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JULY 2015

ROUTE 322 CORRIDOR
TRANSPORTATION EVALUATION

DERRY TOWNSHIP
DAUPHIN COUNTY, PENNSYLVANIA

HRG Project No. R002484.0476

**ROUTE 322 CORRIDOR
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**DERRY TOWNSHIP
DAUPHIN COUNTY, PA**

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ROUTE 322 CORRIDOR TRANSPORTATION EVALUATION

EXECUTIVE SUMMARY

Approach

Derry Township in partnership with the Penn State Hershey Medical Center commissioned a corridor evaluation to identify options to alleviate the ongoing traffic congestion along Route 322 between University Drive and Fishburn Road / Hockersville Road. This stretch of Route 322 is primarily along the frontage of the Medical Center and includes four (4) traffic signals, numerous Township roadways, and private driveways. This principal arterial highway is a major regional traffic route and provides access to the Penn State Hershey Medical Center, Penn State Hershey Children's Hospital, and various other local destinations. The queuing and traffic congestion along Route 322 has created undesirable operations and safety concerns in this area, particularly at the intersection of Route 322 and Fishburn Road / Hockersville Road. Also of concern is the congestion along Cherry Drive, Sand Hill Road, and Fishburn Road, which is largely attributable to traffic exiting the Hershey Medical Center campus to points south via Fishburn Road to avoid the Route 322 / Fishburn Road intersection. With the potential for additional development on the southwest quadrant of Route 322 and Fishburn Road and the potential for future expansion of the Penn State Hershey Medical Center, a corridor evaluation is warranted.

This section of the Route 322 Corridor has long been a focus of Derry Township and regional transportation planners (HATS). Through the HATS planning process, long-term improvements to Route 322 from University Drive to Fishburn Road was the #2 ranked project on the 2040 Regional Transportation Plan adopted in 2014. This high ranking makes it very favorable that the project will be programmed in the next Transportation Improvement Plan (TIP) with 80% Federal, 20% Non-Federal funding. The next step in the TIP update process will begin in the last quarter of 2015 and adopted in June 2016. If added to the TIP, funding would likely be available in 2019/2020.

Therefore, this evaluation has been prepared to identify potential immediate and short-term infrastructure improvements that could be constructed prior to the TIP project; to identify potential funding sources for the short-term improvements; and to identify the potential scope of the TIP project to assist 20-year planning efforts.

Potential Improvements

For purposes of this evaluation, potential improvements have been categorized as follows:

- Immediate – Improvements that can be constructed in 2015.
- Short-Term – Improvements that can be constructed in 2016.
- Long-Term – Federal aid improvements that can be constructed in 2020.

The long-term analyses considered development of properties within the Route 322 Corridor and expansion of the Hershey Medical Center and traffic growth through 2040 (i.e., 2040 design year). The following potential improvements have been identified for consideration. Conceptual sketches are attached (Exhibits 2 – 8) depicting the improvements. The existing and projected levels of service are also shown in Table 4.

Route 322 and University Drive

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The intersection generally operates acceptably with moderate delays during the peak hours. The intersection is anticipated to continue to experience moderate delays in 2020 without additional improvement. Traffic signal timing changes should be considered to maximize the capacity of the current configuration.
- **Long-Term** Several movements are anticipated to experience significant delay by 2040, particularly during the AM peak hour. To accommodate projected 2040 traffic, the second eastbound through lane (which currently ends at this intersection) should be extended to the east, through University Drive. A second westbound through lane would also be required. For purposes of this evaluation, this lane was assumed to end at Sipe Avenue; however, it could be extended toward the Route 322 / 422 interchange as part of a future interchange reconstruction Project. See potential improvements depicted on Exhibit 3.

Route 322 and Centerview Drive

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The intersection currently has some deficiencies during the peak hours, particularly on the northbound approach exiting the Hershey Medical Center. The intersection is anticipated to continue to experience moderate delays in 2020 without additional improvement. Traffic signal timing changes should be considered to maximize the capacity of the current configuration.

- **Long-Term** Several movements are anticipated to experience significant delay by 2040, particularly during the AM peak hour. To accommodate projected 2040 traffic, the following improvements could be considered (See Exhibit 3 for reference):
 - Route 322 could be widened to the south to provide an additional eastbound through lane and a dedicated eastbound right turn lane.
 - The southbound approach of Centerview Drive could be widened slightly to the east to provide a dedicated left turn lane.
 - The northbound approach of Centerview Drive could be widened and reconfigured to provide two left turn lanes and a shared through-right lane. The left turn lanes would continue into dual westbound through lanes suggested at University Drive.

Route 322 and intersections of Hillview Lane, Areba Avenue, Beech Avenue, and Greenlea Road

- **Immediate** No immediate improvements are recommended.
- **Short-Term** These unsignalized, residential intersections generally operate acceptably with minimal or minor delays during the peak hours. The intersections are anticipated to continue to operate acceptably in 2020 without additional improvement. No improvements are necessary.
- **Long-Term** As traffic volumes increase along Route 322, these side street approaches are anticipated to experience an increase in delay; however, delays are anticipated to be minor to moderate and no improvements are necessary for capacity. Consideration could be given to provide left turns along Route 322 at each intersection. This will provide an increased measure of safety for turning vehicles, as well as help maintain the progression of traffic along Route 322. If desired, grass medians could be installed to help delineate the turn lanes and maintain some of the character of the area. See potential improvements depicted on Exhibit 4.

Route 322 and Cherry Drive

- **Immediate** No immediate improvements are recommended.
- **Short-Term** Though delays have been witnessed at this intersection, the traffic volumes through the intersection do not exceed the intersection capacity (as shown by the acceptable levels of service). However, traffic backups from the intersection at Fishburn Road / Hockersville Road can extend through this intersection, particularly throughout the afternoon and early evening. These backups impact the efficiency of this signal and can create further delays. Since the delays at this intersection are generally caused by the adjacent signal, geometric improvements would at Cherry Drive would not significantly improve the conditions. No improvements are necessary at this time.

- **Long-Term** No improvements are required at this intersection under projected 2040 conditions; however, to facilitate traffic along the corridor and through the intersection at Fishburn Road / Hockersville Road, a second eastbound through lane could be considered at this location. Additionally, the second westbound through lane (required at Fishburn Road/ Hockersville Road) could also be extended through this intersection. See potential improvements depicted on Exhibit 5.

Route 322 and Fishburn Road/ Hockersville Road

- **Immediate** Several movements at this intersection experience significant delays under existing conditions during the morning and afternoon peak hours. Eastbound traffic waiting to turn left onto Elm Avenue causes traffic to back-up through this intersection and contributes to the inefficient traffic signal operation. Restricting eastbound left turns along Route 322 at Elm Avenue would improve the existing conditions.
- **Short-Term** The above mentioned delays are anticipated to worsen by 2020. Providing right turn lanes on the eastbound and westbound approaches of Route 322 would provide some relief. The eastbound lane should be extended as long as practical to help alleviate some of the queuing and allow entry when traffic queues are longer. These improvements are depicted on Exhibit 2.
- **Long-Term** Travel delays and backups are anticipated to be exacerbated under 2040 traffic conditions, with excessive delays on multiple approaches during morning and evening peak times. Additional through lanes in both directions along Route 322 would help accommodate the projected traffic volumes. Additionally, a southbound right turn lane could be installed along Hockersville Road. These lane configurations are depicted on Exhibit 5. A potential alternate alignment for Fishburn Road and Hockersville Road is depicted on Exhibit 6 and would add increased operational efficiency and facilitate a left turn lane onto Elm Avenue. However, for purposes of this evaluation, this alternate has not been included in the cost estimates.

Route 322 and Elm Avenue

- **Immediate** Queuing along the westbound leg of the traffic signal from Fishburn Road/ Hockersville Road often extends through Elm Avenue. This queuing can preclude an eastbound left turning vehicle from turning onto Elm Avenue, creating its own backup along Route 322 since there is minimal space for other eastbound vehicles to bypass the turning vehicle. This backup can extend into the signalized intersection at Fishburn Road/ Hockersville Road, creating inefficiencies and adding to the delay at this traffic signal. It is suggested that this maneuver be monitored and an eastbound left turn restriction considered until an eastbound left turn lane could be constructed.
- **Short-Term** This unsignalized intersection generally operates acceptably with minimal or minor delays during the peak hours. With the immediate improvement implemented, the intersection is anticipated to continue to operate acceptably in 2020 without additional improvement.

- **Long-Term** This intersection is anticipated to continue to operate at acceptable levels of service under 2040 conditions. As outlined above, it is suggested that either a left turn restriction or an eastbound left turn lane be considered.

Cherry Dr/Hope Dr/Kindercare Dwy; Sand Hill Rd/Cherry Dr; Fishburn Rd/Sand Hill Rd

Traffic volumes indicate that many motorists (several hundred per hour during peak hours) are currently utilizing Hope Drive, Cherry Drive, and Sand Hill Road to travel between the Hershey Medical Center and Fishburn Road. Consideration was given to a potential new roadway connection from a relocated Hope Drive (south of its current intersection with Cherry Drive) to extend directly to Fishburn Road. This connection would improve traffic circulation near the east end of the Hershey Medical Center by providing a more direct route from the Medical Center to Fishburn Road. However, since motorists are already using Cherry Drive and Sand Hill Road for this connection, a new roadway would have a limited positive impact along Route 322. Traffic modeling suggests that this connection would not reduce traffic conflicts on Route 322 enough to reduce the level of improvements required along Route 322. As noted below, this direct connection could alleviate the delay and need for a traffic signal at the intersection of Cherry Drive and Sand Hill Road. This potential roadway has been depicted on Exhibit 7 (Blue Alternate).

Individual intersection evaluations are as follows:

Cherry Drive and Hope Drive / Kindercare Driveway

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The intersection generally operates acceptably, though the eastbound approach of Hope Drive experiences moderate delays during both peak hours. These delays are due to traffic exiting the Hershey Medical Center Campus to points south via Fishburn Road and are anticipated to worsen by 2020. An all-way stop sign is suggested for consideration to better accommodate the traffic through the intersection.
- **Long-Term** The eastbound approach of Hope Drive is anticipated to experience significant delay during both peak hours by 2040. This intersection will likely meet traffic signal warrants, and signalization should be considered when warrants are satisfied.

Sand Hill Road and Cherry Drive

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The intersection generally operates acceptably under existing and projected 2020 conditions, with minimal or minor delays during the peak hours. No improvements are identified at this time.

- **Long-Term** The eastbound approach of Cherry Drive is anticipated to experience significant delay during both peak hours by 2040, largely due to traffic exiting the Hershey Medical Center Campus to points south via Fishburn Road. This intersection will likely meet traffic signal warrants, and signalization should be considered when warrants are satisfied. Note that if an alternate connection from Hope Drive to Fishburn Road is constructed (see above), the delays at this intersection would be significantly reduced and signalization would not be appropriate.

Fishburn Road and Sand Hill Road

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The eastbound approach of Sand Hill Road currently experiences excessive delays during the morning and evening peak hours, largely due to traffic exiting the Hershey Medical Center Campus to points south via Fishburn Road. Signalization under its current condition would not be desirable due to its proximity to the signal at Route 322. However, consideration could be given to restrict the eastbound left turn movement from Sand Hill Road during peak times.
- **Long-Term** The eastbound approach of Sand Hill Road is anticipated to experience increased delays during both peak hours by 2040. This intersection could be relocated to the south and signalized. Additionally, a northbound left turn lane along Fishburn Road and an eastbound right turn lane along Sand Hill Road should both be considered when the intersection is relocated. Reference Exhibit 7 (Pink Alternate).

Centerview Drive and Campus Drive

- **Immediate** No immediate improvements are recommended.
- **Short-Term** The eastbound approach of Centerview Drive and the northbound approach of Campus Drive currently experience minor delays, particularly during the evening peak hours. However, no improvements are recommended at this time.
- **Long-Term** The average vehicle delays are projected to increase by 2040. An eastbound left turn lane along Campus Drive should be considered to help minimize the delays.

Pedestrian and Bicycle Considerations

- **Immediate** Sidewalks are provided along both sides of Route 322, east of Fishburn Road/ Hockersville Road. Pedestrian accommodations are provided at each signalized intersection within the Route 322 Corridor. Push buttons and pedestrian signals were tested along the corridor to verify they were working properly. The Jonathan Eshenour Memorial Trail extends along the south side of Route 322 between Cherry Drive and Bullfrog Valley Road. However, there is a missing gap in the connectivity along Route 322 between Fishburn Road/ Hockersville Road and Cherry Drive. This portion has sidewalk along the north side along the Members 1st Credit Union

and a path along a portion of the south side along the shopping center parking lot. However, pedestrians are unable to fully traverse between the two signalized intersections without walking along grass or within the roadway. A connection should be considered between the two signalized intersections, at a minimum, along the south side of Route 322, and preferably along both sides of the road. Installing pedestrian accommodations along the south side of Route 322 between Cherry Drive and Fishburn Road has been identified as an immediate potential improvement. Refer to Exhibit 2.

- **Short-Term** No additional improvements are identified. Any pedestrian accommodations impacted by the improvements should be replaced.
- **Long-Term** No additional improvements are identified. Any pedestrian accommodations impacted by the improvements should be replaced.

TABLE i: IMPLEMENTATION SUMMARY			
Potential Immediate and Short-Term Local-Aid Improvements (as depicted in Exhibit 2)			
	Immediate	Short-Term	
Anticipated Year of Construction	2015	2016	
Anticipated Design Life	N/A	5 years (2020 design year)	
Total Estimated Costs	\$15,000*	\$640k – \$775k	
Potential Funding Sources	Township General Fund	Township, Local Stakeholders, Developers, PennDOT Multi-Modal, Green Light-Go, Dauphin County Infrastructure Bank	
* Materials only; construction anticipated via Township forces			
Potential Long-Term Federal-Aid Improvements (as depicted in Exhibits 3, 4 and 5)			
	Long-Term – Route 322 Improvements		
Anticipated Year of Construction	2020		
Anticipated Design Life	20 years (2040 design year)		
Total Estimated Costs	\$8.5M – \$10.5M		
Potential Funding Sources	80% Federal Funding; 20% Non-Federal (PennDOT, Township, Local Stakeholders, Developers, PennDOT and/or CFA Multi-Modal, Dauphin County Infrastructure Bank)		
Additional Long-Term Improvement Options, sponsored by Hershey Medical Center (as depicted in Exhibits 7 and 8)			
Item	Sand Hill Improvements (Pink Alternate)	Sand Hill Improvements (Blue Alternate)	HMC Campus Improvements
Anticipated Year of Construction	2020	2020	2020
Anticipated Design Life	20 years (2040 design year)	20 years (2040 design year)	20 years (2040 design year)
Total Estimated Costs	\$1M – \$1.3M	\$1.7M – \$2.1M	\$125k – \$150k
Potential Funding Sources	T.B.D.	T.B.D.	T.B.D.

ROUTE 322 CORRIDOR TRANSPORTATION EVALUATION

INTRODUCTION

Derry Township in partnership with the Penn State Hershey Medical Center commissioned a corridor evaluation to identify options to alleviate the ongoing traffic congestion along Route 322 between University Drive and Fishburn Road / Hockersville Road. This stretch of Route 322 is primarily along the frontage of the Medical Center and includes 4 traffic signals, numerous Township roadways, and private driveways. This principal arterial highway is a major regional traffic route and provides access to the Penn State Hershey Medical Center, Penn State Hershey Children's Hospital, and various other local destinations. The queuing and traffic congestion along Route 322 has created undesirable operations and safety concerns in this area, particularly at the intersection of Route 322 and Fishburn Road / Hockersville Road. Also of concern is the congestion along Cherry Drive, Sand Hill Road, and Fishburn Road, which is largely attributable to traffic exiting the Hershey Medical Center campus to points south via Fishburn Road to avoid the Route 322 / Fishburn Road intersection. With the potential for additional development on the southwest quadrant of Route 322 and Fishburn Road and the potential for future expansion of the Penn State Hershey Medical Center, a corridor evaluation is warranted.

This section of the Route 322 Corridor has long been a focus of Derry Township and regional transportation planners (HATS). Through the HATS Planning Process, long term improvements to Route 322 from University Drive to Fishburn Road was the #2 ranked project on the 2040 Regional Transportation Plan adopted in 2014. This high ranking is very favorable that the project will be programmed in the next Transportation Improvement Plan (TIP) with 80% Federal, 20% Non-Federal funding. The next step in the TIP update process will begin in the last quarter of 2015 and adopted in June 2016. If added to the TIP, funding would likely be available in 2019/2020.

This traffic evaluation has been prepared to identify potential short-term infrastructure improvements that could be constructed prior to the Federal project; to identify potential funding sources for the short-term improvements; and to identify the scope of the Federally-funded improvements to assist 20-year planning efforts.

With these scenarios in mind, the corridor evaluation considered potential improvements as follows:

- Immediate – Improvements that can be constructed in 2015.
- Short-Term – Improvements that can be constructed in 2016.
- Long-Term – Federal aid improvements that can be constructed in 2020.

The purpose of this evaluation is to identify and prioritize potential improvements to alleviate existing and projected traffic issues in the existing infrastructure throughout the corridor, specifically at the following intersections:

- Route 322 and University Drive
- Route 322 and Centerview Lane
- Route 322 and Hillview Lane
- Route 322 and Areba Avenue
- Route 322 and Beech Avenue
- Route 322 and Greenlea Road
- Route 322 and Cherry Drive
- Route 322 and Fishburn Road / Hockersville Road
- Route 322 and Elm Avenue
- Cherry Drive and Hope Drive
- Sand Hill Road and Cherry Drive
- Sand Hill Road and Fishburn Road
- Centerview Lane and Campus Drive

This study evaluates the impacts of potential growth, recommends potential improvements to the existing infrastructure to facilitate traffic movements and multimodal access to the Route 322 Corridor, identifies potential congestion management and safety improvements, and identifies potential improvements to create an environment conducive to economic growth. The potential improvements have been evaluated based on current PennDOT Design Criteria (2015). This corridor evaluation also provides programming-level cost estimates based on readily available information on projects of similar size and scope. Also included is an implementation schedule of the recommended improvements. As this is a joint corridor evaluation, Derry Township and the Penn State Hershey Medical Center were both included in discussions relating to the various improvement alternatives.

EVALUATION APPROACH

Overview

The objective of this investigation was to identify existing and projected deficiencies within the existing roadway network. The evaluation was performed utilizing readily available information, traffic data collection, field views of the roadway network, evaluation of existing traffic conditions, traffic projections, and evaluation of future traffic conditions. This data was collated and compiled into an evaluation of the existing and future needs of Route 322. The facts identified from this evaluation serve as the basis for the Conceptual Improvement Plan.

Approach

The approach to this evaluation process was to develop alternatives through a systematic process based on objective data and analysis and included involvement from Derry Township and the Penn State Hershey Medical Center. The goal of this evaluation was to identify various Immediate, Short-Term, and Long-

Term options to improve safety and mobility within the SR 322 corridor. The primary factors considered in this analysis were:

- ***Right-of-Way Impacts:*** Right-of-way acquisition will be required to construct some of the improvements. Types of required right-of-way include PennDOT and Local Township Roadway.
- ***Utility Impacts:*** The impacts to any major above and belowground facilities were considered.
- ***Drainage Impacts:*** Consideration was given to the impacts to the drainage system along the Route 322 Corridor.
- ***Constructability:*** Construction of the recommended improvements was considered, especially with regard to existing physical restrictions, maintenance and protection of traffic, and maintaining access to existing facilities.
- ***Signing and Pavement Marking:*** Pavement marking schematics were developed for each recommended improvement and associated signing was considered.
- ***Structures:*** The evaluation considered impacts to existing structures and identifies major structures (> 10 foot span) associated with the recommended improvements.
- ***Traffic Impacts:*** Potential lane configurations for each intersection have been identified and the levels of service are provided for the alternatives in order to document the anticipated operational characteristics. Anticipated queue lengths were also considered during the evaluation.
- ***Substandard Design Elements:*** Any deviations from current design criteria are noted and the nature and extent of the substandard elements were considered.

Existing Transportation Network

The transportation network consists of three types of roadways: State roadways, Township roadways, and Private. The following roadways are owned and maintained by The Pennsylvania Department of Transportation (PennDOT):

- Governor Road (Route 322)
- Hockersville Road (SR 2011)
- Fishburn Road (SR 2011)

The following roadways are owned and maintained by Derry Township and are as follows:

- University Drive (north) (T-320)
- Centerview Lane (north) (T-571)
- Hillview Lane (T-490)

- Areba Avenue (T-711)
- Beech Avenue (T-489)
- Greenlea Road (T-488)
- Cherry Drive (T-322)
- Sand Hill Road (T-566)
- Elm Avenue (T-713)

The following roadways are owned and maintained by Milton Hershey Medical Center and Pennsylvania State University and are as follows:

- University Drive (south)
- Centerview Lane (south)
- Hope Drive
- Campus Drive

Route 322 is functionally classified by PennDOT as an urban principal arterial highway. Hockersville Road and Fishburn Road are functionally classified by PennDOT as urban minor arterials. University Drive (north), Areba Avenue, Sand Hill Road, and Elm Avenue are functionally classified by PennDOT as urban collectors. All other roadways within the local roadway network are local roads. A Route 322 Corridor location map is shown on Exhibit 1.

Intersections to be Evaluated

Thirteen (13) intersections were selected for the traffic evaluation. Exhibit 1 illustrates the intersection locations. The intersections were selected based on input from Township staff regarding existing operating or safety deficiencies and potential for deficiencies as a result of anticipated increases in traffic. The thirteen (13) intersections evaluated are as follows:

- Route 322 and University Drive
- Route 322 and Centerview Lane
- Route 322 and Hillview Lane
- Route 322 and West Areba Avenue
- Route 322 and Beech Avenue
- Route 322 and Greenlea Road
- Route 322 and Cherry Drive
- Route 322 and Fishburn Road/ Hockersville Road
- Route 322 and Elm Avenue
- Cherry Drive and Hope Drive
- Sand Hill Road and Cherry Drive
- Sand Hill Road and Fishburn Road
- Centerview Lane and Campus Drive

Data Collection

Background Materials

To determine the possible effects of future development of the Route 322 Corridor, several studies, reports, and plans were obtained and reviewed. The following is a list of the background materials obtained to assist in identifying existing conditions and evaluating the future traffic demands:

- Derry Township Comprehensive Plan
- Derry Township Zoning Ordinance
- Dauphin County GIS Mapping
- Penn State Hershey Medical Center Master Plan
- Kray Land Development Plan
- Previous traffic studies for the Hershey Medical Center

The Dauphin County GIS Mapping, including property boundaries, was used as the base mapping for the conceptual drawings. In addition to reviewing the Derry Township Zoning Ordinance and Comprehensive Plan, there was coordination with Derry Township to determine potential nearby developments that may impact the Route 322 Corridor and be constructed by 2040. The following development was accounted for:

- The Pennsylvania State University Hershey Medical Center Expansion
- Kray Development – located on the southwestern quadrant of the intersection of Route 322 and Fishburn Road / Hockersville Road
- Brownstone Masonic Temple Redevelopment

Field Data

Field data was collected in January and February 2015. Collection activities included:

- Field views to verify the functional roadway classification, posted speed limits, lane configurations, and roadway geometries.
- Site review and documentation of existing geometric and operational traffic control characteristics for the intersections evaluated and the roadway segments along Route 322.
- Manual turning movement counts were conducted at the thirteen (13) study intersections during typical weekday AM (6:00-9:00) and PM (3:00-6:00) peak hour periods. These traffic volumes were then seasonally adjusted based on data published by PennDOT.
- Twenty-four hour, bi-directional automatic traffic recorder (ATR) counts were conducted at eight (8) critical locations throughout the roadway network during typical weekdays. Vehicle classifications counts were also conducted at these locations in order to determine truck traffic percentages and operating speeds.

Traffic count data is included in Appendix A. Traffic signal permit plans and coordination programs are included in Appendix B.

Crash Data

Crash data was requested from PennDOT in order to review the details of the crashes and determine the presence of any crash trends or emerging crash trends. A crash trend is defined as five (5) or more crashes of the same nature in a twelve-month period within the most recent three-year period. This review indicated that there is an existing crash trend at the intersection of Route 322 and Fishburn Road / Hockersville Road involving eastbound rear end collisions. This trend is likely attributable to a capacity issue and can be resolved by restoring the intersection to acceptable levels of service. Additionally, the review indicated that there are the following three emerging trends:

- At the intersection of Route 322 and Fishburn Road / Hockersville Road involving angle collisions between a northbound left turning vehicle and a southbound vehicle.
- At the intersection of Route 322 and Fishburn Road / Hockersville Road involving westbound rear end collisions.
- At the intersection of Route 322 and University Drive involving westbound rear end collisions.

The crash trend and emerging crash trends are likely attributable to capacity issues which can likely be resolved by restoring the intersections to acceptable levels of service. The crash data obtained from PennDOT are not included in the appendices. The crash data is the property of PennDOT and are confidential pursuant to 75 Pa. C.S. § 3754 and 23 U.S.C. § 409 and may not be published, reproduced, released, or discussed without the written permission of PennDOT.

Future Traffic Demands

Future Traffic Volumes

In order to establish future traffic volumes before considering the increased traffic volumes from any development, the existing traffic volumes were factored to project the volumes for the design years. The design years are as follows:

- 2015 – Immediate
- 2020 – Short-Term
- 2040 – Long-Term

To obtain these future volumes, an annual compound growth factor of 0.68% was used. This growth factor was obtained from PennDOT’s “Growth Factors for December 2014 to July 2015” for urban non-interstate roadways. The 0.68% growth factor accounts for potential traffic from the background growth of the area.

In addition to the background growth, traffic from the following assumed developments was included in the 2040, Long-Term condition.

