     | 4.0    | 2.0 | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 7       |
| 120          | 30        | 8     | 0.0    | 0.0 | 0       |
| 150          | 24        | 1     | 4.0    | 2.0 | 5       |
| 180          | 20        | 5     | 0.0    | 0.0 | 5       |



# CRITICAL MOVEMENT SUMMATION

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT       | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|----------------|--------|------------|------------------|------|
| 2             | NB (Governors) | 121    | 1          | 0                | 121  |
| 6             | SB (RT)        | 591    | 1          | 0                | 591  |
| 3             | EB             | 317    | 2          | 0                | 175  |
| 7             | PEDS           | 190    | 1          | 0                | 190  |
| 4             | NBLT (State)   | 125    | 1          | 0                | 125  |
| 8             |                | 0      | 0          | 0                | 0    |
| 1             | SBLT           | 133    | 1          | 0                | 133  |
| 5             |                | 0      | 0          | 0                | 0    |
| TOTAL         |                |        |            |                  | 1214 |
| SERVICE LEVEL |                |        |            |                  | C    |

**SERVICE LEVEL**  
 A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

**LANE USE FACTOR**  
 1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

**CRITICAL MOVEMENT**  
 NB (Governors)  
 SB (RT) \*  
 EB \*  
 PEDS \*  
 NBLT (State) \*  
 0  
 SBLT \*  
 0

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **AM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **120** CYCLES/HR: **30**

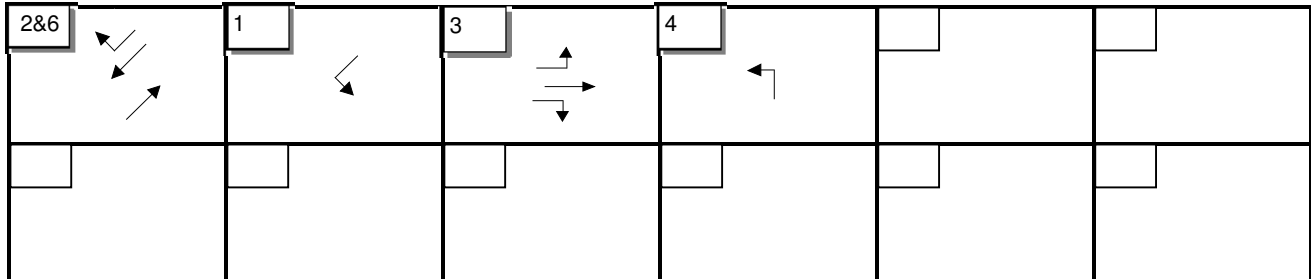
| PHASES   | MOVEMENT       | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE  | GREEN TIME REQUIRED FOR PHASE | COMMENTS | WALK + DONT WALK | %          | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|----------------|----------------------|--------------------|--------------------------------|-------------------------------|----------|------------------|------------|---------------------|---------------------|
| <b>2</b> | NB (Governors) | <b>0</b>             | <b>0</b>           | <b>0.0</b>                     | <b>0.0</b>                    |          |                  | <b>0%</b>  | <b>49.9</b>         |                     |
| <b>6</b> | SB (RT)        | <b>591</b>           | <b>20</b>          | <b>45.7</b>                    | <b>45.7</b>                   |          |                  | <b>42%</b> |                     | <b>67.4</b>         |
| <b>3</b> | EB             | <b>175</b>           | <b>6</b>           | <b>16.3</b>                    | <b>16.3</b>                   |          |                  | <b>16%</b> | <b>14.1</b>         |                     |
| <b>7</b> | PEDS           | <b>190</b>           | <b>7</b>           | <b>18.4</b>                    | <b>18.4</b>                   |          | <b>17</b>        | <b>13%</b> |                     | <b>15.9</b>         |
| <b>4</b> | NBLT (State)   | <b>125</b>           | <b>5</b>           | <b>14.2</b>                    | <b>14.2</b>                   |          | <b>14</b>        | <b>15%</b> | <b>19.3</b>         |                     |
| <b>8</b> | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                     | <b>0.0</b>                    |          |                  | <b>0%</b>  |                     | <b>17.5</b>         |
| <b>1</b> | SBLT           | <b>133</b>           | <b>5</b>           | <b>14.2</b>                    | <b>14.2</b>                   |          |                  | <b>15%</b> | <b>17.5</b>         |                     |
| <b>5</b> | 0              | <b>0</b>             | <b>0</b>           | <b>0.0</b>                     | <b>0.0</b>                    |          |                  | <b>0%</b>  |                     | <b>0.0</b>          |
|          |                |                      |                    | TOTAL GREEN                    | <b>108.8</b>                  |          |                  |            | <b>100%</b>         | <b>101</b>          |
|          |                |                      |                    | TOTAL CLEARANCE (RED + YELLOW) | <b>30.0</b>                   |          |                  |            |                     |                     |
|          |                |                      |                    | TOTAL TIME REQUIRED            | <b>138.8</b>                  |          |                  |            |                     |                     |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | TOTAL | MIN GRN |
|--------------|-----------|-------|--------|-----|-------|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 0     | 7       |
| 60           | 60        | 6     | 5.0    | 7.0 | 12    | 7       |
| 75           | 48        | 3     | 4.0    | 2.0 | 6     | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0     | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 6     | 7       |
| 120          | 30        | 8     | 0.0    | 0.0 | 0     | 0       |
| 150          | 24        | 1     | 4.0    | 2.0 | 6     | 5       |
| 180          | 20        | 5     | 0.0    | 0.0 | 0     | 5       |