- Kray Development – Commercial development based on Traffic Impact Study dated November 2011
- Brownstone Masonic Temple – Conservatively assumed to be re-zoned and re-developed as a 16 fueling position gas station / convenience store (ITE Land Use 945 – Gasoline / Service Station with Convenience Market)
- The Pennsylvania State University Hershey Medical Center Expansion – Assumed to consist of:
 - 218,000 SF Clinical Addition (ITE Land Use 710 – General Office Building)
 - 135,000 SF Research Building (ITE Land Use 760 – Research and Development Center)
 - 114,000 SF Children’s Hospital Expansion (ITE Land Use 610 – Hospital)
 - 50,000 SF Outpatient Facilities (ITE Land Use 720 – Medical – Dental Office Building)
 - 75,000 SF Academic Support Building Addition (ITE Land Use 710 – General Office Building)

A summary of the trip generation is shown below in Table 1.

Table 1: Projected Hershey Medical Center Expansion Trip Generation Volumes							
Future Development	ITE Land Use	AM Peak Hour			PM Peak Hour		
		Enter	Exit	Total	Enter	Exit	Total
218,000 SF Clinical Addition	710 - General Office Building	219	30	249	41	202	243
135,000 SF Research Building	760 - Research and Development Center	140	29	169	25	144	169
114,000 SF Children's Hospital Expansion	610 - Hospital	56	33	89	33	53	86
50,000 SF Outpatient Facilities	720 - Medical- Dental Office Building	94	25	119	44	112	156
75,000 SF Academic Support Building Addition	710 - General Office Building	89	12	101	14	70	84
TOTAL	N/A	598	129	727	157	581	738

Details of the future traffic volume calculations are included in Appendix C.

Capacity Analyses

The capacity of an intersection, as identified in the Highway Capacity Manual, is evaluated using a set of procedures to estimate the traffic-carrying ability of a facility over a range of defined operational conditions. The capacity investigation uses **Levels of Service (LOS)** to describe the operational conditions. Levels of Service are assigned letter designations “A” through “F,” with “A” being the most desirable operating conditions. LOS “D” is generally considered acceptable in an urban area. LOS “E” and “F” are considered deficient. The LOS criteria for unsignalized intersections are shown in Table 2.

TABLE 2: UNSIGNALIZED INTERSECTIONS – LOS CRITERIA		
LEVEL OF SERVICE	AVERAGE CONTROL DELAY (SEC / VEH)	EXPECTED DELAY TO MINOR STREET TRAFFIC
A	< 10	Little or no delay
B	> 10 and ≤ 15	Short traffic delays
C	> 15 and ≤ 25	Average traffic delays
D	> 25 and ≤ 35	Long traffic delays
E	> 35 and ≤ 50	Very long delays
F	> 50	Volume exceeds capacity

The LOS criteria for signalized intersections are shown in Table 3.

TABLE 3: SIGNALIZED INTERSECTIONS – LOS CRITERIA		
LEVEL OF SERVICE	AVERAGE CONTROL DELAY (SEC/VEH)	EXPECTED DELAY TO MINOR STREET TRAFFIC
A	< 10	Very low delay. Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all.
B	> 10 and ≤ 20	Occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A.
C	> 20 and ≤ 35	Higher delays result from fair progression and/or long cycle lengths. Individual cycle failures may begin to appear in this level. Significant numbers of vehicles stop although many still pass through the intersection without stopping.
D	> 35 and ≤ 55	Longer delays may result from unfavorable progression, long cycle lengths and/or high volume to capacity (v/c) ratios. Many vehicles stop and the proportion of vehicles not stopping declines.
E	> 55 and ≤ 80	Considered the limit of acceptable delay, these high delay values generally indicate poor progression, long cycle lengths and high v/c ratios. Individual cycle failures are frequent occurrences.
F	> 80	Considered unacceptable to most drivers, this condition often occurs with over-saturation. It may also occur at high v/c ratios below 1.00 with many individual cycle failures.

The capacity investigation at each of the intersections were performed using Synchro, Version 8 software. The evaluation was performed for existing conditions (2015), 2020 conditions (to evaluate the effectiveness of Short-Term Improvements constructed in 2016), and 2040 conditions (to evaluate the effectiveness of Long-Term Improvements constructed in 2020). Existing and projected levels of service are indicated in Table 3. Potential short-term (2016 construction) and long-term (2020 construction) improvements are also indicated in Table 4. Critical movements have been highlighted. Worksheets for the level of service evaluation are included in Appendix C.

Table 4: Existing and Future Conditions Level of Service Summary

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & University Drive											
Potential Short Term Improvements: Revise traffic signal timing											
Potential Long Term Improvements: Additional eastbound and westbound through lanes along Route 322											
Route 322	EBL	A	A	A	A	B	B	B	B	C	B
	EBT	E	D	D	F (130.2)	D	C	C	C	C	B
	EBR	A	A	A	A	B	A	A	A	A	A
	WBL	D	D	D	F (139.1)	D	B	B	B	A	B
	WBT	B	A	A	B	B	C	C	C	E	C
	WBR	A	A	A	A	A	A	A	A	A	A
University Drive	NBL	C	D	D	D	C	C	D	D	E	D
	NBT	C	D	D	D	C	C	C	C	D	C
	NBR	A	A	A	A	A	A	A	A	A	A
	SBL	D	D	D	E	D	E	D	D	E	D
	SBTR	D	E	E	F (127.5)	D	D	D	D	E	D

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & Centerview Drive											
Potential Short Term Improvements: Revise traffic signal timing											
Potential Long Term Improvements: Additional eastbound through lane and right turn lane along Route 322, and a southbound left turn lane and second northbound left turn lane along Centerview Drive; convert the northbound right turn lane to a through-right lane											
Route 322	EBL	A	D	A	A	C	A	B	B	C	C
	EBT	C	D	D	F (189.8)	C	C	C	C	E	C
	EBR					A					A
	WBL	D	D	D	F (188.1)	C	A	B	B	B	A
	WBTR	B	B	B	B	D	B	C	C	E	C
Centerview Drive	NBL	E	F (83.6)	F (83.6)	F (202.5)	D	F (106.7)	D	D	F (126.7)	D
	NBT					D	F (106.7)	D	D	F (126.7)	D
	NBR	A	A	A	A	A	A	A	A	A	
	SBL	D	E	E	E	C	C	B	B	B	C
	SBTR					D					C
Route 322 & Hillview Lane											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Eastbound left turn lane along Route 322											
Route 322	EBL	B	B	B	B	B	A	A	A	A	B
	EBT					A					A
Hillview Lane	SBLR	C	C	C	D	D	C	C	C	D	D

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & Areba Avenue											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Eastbound left turn lane along Route 322											
Route 322	EBL	A	B	B	B	B	A	A	A	B	B
	EBT					A					A
Areba Avenue	SBLR	C	C	C	D	D	C	C	C	D	D
Route 322 & Beech Avenue											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Eastbound left turn lane along Route 322											
Route 322	EBL	A	B	B	B	B	A	A	A	B	B
	EBT					A					A
Beech Avenue	SBLR	C	C	C	E	E	A	A	A	A	A
Route 322 & Greenlea Road											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Eastbound left turn lane along Route 322											
Route 322	EBL	A	A	A	A	B	A	A	A	B	B
	EBT					A					A
Greenlea Road	SBLR	C	C	C	C	C	B	B	B	C	C

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & Cherry Drive											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Additional eastbound through lane along Route 322; consider an additional westbound through lane along Route 322											
Route 322	EBL	A	A	A	B	A	B	B	B	A	B
	EBT	B	B	B	C	A	C	C	C	B	B
	EBR	A	A	A	A	A	B	B	B	A	A
	WBL	B	B	B	C	C	A	A	A	B	B
	WBTR	B	B	B	C	D	A	A	A	B	B
Cherry Drive	NBL	C	D	D	D	D	D	D	D	D	D
	NBT	C	D	D	C	C	C	C	C	C	C
	NBR	A	A	A	A	A	A	A	A	C	C
	SBL	D	D	D	D	D	D	D	D	D	D
	SBTR	D	D	D	D	D	D	D	D	D	D

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & Fishburn Road/ Hockersville Road											
Potential Short Term Improvements: Eastbound and westbound right turn lanes along Route 322											
Potential Long Term Improvements: Additional eastbound and westbound through lanes along Route 322 and a southbound right turn lane along Hockersville Road											
Route 322	EBL	B	B	B	D	B	B	B	B	E	B
	EBT	B	B	B	B	C	F (179.7)	F (188.3)	E	F (264.6)	D
	EBR			A		A			A		A
	WBL	B	B	B	B	B	C	C	C	F (130.8)	D
	WBT	F (97.1)	F (113.8)	D	F (256.8)	D	D	D	C	E	C
	WBR			A	A	A			A		
Fishburn Road	NBL	D	D	D	F (205.4)	D	D	D	E	F (141.3)	C
	NBT	D	E	E	F (133.5)	D	E	E	E	F (150.3)	E
	NBR	A	A	A	B	A	A	A	A	B	B
Hockersville Road	SBL	D	D	D	F (101.9)	C	D	D	E	F (143.7)	D
	SBT	F (88.1)	E	E	F (236.6)	D	E	E	E	F (183.3)	D
	SBR					A					A

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Route 322 & Elm Avenue											
Potential Immediate Improvement: Monitor and consider prohibiting eastbound left turns from Route 322 Potential Long Term Improvements: Consider an eastbound turn lane along Route 322											
Route 322	EBL	B	B	B	B	B	A	A	A	B	B
	EBT					A					A
Elm Avenue	SBR	C	C	C	E	E	B	C	C	C	C
Cherry Drive & Hope Drive/ Kindercare Driveway											
Potential Short Term Improvements: Consider all-way stop control Potential Long Term Improvements: Signalize											
Hope Drive	EBLT	D	D	B	F (287.6)	C	E	F (56.1)	D	F (296.9)	D
	EBR	A	A	A	B	A	B	B	B	B	A
Kindercare Driveway	WBLTR	D	D	A	F (88.8)	B	A	A	A	A	A
Cherry Drive	NBL	B	B	C	B	D	A	A	B	A	B
	NBTR	A	A	A	A	A	A	A	B	A	B
	SBL	A	A	A	A	B	A	A	B	A	C
	SBTR	A	A	C	A	B	A	A	B	A	C

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Sand Hill Road & Cherry Drive											
Potential Short Term Improvements: None Potential Long Term Improvements: Signalize (if Hope Drive is not extended to Fishburn Road)											
Cherry Drive	EBLTR	A	A	A	B	B	C	C	C	F (58.3)	C
	WBLTR	A	A	A	A	A	A	A	A	A	A
Sand Hill Road	NBLTR	B	B	B	C	B	B	B	B	B	C
	SBLTR	B	B	B	C	A	B	B	B	B	C
Fishburn Road & Sand Hill Road											
Potential Short Term Improvements: Consider prohibiting left turns from Sand Hill Road during peak times Potential Long Term Improvements: Relocate intersection to the south; signalize; install a northbound left turn lane along Fishburn Road and an eastbound right turn lane along Sand Hill Road											
Sand Hill Road	EBL	F (105.2)	F (140.3)	F (140.3)	F (1958)	D	E	F (55.0)	F (55.0)	F (730.6)	D
	EBR					B					B
Fishburn Road	NBL	A	A	A	B	B	A	A	A	A	A
	NBT					A					A
	SBTR	A	A	A	B	B	A	A	A	A	C

Table 4: Existing and Future Conditions Level of Service Summary (Cont'd)

Intersection	Movement	AM Peak Hour					PM Peak Hour				
		2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements	2015 Existing Conditions	2020 without Improvements	2020 with Improvements	2040 without Improvements	2040 with Improvements
Centerview Drive & Campus Drive											
Potential Short Term Improvements: None											
Potential Long Term Improvements: Eastbound left turn lane along Campus Drive											
Campus Drive	EBL	D	D	D	E	D	D	D	D	E	D
	EBT					D					C
	WBT	C	B	B	B	E	C	C	C	C	D
	WBR	A	A	A	A	A	A	A	A	A	A
Centerview Drive	NBL	D	D	D	E	C	E	E	E	F (114.1)	D
	NBTR	C	C	C	C	B	C	C	C	C	C
	SBL	D	D	D	E	D	C	C	C	D	E
	SBR	A	A	A	A	A	A	A	A	A	A

As indicated above, a Level of Service “E” is considered to be at or near capacity, while a Level of Service “D” is considered acceptable in an urban area according to the Highway Capacity Manual (1). Table 3 indicates that there are various intersections, which have movements that currently operate at level of service “E” or “F”. As future traffic volumes increase, additional deficiencies are anticipated. Some of the level of service results can be misleading due to limitations of the analysis software. For example, the software does not account for delays at the intersection with Cherry Drive caused by the blocking of traffic from the queued vehicles along Route 322 (i.e. a back up from the signal at Fishburn Road / Hockersville Road). Similarly, the software does not account for through traffic queues blocking access to a turn lane. Accordingly, some of the levels of service / delays indicated above may reflect better conditions than actual field conditions. Worksheets for the queue analyses are included in Appendix C.

POTENTIAL IMPROVEMENT CONSIDERATIONS

The potential improvements identified above were further evaluated. Preliminary design standards and traffic analyses were utilized to determine the feasibility of compliance with established design criteria. Benefits were quantified and cost estimates were developed for each potential improvement based readily available information on projects of a similar nature. Based on this approach the following Immediate, Short-Term, and Long-Term improvement options are identified.

Immediate Improvements (For construction in 2015)

Potential Improvements (See Exhibit 2)

- Install the following pedestrian accommodations:
 - A connection between the Jonathan Eshenour Memorial Trail and the intersection of Route 322 and Cherry Drive
 - ADA compliant pedestrian facilities along the southeastern and southwestern quadrants of the intersection of Route 322 and Cherry Drive
 - Sidewalk along the south side of Route 322 between Cherry Drive and Fishburn Road
- Consider restricting eastbound left turns along Route 322 at the intersection of Elm Avenue.

Traffic Impacts

Currently, eastbound traffic along Route 322 is slowed or stopped as a result of eastbound left turning vehicles along Route 322 at Elm Avenue. This is a contributing factor to the substantial back-ups along eastbound Route 322 at the intersection of Fishburn Road and Hockersville Road. Restricting eastbound left turns along Route 322 at the intersection of Elm Avenue would have a substantial benefit to the intersection of Route 322 and Hockersville Road / Fishburn Road.

Right-of-Way Impacts

Right-of-way acquisition is not anticipated for the Immediate improvements.

Utility Impacts

Utility impacts are not anticipated for the Immediate improvements.

Drainage Impacts

Due to the nature of the proposed improvements, there are no drainage impacts for the Immediate conditions.

Constructability

The Immediate improvements do not present any significant constructability challenges. It is anticipated that Derry Township will construct the Immediate improvements using Township forces.

Structures

There are no proposed structures associated with the Immediate improvements.

Substandard Design Elements

Due to the nature of the proposed improvements, there are no substandard design elements associated with the Immediate improvements.

Short-Term Improvements (For construction in 2016)

Potential Improvements (See Exhibit 2)

- Install an eastbound right turn lane and a westbound right turn lane at the intersection of Route 322 and Fishburn Road / Hockersville Road.
- Consider all-way stop control at the intersection of Hope Drive and Cherry Drive.
- Consider a peak hour left turn restriction from Sand Hill Road onto Fishburn Road.
- Optimize traffic signal timings at the following intersections:
 - Route 322 and University Drive
 - Route 322 and Centerview Drive
 - Route 322 and Cherry Drive
 - Route 322 and Fishburn Road / Hockersville Road
 - Centerview Drive and Campus Drive

Traffic Impacts

Installing all-way stop control at Cherry Drive and Hope Drive would help reduce side-street delay and potential conflicts. Similarly, the left turn restriction from Sand Hill would reduce side-street delay and improve the safety of the intersection. Optimizing the traffic signals will improve operational conditions, but the greatest benefit will be at the intersection of Route 322 and Fishburn Road / Hockersville Road due to the proposed turn lanes. Projected operational conditions with and without short-term improvements are documented in Table 4.

Right-of-Way Impacts

Right-of-way will likely be required for both of the proposed turn lanes at the intersection of Route 322 and Fishburn Road / Hockersville Road.

Utility Impacts

Five utility pole relocations are envisioned for the Short-Term improvements.

Drainage Impacts

Two inlets and associated pipes will need to be installed in order to replace existing inlets / pipes for the Short-Term improvements.

Constructability

The Short-Term improvements do not present any significant constructability challenges.

Structures

The Short-Term improvements are not expected to impact any bridges or culverts.

Substandard Design Elements

There are no substandard design elements associated with the Short-Term improvements.

Long-Term Improvements (For construction in 2020)

Note that for purposes of this evaluation, the majority of the widening associated with the improvements was assumed to be symmetrical, except for Centerview Lane to Cherry Drive, where the widening was shifted to the Hershey Medical Center frontage. This approach may be adjusted during formal design to mitigate impacts noted below.

Potential Improvements (See Exhibits 3, 4, 5, 6, 7 and 8).

- Route 322 and University Drive:
 - Extend the second eastbound through lane (which currently ends at this intersection) to the east, through University Drive.
 - Maintain an eastbound right turn lane.
 - Install a second westbound through lane. This lane could be extended toward the interchange as part of the Interchange Reconstruction Project. For purposes of this

evaluation, it was assumed that this lane would end as a westbound right turn lane at Sipe Avenue.

- Route 322 and Centerview Drive:
 - Extend the second eastbound through lane (from University Drive, mentioned above) to the east, through Centerview Drive.
 - Provide a dedicated eastbound right turn lane along Route 322.
 - Though not necessary for capacity, consideration could be given to convert the westbound right turn lane into a shared through-right lane with minimal additional widening.
 - The southbound approach of Centerview Drive could be widened slightly to the east to provide a dedicated left turn lane.
 - The northbound approach of Centerview Drive could be widened and reconfigured to provide two left turn lanes and a shared through-right lane. The left turn lanes would continue into dual westbound through lanes suggested at University Drive.
 - Extend the westbound left turn lane to provide adequate storage.

- Route 322 and Hillview Lane – Install an eastbound left turn lane.

- Route 322 and Areba Avenue – Install an eastbound left turn lane.

- Route 322 and Beech Avenue – Install an eastbound left turn lane.

- Route 322 and Greenlea Road – Install an eastbound left turn lane.

- Route 322 and Cherry Drive:
 - Provide a second eastbound through lane.
 - Extend the second westbound through lane (required at Fishburn Road / Hockersville Road) through this intersection.
 - Extend the westbound left, northbound left and northbound right turn lanes in order to provide adequate storage.

- Route 322 and Fishburn Road / Hockersville Road:
 - Provide additional through lanes in both directions along Route 322
 - Maintain the eastbound right and westbound right turn lanes from the short-term condition
 - Install a southbound right turn lane along Hockersville Road
 - Extend the northbound left and southbound left turn lanes in order to provide adequate storage

- Route 322 and Fishburn Road / Hockersville Road – **Alternate for Consideration**

An alternate scenario was considered at this intersection, but not included in the cost estimates at this time due to substantial property impacts. As shown in Exhibit 6, this alternate alignment would have similar geometry and lanes as identified above; however, Fishburn and Hockersville would be shifted to the west. This would have significant impact on the traffic operation and adjoining properties:

- **Pros**
 - Provides separation from Elm Avenue, allowing for “back-to-back” left turn lanes
 - Realigning the intersection provides multiple benefits:
 - Improved sight distance
 - More efficient truck turning movements
 - Increased efficiency yields increased capacity
 - Creates two corner parcels along the Kray property
 - Provides separation between the intersection and the Brownstone Building
 - **Cons**
 - Major impacts to the Sunoco gas station
 - Potential environmental impacts
 - Bisects the Kray property
 - Significant construction costs and right-of-way impacts
- Route 322 and Elm Avenue – The eastbound left turns at this intersection could either be restricted (as suggested in the immediate improvements) or a left turn lane could be provided.
 - Potential new roadway connection between Cherry Drive and Fishburn Road – Traffic volumes indicate that many motorists (several hundred per hour during peak hours) are currently utilizing Hope Drive, Cherry Drive, and Sand Hill Road to travel between the Hershey Medical Center and Fishburn Road. Consideration was given to a potential new roadway connection from a relocated Hope Drive (south of its current intersection with Cherry Drive) to extend directly to Fishburn Road. This connection would improve traffic circulation near the east end of the Hershey Medical Center by providing a more direct route from the Medical Center to Fishburn Road. However, since motorists are already using Cherry Drive and Sand Hill Road for this connection, a new roadway would have a limited positive impact along Route 322. Traffic modeling suggests that this connection would not reduce traffic conflicts on Route 322 enough to reduce the level of improvements required along Route 322. As noted below, this direct connection could alleviate the delay and need for a traffic signal at the intersection of Cherry Drive and Sand Hill Road. This potential roadway has been depicted on Exhibit 7 (Blue Alternate).
 - Cherry Drive and Hope Drive / Kindercare Driveway – This intersection should be monitored for traffic signal warrants, and signalization should be considered when warrants are satisfied.
 - Sand Hill Road and Cherry Drive – This intersection should be monitored for traffic signal warrants, and signalization should be considered when warrants are satisfied. Note that if an

alternate connection from Hope Drive to Fishburn Road is constructed (see below), the delays at this intersection would be significantly reduced and signalization would not be appropriate.

- Fishburn Road and Sand Hill Road – This intersection could be relocated to the south and signalized. Additionally, a northbound left turn lane along Fishburn Road and an eastbound right turn lane along Sand Hill Road should both be considered when the intersection is relocated. Refer to Exhibit 7 (Pink Alternate).
- Centerview Drive and Campus Drive – An eastbound left turn lane along Campus Drive should be considered.

Traffic Impacts

Providing the above improvements would significantly improve traffic flow and capacity throughout the Route 322 Corridor. Projected operational conditions with and without long-term improvements are documented in Table 4.

Right-of-Way Impacts

There are significant right-of-way impacts associated with the proposed Long-Term improvements throughout the Route 322 Corridor. The most significant impacts are associated with the intersection of Route 322 and Fishburn Road / Hockersville Road, specifically the Sunoco gas station. If a new roadway connection is installed between Cherry Drive and Fishburn Road, the right-of-way takes may include entire residential properties, depending on the proposed alignment. Additionally, significant impacts are envisioned to the Hershey Medical Center property along much of the corridor. Potential impacts to the existing barns are depicted on Exhibit 4. If necessary, these impacts could be reduced by shifting the alignment to the north side, though this will have additional right-of-way impacts and noise considerations to the residential properties north of Route 322.

Utility Impacts

There will be substantial utility impacts adjacent along the Route 322 corridor and various water / gas valves will need to be adjusted. Additionally, some underground utilities may need to be relocated, which may include the following:

- A medium sized gas line on the south side of Route 322 between Bullfrog Valley Road and Cherry Drive
- A high pressure gas line on the north side of Route 322 from Bullfrog Valley Road to Centerview Lane, crossing to the south side of Route 322 and then continuing along the south side of Route 322 to Cherry Drive

During design the depths of all underground facilities in the area of the proposed widening and responsibility for relocations, if necessary, will need to be verified.

Drainage Impacts

Several inlets / pipes will need to be installed in order to replace existing inlets / pipes for the Long-Term improvements. Additionally, if Hope Drive is realigned at Cherry Drive, the storm water detention basin currently located on the southwestern quadrant of this intersection will be impacted. This basin or part of this basin will likely need to be relocated to the northwestern quadrant of the intersection.

Constructability

“Constructability” is a measure of the difficulty in construction of a project and is an important aspect to consider. Typical roadway constructability issues include maintenance and protection of traffic, utility coordination, drainage and erosion control, geotechnical problems, and coordination between stakeholders, Municipal Officials, Federal and State Officials, and the local general public. The Long-Term improvements present significant constructability challenges, which are as follows:

- Due to physical constraints at the intersection of Route 322 and Fishburn Road / Hockersville Road, the alignment of Route 322 will need to be shifted to the south just west of Fishburn Road / Hockersville Road and to the north just east of Fishburn Road / Hockersville Road.
- Due to the proximity to Route 322, the intersection of Fishburn Road and Sand Hill Road should not be signalized until Sand Hill Road is relocated to the south.

Structures

The Long-Term improvements are not expected to impact any bridges or culverts.

Substandard Design Elements

There are no substandard design elements anticipated with the Long-Term improvements.

Additional Considerations

Due to the anticipated federal funding to be used as part of the implementation of the Long-Term Improvements, additional considerations were given to the anticipated Environmental requirements of the project.

Natural Resource Impacts –

- Wetlands – The long-term improvements are not projected to have any impact to wetlands.
- Flood Plains – The improvements are not located within a flood plain. Accordingly, there is no required permitting.

- Hazardous Materials – There are potentially hazardous materials within the area of the potential improvements, specifically the following:
 - Sunoco gas station on the northwestern quadrant of the intersection of Route 322 and Fishburn Road / Hockersville Road.
 - Hummelstown Gulf / Texaco gas station on the northwestern quadrant of the intersection of Route 322 and Sipe Avenue

During design, additional investigation should be performed in order to verify mitigation is not required at any of the above locations.

- Soils – Some of the soils in the Route 322 Corridor may be classified as “Prime Farmland”, “Farmland of Statewide Importance”, or “Farmland of Local Importance”. If any of these soils are located within the area of the improvements, coordination with the U.S. Department of Agriculture will be required, but mitigation should not be necessary.
- Noise/Air - Air and Noise analysis will be required, particularly with consideration to the adjacent and nearby residential neighborhoods. By adding capacity to reduce traffic congestion, positive impacts to air quality will be realized, through the reduction of exhaust fume emissions. The appropriate level of analysis will be conducted in accordance with PennDOT Publication 321. However, adding lanes to increase roadway capacity will move noise generation closer to sensitive receptors. A Quantitative noise analysis is anticipated to establish existing noise levels through monitoring and modeling at receptor sites. Based on modeling results, it will be determined if noise abatement is warranted, feasible, and reasonable, following criteria established through 23 CFR 772.13(c) and outlined in PennDOT Publication 24.
- Endangered Species – Based on a PNDI Project Environmental Review search, there may be something related to Fish and Wildlife within the project limits. However, due to the developed nature of the area the need for mitigation is unlikely.

Socioeconomic Resources

- Parks and Public Recreation Areas – The Jonathan Eshenour Memorial Trail is a recreational facility used by the public that extends along the south side of Route 322 between Cherry Drive and Bullfrog Valley Road. The Long Term (federal aid) improvements will likely require lateral relocation of this trail commensurate with the roadway widening improvements. For the federal aid project, this facility may need to be evaluated as a “Section 4(f) Property”. In order to qualify as a “Section 4(f) Property” it must meet all of the following criteria:
 - It must be open to the public
 - Its major purpose must be for park, recreation, activities
 - It must be significant as a park, recreation area
 - It must be publicly owned

Clearly, the first three criterion apply to the trail. A determination will need to be made if the trail in this section is “Publicly Owned” by Derry Township or “Privately Owned” by HMC. Section 4(f) Public ownership is recognized as follows:

- **Fee simple ownership** - the land is solely owned by a government entity for park, recreation or refuge purposes
- **Permanent easement** - the land is not necessarily owned by a government agency, but the agency possesses an easement for Section 4(f) activities
- **Lease agreement** - similar to a public easement but with a lease agreement typically intended for the long-term.

If Derry Township possesses any of these types ownership interest in the trail, the relocation of the trail would constitute a “Section 4(f) use” on a federal aid project. Any impact to the trail will require a Section 4(f) evaluation that will need to be approved by the FHWA. This evaluation will need to determine that there is no feasible and prudent alternative that avoids the impact and that the project includes all possible planning to minimize harm to the Section 4(f) properties, including a mitigation and minimization plan for the impacts to the resource. This will be a significant environmental clearance component of a federal aid project, and could add significant time and effort to the environmental clearance process.

- Community Facilities – Traffic operation and mobility throughout the Route 322 Corridor will be substantially improved.
- Commercial Facilities – The proposed improvement will enhance and encourage development of the other potential commercial sites.
- Residential Facilities – Traffic volumes are not expected to increase as a direct result of the proposed improvements; therefore, the improvements should not negatively impact residential properties. These residences will also benefit from improved operation conditions throughout the Route 322 Corridor.

Cultural Resources

The project study limits contain numerous above ground structures that are 50 years or older. Little to no previous investigations have occurred in this area; therefore, numerous above ground structures will require assessment and the completion of a Pennsylvania Historical Resource Survey forms documenting the findings. Assessments recommended are as follows:

- Penn State Hershey Medical Center Property there are two barns and associated houses
- AACA Library/Car Museum
- The Blue Barn
- Masonic Temple Brownstone Lodge No. 666 (dated 1956)
- Governors Road Brownstone
- Barn at SR 743/SR 322
- In addition to these individual properties, there are numerous individual homes that are older than 50 years, many of which will require individual assessments (approximately 40 structures)

In addition to the above ground structures, archaeological testing will be required along the entire corridor, particularly within the farmed properties owned by the Hershey Trust. Should the project involve state or federal funds, Section 106 compliance will be required. One component of Section 106 is public involvement/consulting party participation.

If the historic or archeologic assessment concludes that these are in fact qualified resources, then any impact will require a Section 4(f) evaluation that will need to be approved by the FHWA. This evaluation will need to determine that there is no feasible and prudent alternative that avoids the impact and that the project includes all possible planning to minimize harm to the Section 4(f) properties, including a mitigation and minimization plan for the impacts to the resource. This will be a significant environmental clearance component of a federal aid project, and could add significant time and effort to the environmental clearance process.

CONCEPTUAL IMPROVEMENT PLAN

Estimated Programming Costs and Timing

The following estimated programming costs are in order of magnitude based on planning level studies, photographs and investigations. These estimates are for planning purposes only and should be refined with detailed engineering designs, surveys, plans, and testing. In addition, estimates are in 2015 dollars and should be escalated to the appropriate year of expenditure.

TABLE 5: PROGRAMMING COSTS		
Potential Immediate and Short-Term Local-Aid Improvements (as depicted in Exhibit 2)		
Item	Immediate	Short-Term
Anticipated Year of Construction	2015	2016
Anticipated Design Life	N/A	5 years (2020 design year)
Engineering	\$0	\$70k – \$80k
Utilities	\$0	\$25k – \$35k
Right-of-Way **	\$0	\$45k – \$60k
Construction	\$15,000*	\$500k – \$600k
Total Estimated Costs	\$15,000	\$640k – \$775k
* Materials only; construction anticipated via Township forces		
** ROW costs for land estimated at \$380,000 per acre for corner commercial, \$240,000 per acre for institutional, and \$100,000 per acre for residential. Note that ROW impacts may be lessened by cooperative property owners / stakeholders.		

Potential Long-Term Federal-Aid Improvements (as depicted in Exhibits 3, 4 and 5)			
Item		Long-Term – Route 322 Improvements	
Anticipated Year of Construction		2020	
Anticipated Design Life		20 years (2040 design year)	
Preliminary Engineering and Environmental Clearance		\$750k – \$850k	
Final Design		\$600k – \$650k	
Utilities		\$125k – \$175k	
Right-of-Way**		\$500k – \$600k	
Construction		\$4.5M – \$5.5M	
Construction Observation		\$500k – \$550k	
Total Estimated Costs		\$8.5M – \$10.5M	
** ROW costs for land estimated at \$380,000 per acre for corner commercial, \$240,000 per acre for institutional, and \$95,000 per acre for residential. Note that ROW impacts may be lessened by cooperative property owners / stakeholders.			
Additional Long-Term Improvement Options (as depicted in Exhibits 7 and 8)			
Item	Sand Hill Improvements (Pink Alternate)	Sand Hill Improvements (Blue Alternate)	HMC Campus Improvements
Engineering	\$100k – \$130k	\$175k – \$200k	\$15k – \$20k
Utilities	\$0	\$15k – \$25k	\$0
Right-of-Way**	\$25k – \$35k	\$300k – \$375k	\$0
Construction	\$900k – \$1.1M	\$1.2M – \$1.5M	\$110k – \$130k
Total Estimated Costs	\$1M – \$1.3M	\$1.7M – \$2.1M	\$125k – \$150k
** ROW costs for land estimated at \$380,000 per acre for corner commercial, \$240,000 per acre for institutional, and \$100,000 per acre for residential. Note that ROW impacts may be lessened by cooperative property owners / stakeholders.			

Funding

TABLE 6: POTENTIAL FUNDING SOURCES	
Improvement	Potential Funding Source
Immediate Improvements (2015 Construction)	Township
Short Term Improvements (2016 Construction)	Township, Local Stakeholders, Developers, PennDOT Multi-Modal, Green Light-Go, Dauphin County Infrastructure Bank
Long-Term Improvements (Route 322 Corridor)	80% Federal Funding; 20% Non-Federal Funding (PennDOT, Township, Local Stakeholders, Developers, PennDOT and/or CFA Multi-Modal, Dauphin County Infrastructure Bank
Long-Term Improvements (Sand Hill Road)	T.B.D.
Long-Term Improvements (HMC Campus)	T.B.D.

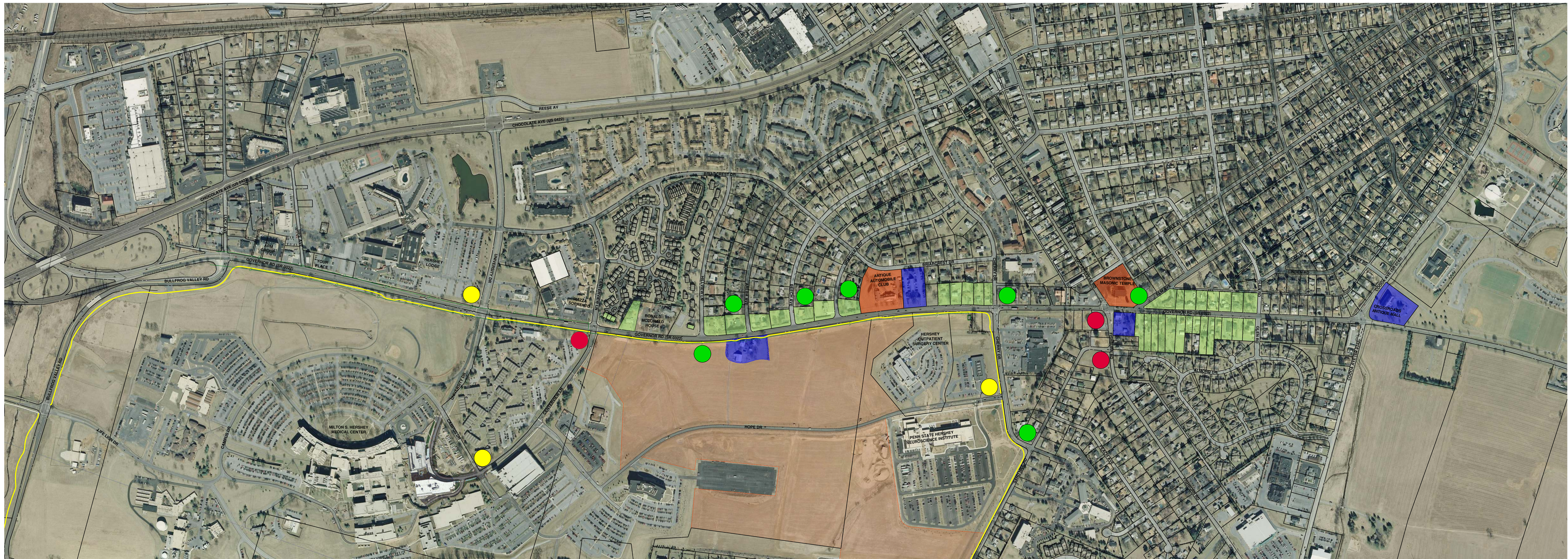
Immediate, Short-Term, and Long-Term improvement options have been identified in order to allow a phased implementation. The Immediate improvements have been developed in order to be low-cost, but have a dramatic and immediate impact on the operational and safety characteristics of the corridor. It is anticipated that the Immediate improvements will be installed using Township forces and funding for materials to be provided from the Township’s General Fund.

The Short-Term improvements are more costly than the Immediate improvements. These improvements could be installed using Township funding, Dauphin County Infrastructure Bank funding, or with cooperation from local stakeholders. Some of these improvements could become the responsibility of a developer. When justified by the Municipal Land Development approval process, Traffic Impact Studies should be completed for each proposed land development in order to further evaluate the study intersections. If improvements are required, the applicability of the recommended Short-Term improvements should be considered.

The Long-Term improvements are by far the most costly. These improvements will require substantial funding. This section of the Route 322 Corridor has long been a focus of Derry Township and regional transportation planners (HATS). Through the HATS Planning Process, long term improvements to Route 322 from University Drive to Fishburn Road was the #2 ranked project on the 2040 Regional Transportation Plan adopted in 2014. This high ranking is very favorable that the project will be programmed in the next Transportation Improvement Plan (TIP) with 80% Federal, 20% Non-Federal funding. The next step in the TIP update process will begin in the last quarter of 2015 and adopted in June 2016. If added to the TIP, funding would likely be available in 2019/2020.

LIST OF REFERENCES

1. 2010 Highway Capacity Manual, Transportation Research Board, Washington D.C., 2010.
2. SYNCHRO 8.0, Traffic Signal Coordination Software, Transportation Research Board, Washington D.C., 2013.



INTERSECTIONS W/ UNACCEPTABLE LOS

- GOVERNOR ROAD (SR 0322) & UNIVERSITY DRIVE
- GOVERNOR ROAD (SR 0322) & CENTERVIEW DRIVE
- GOVERNOR ROAD (SR 0322) & FISHBURN ROAD (SR 2011) / HOCKERSVILLE ROAD (SR 2011)
- CHERRY DRIVE & HOPE DRIVE / KINDERCARE DRIVEWAY
- FISHBURN ROAD (SR 2011) & SAND HILL ROAD
- CENTERVIEW DRIVE & CAMPUS DRIVE

INTERSECTIONS W/ ACCEPTABLE LOS

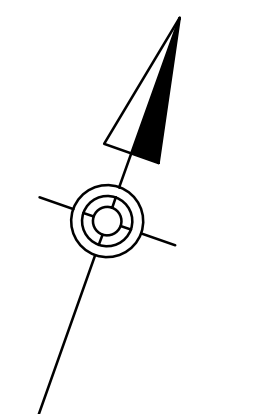
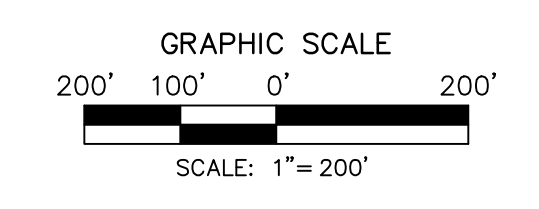
- GOVERNOR ROAD (SR 0322) & HILLVIEW LANE
- GOVERNOR ROAD (SR 0322) & AREBA AVENUE
- GOVERNOR ROAD (SR 0322) & BEECH AVENUE
- GOVERNOR ROAD (SR 0322) & GREENLEA ROAD
- GOVERNOR ROAD (SR 0322) & CHERRY DRIVE
- GOVERNOR ROAD (SR 0322) & ELM AVENUE
- SAND HILL ROAD & CHERRY DRIVE

LEGEND

- AIR AND NOISE QUALITY CONCERNS
- CULTURAL RESOURCES
- HISTORIC RESOURCES
- PUBLIC USE
- UTILITIES OF CONCERN
- STREAMS

EXISTING LEVEL OF SERVICE (LOS) DETAIL (2015)

- LOS - A, B, C, D
- LOS - E
- LOS - F

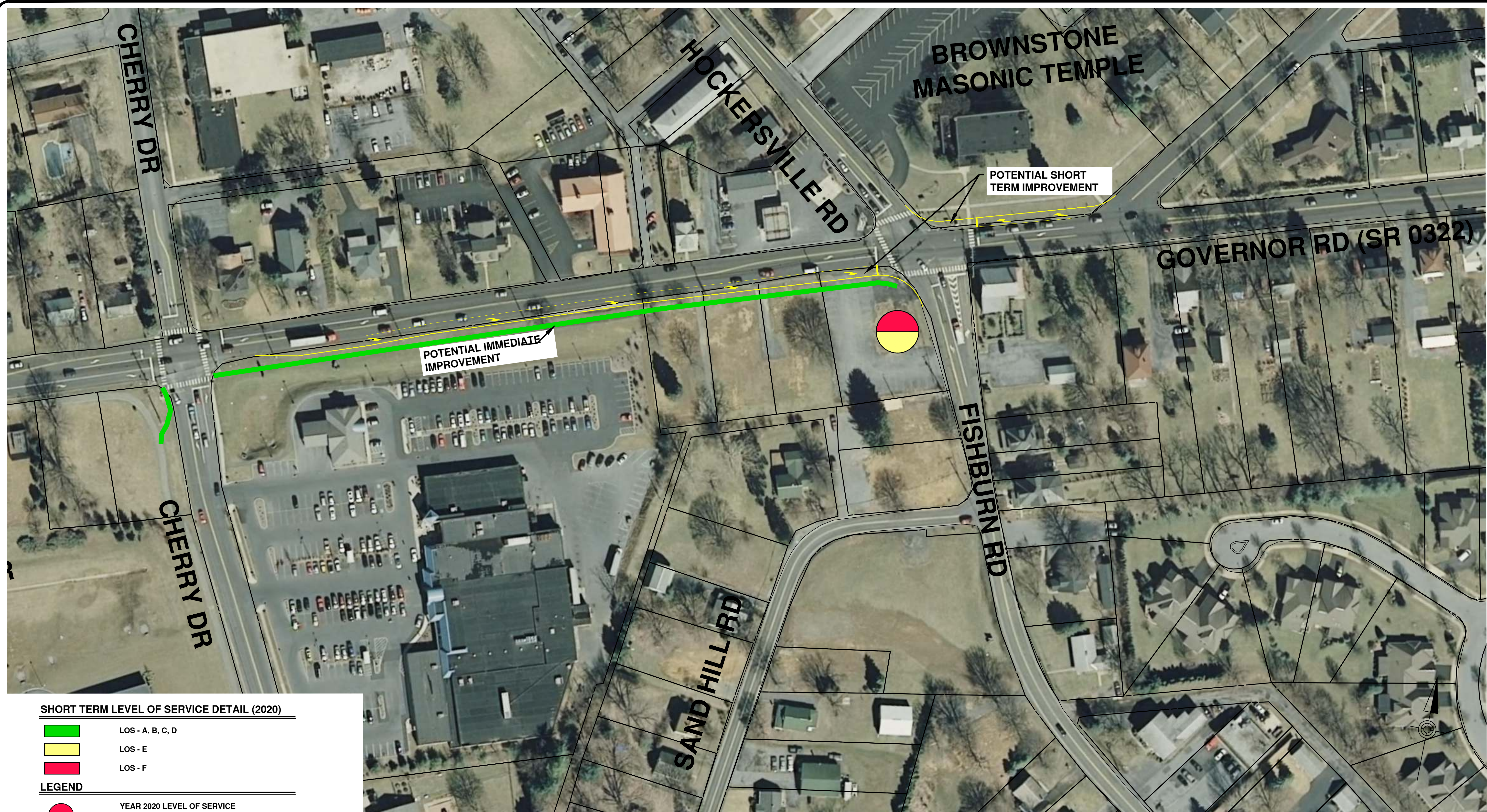


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REV6	REVDESC	--	--								
REV5	REVDESC	--	--								
REV4	REVDESC	--	--								
REV3	REVDESC	--	--								
REV2	REVDESC	--	--								
REV1	REVDESC	--	--								
NO.											

TOWNSHIP OF DERRY
 600 CLEARWATER ROAD
 HERSHEY, PA 17033
 (717) 534-1915

ENVIRONMENTAL CONSTRAINTS MAP
 FOR
 ROUTE 322 CORRIDOR
 BETWEEN UNIVERSITY DRIVE AND ELM AVENUE
 DERRY TOWNSHIP DAUPHIN PENNSYLVANIA

PROJ. MGR. - CKB	DRAWING NO. 1
DESIGN - JBL	SHEET NO. 1 OF 8
CADD - JBL	
CHECKED - EJS	
SCALE - 1"=200'	
DATE - JULY-2015	PROJECT 002484.0476



SHORT TERM LEVEL OF SERVICE DETAIL (2020)

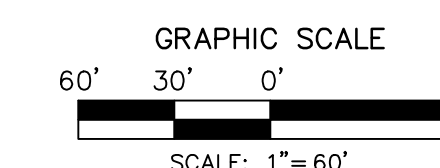
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- LOS - E
- LOS - F

LEGEND

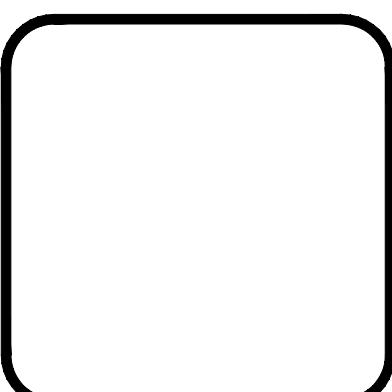
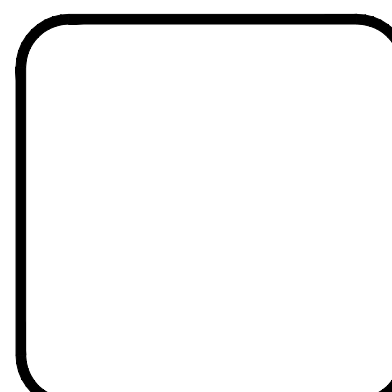
- YEAR 2020 LEVEL OF SERVICE WITHOUT IMPROVEMENTS
- YEAR 2020 LEVEL OF SERVICE WITH IMPROVEMENTS
- NEW SIDEWALK - POTENTIAL IMMEDIATE IMPROVEMENT

IMMEDIATE IMPROVEMENT - ANTICIPATED CONSTRUCTION IN 2015

SHORT TERM IMPROVEMENT - ANTICIPATED CONSTRUCTION IN 2016



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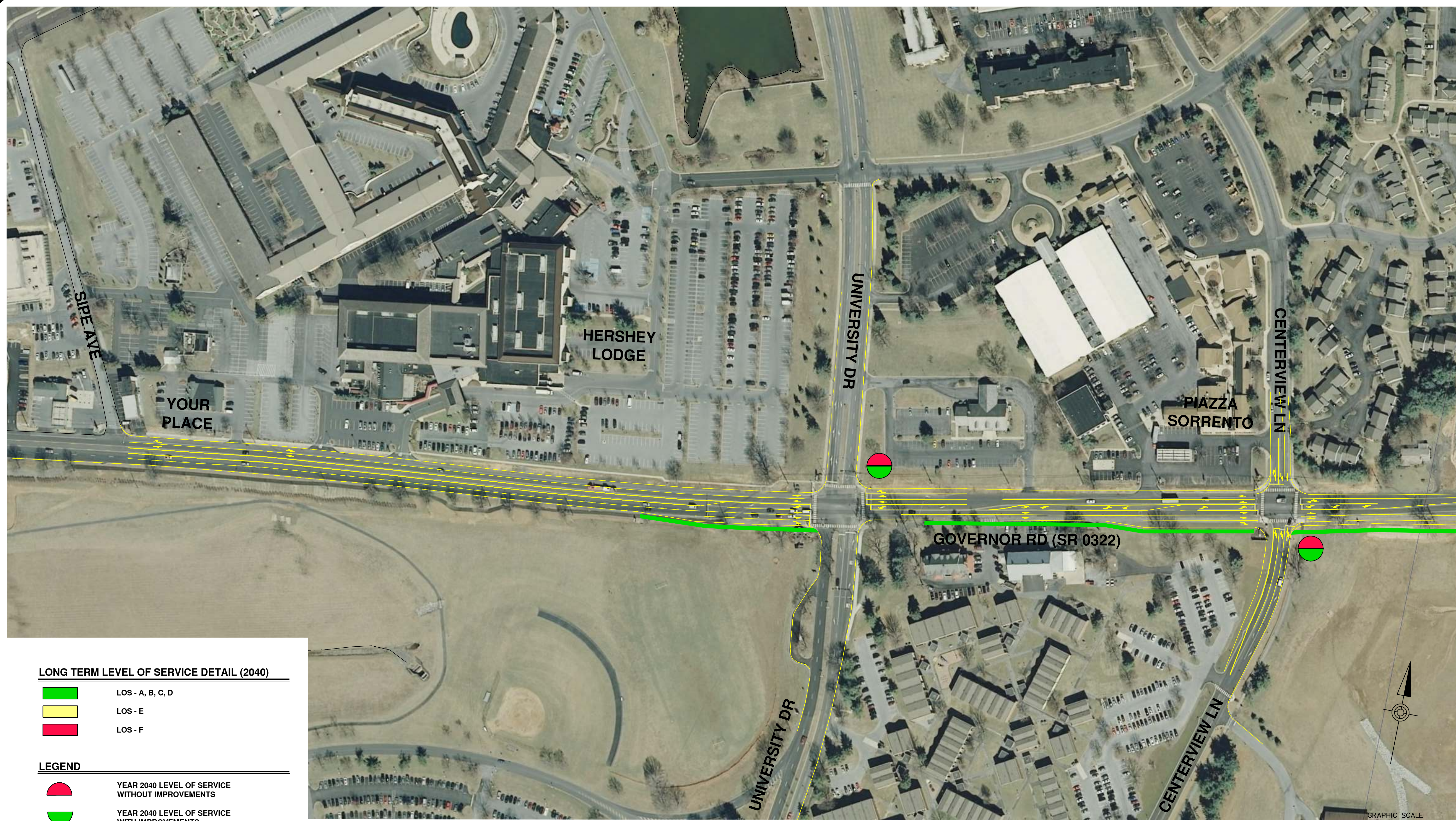
POTENTIAL IMMEDIATE & LONG TERM IMPROVEMENTS FOR CHERRY DRIVE TO ELM AVENUE

DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

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DESIGN - EJS
CADD - DCC
CHECKED - EJS
SCALE - 1" = 60'
DATE - JULY 2015

DRAWING NO.
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SHEET NO.
2 OF 8
PROJECT 002484.0476

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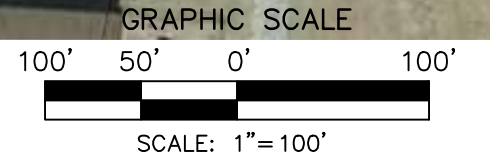


LONG TERM LEVEL OF SERVICE DETAIL (2040)

- LOS - A, B, C, D
- LOS - E
- LOS - F

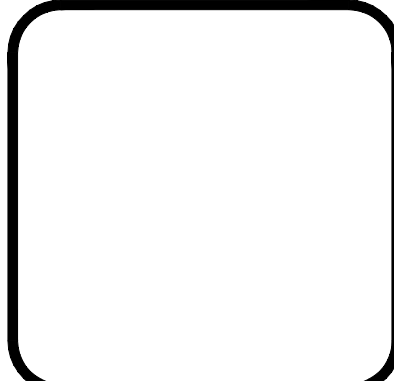
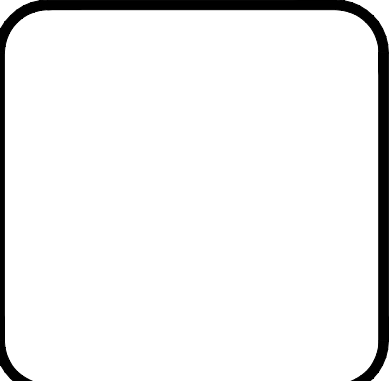
LEGEND