# CRITICAL MOVEMENT SUMMATION

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**



| PHASE         | MOVEMENT         | VOLUME | # of lanes | Left Turn Credit | CLV  |
|---------------|------------------|--------|------------|------------------|------|
|               | 2 NB (Governors) | 225    | 1          | 0                | 225  |
|               | 6 SB (RT)        | 478    | 1          | 0                | 478  |
|               | 3 EB             | 533    | 2          | 0                | 294  |
|               | 7 PEDS           | 255    | 1          | 0                | 255  |
|               | 4 NBLT (State)   | 200    | 1          | 0                | 200  |
|               | 8                | 0      | 0          | 0                | 0    |
|               | 1 SBLT           | 132    | 1          | 0                | 132  |
|               | 5                | 0      | 0          | 0                | 0    |
| TOTAL         |                  |        |            |                  | 1359 |
| SERVICE LEVEL |                  |        |            |                  | D    |

## SERVICE LEVEL

A - LESS THAN 1,000 V/HR  
 B - 1,001 TO 1,150 V/HR  
 C - 1,151 TO 1,300 V/HR  
 D - 1,301 TO 1,450 V/HR  
 E - 1,451 TO 1,600 V/HR  
 F - MORE THAN 1,600 V/HR

## LANE USE FACTOR

1 LANE = 1.00  
 2 LANES = .55  
 3 LANES = .40

## CRITICAL MOVEMENT

NB (Governors)  
 SB (RT) \*  
 EB \*  
 PEDS \*  
 NBLT (State) \*  
 0  
 SBLT \*  
 0

## TRAFFIC SIGNAL TIMING WORKSHEET

LOCATION: **N State St / N Governors Ave & Walker Rd**  
 ALTERNATIVE: **With Pedestrian Signals**  
 HOUR: **PM Peak Hour**

DONE BY: **KOC**  
 CHECKED BY: **AJP**  
 DATE: **12/16/2014**

CYCLE LENGTH: **85**      CYCLES/HR: **42**

| PHASES   | MOVEMENT          | CRITICAL LANE VOLUME | VEHICLES PER CYCLE | GREEN TIME REQUIRED FOR CYCLE         | GREEN TIME REQUIRED FOR PHASE | COMMENTS | WALK + DONT WALK | %           | ACTUAL RING 1 SPLIT | ACTUAL RING 2 SPLIT |
|----------|-------------------|----------------------|--------------------|---------------------------------------|-------------------------------|----------|------------------|-------------|---------------------|---------------------|
| <b>2</b> | <b>(Governor)</b> | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   | <b>28.5</b>         |                     |
| <b>6</b> | <b>SB (RT)</b>    | <b>478</b>           | <b>12</b>          | <b>28.9</b>                           | <b>28.9</b>                   |          |                  | <b>34%</b>  |                     | <b>41.1</b>         |
| <b>3</b> | <b>EB</b>         | <b>294</b>           | <b>7</b>           | <b>18.4</b>                           | <b>18.4</b>                   |          |                  | <b>20%</b>  | <b>17.0</b>         |                     |
| <b>7</b> | <b>PEDS</b>       | <b>255</b>           | <b>7</b>           | <b>18.4</b>                           | <b>18.4</b>                   |          | <b>17</b>        | <b>15%</b>  |                     | <b>17.0</b>         |
| <b>4</b> | <b>BLT (Stat)</b> | <b>200</b>           | <b>5</b>           | <b>14.2</b>                           | <b>14.2</b>                   |          | <b>14</b>        | <b>17%</b>  | <b>14.1</b>         |                     |
| <b>8</b> | <b>0</b>          | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   |                     | <b>14.1</b>         |
| <b>1</b> | <b>SBLT</b>       | <b>132</b>           | <b>4</b>           | <b>12.0</b>                           | <b>12.0</b>                   |          |                  | <b>15%</b>  | <b>12.6</b>         |                     |
| <b>5</b> | <b>0</b>          | <b>0</b>             | <b>0</b>           | <b>0.0</b>                            | <b>0.0</b>                    |          |                  | <b>0%</b>   |                     | <b>0.0</b>          |
|          |                   |                      |                    | <b>TOTAL GREEN</b>                    | <b>91.9</b>                   |          |                  |             |                     |                     |
|          |                   |                      |                    | <b>TOTAL CLEARANCE (RED + YELLOW)</b> | <b>30.0</b>                   |          |                  |             |                     |                     |
|          |                   |                      |                    | <b>TOTAL TIME REQUIRED</b>            | <b>121.9</b>                  |          |                  |             |                     |                     |
|          |                   |                      |                    |                                       |                               |          |                  | <b>100%</b> | <b>72</b>           | <b>72</b>           |

| CYCLE LENGTH | CYCLES/HR | PHASE | YELLOW | RED | TOTAL | MIN GRN |
|--------------|-----------|-------|--------|-----|-------|---------|
| 45           | 80        | 2     | 4.0    | 2.0 | 0     | 7       |
| 60           | 60        | 6     | 5.0    | 7.0 | 12    | 7       |
| 75           | 48        | 3     | 4.0    | 2.0 | 6     | 7       |
| 90           | 40        | 7     | 0.0    | 0.0 | 0     | 0       |
| 100          | 36        | 4     | 4.0    | 2.0 | 6     | 7       |
| 120          | 30        | 8     | 0.0    | 0.0 | 0     | 0       |
| 150          | 24        | 1     | 4.0    | 2.0 | 6     | 5       |
| 180          | 20        | 5     | 0.0    | 0.0 | 0     | 5       |