- YEAR 2040 LEVEL OF SERVICE WITHOUT IMPROVEMENTS
- YEAR 2040 LEVEL OF SERVICE WITH IMPROVEMENTS
- RELOCATED SHARED USE PATH



LONG TERM IMPROVEMENTS - ANTICIPATED CONSTRUCTION IN 2020

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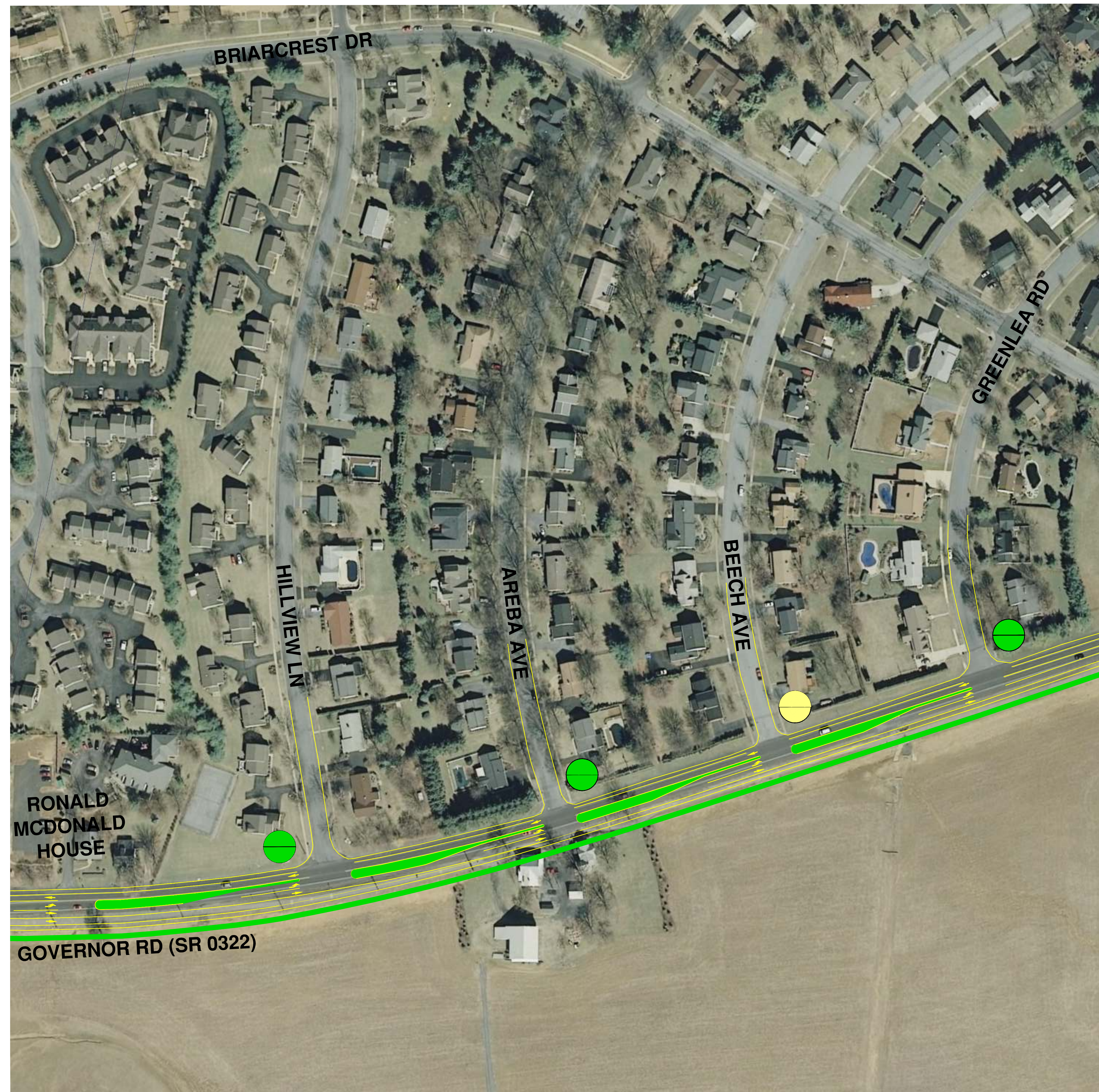
POTENTIAL LONG TERM IMPROVEMENTS

UNIVERSITY DRIVE TO CENTERVIEW LANE

DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

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DESIGN - EJS
CADD - DCC
CHECKED - EJS
SCALE - 1" = 100'
DATE - JULY 2015

DRAWING NO.
3
SHEET NO.
3 OF 8
PROJECT 002484.0476

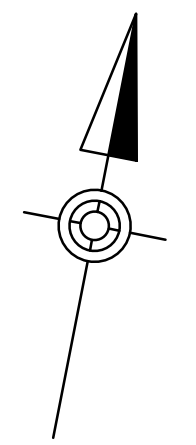
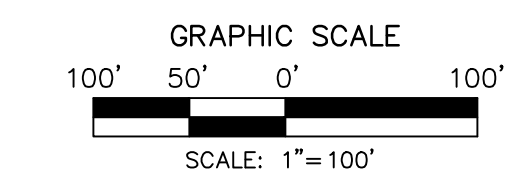


LONG TERM LEVEL OF SERVICE DETAIL (2040)

- LOS - A, B, C, D
- LOS - E
- LOS - F

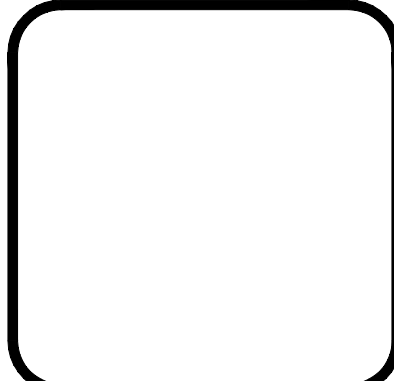
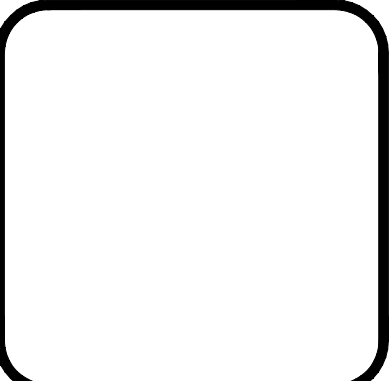
LEGEND

- YEAR 2040 LEVEL OF SERVICE WITHOUT IMPROVEMENTS
- YEAR 2040 LEVEL OF SERVICE WITH IMPROVEMENTS
- RELOCATED SHARED USE PATH
- POTENTIAL GRASS MEDIAN



LONG TERM IMPROVEMENTS - ANTICIPATED CONSTRUCTION IN 2020

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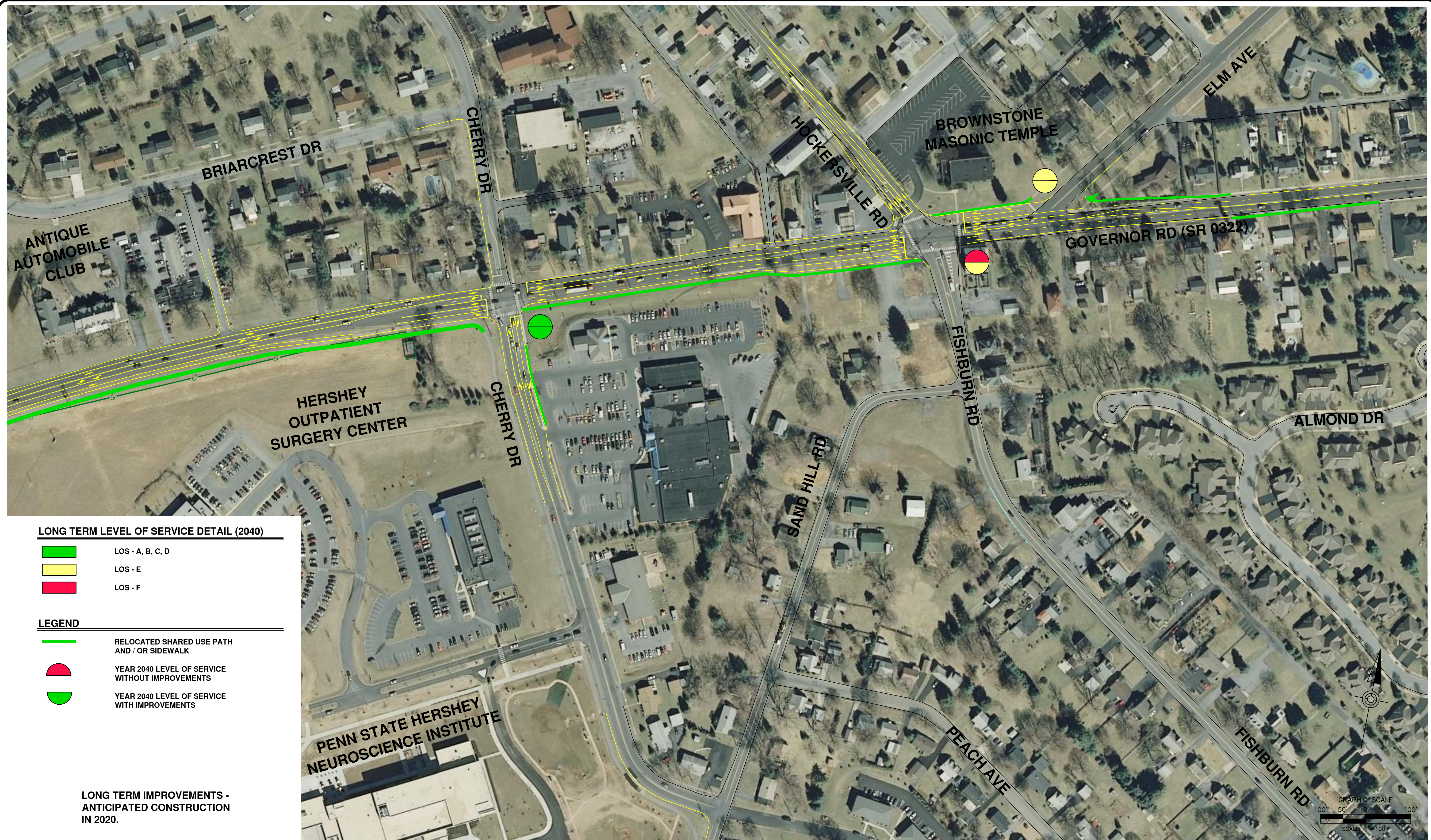
POTENTIAL LONG TERM IMPROVEMENTS

HILLVIEW LANE TO GREENLEA ROAD

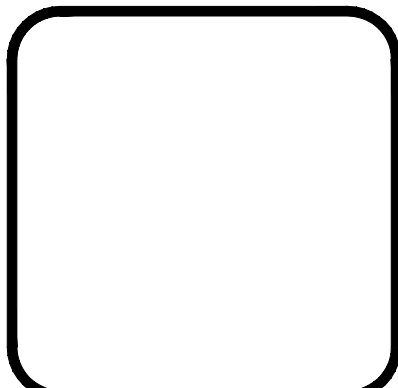
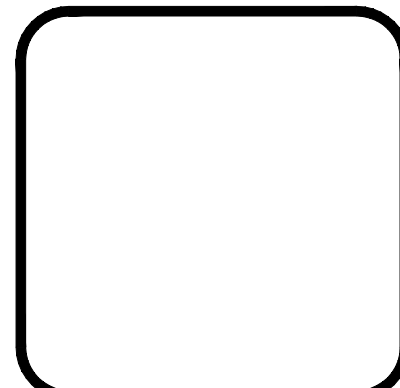
DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

PROJ. MGR. - CKB
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DATE - JULY 2015

DRAWING NO.
4
SHEET NO.
4 OF 8
PROJECT 002484.0476



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POTENTIAL LONG TERM IMPROVEMENTS

CHERRY DRIVE TO ELM AVENUE

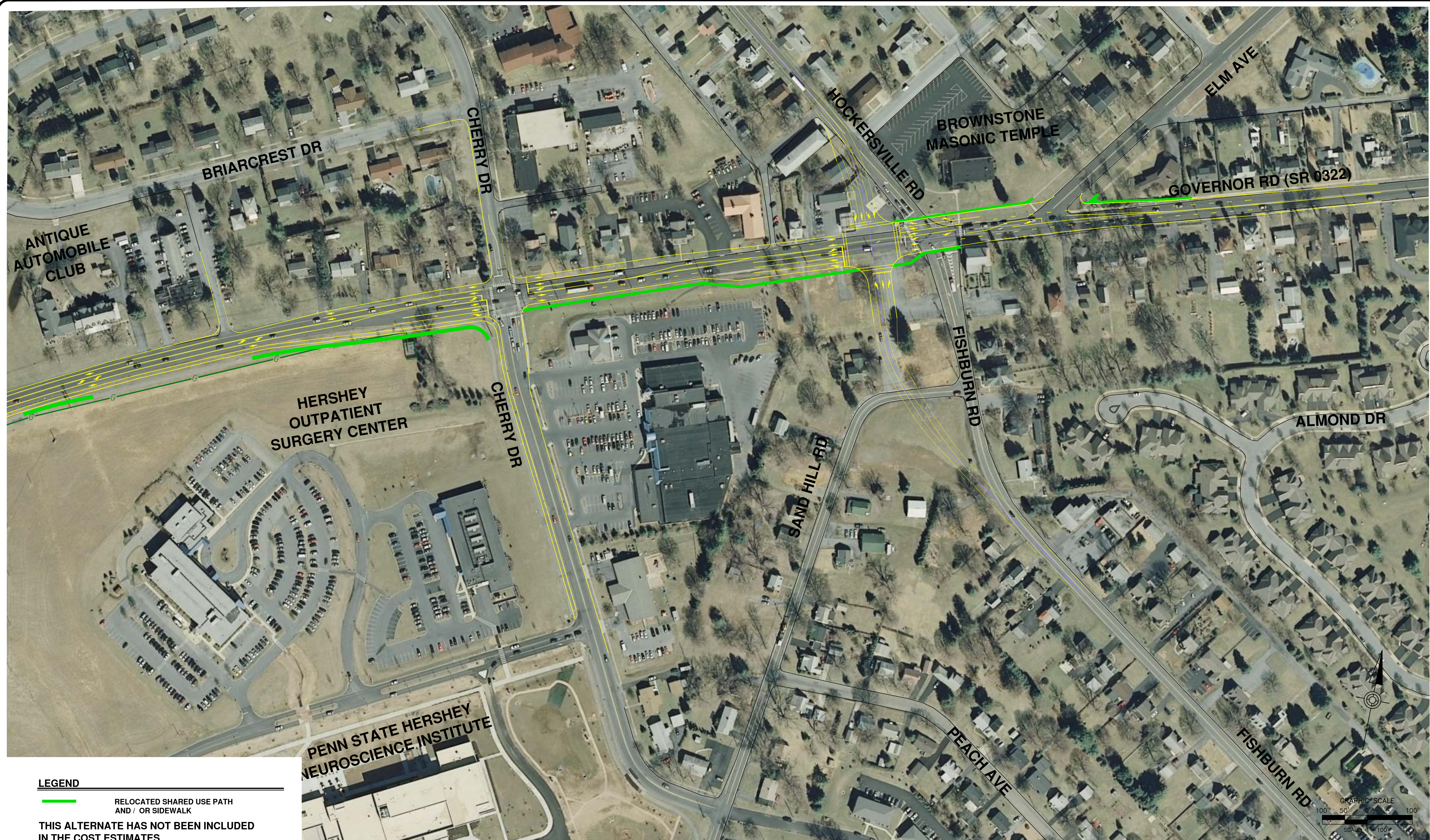
DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

PROJ. MGR. - CKB
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 DATE - MAY 2015

DRAWING NO.
5

SHEET NO.
5 OF **8**

PROJECT 002484.0476

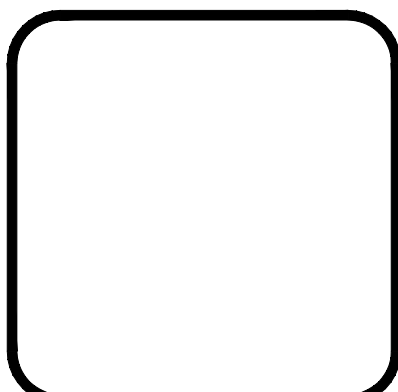
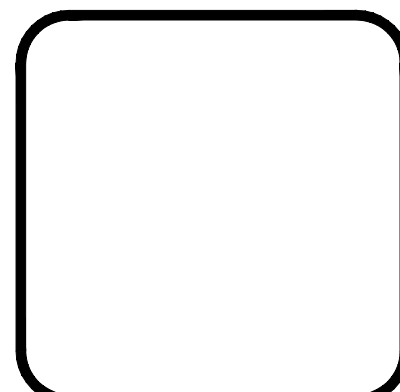


LEGEND

— RELOCATED SHARED USE PATH AND / OR SIDEWALK

THIS ALTERNATE HAS NOT BEEN INCLUDED IN THE COST ESTIMATES.

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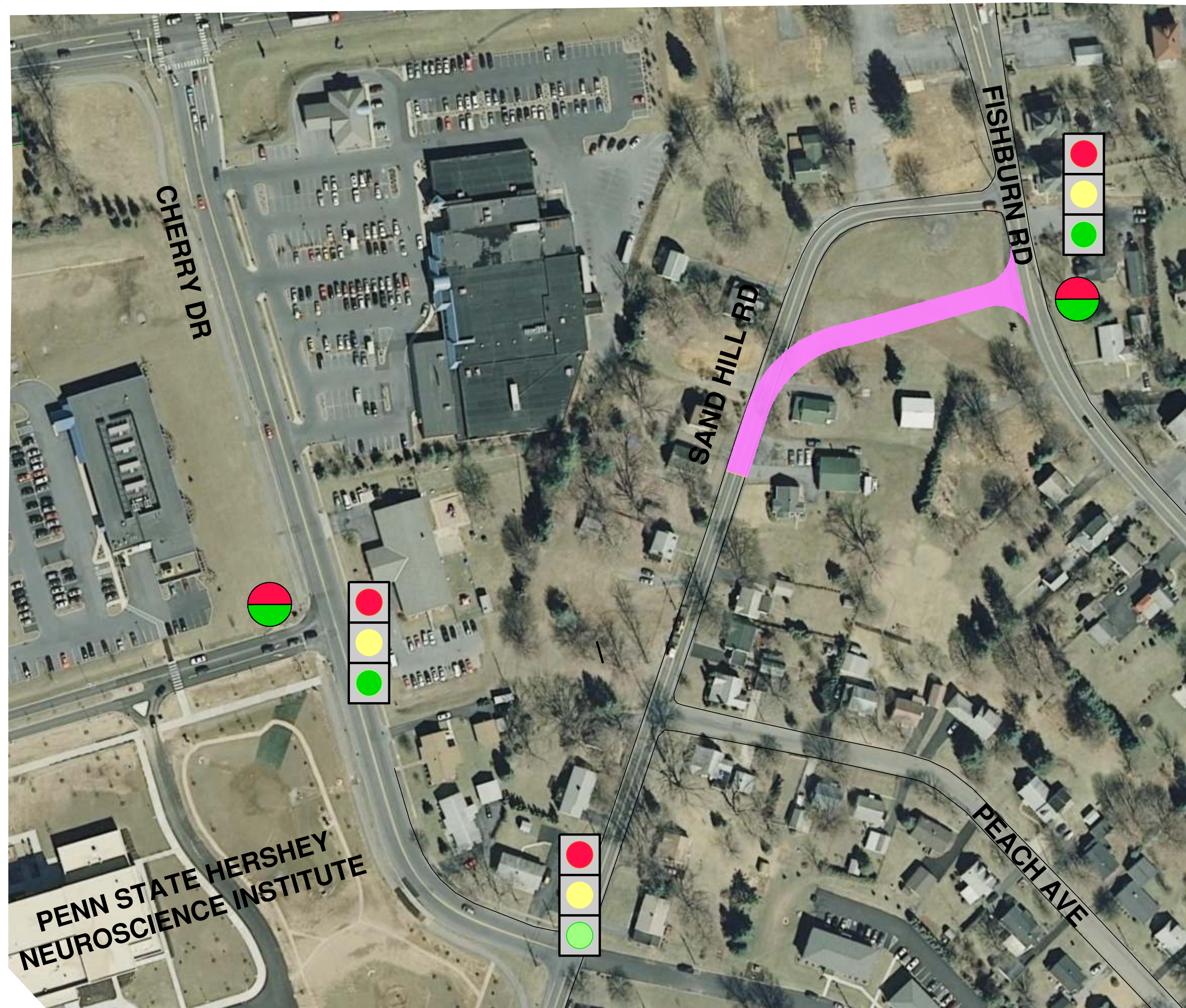
ALTERNATE LONG TERM IMPROVEMENTS

CHERRY DRIVE TO ELM AVENUE

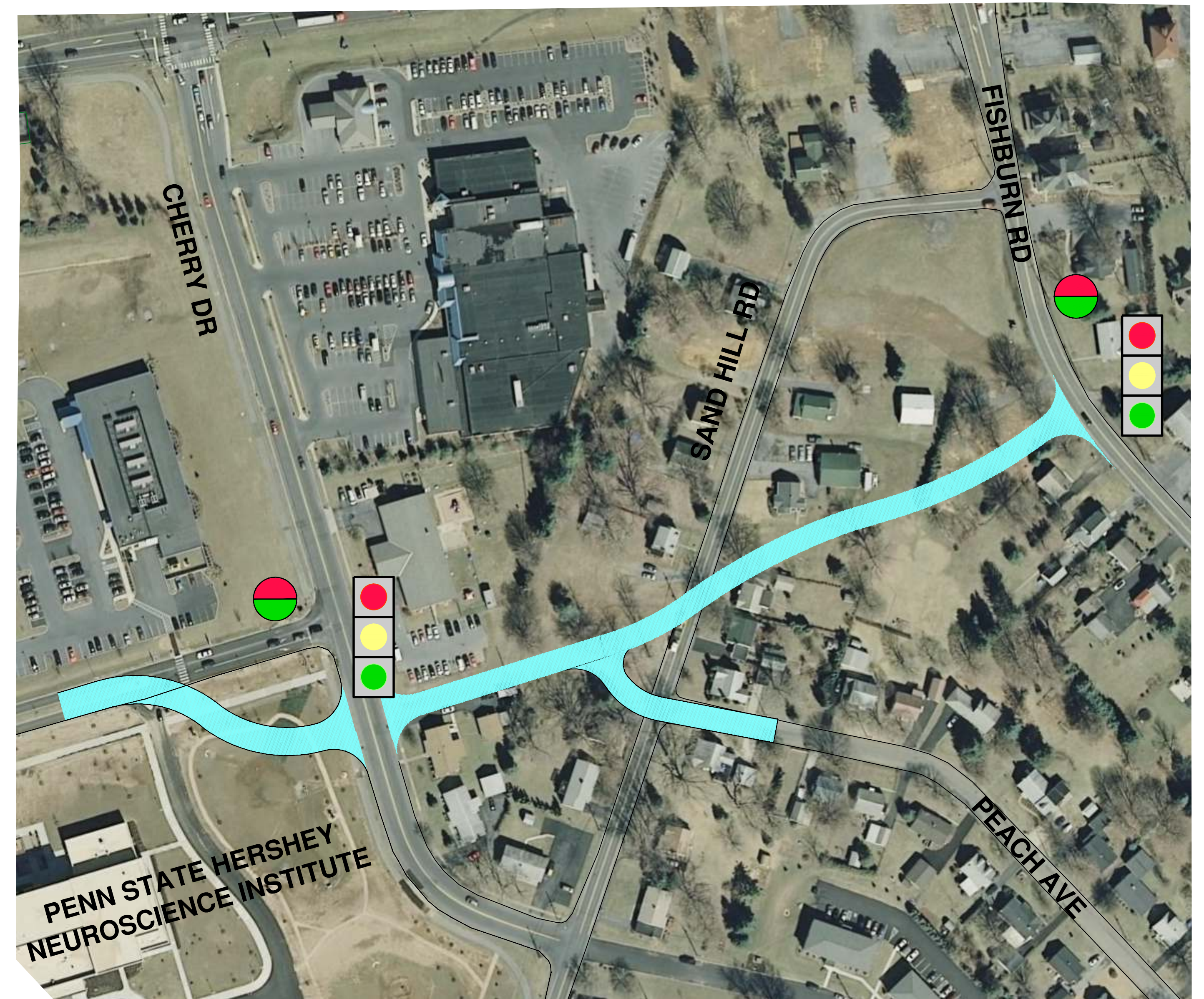
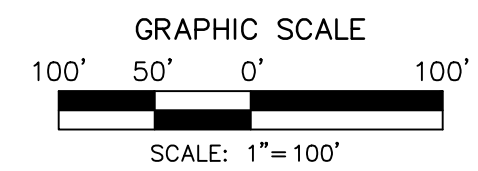
DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

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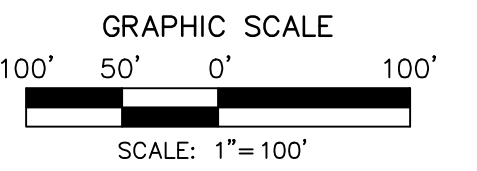
DRAWING NO.
6
 SHEET NO.
6 OF **8**
 PROJECT 002484.0476



PINK ALTERNATE



BLUE ALTERNATE



LEGEND

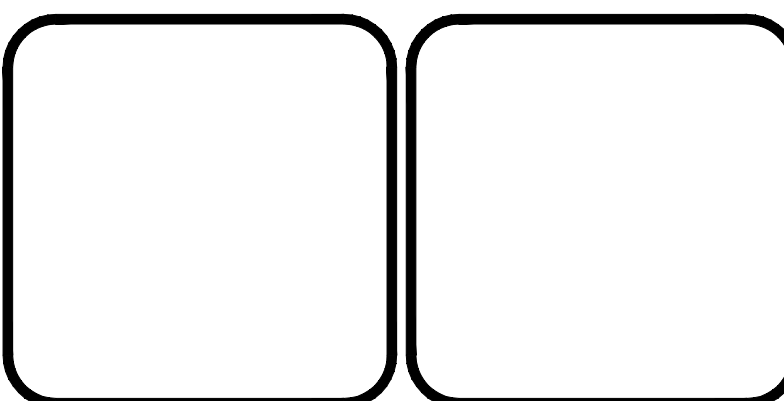
	NEW SIDEWALK
	POTENTIAL ALTERNATE ALIGNMENT NEW ROAD
	POTENTIAL ALTERNATE ALIGNMENT NEW ROAD
	YEAR 2040 LEVEL OF SERVICE WITHOUT IMPROVEMENTS
	YEAR 2040 LEVEL OF SERVICE WITH IMPROVEMENTS
	POTENTIAL TRAFFIC SIGNAL LOCATION

LONG TERM LEVEL OF SERVICE DETAIL (2040)

	LOS - A, B, C, D
	LOS - E
	LOS - F

LONG TERM IMPROVEMENTS - ANTICIPATED CONSTRUCTION IN 2020 OR LATER.

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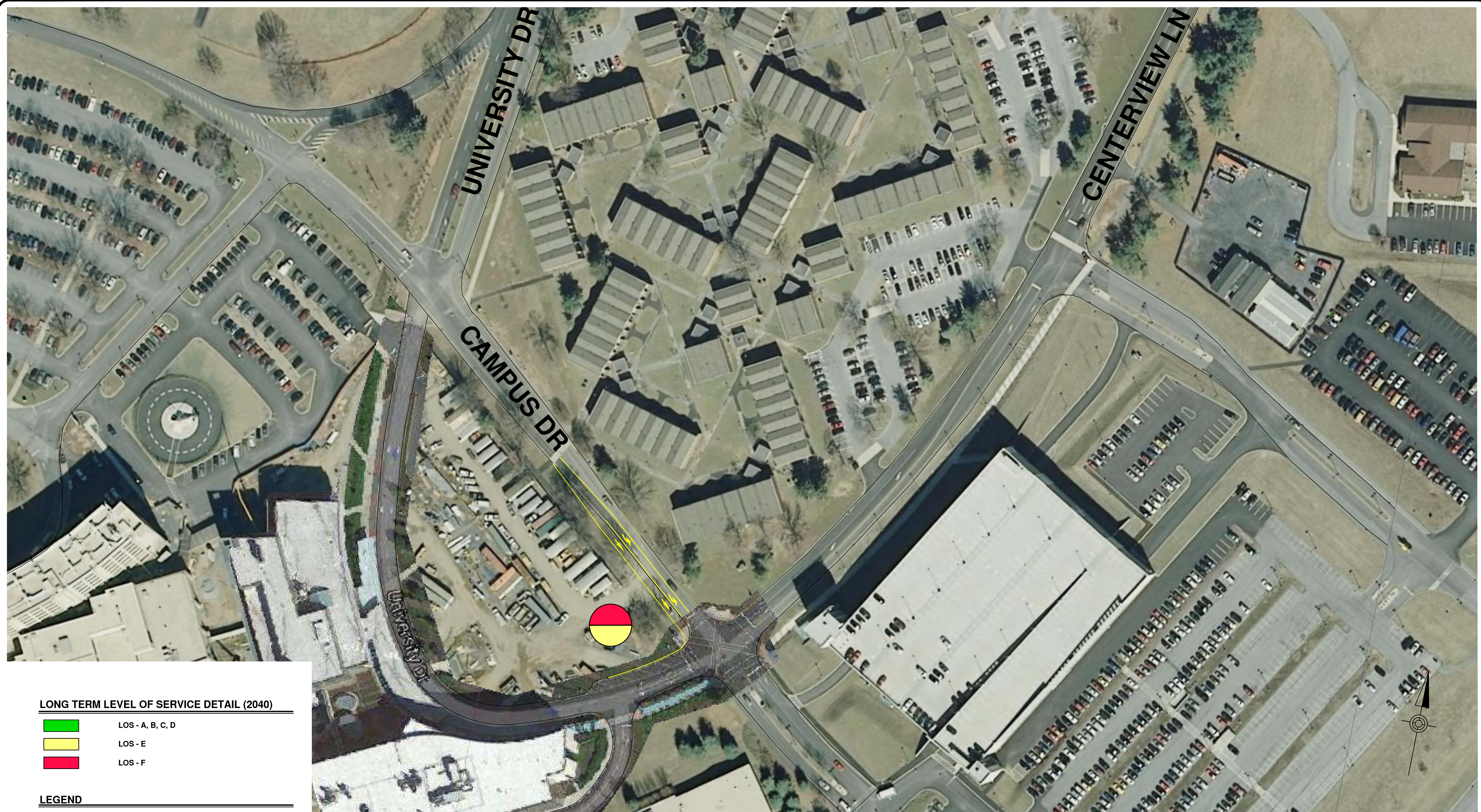
ADDITIONAL LONG TERM IMPROVEMENT OPTIONS

SAND HILL ROAD

DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

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SCALE - 1" = 100'
DATE - MAY 2015

DRAWING NO.	7
SHEET NO.	7 OF 8
PROJECT	002484.0476



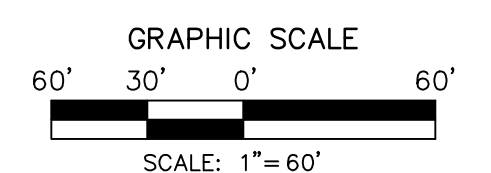
LONG TERM LEVEL OF SERVICE DETAIL (2040)

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- LOS - E
- LOS - F

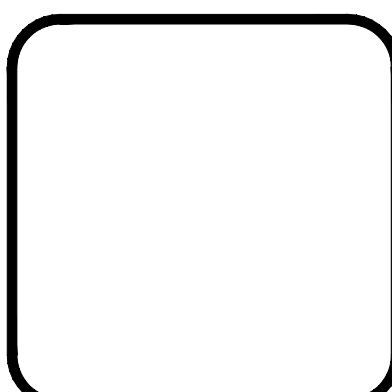
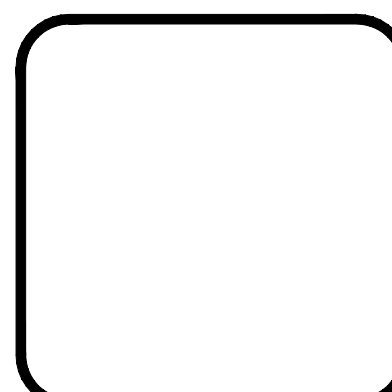
LEGEND

- YEAR 2040 LEVEL OF SERVICE WITHOUT IMPROVEMENTS
- YEAR 2040 LEVEL OF SERVICE WITH IMPROVEMENTS

LONG TERM IMPROVEMENTS -
ANTICIPATED CONSTRUCTION IN 2020 OR LATER



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(717) 534-1915

ADDITIONAL LONG TERM IMPROVEMENT OPTION

HMC CAMPUS IMPROVEMENTS

DERRY TOWNSHIP DAUPHIN COUNTY PENNSYLVANIA

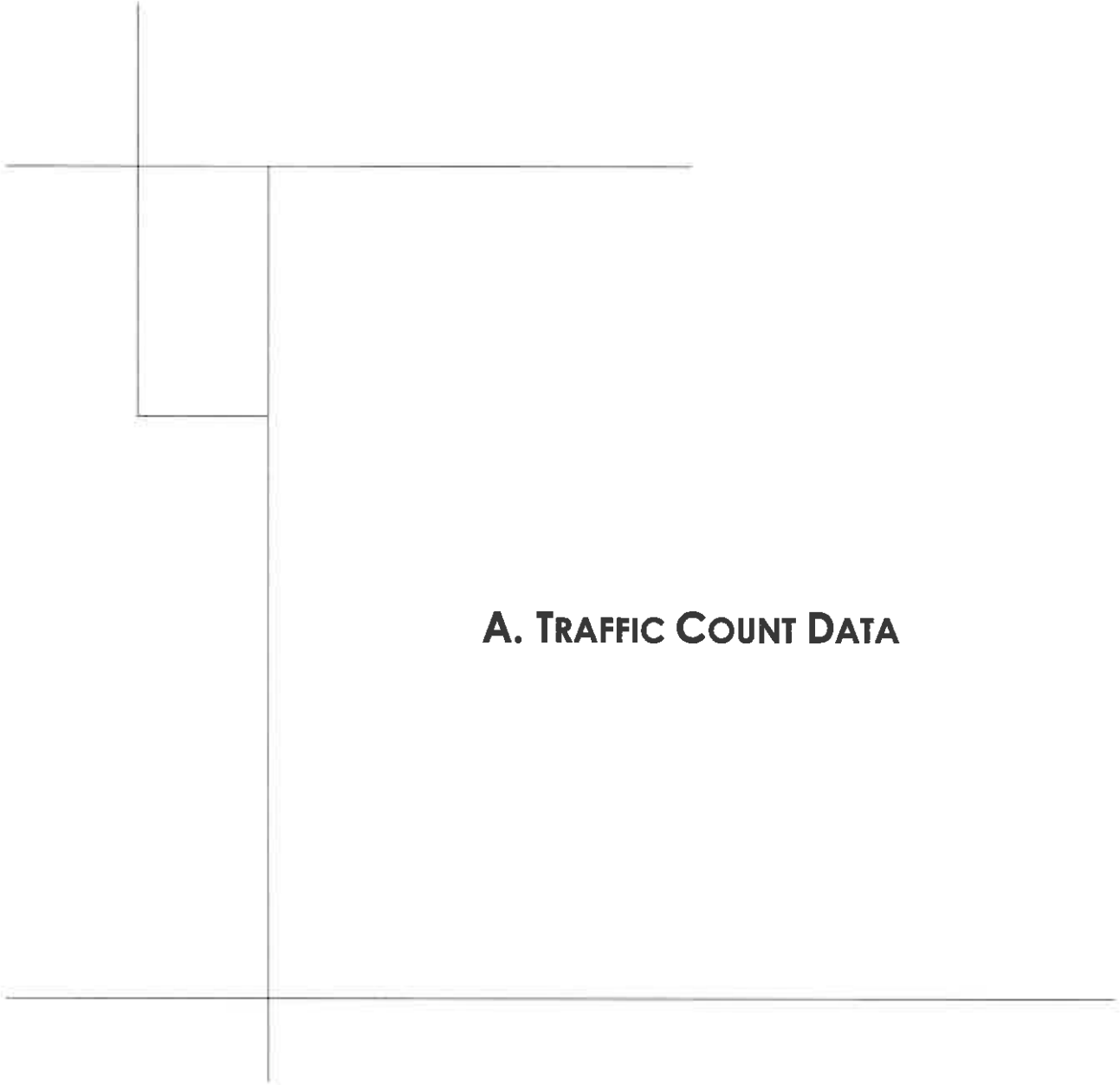
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SCALE - 1" = 60'
DATE - JULY 2015

DRAWING NO.
8
SHEET NO.
8 OF **8**
PROJECT 002484.0476



APPENDICES

- A. TRAFFIC COUNT DATA
- B. TRAFFIC SIGNAL PERMIT PLANS
- C. TRAFFIC FORECASTS
- D. CAPACITY ANALYSES



A. TRAFFIC COUNT DATA

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: Rt. 322 EB
Location: 700 ft W of University Dr
Counter: 22811
Weather: Clear

Site Code: 01
Station ID: 01
EB

Latitude: 40° 28'06.00" North

Start Time	Mon 12-Jan-15	Tue 13-Jan-15	Wed 14-Jan-15	Thu 15-Jan-15	Fri 16-Jan-15	Week Day Average	Sat 17-Jan-15	Sun 18-Jan-15	Week Average
12:00 AM	*	60	65	47	59	58	*	*	58
01:00	*	33	44	34	30	35	*	*	35
02:00	*	28	23	36	31	30	*	*	30
03:00	*	37	41	47	47	43	*	*	43
04:00	*	80	67	56	73	69	*	*	69
05:00	*	219	236	228	231	228	*	*	228
06:00	*	686	686	702	678	688	*	*	688
07:00	*	1094	1064	1004	1051	1053	*	*	1053
08:00	*	900	949	863	861	893	*	*	893
09:00	*	806	756	805	786	788	*	*	788
10:00	*	708	722	750	715	724	*	*	724
11:00	*	710	660	701	748	705	*	*	705
12:00 PM	*	871	777	848	794	822	*	*	822
01:00	*	710	767	768	796	760	*	*	760
02:00	*	676	694	672	705	687	*	*	687
03:00	546	639	648	652	606	618	*	*	618
04:00	520	546	603	585	563	583	*	*	583
05:00	584	600	587	593	688	610	*	*	610
06:00	530	636	571	634	658	606	*	*	606
07:00	357	424	409	436	443	414	*	*	414
08:00	298	332	328	359	327	329	*	*	329
09:00	201	258	269	237	329	259	*	*	259
10:00	148	168	150	183	280	186	*	*	186
11:00	75	90	88	96	*	87	*	*	87
Total	3259	11311	11204	11336	11499	11255	0	0	11255

Date	Total	Grand Total
12-Jan-15	10712	11255
13-Jan-15	11311	
14-Jan-15	11204	
15-Jan-15	11336	
16-Jan-15	11556	
Average	11224	
Grand Total	3259	11255

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: Rt. 322 WB
Location: 700 ft W of University Dr
Counter: 22575
Weather: Clear

Site Code: 01
Station ID: 01
WB

Latitude: 40° 26806.0000 North

Start Time	Mon 12-Jan-15	Tue 13-Jan-15	Wed 14-Jan-15	Thu 15-Jan-15	Fri 16-Jan-15	Week Day Average	Sat 17-Jan-15	Sun 18-Jan-15	Week Average
12:00 AM	*	61	67	61	53	60	76	71	65
01:00	*	34	32	41	31	34	44	22	34
02:00	*	26	28	27	45	32	39	29	32
03:00	*	43	42	50	42	44	20	33	38
04:00	*	64	50	67	78	65	34	19	52
05:00	*	115	115	125	118	118	63	41	96
06:00	*	262	264	286	245	264	118	66	207
07:00	*	463	462	440	446	453	215	166	365
08:00	*	481	542	505	467	499	304	168	411
09:00	*	512	514	526	508	515	352	233	441
10:00	*	594	524	570	590	570	479	343	517
11:00	*	678	671	709	794	713	590	392	639
12:00 PM	*	684	682	675	729	692	592	504	644
01:00	*	631	632	639	643	636	478	477	583
02:00	*	681	627	723	726	689	535	424	619
03:00	713	882	917	850	837	840	513	479	742
04:00	889	920	997	948	941	939	566	479	820
05:00	758	859	819	794	828	812	569	368	714
06:00	525	561	588	590	571	567	550	319	529
07:00	431	450	470	489	472	462	402	287	429
08:00	331	344	343	374	343	347	271	259	324
09:00	183	384	221	270	256	263	270	210	256
10:00	129	142	137	127	227	152	200	104	152
11:00	88	101	84	100	143	103	128	65	101
Total	4047	9972	9828	9986	10133	9889	7408	5558	8810

Daily

Date	Total
12-Jan-15	17630
13-Jan-15	19954
14-Jan-15	19669
15-Jan-15	19958
16-Jan-15	20251
17-Jan-15	14825
18-Jan-15	11109
Average	17628

Tri-State Traffic Data, Inc.

Road: Rt. 322 WB
 Location: 700 R W of University Dr
 Counter: 22575
 Weather: Clear

184 Baker Road
 Coatesville, PA 19320
 (610) 466-1469 TSDData.com

Site Code: 01
 Station ID: 01
 WB

Latitude: 40° 26' 806.0000 North

Start Time	Mon 19-Jan-15	Tue 20-Jan-15	Wed 21-Jan-15	Thu 22-Jan-15	Fri 23-Jan-15	Week Day Average	Sat 24-Jan-15	Sun 25-Jan-15	Week Average
12:00 AM	59	60	107	*	*	75	*	*	75
01:00	27	36	39	*	*	34	*	*	34
02:00	24	41	38	*	*	34	*	*	34
03:00	30	31	43	*	*	35	*	*	35
04:00	56	66	60	*	*	61	*	*	61
05:00	81	90	120	*	*	97	*	*	97
06:00	214	272	270	*	*	252	*	*	252
07:00	375	473	443	*	*	430	*	*	430
08:00	421	491	495	*	*	489	*	*	489
09:00	485	505	514	*	*	501	*	*	501
10:00	606	603	*	*	*	604	*	*	604
11:00	658	704	*	*	*	681	*	*	681
12:00 PM	732	679	*	*	*	706	*	*	706
01:00	660	623	*	*	*	642	*	*	642
02:00	747	699	*	*	*	723	*	*	723
03:00	794	839	*	*	*	816	*	*	816
04:00	945	927	*	*	*	936	*	*	936
05:00	754	784	*	*	*	769	*	*	769
06:00	575	572	*	*	*	574	*	*	574
07:00	431	682	*	*	*	556	*	*	556
08:00	309	574	*	*	*	442	*	*	442
09:00	195	330	*	*	*	262	*	*	262
10:00	124	224	*	*	*	174	*	*	174
11:00	87	159	*	*	*	123	*	*	123
Total	9389	10464	2129	0	0	9996	0	0	9996

Daily Total

Date	Total
19-Jan-15	18775
20-Jan-15	20929
21-Jan-15	18823
Average	19509

Grand Total	13436	20436	11957	9986	10133	19885	7408	5558	18806
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Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: Rt. 322
Location: 700 ft W of Cherry Dr
Counter: 22689
Weather: Clear

Site Code: 02
Station ID:
A is EB
B to A WB
Latitude: 40° 27'154.0000 North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		17-Jan-15		18-Jan-15	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	95	43	97	39	90	44	90	39	41	100	36	76
01:00	*	*	39	22	65	19	49	20	33	17	20	54	37	46
02:00	*	*	34	27	23	36	29	26	53	41	32	43	26	31
03:00	*	*	40	45	49	52	53	44	51	33	44	32	14	29
04:00	*	*	66	102	53	125	38	103	52	118	52	28	12	21
05:00	*	*	100	252	110	244	126	276	121	252	114	256	16	17
06:00	*	*	274	614	262	601	289	586	301	558	276	590	32	75
07:00	*	*	496	822	528	830	518	777	533	745	519	794	48	176
08:00	*	*	550	689	531	750	510	721	505	685	524	711	71	193
09:00	*	*	526	591	540	594	535	586	539	573	535	586	102	233
10:00	*	*	542	612	546	587	558	573	586	627	558	600	132	316
11:00	*	*	589	654	595	594	569	714	653	642	602	651	200	403
12:00 PM	*	*	675	826	632	617	658	617	645	665	652	631	200	530
01:00	*	*	597	588	599	557	676	571	667	587	576	566	139	490
02:00	*	*	628	664	644	571	632	631	633	634	628	595	144	463
03:00	*	*	669	651	689	675	635	613	666	633	665	550	133	509
04:00	466	430	572	585	632	646	573	629	588	671	566	508	101	451
05:00	572	476	645	581	599	537	564	564	611	598	547	476	119	374
06:00	475	467	591	487	578	552	614	530	582	568	521	497	127	341
07:00	441	363	526	335	469	341	508	316	499	333	338	437	100	360
08:00	330	248	366	286	356	249	408	290	394	287	371	335	71	250
09:00	227	147	292	311	302	167	260	213	350	215	286	294	78	156
10:00	116	107	142	142	168	127	188	137	246	205	172	276	78	95
11:00	106	74	121	83	139	80	134	78	172	54	134	159	46	91
Total	2733	2312	9175	9782	9206	9590	9191	9659	9570	9801	9614	7594	2062	5726
Day	5045		18957		18796		18950		19371		18785	9656		7057
AM Peak	-	-	11:00	07:00	11:00	07:00	11:00	07:00	11:00	07:00	11:00	11:00	11:00	11:00
Vol.	-	-	589	822	595	830	589	777	653	745	602	794	200	403
PM Peak	17:00	17:00	12:00	14:00	15:00	15:00	14:00	13:00	16:00	15:00	15:00	12:00	12:00	12:00
Vol.	572	476	675	654	689	675	631	667	671	665	600	600	200	530

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: Rt. 322
Location: 700 ft W of Cherry Dr
Counter: 22689
Weather: Clear

Site Code: 02
Station ID:
A is EB
B to A WB
Latitude: 40° 27' 154.0000 North

Start Time	19-Jan-15		20-Jan-15		21-Jan-15		22-Jan-15		23-Jan-15		24-Jan-15		25-Jan-15	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	54	24	*	*	*	*	*	*	*	*	*	*	*	*
01:00	18	4	*	*	*	*	*	*	*	*	*	*	*	*
02:00	24	10	*	*	*	*	*	*	*	*	*	*	*	*
03:00	31	12	*	*	*	*	*	*	*	*	*	*	*	*
04:00	33	15	*	*	*	*	*	*	*	*	*	*	*	*
05:00	79	20	*	*	*	*	*	*	*	*	*	*	*	*
06:00	216	56	*	*	*	*	*	*	*	*	*	*	*	*
07:00	468	135	*	*	*	*	*	*	*	*	*	*	*	*
08:00	348	290	*	*	*	*	*	*	*	*	*	*	*	*
09:00	362	332	*	*	*	*	*	*	*	*	*	*	*	*
10:00	435	352	*	*	*	*	*	*	*	*	*	*	*	*
11:00	489	484	*	*	*	*	*	*	*	*	*	*	*	*
12:00 PM	466	435	*	*	*	*	*	*	*	*	*	*	*	*
01:00	538	475	*	*	*	*	*	*	*	*	*	*	*	*
02:00	397	409	*	*	*	*	*	*	*	*	*	*	*	*
03:00	500	439	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	4458	3492	0	0	0	0	0	0	0	0	0	0	0	0
Day	7950													
AM Peak	11:00	11:00	-	-	-	-	-	-	-	-	-	-	-	-
Vol.	489	484	-	-	-	-	-	-	-	-	-	-	-	-
PM Peak	13:00	13:00	-	-	-	-	-	-	-	-	-	-	-	-
Vol.	538	475	-	-	-	-	-	-	-	-	-	-	-	-
Comb. Total	12995		18957		18796		18850		19371		9656		7057	
ADT	ADT 15,135		AADT 15,135											

Weekday Average
EB WB EB WB EB WB EB WB EB WB EB WB EB WB

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: Rt. 322
Location: 450 ft W of Fishburn Rd
Counter: 2584
Weather: Clear

Site Code: 03
Station ID: 03
A is EB
B is WB
Latitude: 40° 27'26.0000 North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		17-Jan-15		18-Jan-15	
	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB	EB	WB
12:00 AM	*	*	82	44	92	38	91	46	*	*	*	*	*	*
01:00	*	*	38	23	66	16	45	26	*	*	*	*	*	*
02:00	*	*	30	27	22	34	20	36	*	*	*	*	*	*
03:00	*	*	37	47	45	51	50	43	*	*	*	*	*	*
04:00	*	*	62	101	45	122	32	110	*	*	*	*	*	*
05:00	*	*	103	276	110	270	111	308	*	*	*	*	*	*
06:00	*	*	240	701	236	669	201	685	*	*	*	*	*	*
07:00	*	*	442	943	493	954	458	937	*	*	*	*	*	*
08:00	*	*	488	765	492	794	447	789	*	*	*	*	*	*
09:00	*	*	485	572	458	660	478	599	*	*	*	*	*	*
10:00	*	*	550	586	539	555	542	537	*	*	*	*	*	*
11:00	*	*	574	568	591	549	598	616	*	*	*	*	*	*
12:00 PM	*	*	636	584	636	592	656	579	*	*	*	*	*	*
01:00	*	*	589	553	586	537	633	546	*	*	*	*	*	*
02:00	*	*	645	607	651	555	663	333	*	*	*	*	*	*
03:00	*	*	758	570	738	626	779	327	*	*	*	*	*	*
04:00	*	*	767	516	777	554	782	61	*	*	*	*	*	*
05:00	680	423	730	493	726	478	692	79	*	*	*	*	*	*
06:00	487	404	614	451	581	492	412	92	*	*	*	*	*	*
07:00	444	331	535	309	473	324	*	*	*	*	*	*	*	*
08:00	322	249	345	288	344	268	*	*	*	*	*	*	*	*
09:00	215	133	270	296	293	157	*	*	*	*	*	*	*	*
10:00	115	90	130	131	164	119	*	*	*	*	*	*	*	*
11:00	104	72	105	98	137	74	*	*	*	*	*	*	*	*
Total Day	2377	1702	9275	9549	9295	9488	7690	6749	0	0	9135	8919	0	0
AM Peak	-	-	11:00	07:00	11:00	07:00	11:00	07:00	-	-	11:00	07:00	-	-
Vol.	680	423	574	943	591	954	598	937	-	-	588	945	-	-
PM Peak	17:00	17:00	16:00	14:00	16:00	15:00	16:00	12:00	-	-	16:00	12:00	-	-
Vol.	680	423	767	607	777	626	782	579	-	-	775	585	-	-
Comb. Total	4079		18824	18783	14439	18054	18054	18054	0	0	18054	18054	0	0
ADT	ADT 18,104		AADT 18,104	18783	14439	18054	18054	18054	0	0	18054	18054	0	0

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: Hockersville Rd
Location: 600 ft N of Maple Ave
Counter: 22605
Weather: Clear

Site Code: 04
Station ID: 04
A is NB
B is SB

Latitude: 40° 27'48.5" North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		17-Jan-15		18-Jan-15	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	26	16	14	17	12	16	15	21	17	18	24	34
01:00	*	*	14	14	14	15	9	8	18	11	14	12	13	20
02:00	*	*	6	8	5	4	8	4	6	11	6	7	9	15
03:00	*	*	13	11	9	14	18	8	29	7	17	10	9	10
04:00	*	*	41	21	39	12	35	14	42	13	39	15	18	12
05:00	*	*	143	57	154	44	181	39	154	44	158	46	59	22
06:00	*	*	336	190	331	179	330	176	319	160	329	176	89	66
07:00	*	*	378	291	349	304	350	276	363	284	360	289	106	83
08:00	*	*	324	206	310	184	314	205	348	223	324	204	179	109
09:00	*	*	260	194	236	176	265	175	282	185	261	182	219	138
10:00	*	*	249	198	234	189	262	197	247	193	248	194	290	173
11:00	*	*	272	223	267	220	315	204	303	258	289	226	305	257
12:00 PM	*	*	315	248	284	233	321	218	309	257	307	239	304	242
01:00	*	*	274	275	271	219	277	274	308	289	282	259	268	232
02:00	*	*	326	362	304	329	312	363	338	380	320	358	264	248
03:00	*	*	349	466	239	326	346	461	354	444	322	424	297	267
04:00	*	*	385	480	356	460	377	458	365	435	371	458	274	227
05:00	*	*	332	440	362	449	362	423	338	446	348	440	311	221
06:00	172	181	231	277	254	274	251	290	280	290	238	262	349	205
07:00	176	145	180	159	148	173	162	173	207	181	175	166	154	136
08:00	124	110	115	151	136	160	144	162	133	142	130	145	98	101
09:00	79	79	139	95	127	126	111	120	93	113	110	107	112	146
10:00	79	84	92	97	101	95	88	121	112	127	94	105	88	203
11:00	22	64	34	71	29	72	36	70	46	96	33	75	54	73
Total	652	663	4834	4550	4573	4274	4886	4455	5009	4590	4792	4417	3893	3240
Day	1315		9384		8847		9341		9599		9209		7133	5678
AM Peak	-	-	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	07:00	11:00	11:00
Vol.	-	-	378	291	349	304	350	276	363	284	360	289	305	257
PM Peak	19:00	18:00	16:00	16:00	17:00	16:00	16:00	15:00	16:00	17:00	16:00	16:00	18:00	15:00
Vol.	176	181	385	480	362	460	377	461	365	446	371	458	349	267

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: Hockersville Rd
Location: 600 ft N of Maple Ave
Counter: 22605
Weather: Clear

Site Code: 04
Station ID: 04
A is NB
B is SB
Latitude: 40° 27'48.5" N
Longitude: 76° 00' 00.0" W

Start Time	19-Jan-15		20-Jan-15		21-Jan-15		22-Jan-15		23-Jan-15		24-Jan-15		25-Jan-15	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	13	9	11	16	15	25	*	*	*	*	*	*	*	*
01:00	4	9	12	6	11	4	*	*	*	*	*	*	*	*
02:00	15	8	11	9	4	8	*	*	*	*	*	*	*	*
03:00	7	13	17	16	15	14	*	*	*	*	*	*	*	*
04:00	31	13	35	19	40	9	*	*	*	*	*	*	*	*
05:00	127	40	133	37	151	52	*	*	*	*	*	*	*	*
06:00	250	154	328	166	316	173	*	*	*	*	*	*	*	*
07:00	250	292	357	286	380	289	*	*	*	*	*	*	*	*
08:00	281	173	320	200	309	230	*	*	*	*	*	*	*	*
09:00	232	175	285	182	258	177	*	*	*	*	*	*	*	*
10:00	239	181	231	194	248	200	*	*	*	*	*	*	*	*
11:00	278	222	262	166	278	224	*	*	*	*	*	*	*	*
12:00 PM	294	250	269	224	*	*	*	*	*	*	*	*	*	*
01:00	293	209	276	251	*	*	*	*	*	*	*	*	*	*
02:00	315	376	330	371	*	*	*	*	*	*	*	*	*	*
03:00	328	417	343	436	*	*	*	*	*	*	*	*	*	*
04:00	304	383	337	441	*	*	*	*	*	*	*	*	*	*
05:00	265	236	252	253	*	*	*	*	*	*	*	*	*	*
06:00	133	152	190	181	*	*	*	*	*	*	*	*	*	*
07:00	122	125	117	156	*	*	*	*	*	*	*	*	*	*
08:00	90	73	129	110	*	*	*	*	*	*	*	*	*	*
09:00	93	95	108	103	*	*	*	*	*	*	*	*	*	*
10:00	22	70	31	88	*	*	*	*	*	*	*	*	*	*
11:00	4296	3989	4694	4339	2025	1405	0	0	0	0	0	0	0	0
Total	8285	9033	3430	8750	4551	4199	0	0	0	0	0	0	0	0
Day	11:00	07:00	07:00	07:00	07:00	07:00	-	-	-	-	-	-	-	-
AM Peak	278	292	380	289	329	289	-	-	-	-	-	-	-	-
Vol.	14:00	16:00	16:00	17:00	16:00	16:00	-	-	-	-	-	-	-	-
PM Peak	330	417	343	441	336	422	-	-	-	-	-	-	-	-
Vol.														
Comb. Total	9600	18417	12277	9341	9599	17959	7133	5679						
ADT	ADT 16,849	AADT 16,849												

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: Fishburn Rd
Location: 330 ft S of Sand Hill Rd
Counter: 22601
Weather: Clear

Site Code: 05
Station ID: 05
A is NB
B is SB
Latitude: 40° 27'138.0000 North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		Weekday Average		17-Jan-15		18-Jan-15	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	27	35	13	32	19	31	21	42	20	35	33	48	46	39
01:00	*	*	10	14	14	22	9	20	20	15	13	18	19	26	19	31
02:00	*	*	23	8	8	5	4	13	20	16	14	13	16	22	15	29
03:00	*	*	13	26	9	18	16	21	18	19	14	21	8	14	11	16
04:00	*	*	43	22	43	18	40	20	43	21	42	20	23	16	17	9
05:00	*	*	152	48	150	43	138	32	133	36	143	40	58	18	52	11
06:00	*	*	476	120	431	124	394	122	412	125	428	123	149	62	114	51
07:00	*	*	671	238	686	251	670	246	629	241	664	244	121	122	84	123
08:00	*	*	496	262	490	244	538	244	520	265	511	254	238	150	157	116
09:00	*	*	340	283	388	265	394	261	388	252	378	265	257	173	171	187
10:00	*	*	376	272	338	246	375	278	392	297	370	273	363	262	257	221
11:00	*	*	385	303	379	307	394	283	412	331	392	306	389	328	332	224
12:00 PM	*	*	390	307	401	346	388	326	423	358	400	334	379	307	437	243
01:00	*	*	376	338	367	295	367	370	404	335	378	334	325	301	327	279
02:00	*	*	388	368	338	363	351	366	426	411	378	376	323	334	334	255
03:00	*	*	405	561	418	536	384	534	395	543	400	544	359	297	387	281
04:00	*	*	405	639	377	640	407	627	437	611	406	629	413	263	405	228
05:00	*	*	392	596	380	589	412	503	415	515	400	551	429	259	263	192
06:00	335	317	362	330	355	373	324	343	368	360	349	345	521	268	239	196
07:00	278	269	237	269	230	263	213	259	240	257	240	263	206	230	142	289
08:00	153	183	145	192	178	236	158	196	167	200	160	201	131	153	122	177
09:00	93	103	125	135	138	160	128	125	169	159	131	136	134	160	110	82
10:00	71	61	87	87	76	86	91	96	97	127	84	91	110	245	81	56
11:00	36	57	43	64	44	84	42	68	64	90	46	73	72	94	46	59
Total	966	990	6367	5526	6251	5546	6256	5385	6613	5626	6359	5489	5076	4111	4168	3394
Day	1956		11893		11797		11641		12239		11848		9187		7562	
AM Peak	-	-	07:00	11:00	07:00	11:00	07:00	11:00	07:00	11:00	07:00	11:00	11:00	11:00	11:00	11:00
Vol.	-	-	671	303	686	307	670	283	629	331	664	306	389	328	332	224
PM Peak	18:00	18:00	15:00	16:00	15:00	16:00	17:00	16:00	16:00	16:00	16:00	16:00	18:00	12:00	12:00	19:00
Vol.	335	317	405	639	418	640	412	627	437	611	406	629	521	307	437	289

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: Sand Hill Rd
Location: 550 ft S of Cherry Dr
Counter: 22691
Weather: Clear

Site Code: 06
Station ID: 06
A to B NB
B to A SB
Latitude: 40° 26' 777.0000 North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		17-Jan-15		18-Jan-15			
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB		
12:00 AM	*	*	4	13	4	10	7	7	3	8	4	10	8	17	6	20
01:00	*	*	2	4	2	8	2	2	5	6	3	5	3	5	4	8
02:00	*	*	1	3	2	0	3	1	3	1	2	1	2	1	2	2
03:00	*	*	3	2	5	4	2	4	2	4	3	4	3	3	6	3
04:00	*	*	8	2	4	1	9	0	4	0	6	1	3	2	2	6
05:00	*	*	28	6	31	7	30	8	36	7	31	7	7	7	6	0
06:00	*	*	118	16	126	22	118	18	112	22	118	20	40	40	21	8
07:00	*	*	254	67	259	53	273	76	278	65	266	65	76	36	49	22
08:00	*	*	202	92	237	63	211	65	221	78	218	74	98	43	94	41
09:00	*	*	147	69	151	84	139	88	159	87	149	82	125	82	126	72
10:00	*	*	125	94	109	97	138	95	136	116	127	100	172	122	185	90
11:00	*	*	128	162	97	143	141	143	129	147	124	149	159	131	125	128
12:00 PM	*	*	138	157	129	127	137	126	127	131	133	135	146	156	156	163
01:00	*	*	111	134	111	120	109	126	127	148	114	132	142	140	141	144
02:00	*	*	129	158	106	160	110	144	118	188	116	162	124	151	118	140
03:00	*	*	140	257	163	213	153	252	143	242	150	241	125	153	88	139
04:00	*	*	151	281	130	270	150	300	143	283	144	284	137	160	96	121
05:00	*	*	130	300	144	306	126	286	153	306	138	300	140	166	89	110
06:00	105	178	139	188	117	209	131	204	126	184	124	183	118	142	80	95
07:00	74	141	66	147	57	132	76	145	84	126	71	138	68	104	75	74
08:00	32	112	40	112	44	96	35	115	51	101	40	107	47	54	40	68
09:00	20	51	36	98	29	80	39	97	35	78	32	81	36	81	33	53
10:00	18	29	12	41	12	45	17	44	48	60	21	44	27	70	24	45
11:00	6	8	5	6	3	9	9	8	14	27	7	12	15	30	8	15
Total	255	519	2117	2409	2072	2259	2165	2354	2257	2416	2141	2347	1827	1872	1554	1567
Day	774		4526		4331		4519		4673		4488		3699		3121	
AM Peak	-	-	07:00	11:00	07:00	11:00	07:00	11:00	07:00	11:00	07:00	11:00	10:00	11:00	10:00	11:00
Vol.	-	-	254	162	259	143	273	143	278	147	266	149	172	131	165	128
PM Peak	18:00	18:00	16:00	17:00	15:00	16:00	15:00	16:00	17:00	17:00	15:00	17:00	12:00	17:00	12:00	12:00
Vol.	105	178	151	300	163	163	153	300	153	306	150	300	146	166	156	163

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: University Dr NB
Location: 400 ft N of Rt. 322
Counter: 22626
Weather: Clear

Site Code: 07
Station ID: 07
NB

Latitude: 40° 26' 44.0000 North

Start Time	Mon 12-Jan-15	Tue 13-Jan-15	Wed 14-Jan-15	Thu 15-Jan-15	Fri 16-Jan-15	Week Day Average	Sat 17-Jan-15	Sun 18-Jan-15	Week Average
12:00 AM	*	22	20	22	22	22	20	28	22
01:00	*	10	14	11	13	12	17	13	13
02:00	*	5	8	12	9	8	17	9	10
03:00	*	5	11	4	6	6	8	9	7
04:00	*	17	27	17	17	20	21	8	18
05:00	*	41	45	46	46	44	29	10	36
06:00	*	92	79	71	66	77	42	28	63
07:00	*	203	191	182	189	191	91	57	152
08:00	*	172	164	162	180	170	94	62	139
09:00	*	150	158	168	163	160	105	63	134
10:00	*	165	174	193	172	176	163	96	160
11:00	*	279	200	249	257	246	172	117	212
12:00 PM	*	277	247	245	262	258	185	134	225
01:00	*	199	211	180	236	206	167	161	192
02:00	*	219	269	231	276	249	199	124	220
03:00	268	344	406	344	369	346	193	131	294
04:00	438	469	508	528	487	486	222	130	397
05:00	372	398	421	429	406	405	172	124	332
06:00	212	196	247	233	226	223	122	112	193
07:00	159	184	154	214	192	181	135	109	164
08:00	109	85	96	110	111	102	78	70	94
09:00	56	101	68	85	77	77	46	63	71
10:00	37	53	44	49	61	49	55	45	49
11:00	45	37	50	36	51	44	40	30	41
Total	1696	3723	3812	3821	3894	3758	2393	1733	3238

Daily

Date	Total
12-Jan-15	3339
13-Jan-15	3723
14-Jan-15	3812
15-Jan-15	3821
16-Jan-15	3894
17-Jan-15	2393
18-Jan-15	1733
Average	3245

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: University Dr NB
Location: 400 ft N of Rt. 322
Counter: 22626
Weather: Clear

Site Code: 07
Station ID: 07
NB

Latitude: 40° 26944.0000 North

Start Time	Mon 19-Jan-15	Tue 20-Jan-15	Wed 21-Jan-15	Thu 22-Jan-15	Fri 23-Jan-15	Week Day Average	Sat 24-Jan-15	Sun 25-Jan-15	Week Average
12:00 AM	15	18	70	*	*	34	*	*	34
01:00	4	11	17	*	*	11	*	*	11
02:00	5	8	11	*	*	8	*	*	8
03:00	8	3	7	*	*	6	*	*	6
04:00	16	21	23	*	*	20	*	*	20
05:00	28	34	34	*	*	32	*	*	32
06:00	57	90	75	*	*	74	*	*	74
07:00	139	182	154	*	*	158	*	*	158
08:00	141	149	181	*	*	157	*	*	157
09:00	116	148	158	*	*	141	*	*	141
10:00	166	181	172	*	*	173	*	*	173
11:00	227	216	*	*	*	222	*	*	222
12:00 PM	227	227	*	*	*	227	*	*	227
01:00	233	213	*	*	*	223	*	*	223
02:00	239	264	*	*	*	252	*	*	252
03:00	342	404	*	*	*	373	*	*	373
04:00	438	579	*	*	*	508	*	*	508
05:00	366	503	*	*	*	434	*	*	434
06:00	234	333	*	*	*	284	*	*	284
07:00	149	252	*	*	*	200	*	*	200
08:00	125	197	*	*	*	161	*	*	161
09:00	76	137	*	*	*	106	*	*	106
10:00	37	110	*	*	*	74	*	*	74
11:00	45	103	*	*	*	74	*	*	74
Total	3433	4383	902	0	0	3952	0	0	3952

Daily		Grand Total	
Date	Total	Grand Total	Average
19-Jan-15	3433	5129	8106
20-Jan-15	4383	4714	3821
21-Jan-15	3530	4714	3894
Average	3782	7710	2393
		1733	7190

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: University Dr SB
Location: 400 ft N of Rt. 322
Counter: 22599
Weather: Clear

Site Code: 07
Station ID: 07
SB

Latitude: 40° 26' 944.0000 North

Start Time	Mon	Tue	Wed	Thu	Fri	Week Day Average	Sat	Sun	Week Average
	12-Jan-15	13-Jan-15	14-Jan-15	15-Jan-15	16-Jan-15		17-Jan-15	18-Jan-15	
12:00 AM	*	14	13	12	13	13	7	18	13
01:00	*	3	9	11	7	8	3	6	6
02:00	*	4	3	7	4	4	8	7	6
03:00	*	10	3	9	8	8	4	2	6
04:00	*	12	17	9	12	12	9	2	10
05:00	*	45	39	35	35	38	12	10	29
06:00	*	100	92	94	91	94	47	42	78
07:00	*	185	196	184	201	192	34	27	138
08:00	*	150	149	136	162	149	45	32	112
09:00	*	116	104	145	113	120	86	49	102
10:00	*	94	111	125	119	112	82	97	105
11:00	*	107	91	129	151	120	113	82	112
12:00 PM	*	132	119	135	150	134	80	107	120
01:00	*	112	141	128	112	123	80	89	110
02:00	*	105	114	132	118	117	96	74	106
03:00	71	95	271	99	104	128	87	72	114
04:00	107	90	169	116	116	120	86	66	107
05:00	109	145	103	107	76	108	82	55	97
06:00	81	86	102	104	79	90	89	65	87
07:00	53	57	64	65	47	57	40	44	53
08:00	60	49	39	56	54	52	40	43	49
09:00	29	40	50	38	49	41	45	38	41
10:00	24	31	25	34	46	32	47	16	32
11:00	20	24	23	25	43	27	50	26	30
Total	554	1806	2047	1933	1910	1899	1272	1069	1663

Daily

Date	Total
12-Jan-15	1693
13-Jan-15	1806
14-Jan-15	2047
15-Jan-15	1933
16-Jan-15	1910
17-Jan-15	1272
18-Jan-15	1069
Average	1676

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: University Dr SB
Location: 400 ft N of Rt. 322
Counter: 22599
Weather: Clear

Site Code: 07
Station ID: 07
SB

Latitude: 40° 26' 944.0000 North

Start Time	Mon	Tue	Wed	Thu	Fri	Week Day Average	Sat	Sun	Week Average
	19-Jan-15	20-Jan-15	21-Jan-15	22-Jan-15	23-Jan-15		24-Jan-15	25-Jan-15	
12:00 AM	8	5	84	*	*	32	*	*	32
01:00	2	3	28	*	*	11	*	*	11
02:00	2	7	13	*	*	7	*	*	7
03:00	2	2	8	*	*	4	*	*	4
04:00	15	13	26	*	*	18	*	*	18
05:00	32	36	47	*	*	38	*	*	38
06:00	87	108	123	*	*	106	*	*	106
07:00	167	213	205	*	*	195	*	*	195
08:00	130	165	182	*	*	159	*	*	159
09:00	109	135	167	*	*	137	*	*	137
10:00	105	110	120	*	*	112	*	*	112
11:00	121	114	*	*	*	118	*	*	118
12:00 PM	113	121	*	*	*	117	*	*	117
01:00	133	152	*	*	*	142	*	*	142
02:00	125	108	*	*	*	116	*	*	116
03:00	98	102	*	*	*	100	*	*	100
04:00	98	106	*	*	*	102	*	*	102
05:00	89	133	*	*	*	111	*	*	111
06:00	86	106	*	*	*	96	*	*	96
07:00	56	184	*	*	*	120	*	*	120
08:00	65	202	*	*	*	134	*	*	134
09:00	18	88	*	*	*	53	*	*	53
10:00	29	127	*	*	*	78	*	*	78
11:00	25	89	*	*	*	57	*	*	57
Total	1715	2429	1003	0	0	2163	0	0	2163

Daily Total		Grand Total
19-Jan-15	1715	1715
20-Jan-15	2429	4134
21-Jan-15	2127	6261
Average	2090	2090
Grand Total	2269	3826

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSDData.com

Road: University Dr
Location: 200 ft N of Campus Dr
Counter: 22694
Weather: Clear

Site Code: 08
Station ID: 08
A is NB
B is SB
Latitude: 40° 26' 41.0000 North

Start Time	12-Jan-15		13-Jan-15		14-Jan-15		15-Jan-15		16-Jan-15		17-Jan-15		18-Jan-15	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	*	*	106	16	88	14	101	13	87	16	103	15	69	14
01:00	*	*	67	9	58	8	55	5	45	5	63	7	43	3
02:00	*	*	33	3	45	5	44	5	43	2	22	4	22	7
03:00	*	*	19	7	16	4	19	3	21	1	25	4	23	7
04:00	*	*	26	4	26	0	36	5	23	4	23	3	24	1
05:00	*	*	14	12	16	23	17	10	23	15	16	17	12	4
06:00	*	*	28	64	34	71	40	60	23	53	20	62	8	13
07:00	*	*	71	179	69	152	66	164	79	163	36	71	26	47
08:00	*	*	192	289	217	292	214	265	201	294	145	285	127	37
09:00	*	*	181	263	156	281	144	255	172	282	81	270	46	24
10:00	*	*	157	241	174	267	190	264	175	243	77	254	43	53
11:00	*	*	214	208	214	256	219	228	179	207	107	224	55	66
12:00 PM	*	*	250	198	264	176	252	193	272	191	139	190	87	76
01:00	*	*	275	254	299	227	253	233	324	199	139	228	106	88
02:00	*	*	288	191	257	222	254	213	267	192	266	204	105	93
03:00	*	*	292	174	328	162	278	187	338	188	174	178	120	104
04:00	*	*	420	162	413	135	416	131	389	132	201	140	178	81
05:00	616	103	561	88	579	116	561	111	519	96	148	103	149	55
06:00	447	85	466	84	463	109	420	108	420	83	149	94	138	46
07:00	253	87	284	107	320	94	306	93	251	100	133	96	134	71
08:00	240	35	233	32	260	52	311	56	245	57	211	46	189	35
09:00	153	34	125	38	173	35	146	48	144	35	86	38	110	24
10:00	111	13	152	24	132	25	147	29	122	29	77	24	56	16
11:00	61	25	70	32	97	19	67	19	84	31	57	25	61	18
Total	1881	382	4524	2677	4898	2745	4556	2699	4443	2618	2371	2673	1931	982
Day	2263		7201		7443		7255		7061		3623		2913	
AM Peak	-	-	11:00	08:00	08:00	08:00	11:00	08:00	08:00	08:00	08:00	08:00	08:00	11:00
Vol.	-	-	214	289	217	292	219	265	201	294	145	285	127	65
PM Peak	17:00	17:00	17:00	13:00	17:00	13:00	17:00	13:00	17:00	13:00	20:00	13:00	20:00	15:00
Vol.	616	103	561	254	578	227	561	233	519	199	211	228	189	104

Tri-State Traffic Data, Inc.

184 Baker Road
Coatesville, PA 19320
(610) 466-1469 TSTData.com

Road: University Dr
Location: 200 ft N of Campus Dr
Counter: 22694
Weather: Clear

Site Code: 08
Station ID: 08
A is NB
B is SB
Latitude: 40° 26' 41.0000 North

Start Time	19-Jan-15		20-Jan-15		21-Jan-15		22-Jan-15		23-Jan-15		24-Jan-15		25-Jan-15	
	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB	NB	SB
12:00 AM	61	9	110	15	103	9	*	*	*	*	*	*	*	*
01:00	42	2	64	3	69	8	*	*	*	*	*	*	*	*
02:00	17	2	41	4	39	4	*	*	*	*	*	*	*	*
03:00	12	7	20	8	26	8	*	*	*	*	*	*	*	*
04:00	24	2	24	3	21	3	*	*	*	*	*	*	*	*
05:00	11	19	18	17	19	17	*	*	*	*	*	*	*	*
06:00	22	55	34	61	34	62	*	*	*	*	*	*	*	*
07:00	57	162	72	195	73	159	*	*	*	*	*	*	*	*
08:00	186	334	201	313	214	276	*	*	*	*	*	*	*	*
09:00	160	238	158	253	164	267	*	*	*	*	*	*	*	*
10:00	168	253	181	232	178	248	*	*	*	*	*	*	*	*
11:00	212	218	211	215	161	167	*	*	*	*	*	*	*	*
12:00 PM	254	196	279	171	*	*	*	*	*	*	*	*	*	*
01:00	289	247	303	223	*	*	*	*	*	*	*	*	*	*
02:00	283	248	252	243	*	*	*	*	*	*	*	*	*	*
03:00	303	178	307	201	*	*	*	*	*	*	*	*	*	*
04:00	404	158	419	159	*	*	*	*	*	*	*	*	*	*
05:00	562	87	565	113	*	*	*	*	*	*	*	*	*	*
06:00	388	95	477	83	*	*	*	*	*	*	*	*	*	*
07:00	331	108	295	104	*	*	*	*	*	*	*	*	*	*
08:00	258	58	281	68	*	*	*	*	*	*	*	*	*	*
09:00	178	26	183	60	*	*	*	*	*	*	*	*	*	*
10:00	103	19	125	19	*	*	*	*	*	*	*	*	*	*
11:00	79	34	77	25	*	*	*	*	*	*	*	*	*	*
Total	4404	2753	4697	2788	1101	1228	0	0	0	0	0	0	0	0
Day	7157		7485		2329									
AM Peak	11:00	08:00	11:00	08:00	08:00	08:00	-	-	-	-	-	-	-	-
Vol.	212	334	211	313	214	276	-	-	-	-	-	-	-	-
PM Peak	17:00	14:00	17:00	14:00	-	-	-	-	-	-	-	-	-	-
Vol.	562	248	585	243	-	-	-	-	-	-	-	-	-	-
Comb. Total	9420		14686		9772		7255		7061		14533		3623	2913
ADT	ADT 12,670		AADT 12,670											

Start Time	19-Jan-15	20-Jan-15	21-Jan-15	22-Jan-15	23-Jan-15	24-Jan-15	25-Jan-15
12:00 AM	61	110	103	9	*	*	*
01:00	42	64	69	8	*	*	*
02:00	17	41	39	4	*	*	*
03:00	12	20	26	8	*	*	*
04:00	24	24	21	3	*	*	*
05:00	11	18	19	17	*	*	*
06:00	22	34	34	62	*	*	*
07:00	57	72	73	159	*	*	*
08:00	186	201	214	276	*	*	*
09:00	160	158	164	267	*	*	*
10:00	168	181	178	248	*	*	*
11:00	212	211	161	167	*	*	*
12:00 PM	254	279	*	*	*	*	*
01:00	289	303	*	*	*	*	*
02:00	283	252	*	*	*	*	*
03:00	303	307	*	*	*	*	*
04:00	404	419	*	*	*	*	*
05:00	562	565	*	*	*	*	*
06:00	388	477	*	*	*	*	*
07:00	331	295	*	*	*	*	*
08:00	258	281	*	*	*	*	*
09:00	178	183	*	*	*	*	*
10:00	103	125	*	*	*	*	*
11:00	79	77	*	*	*	*	*
Total	4404	4697	1101	1228	0	0	0
Day	7157	7485	2329				
AM Peak	11:00	11:00	08:00	08:00	-	-	-
Vol.	212	211	214	276	-	-	-
PM Peak	17:00	17:00	-	-	-	-	-
Vol.	562	585	-	-	-	-	-
Comb. Total	9420	14686	9772	7255	7061	14533	3623
ADT	ADT 12,670	AADT 12,670					



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	1	55	28	0	84	21	38	9	0	68	6	3	1	0	10	1	8	0	0	9	171
6:15 AM	5	105	38	0	148	26	59	7	0	92	8	5	7	0	20	5	12	3	0	20	280
6:30 AM	4	149	62	1	216	45	61	5	0	111	2	7	6	0	15	5	12	2	0	19	361
6:45 AM	1	180	73	0	254	49	81	11	0	141	7	9	5	0	21	16	29	1	0	46	462
Total	11	489	201	1	702	141	239	32	0	412	23	24	19	0	66	27	61	6	0	94	1274
7:00 AM	3	140	60	0	203	38	90	19	0	147	9	8	6	1	24	7	19	2	0	28	402
7:15 AM	8	179	64	0	251	60	83	26	2	171	13	18	13	1	45	13	35	3	1	52	519
7:30 AM	6	182	90	0	278	46	83	20	3	152	22	28	31	0	79	16	31	5	0	52	561
7:45 AM	7	189	89	2	267	55	77	18	3	153	19	19	26	0	64	14	34	8	0	56	540
Total	24	670	303	2	999	199	333	83	8	623	63	71	76	2	212	50	119	18	1	188	2022
8:00 AM	3	151	62	0	216	45	81	16	0	142	15	18	14	1	48	8	26	0	0	34	440
8:15 AM	8	144	51	1	204	36	102	20	1	159	14	8	11	0	33	10	18	3	0	31	427
8:30 AM	4	147	65	1	217	38	94	20	1	153	19	7	9	0	35	7	17	7	0	31	436
8:45 AM	18	142	87	1	248	37	96	16	0	149	10	8	9	2	29	7	28	9	0	44	470
Total	33	584	265	3	885	156	373	72	2	603	58	41	43	3	145	32	89	19	0	140	1773
Grand Total	68	1743	769	6	2586	496	945	187	10	1638	144	136	138	5	423	109	269	43	1	422	5089
Apprch %	2.6	67.4	29.7	0.2		30.3	57.7	11.4	0.6		34.0	32.2	32.6	1.2		25.8	63.7	10.2	0.2		
Total %	1.3	34.4	15.2	0.1	51.0	9.8	18.6	3.7	0.2	32.3	2.8	2.7	2.7	0.1	8.3	2.2	5.3	0.8	0.0	8.3	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	24	681	305	2	1012	206	324	80	8	618	69	81	84	2	236	51	126	16	1	194	2060
Percent	2.4	67.3	30.1	0.2		33.3	52.4	12.9	1.3		29.2	34.3	35.6	0.8		26.3	64.9	8.2	0.5		
7:30 AM Volume	6	182	90	0	278	46	83	20	3	152	22	26	31	0	79	16	31	5	0	52	561
Factor																					
High int.	7:30 AM					7:15 AM					7:30 AM					7:45 AM					
Volume	6	182	90	0	278	60	83	26	2	171	22	26	31	0	79	14	34	8	0	56	
PHF	0.75	0.94	0.85	0.25	0.91	0.66	0.98	0.77	0.67	0.90	0.78	0.78	0.68	0.50	0.75	0.80	0.90	0.50	0.25	0.87	0.92
Heavy Vehicles %	0%	2%	0%			0%	3%	4%			0%	1%	1%			2%	2%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		51	0		0		18	0		1		28	0		0		1	0		



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total					
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total						
6:00 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:15 AM	0	2	0	0	2	0	6	0	0	6	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	9
6:30 AM	0	3	1	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:45 AM	0	3	2	0	5	0	2	0	0	2	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	8
Total	0	11	3	0	14	0	10	0	0	10	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	26
7:00 AM	0	2	2	0	4	0	2	0	0	2	0	1	0	1	2	0	0	0	0	0	0	0	0	0	0	8
7:15 AM	0	3	1	0	4	0	1	2	0	3	0	0	0	0	0	0	2	0	0	0	0	0	0	0	2	9
7:30 AM	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
7:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	4
Total	0	14	3	0	17	0	5	2	0	7	0	1	1	1	3	0	2	0	0	0	0	0	0	0	2	29
8:00 AM	0	5	0	0	5	0	6	1	0	7	0	1	0	0	1	1	1	0	0	0	0	0	0	0	2	15
8:15 AM	1	2	0	0	3	0	1	2	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
8:30 AM	0	2	0	0	2	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	8
8:45 AM	0	1	0	0	1	0	5	0	0	5	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	7
Total	1	10	0	0	11	0	17	3	0	20	0	2	0	0	2	1	2	0	0	0	0	0	0	0	3	36
Grand Total	1	35	6	0	42	0	32	5	0	37	0	3	1	1	5	1	6	0	0	0	0	0	0	0	7	91
Apprch %	2.4	83.3	14.3	0.0		0.0	86.5	13.5	0.0		0.0	60.0	20.0	20.0		14.3	85.7	0.0	0.0		0.0	0.0	0.0	0.0		
Total %	1.1	38.5	6.6	0.0	46.2	0.0	35.2	5.5	0.0	40.7	0.0	3.3	1.1	1.1	5.5	1.1	6.6	0.0	0.0		0.0	0.0	0.0	0.0	7.7	
Overall Peak Hour Volume	0	17	1	0	18	0	9	3	0	12	0	1	1	0	2	1	3	0	0	0	0	0	0	0	4	36



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

U-Turn & RTOR

Start Time	Governor Rd (SR 0322) Eastbound				Governor Rd (SR 0322) Westbound				University Dr Northbound				University Dr Southbound				Int. Total
	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	
8:00 AM	0		1	1	0		0	0	0		1	1	0		0	0	2
8:15 AM	0		6	6	0		1	1	0		6	6	0		2	2	15
8:30 AM	0		15	15	0		0	0	0		6	6	0		0	0	21
8:45 AM	0		6	6	0		1	1	0		2	2	0		1	1	10
Total	0		28	28	0		2	2	0		15	15	0		3	3	48
7:00 AM	0		8	8	0		3	3	0		6	6	0		1	1	18
7:15 AM	0		11	11	0		8	8	0		7	7	0		0	0	26
7:30 AM	0		17	17	0		2	2	0		4	4	0		0	0	23
7:45 AM	0		19	19	0		4	4	1		10	11	0		1	1	35
Total	0		55	55	0		17	17	1		27	28	0		2	2	102
8:00 AM	0		4	4	0		4	4	0		7	7	0		0	0	15
8:15 AM	1		13	14	0		2	2	0		7	7	0		1	1	24
8:30 AM	0		9	9	0		1	1	0		6	6	0		1	1	17
8:45 AM	0		7	7	0		6	6	0		2	2	1		2	3	18
Total	1		33	34	0		13	13	0		22	22	1		4	5	74
Grand Total	1		116	117	0		0	0	1		64	65	1		9	10	192
Approch %	0.9	0.0	99.1	0.0					1.5	0.0	98.5	0.0	10.0	0.0	90.0	0.0	
Total %	0.5		60.4	60.9	0.0		0.0	0.0	0.5		33.3	33.9	0.5		4.7	5.2	
Overall Peak Hour Volume	0		51	51	0		18	18	1		28	29	0		1	1	99



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	2	30	23	0	55	29	57	5	0	91	2	0	1	2	5	3	6	2	0	11	162
6:15 AM	0	56	48	0	104	52	86	6	0	144	3	1	4	0	8	3	10	0	0	13	269
6:30 AM	0	57	92	0	148	42	113	2	0	157	2	1	5	0	8	6	15	1	0	22	336
6:45 AM	0	81	108	0	189	59	133	11	0	203	3	1	6	0	10	11	17	1	0	29	431
Total	2	224	271	0	497	182	389	24	0	595	10	3	16	2	31	23	48	4	0	75	1198
7:00 AM	1	80	55	0	136	43	130	4	1	178	11	2	10	0	23	8	13	2	0	23	360
7:15 AM	1	108	87	0	196	45	142	9	0	198	13	2	14	0	29	12	25	1	0	38	459
7:30 AM	0	111	94	0	205	59	147	12	2	220	16	6	21	0	43	5	42	4	0	51	519
7:45 AM	3	113	88	0	204	81	148	11	3	243	12	6	24	0	42	8	74	1	1	84	573
Total	5	412	324	0	741	228	567	36	6	837	52	16	69	0	137	33	154	8	1	196	1911
8:00 AM	1	105	60	0	166	43	125	11	3	182	16	2	14	1	33	8	27	3	0	38	419
8:15 AM	2	105	51	2	160	26	123	9	4	162	18	6	9	0	33	10	14	4	0	28	383
8:30 AM	0	118	38	0	156	24	155	14	0	193	6	2	11	0	19	6	14	3	0	23	391
8:45 AM	4	100	26	0	130	40	145	14	0	199	12	2	16	2	32	5	8	5	0	18	379
Total	7	428	175	2	612	133	548	48	7	736	52	12	50	3	117	29	63	15	0	107	1572
Grand Total	14	1064	770	2	1850	543	1504	108	13	2168	114	31	135	5	285	85	265	27	1	378	4681
Approch %	0.8	57.5	41.6	0.1		25.0	69.4	5.0	0.6		40.0	10.9	47.4	1.8		22.5	70.1	7.1	0.3		
Total %	0.3	22.7	16.4	0.0	39.5	11.6	32.1	2.3	0.3	46.3	2.4	0.7	2.9	0.1	6.1	1.8	5.7	0.6	0.0	8.1	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM to 8:15 AM																				
Volume	5	437	329	0	771	228	562	43	8	841	57	16	73	1	147	33	168	9	1	211	1970
Percent	0.6	56.7	42.7	0.0		27.1	66.8	5.1	1.0		38.8	10.9	49.7	0.7		15.6	79.6	4.3	0.5		
7:45 AM Volume Peak Factor	3	113	88	0	204	81	148	11	3	243	12	6	24	0	42	8	74	1	1	84	573
High Int. Volume	0	111	94	0	205	81	148	11	3	243	16	6	21	0	43	8	74	1	1	84	
PHF	0.42	0.97	0.88	0.94		0.70	0.95	0.90	0.67	0.87	0.89	0.67	0.76	0.25	0.85	0.69	0.57	0.56	0.25	0.63	0.86
Heavy Vehicles %	0%	8%	0%			0%	3%	5%			4%	0%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		23	0		0		11	0		0		42	0		0		3	0		



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	1	0	0	0	1	5
6:15 AM	0	4	0	0	4	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	12
6:30 AM	0	5	0	0	5	1	6	0	0	7	0	1	0	0	1	1	0	0	0	1	14
6:45 AM	0	7	0	0	7	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	10
Total	0	19	0	0	19	1	18	0	0	19	0	1	0	0	1	2	0	0	0	2	41
7:00 AM	0	2	0	0	2	0	4	0	0	4	1	0	0	0	1	2	0	0	0	2	9
7:15 AM	0	4	0	0	4	0	5	0	0	5	1	0	0	0	1	0	0	0	0	0	10
7:30 AM	0	7	0	0	7	0	5	0	0	5	0	1	0	0	1	0	0	0	0	0	13
7:45 AM	0	10	0	0	10	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	11
Total	0	23	0	0	23	0	15	0	0	15	2	1	0	0	3	2	0	0	0	2	43
8:00 AM	0	13	0	0	13	1	6	2	0	9	1	0	0	0	1	0	0	0	0	0	23
8:15 AM	0	4	0	0	4	1	7	0	0	8	1	0	1	0	2	0	0	0	0	0	14
8:30 AM	0	5	0	0	5	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	10
8:45 AM	0	4	1	0	5	0	9	0	0	9	2	0	0	0	2	0	0	0	0	0	16
Total	0	26	1	0	27	2	27	2	0	31	4	0	1	0	5	0	0	0	0	0	63
Grand Total	0	68	1	0	69	3	60	2	0	65	6	2	1	0	9	4	0	0	0	4	147
Apprch %	0.0	98.6	1.4	0.0		4.6	92.3	3.1	0.0		66.7	22.2	11.1	0.0		100.0	0.0	0.0	0.0		
Total %	0.0	46.3	0.7	0.0	46.9	2.0	40.8	1.4	0.0	44.2	4.1	1.4	0.7	0.0	6.1	2.7	0.0	0.0	0.0	2.7	
Overall Peak Hour Volume	0	34	0	0	34	1	17	2	0	20	2	1	0	0	3	0	0	0	0	0	57



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

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Route 322 Corridor Evaluation
 AM PEAK HOUR

Start Time	Governor Rd (SR 0322) Eastbound				Governor Rd (SR 0322) Westbound				Centerview Ln Northbound				Centerview Ln Southbound				Int. Total
	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	
6:00 AM	0		1	1	0		0	0	0		0	0	0		0	0	1
6:15 AM	0		0	0	0		1	1	0		1	1	0		0	0	2
6:30 AM	0		0	0	0		1	1	0		4	4	0		1	1	6
6:45 AM	0		2	2	0		1	1	0		6	6	0		1	1	10
Total	0		3	3	0		3	3	0		11	11	0		2	2	19
7:00 AM	0		2	2	0		0	0	0		7	7	0		0	0	9
7:15 AM	0		6	6	0		3	3	0		12	12	0		1	1	22
7:30 AM	0		6	6	0		4	4	0		9	9	0		0	0	19
7:45 AM	0		6	6	0		3	3	0		12	12	0		1	1	22
Total	0		20	20	0		10	10	0		40	40	0		2	2	72
8:00 AM	0		5	5	0		1	1	0		9	9	0		1	1	16
8:15 AM	0		1	1	0		2	2	0		5	5	0		3	3	11
8:30 AM	0		5	5	0		0	0	0		6	6	0		1	1	12
8:45 AM	0		3	3	0		1	1	0		12	12	0		3	3	19
Total	0		14	14	0		4	4	0		32	32	0		8	8	58
Grand Total	0		37	37	0		0	0	0		83	83	0		12	12	132
Approch %	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	
Total %	0.0		28.0	28.0	0.0		0.0	0.0	0.0		62.9	62.9	0.0		9.1	9.1	
Overall Peak Hour Volume	0		23	23	0		11	11	0		42	42	0		3	3	79



Herbert, Rowland & Grubic, Inc.
369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
Route 322 Corridor Evaluation
AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	34	0	0	34	0	98	0	0	98	0	0	0	0	0	0	0	0	0	0	132
6:15 AM	0	61	0	0	61	0	135	0	0	135	0	0	0	0	0	1	0	4	0	5	201
6:30 AM	0	66	0	0	66	0	157	0	0	157	0	0	0	0	0	2	0	2	0	4	227
6:45 AM	0	94	0	0	94	0	197	1	0	198	0	0	0	0	0	0	0	0	0	0	292
Total	0	255	0	0	255	0	587	1	0	588	0	0	0	0	0	3	0	6	0	9	852
7:00 AM	0	99	0	0	99	0	175	1	0	176	0	0	0	0	0	1	0	0	0	1	276
7:15 AM	0	133	0	0	133	0	201	0	0	201	0	0	0	0	0	1	0	1	0	2	336
7:30 AM	1	134	0	0	135	0	224	0	0	224	0	0	0	0	0	1	0	3	0	4	363
7:45 AM	1	143	0	0	144	0	226	0	0	226	0	0	0	0	0	0	0	3	0	3	373
Total	2	509	0	0	511	0	826	1	0	827	0	0	0	0	0	3	0	7	0	10	1348
8:00 AM	2	124	0	0	126	0	180	1	0	181	0	0	0	0	0	0	0	2	0	2	309
8:15 AM	0	122	0	0	122	0	158	0	0	158	0	0	0	0	0	2	0	1	0	3	283
8:30 AM	1	132	0	0	133	0	201	3	0	204	0	0	0	0	0	0	0	2	0	2	339
8:45 AM	1	118	0	0	119	0	196	2	0	198	0	0	0	0	0	1	0	1	0	2	319
Total	4	496	0	0	500	0	735	6	0	741	0	0	0	0	0	3	0	6	0	9	1250
Grand Total	6	1260	0	0	1266	0	2148	8	0	2156	0	0	0	0	0	9	0	19	0	28	3450
Approch %	0.5	99.5	0.0	0.0		0.0	99.6	0.4	0.0		0.0	0.0	0.0	0.0	0.0	32.1	0.0	67.9	0.0		
Total %	0.2	36.5	0.0	0.0	36.7	0.0	62.3	0.2	0.0	62.5	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.6	0.0	0.6	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	4	534	0	0	538	0	831	1	0	832	0	0	0	0	0	2	0	9	0	11	1381
Percent	0.7	99.3	0.0	0.0		0.0	99.9	0.1	0.0							18.2	0.0	81.8	0.0		
7:45 AM Volume																					
Peak Factor	1	143	0	0	144	0	226	0	0	226	0	0	0	0	0	0	0	3	0	3	373
High Int. Volume																					
PHF	0.50	0.93	0	0	0.93	0	0.92	0.25	0.92		0	0	0	0	0	0.50	0	0.75	0	0.69	0.93
Heavy Vehicles %	0%	6%	0%			0%	2%	100%			0%	0%	0%			0%	0%	11%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	4	0	0	4	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	6
6:15 AM	0	4	0	0	4	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	11
6:30 AM	0	4	0	0	4	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	11
6:45 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Total	0	16	0	0	16	0	20	0	0	20	0	0	0	0	0	0	0	0	0	0	36
7:00 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:15 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:30 AM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
7:45 AM	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	9
Total	0	23	0	0	23	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	39
8:00 AM	0	15	0	0	15	0	9	1	0	10	0	0	0	0	0	0	0	1	0	1	26
8:15 AM	0	6	0	0	6	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	16
8:30 AM	0	6	0	0	6	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	11
8:45 AM	0	3	0	0	3	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	10
Total	0	30	0	0	30	0	31	1	0	32	0	0	0	0	0	0	0	1	0	1	63
Grand Total	0	69	0	0	69	0	67	1	0	68	0	0	0	0	0	0	0	1	0	1	138
Apprch %	0.0	100.0	0.0	0.0		0.0	98.5	1.5	0.0							0.0	0.0	100.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	48.6	0.7	0.0	49.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.7	
Overall Peak Hour Volume	0	34	0	0	34	0	20	1	0	21	0	0	0	0	0	0	0	1	0	1	56



Herbert, Rowland & Grubic, Inc.
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 (717) 584-1121

Intersection #: 4
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Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	34	0	0	34	0	97	0	0	97	0	0	0	1	1	0	0	2	0	2	134
6:15 AM	0	62	0	0	62	1	131	1	0	133	0	0	0	1	1	0	0	3	0	3	199
6:30 AM	0	67	0	0	67	0	156	0	0	156	0	0	0	0	0	1	0	2	0	3	226
6:45 AM	1	94	0	0	95	0	189	1	0	190	0	0	0	0	0	2	0	9	0	11	296
Total	1	257	0	0	258	1	573	2	0	576	0	0	0	2	2	3	0	16	0	19	855
7:00 AM	0	97	5	0	102	2	174	1	0	177	2	0	0	0	2	0	0	7	0	7	288
7:15 AM	1	137	0	0	138	0	181	0	0	181	1	0	0	3	4	0	0	16	0	16	339
7:30 AM	1	134	0	0	135	0	212	0	0	212	0	0	0	1	1	0	0	15	0	15	363
7:45 AM	2	138	2	0	142	0	215	0	0	215	0	0	0	3	3	0	0	12	0	12	372
Total	4	506	7	0	517	2	782	1	0	785	3	0	0	7	10	0	0	50	0	50	1382
8:00 AM	0	124	0	0	124	0	169	3	0	172	1	0	0	3	4	1	0	7	0	8	308
8:15 AM	2	120	0	0	122	0	154	0	0	154	0	0	0	1	1	0	0	4	0	4	281
8:30 AM	0	133	0	0	133	0	198	0	0	198	0	1	0	0	1	0	0	4	0	4	336
8:45 AM	2	116	0	0	118	0	188	0	0	188	0	0	0	2	2	1	0	9	0	10	318
Total	4	493	0	0	497	0	709	3	0	712	1	1	0	6	8	2	0	24	0	26	1243
Grand Total	9	1256	7	0	1272	3	2064	6	0	2073	4	1	0	15	20	5	0	90	0	95	3460
Apprch %	0.7	98.7	0.6	0.0		0.1	99.6	0.3	0.0		20.0	5.0	0.0	75.0		5.3	0.0	94.7	0.0		
Total %	0.3	36.3	0.2	0.0	36.8	0.1	59.7	0.2	0.0	59.9	0.1	0.0	0.0	0.4	0.6	0.1	0.0	2.6	0.0	2.7	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From 7:15 AM to 8:15 AM																					
Volume	4	533	2	0	539	0	777	3	0	780	2	0	0	10	12	1	0	50	0	51	1382
Percent	0.7	98.9	0.4	0.0		0.0	99.6	0.4	0.0		16.7	0.0	0.0	83.3		2.0	0.0	98.0	0.0		
7:45 AM Volume	2	138	2	0	142	0	215	0	0	215	0	0	0	3	3	0	0	12	0	12	372
Factor																					
High Int.		7:45 AM					7:45 AM					7:15 AM					7:15 AM				
Volume	2	138	2	0	142	0	215	0	0	215	1	0	0	3	4	0	0	16	0	16	0.93
PHF	0.50	0.97	0.25	0.95		0.90	0.25	0.91			0.50	0.83	0.75			0.25	0.78	0.80			
Heavy Vehicles %	0%	6%	0%			0%	3%	67%			0%	0%	0%			0%	0%	2%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	4	0	0	4	0	2	0	0	2	0	0	0	1	1	0	0	0	0	0	7
6:15 AM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
6:30 AM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
6:45 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Total	0	18	0	0	18	0	20	0	0	20	0	0	0	1	1	0	0	0	0	0	39
7:00 AM	0	4	0	0	4	0	5	1	0	6	0	0	0	0	0	0	0	0	0	0	10
7:15 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:30 AM	0	7	0	0	7	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	13
7:45 AM	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	9
Total	0	23	0	0	23	0	17	1	0	18	0	0	0	0	0	0	0	0	0	0	41
8:00 AM	0	15	0	0	15	0	8	2	0	10	0	0	0	0	0	0	0	1	0	1	26
8:15 AM	0	5	0	0	5	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0	14
8:30 AM	0	5	0	0	5	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	11
8:45 AM	0	4	0	0	4	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	11
Total	0	29	0	0	29	0	30	2	0	32	0	0	0	0	0	0	0	1	0	1	62
Grand Total	0	70	0	0	70	0	67	3	0	70	0	0	0	1	1	0	0	1	0	1	142
Apprch %	0.0	100.0	0.0	0.0		0.0	95.7	4.3	0.0		0.0	0.0	0.0	100.0		0.0	0.0	100.0	0.0		
Total %	0.0	49.3	0.0	0.0	49.3	0.0	47.2	2.1	0.0	49.3	0.0	0.0	0.0	0.7	0.7	0.0	0.0	0.7	0.0	0.7	
Overall Peak Hour Volume	0	34	0	0	34	0	20	2	0	22	0	0	0	0	0	0	0	1	0	1	57



Herbert, Rowland & Grubic, Inc.
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Route 322 Corridor Evaluation
 AM PEAK HOUR

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
	6:00 AM	0	32	0	0	32	0	99	0	0	99	0	0	0	0	0	0	0	0	0		0
6:15 AM	0	68	0	0	68	0	135	0	0	135	0	0	0	0	0	0	0	0	0	0	0	201
6:30 AM	0	62	0	0	62	0	152	0	0	152	0	0	0	0	0	1	0	0	0	0	1	215
6:45 AM	0	94	0	0	94	0	191	0	0	191	0	0	0	0	0	0	0	2	0	2	2	287
Total	0	254	0	0	254	0	577	0	0	577	0	0	0	0	0	1	0	2	0	3	834	
7:00 AM	0	92	0	0	92	0	172	0	0	172	0	0	0	0	0	1	0	3	0	0	4	268
7:15 AM	0	141	0	0	141	0	182	0	0	182	0	0	0	0	0	1	0	0	0	0	1	324
7:30 AM	0	134	0	0	134	0	210	0	0	210	0	0	0	0	0	0	0	1	0	1	1	345
7:45 AM	3	141	0	0	144	0	215	0	0	215	0	0	0	0	0	0	0	1	0	1	1	360
Total	3	508	0	0	511	0	779	0	0	779	0	0	0	0	0	2	0	5	0	7	1297	
8:00 AM	0	122	0	0	122	0	174	1	0	175	0	0	0	0	0	0	0	1	0	1	1	298
8:15 AM	0	122	0	0	122	0	150	0	0	150	0	0	0	0	0	1	0	3	0	4	4	276
8:30 AM	0	131	0	0	131	0	198	0	0	198	0	0	0	0	0	0	0	1	0	1	1	330
8:45 AM	0	120	0	0	120	0	189	0	0	189	0	0	0	0	0	0	0	0	0	0	0	309
Total	0	495	0	0	495	0	711	1	0	712	0	0	0	0	0	1	0	5	0	6	1213	
Grand Total	3	1257	0	0	1260	0	2067	1	0	2068	0	0	0	0	0	4	0	12	0	16	3344	
Apprch %	0.2	99.8	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	25.0	0.0	75.0	0.0			
Total %	0.1	37.6	0.0	0.0	37.7	0.0	61.8	0.0	0.0	61.8	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.4	0.0	0.5		

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	3	538	0	0	541	0	781	1	0	782	0	0	0	0	0	1	0	3	0	4	1327
Percent	0.6	99.4	0.0	0.0		0.0	99.9	0.1	0.0							25.0	0.0	75.0	0.0		
7:45 AM Volume	3	141	0	0	144	0	215	0	0	215	0	0	0	0	0	0	0	1	0	1	360
Peak Factor																					
High Int. Volume	3	141	0	0	144	0	215	0	0	215	0	0	0	0	0	1	0	3	0	4	0.92
PHF	0.25	0.95			0.94	0.25	0.91	0.25		0.91						0.25		0.75		1.00	
Heavy Vehicles %	0%	6%	0%			0%	3%	0%			0%	0%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
6:15 AM	0	6	0	0	6	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	13
6:30 AM	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
6:45 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Total	0	17	0	0	17	0	20	0	0	20	0	0	0	0	0	0	0	0	0	0	37
7:00 AM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	1	0	1	11
7:15 AM	0	2	0	0	2	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	7
7:30 AM	0	8	0	0	8	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	12
7:45 AM	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	9
Total	0	24	0	0	24	0	14	0	0	14	0	0	0	0	0	0	0	1	0	1	39
8:00 AM	0	16	0	0	16	0	11	0	0	11	0	0	0	0	0	0	0	0	0	0	27
8:15 AM	0	5	0	0	5	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	15
8:30 AM	0	5	0	0	5	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	10
8:45 AM	0	2	0	0	2	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	10
Total	0	28	0	0	28	0	34	0	0	34	0	0	0	0	0	0	0	0	0	0	62
Grand Total	0	69	0	0	69	0	68	0	0	68	0	0	0	0	0	0	0	1	0	1	138
Apprch %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0							0.0	0.0	100.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	49.3	0.0	0.0	49.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.7	
Overall Peak Hour Volume	0	34	0	0	34	0	21	0	0	21	0	0	0	0	0	0	0	0	0	0	55



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
6:00 AM	0	30	0	0	30	0	100	0	0	100	0	0	0	0	0	0	0	0	0	0	0	130
6:15 AM	0	64	0	0	64	0	129	1	0	130	0	0	0	0	0	0	0	1	0	1	195	
6:30 AM	0	67	0	0	67	0	160	0	0	160	0	0	0	0	0	0	0	1	0	1	228	
6:45 AM	0	89	0	0	89	0	187	0	0	187	0	0	0	0	0	0	0	1	0	1	277	
Total	0	250	0	0	250	0	576	1	0	577	0	0	0	0	0	0	0	3	0	3	830	
7:00 AM	0	92	0	0	92	0	172	0	0	172	0	0	0	0	0	2	0	0	0	2	266	
7:15 AM	0	139	0	0	139	0	175	0	0	175	0	0	0	0	0	0	0	2	0	2	316	
7:30 AM	0	134	0	0	134	0	213	0	0	213	0	0	0	0	0	0	0	0	0	0	347	
7:45 AM	1	134	0	0	135	0	210	0	0	210	0	0	0	0	0	0	0	1	0	1	346	
Total	1	499	0	0	500	0	770	0	0	770	0	0	0	0	0	2	0	3	0	5	1275	
8:00 AM	1	121	0	0	122	0	171	0	0	171	0	0	0	0	0	0	0	1	0	1	294	
8:15 AM	0	122	0	0	122	0	159	0	0	159	0	0	0	0	0	0	0	0	0	0	281	
8:30 AM	0	132	0	0	132	0	196	1	0	197	0	0	0	0	0	0	0	0	0	0	329	
8:45 AM	0	119	0	0	119	0	184	0	0	184	0	0	0	0	0	1	0	2	0	3	306	
Total	1	494	0	0	495	0	710	1	0	711	0	0	0	0	0	1	0	3	0	4	1210	
Grand Total	2	1243	0	0	1245	0	2056	2	0	2058	0	0	0	0	0	3	0	9	0	12	3315	
Approch %	0.2	99.8	0.0	0.0		0.0	99.9	0.1	0.0		0.0	0.0	0.0	0.0	0.0	25.0	0.0	75.0	0.0			
Total %	0.1	37.5	0.0	0.0	37.6	0.0	62.0	0.1	0.0	62.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.4		

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM to 8:15 AM																				
Volume	2	528	0	0	530	0	769	0	0	769	0	0	0	0	0	0	0	4	0	4	1303
Percent	0.4	99.6	0.0	0.0		0.0	100.0	0.0	0.0							0.0	0.0	100.0	0.0		
7:30 AM Volume Peak Factor	0	134	0	0	134	0	213	0	0	213	0	0	0	0	0	0	0	0	0	0	347
High Int. Volume	0	139	0	0	139	0	213	0	0	213	0	0	0	0	0	1	0	2	0	3	0.94
PHF	0.50	0.95			0.95		0.90			0.90								0.50		0.50	
Heavy Vehicles %	0%	6%	0%			0%	2%	0%			0%	0%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
6:15 AM	0	3	0	0	3	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	9
6:30 AM	0	4	0	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
6:45 AM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
Total	0	12	0	0	12	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	31
7:00 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
7:15 AM	0	4	0	0	4	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
7:30 AM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
7:45 AM	0	8	0	0	8	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	9
Total	0	23	0	0	23	0	15	0	0	15	0	0	0	0	0	0	0	0	0	0	38
8:00 AM	0	14	0	0	14	0	8	0	0	8	0	0	0	0	0	0	0	0	0	0	22
8:15 AM	0	4	0	0	4	0	10	0	0	10	0	0	0	0	0	0	0	0	0	0	14
8:30 AM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
8:45 AM	0	4	0	0	4	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	10
Total	0	27	0	0	27	0	31	0	0	31	0	0	0	0	0	0	0	0	0	0	58
Grand Total	0	62	0	0	62	0	65	0	0	65	0	0	0	0	0	0	0	0	0	0	127
Approch %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	48.8	0.0	0.0	48.8	0.0	51.2	0.0	0.0	51.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Overall Peak Hour Volume	0	33	0	0	33	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	51



AN EMPLOYEE-OWNED COMPANY

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Route 322 Corridor Evaluation
AM PEAK HOUR

All Vehicles

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
6:00 AM	0	27	8	0	35	24	90	0	0	114	5	0	0	0	5	0	1	2	0	0	3	157
6:15 AM	0	61	2	0	63	25	119	1	0	145	12	0	0	0	12	0	2	0	0	0	2	222
6:30 AM	0	53	15	0	68	37	140	1	0	178	15	1	1	0	17	0	6	5	0	0	11	274
6:45 AM	0	74	19	0	93	40	170	0	0	210	16	0	6	0	22	1	7	3	0	0	11	336
Total	0	215	44	0	259	126	519	2	0	647	48	1	7	0	56	1	16	10	0	0	27	989
7:00 AM	1	75	17	0	93	37	148	2	1	188	17	1	10	0	28	2	5	3	0	0	10	319
7:15 AM	1	114	25	0	140	69	161	3	0	233	21	4	9	0	34	7	10	0	0	0	17	424
7:30 AM	1	99	31	1	132	66	184	2	1	253	27	4	10	0	41	7	16	1	1	1	25	451
7:45 AM	0	108	30	0	138	75	191	2	1	269	27	5	18	0	50	6	18	2	0	0	26	483
Total	3	396	103	1	503	247	684	9	3	943	92	14	47	0	153	22	49	6	1	0	78	1677
8:00 AM	2	88	33	0	123	53	142	0	0	195	28	5	8	0	41	11	6	0	0	0	17	376
8:15 AM	0	89	35	0	124	42	119	1	0	162	27	2	16	0	45	4	11	4	0	0	19	350
8:30 AM	3	87	40	0	130	39	166	4	0	209	28	2	17	0	47	7	5	3	0	0	15	401
8:45 AM	2	77	28	0	107	46	153	5	0	204	29	4	13	0	46	4	8	3	0	0	15	372
Total	7	341	136	0	484	180	580	10	0	770	112	13	54	0	179	26	30	10	0	0	66	1499
Grand Total	10	952	283	1	1246	553	1783	21	3	2360	252	28	108	0	388	49	95	26	1	0	171	4165
Apprch %	0.8	76.4	22.7	0.1		23.4	75.6	0.9	0.1		64.9	7.2	27.8	0.0		28.7	55.6	15.2	0.6	0.0		
Total %	0.2	22.9	6.8	0.0	29.9	13.3	42.8	0.5	0.1	56.7	6.1	0.7	2.6	0.0	9.3	1.2	2.3	0.6	0.0	0.0	4.1	

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM to 8:15 AM																				
Volume	4	409	119	1	533	263	678	7	2	950	103	18	45	3	169	31	50	3	1	85	1737
Percent	0.8	76.7	22.3	0.2		27.7	71.4	0.7	0.2		80.9	10.7	26.6	1.8		36.5	58.8	3.5	1.2		
7:45 AM Volume	0	108	30	0	138	75	191	2	1	269	27	5	18	1	51	6	18	2	0	26	484
Factor																					
High Int. Volume	1	114	25	0	140	75	191	2	1	269	27	5	18	1	51	6	18	2	0	26	
PHF	0.50	0.90	0.90	0.25	0.95	0.88	0.89	0.58	0.50	0.88	0.92	0.90	0.63	0.38	0.83	0.70	0.69	0.38	0.25	0.82	0.90
Heavy Vehicles %	0%	7%	4%			2%	3%	0%			2%	0%	2%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		37	0		0		0	0		0		24	3		0		2	0		



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	3	1	0	4	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	8
6:15 AM	0	4	0	1	5	0	4	0	0	4	2	0	0	0	2	0	0	0	0	0	11
6:30 AM	0	4	1	1	6	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	11
6:45 AM	0	3	0	0	3	0	4	0	0	4	1	0	0	0	1	0	0	0	1	1	9
Total	0	14	2	2	18	1	16	0	0	17	3	0	0	0	3	0	0	0	1	1	39
7:00 AM	0	5	0	0	5	1	3	0	0	4	1	0	0	1	2	0	0	0	0	0	11
7:15 AM	0	3	1	0	4	2	4	0	0	6	0	0	0	0	0	0	0	0	0	0	10
7:30 AM	0	6	2	0	8	3	4	0	0	7	2	0	0	0	2	0	0	0	0	0	17
7:45 AM	0	9	1	0	10	0	4	0	0	4	0	0	1	1	2	0	0	0	0	0	16
Total	0	23	4	0	27	6	15	0	0	21	3	0	1	2	6	0	0	0	0	0	54
8:00 AM	0	12	1	0	13	0	6	0	0	6	0	0	0	2	2	0	0	0	0	0	21
8:15 AM	0	2	1	0	3	0	7	0	0	7	1	0	2	0	3	0	0	0	0	0	13
8:30 AM	0	4	0	0	4	1	4	0	0	5	2	0	0	0	2	0	0	0	0	0	11
8:45 AM	0	3	1	0	4	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	11
Total	0	21	3	0	24	1	24	0	0	25	3	0	2	2	7	0	0	0	0	0	56
Grand Total	0	58	9	2	69	8	55	0	0	63	9	0	3	4	16	0	0	0	1	1	149
Apprch %	0.0	84.1	13.0	2.9		12.7	87.3	0.0	0.0		56.3	0.0	18.8	25.0		0.0	0.0	0.0	100.0		
Total %	0.0	38.9	6.0	1.3	46.3	5.4	36.9	0.0	0.0	42.3	6.0	0.0	2.0	2.7	10.7	0.0	0.0	0.0	0.7	0.7	
Overall Peak Hour Volume	0	30	5	0	35	5	18	0	0	23	2	0	1	3	6	0	0	0	0	0	64



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Route 322 Corridor Evaluation
 AM PEAK HOUR

Start Time	Rt. 322 Eastbound				Rt. 322 Westbound				Cherry Dr Northbound				Cherry Dr Southbound				Int. Total
	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	
6:00 AM	0		1	1	0		0	0	0		0	0	0		1	1	2
6:15 AM	0		0	0	0		0	0	0		0	0	0		0	0	0
6:30 AM	0		3	3	0		1	1	0		1	1	0		4	4	9
6:45 AM	0		7	7	0		0	0	0		5	5	0		2	2	14
Total	0		11	11	0		1	1	0		6	6	0		7	7	25
7:00 AM	0		5	5	0		0	0	0		7	7	0		3	3	15
7:15 AM	0		8	8	0		0	0	0		5	5	0		0	0	13
7:30 AM	0		10	10	0		0	0	0		4	4	0		1	1	15
7:45 AM	0		8	8	0		0	0	0		9	9	0		1	1	18
Total	0		31	31	0		0	0	0		25	25	0		5	5	61
8:00 AM	0		11	11	0		0	0	0		6	6	0		0	0	17
8:15 AM	0		10	10	0		0	0	0		8	8	0		1	1	19
8:30 AM	0		5	5	0		1	1	0		6	6	0		0	0	12
8:45 AM	0		10	10	0		1	1	0		9	9	0		0	0	20
Total	0		36	36	0		2	2	0		29	29	0		1	1	68
Grand Total	0		78	78	0		0	0	0		60	60	0		13	13	151
Approch %	0.0	0.0	100.0	0.0					0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	
Total %	0.0		51.7	51.7	0.0		0.0	0.0	0.0		39.7	39.7	0.0		8.6	8.6	
Overall Peak Hour Volume	0		37	37	0		0	0	0		24	24	0		2	2	83



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 389 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

Intersection #: 8
 Job Number: R002484.0478
 Date: 1/15/2015
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	18	5	0	23	4	94	32	0	130	21	23	6	0	50	6	11	5	0	22	225
6:15 AM	2	42	12	0	56	3	110	31	0	144	24	25	6	0	55	7	16	7	0	30	285
6:30 AM	0	39	12	0	51	7	135	53	0	195	40	44	10	0	94	23	15	4	0	42	382
6:45 AM	2	68	16	0	86	13	170	46	0	229	39	50	13	0	102	53	31	6	0	90	507
Total	4	167	45	0	216	27	509	162	0	698	124	142	35	0	301	89	73	22	0	184	1399
7:00 AM	0	65	20	0	85	13	146	37	0	196	37	50	24	0	111	32	25	7	0	64	456
7:15 AM	3	103	27	0	133	7	159	40	0	206	64	43	25	0	132	45	24	7	0	76	547
7:30 AM	5	73	32	0	110	8	197	27	0	232	52	52	13	0	117	26	33	11	0	70	529
7:45 AM	8	84	29	0	121	15	180	33	0	228	59	30	25	0	114	25	28	12	0	65	528
Total	16	325	108	0	449	43	682	137	0	862	212	175	87	0	474	128	110	37	0	275	2060
8:00 AM	4	78	32	0	114	13	128	19	0	160	56	51	15	0	122	18	22	11	0	51	447
8:15 AM	3	81	23	0	107	10	121	34	0	165	49	41	23	0	113	25	23	5	0	53	438
8:30 AM	3	71	35	0	109	19	165	25	0	209	46	38	13	0	97	12	18	4	0	34	449
8:45 AM	6	71	23	0	100	15	142	19	0	176	54	38	19	0	111	12	39	15	0	66	453
Total	16	301	113	0	430	57	556	97	0	710	205	168	70	0	443	67	102	35	0	204	1787
Grand Total	36	793	266	0	1095	127	1747	396	0	2270	541	485	192	0	1218	284	285	94	0	663	5246
Apprch %	3.3	72.4	24.3	0.0		5.6	77.0	17.4	0.0		44.4	39.8	15.8	0.0		42.8	43.0	14.2	0.0		
Total %	0.7	15.1	5.1	0.0	20.9	2.4	33.3	7.5	0.0	43.3	10.3	9.2	3.7	0.0	23.2	5.4	5.4	1.8	0.0	12.6	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:00 AM to 8:00 AM																				
Volume	16	325	108	0	449	43	682	137	0	862	212	175	87	0	474	128	110	37	0	275	2060
Percent	3.6	72.4	24.1	0.0		5.0	79.1	15.9	0.0		44.7	36.9	18.4	0.0		46.5	40.0	13.5	0.0		
7:15 AM Volume Peak	3	103	27	0	133	7	159	40	0	206	64	43	25	0	132	45	24	7	0	76	547
Factor																					
High Int. Volume	3	103	27	0	133	8	197	27	0	232	64	43	25	0	132	53	31	6	0	90	547
PHF	0.50	0.79	0.84	0.84		0.72	0.87	0.86	0.93		0.83	0.84	0.87	0.90		0.71	0.83	0.77	0.90	0.90	0.94
Heavy Vehicles %	6%	6%	1%			7%	2%	3%			2%	6%	5%			1%	4%	3%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		12	0		0		6	0		0		48	0		0		11	0		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	3	0	0	3	0	1	2	0	3	3	1	0	0	4	0	0	0	0	0	10
6:15 AM	0	2	0	0	2	0	3	0	0	3	1	2	0	0	3	1	1	0	0	2	10
6:30 AM	0	0	2	0	2	1	4	1	0	6	2	1	0	0	3	0	2	0	0	2	13
6:45 AM	0	5	0	0	5	0	3	2	0	5	1	2	0	0	3	0	2	0	0	2	15
Total	0	10	2	0	12	1	11	5	0	17	7	6	0	0	13	1	5	0	0	6	48
7:00 AM	0	5	0	0	5	1	3	1	0	5	2	7	1	0	10	0	0	0	0	0	20
7:15 AM	0	2	0	0	2	0	4	1	0	5	1	2	1	0	4	0	0	0	0	0	11
7:30 AM	0	5	1	0	6	0	4	1	0	5	1	1	1	0	3	0	0	1	0	1	15
7:45 AM	1	8	0	0	9	2	4	1	0	7	0	1	1	0	2	1	4	0	0	5	23
Total	1	20	1	0	22	3	15	4	0	22	4	11	4	0	19	1	4	1	0	6	69
8:00 AM	1	11	5	0	17	0	5	0	0	5	2	0	0	0	2	0	0	1	0	1	25
8:15 AM	1	5	0	0	6	0	5	0	0	5	3	2	2	0	7	1	2	0	0	3	21
8:30 AM	0	6	0	0	6	1	4	0	0	5	1	2	0	0	3	0	1	0	0	1	15
8:45 AM	0	3	0	0	3	0	5	0	0	5	3	3	0	0	6	2	2	0	0	4	18
Total	2	25	5	0	32	1	19	0	0	20	9	7	2	0	18	3	5	1	0	9	79
Grand Total	3	55	8	0	66	5	45	9	0	59	20	24	6	0	50	5	14	2	0	21	196
Apprch %	4.5	83.3	12.1	0.0		8.5	76.3	15.3	0.0		40.0	48.0	12.0	0.0		23.8	66.7	9.5	0.0		
Total %	1.5	28.1	4.1	0.0	33.7	2.6	23.0	4.6	0.0	30.1	10.2	12.2	3.1	0.0	25.5	2.6	7.1	1.0	0.0	10.7	
Overall Peak Hour Volume	1	20	1	0	22	3	15	4	0	22	4	11	4	0	19	1	4	1	0	6	69



Herbert, Rowland & Grubic, Inc.
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Route 322 Corridor Evaluation
 AM PEAK HOUR

U-Turn & RTOR

Start Time	Governor Rd (SR 0322) Eastbound				Governor Rd (SR 0322) Westbound				Fishburn Rd (SR 2011) Northbound				Hockersville Rd (SR 2011) Southbound				Int. Total
	U-Turn	RTOR	App. Total		U-Turn	RTOR	App. Total		U-Turn	RTOR	App. Total		U-Turn	RTOR	App. Total		
6:00 AM	0	1	1		0	0	0		0	3	3		0	1	1		5
6:15 AM	0	3	3		0	2	2		0	3	3		0	1	1		9
6:30 AM	0	1	1		0	3	3		0	3	3		0	1	1		8
6:45 AM	0	1	1		0	1	1		0	11	11		0	0	0		13
Total	0	6	6		0	6	6		0	20	20		0	3	3		35
7:00 AM	0	2	2		0	0	0		0	14	14		0	5	5		21
7:15 AM	0	5	5		0	1	1		0	15	15		0	2	2		23
7:30 AM	0	3	3		0	4	4		0	7	7		0	1	1		15
7:45 AM	0	2	2		0	1	1		0	12	12		0	3	3		18
Total	0	12	12		0	6	6		0	48	48		0	11	11		77
8:00 AM	0	1	1		0	0	0		0	9	9		0	3	3		13
8:15 AM	0	2	2		0	1	1		0	15	15		0	0	0		18
8:30 AM	0	5	5		0	0	0		0	7	7		0	1	1		13
8:45 AM	0	1	1		0	1	1		0	11	11		0	2	2		15
Total	0	9	9		0	2	2		0	42	42		0	6	6		59
Grand Total	0	27	27		0	0	0		0	110	110		0	20	20		157
Approch %	0.0	0.0	100.0	0.0					0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	
Total %	0.0	17.2	17.2	0.0		0.0	0.0		0.0	70.1	70.1		0.0	12.7	12.7		
Overall Peak Hour Volume	0	12	12		0	6	6		0	48	48		0	11	11		77



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
AM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

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All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Elm Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	7	23	0	0	30	0	122	0	0	122	0	0	0	0	0	0	0	12	0	12	164
6:15 AM	2	52	0	0	54	0	136	0	0	136	0	0	0	0	0	0	0	11	0	11	201
6:30 AM	10	64	0	0	74	0	182	0	0	182	0	0	0	0	0	0	0	12	0	12	268
6:45 AM	6	127	0	0	133	0	209	0	0	209	0	0	0	0	0	0	0	20	0	20	362
Total	25	266	0	0	291	0	649	0	0	649	0	0	0	0	0	0	0	55	0	55	995
7:00 AM	9	115	0	0	124	0	179	0	0	179	0	0	0	0	0	0	0	17	0	17	320
7:15 AM	9	162	0	0	171	0	171	0	0	171	0	0	0	0	0	0	0	31	0	31	373
7:30 AM	10	105	0	0	115	0	199	0	0	199	0	0	0	0	0	0	0	29	0	29	343
7:45 AM	24	113	0	0	137	0	196	0	0	196	0	0	0	0	0	0	0	31	0	31	364
Total	52	495	0	0	547	0	745	0	0	745	0	0	0	0	0	0	0	108	0	108	1400
8:00 AM	17	97	0	0	114	0	135	0	0	135	0	0	0	0	0	1	0	24	0	25	274
8:15 AM	18	111	0	0	129	0	145	0	0	145	0	0	0	0	0	0	0	22	1	23	297
8:30 AM	16	83	0	0	99	0	190	0	0	190	0	0	0	0	0	0	0	22	0	22	311
8:45 AM	30	72	0	0	102	0	153	1	0	154	0	0	0	0	0	0	0	25	0	25	281
Total	81	363	0	0	444	0	623	1	0	624	0	0	0	0	0	1	0	83	1	85	1163
Grand Total	158	1124	0	0	1282	0	2017	1	0	2018	0	0	0	0	0	1	0	256	1	258	3558
Approch %	12.3	87.7	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.4	0.0	99.2	0.4		
Total %	4.4	31.6	0.0	0.0	36.0	0.0	56.7	0.0	0.0	56.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.2	0.0	7.3	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Elm Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:00 AM					to					8:00 AM										
Volume	52	495	0	0	547	0	745	0	0	745	0	0	0	0	0	0	0	108	0	108	1400
Percent	9.5	90.5	0.0	0.0		0.0	100.0	0.0	0.0							0.0	0.0	100.0	0.0		
7:15 AM Volume	9	162	0	0	171	0	171	0	0	171	0	0	0	0	0	0	0	31	0	31	373
Peak Factor																					
High Int. Volume	9	162	0	0	171	0	209	0	0	209	0	0	0	0	0	0	0	31	0	31	0.94
PHF	0.54	0.76			0.80		0.94			0.94								0.87		0.87	
Heavy Vehicles %	6%	5%	0%			0%	3%	0%			0%	0%	0%			0%	0%	2%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Elm Ave Southbound					InL Total	
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total		
6:00 AM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	0	5
6:15 AM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	0	8
6:30 AM	0	1	0	0	1	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	0	7
6:45 AM	0	5	0	0	5	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	10
Total	0	14	0	0	14	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	0	30
7:00 AM	1	6	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	12
7:15 AM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	9
7:30 AM	0	6	0	0	6	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	0	11
7:45 AM	2	7	0	0	9	0	4	0	0	4	0	0	0	0	0	0	0	2	0	0	2	15
Total	3	23	0	0	26	0	19	0	0	19	0	0	0	0	0	0	0	2	0	2	2	47
8:00 AM	2	10	0	0	12	0	5	0	0	5	0	0	0	0	0	0	0	1	0	0	1	18
8:15 AM	0	10	0	0	10	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	14
8:30 AM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	10
8:45 AM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	0	9
Total	2	31	0	0	33	0	17	0	0	17	0	0	0	0	0	0	0	1	0	1	1	51
Grand Total	5	68	0	0	73	0	52	0	0	52	0	0	0	0	0	0	0	3	0	3	3	128
Approch %	6.8	93.2	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	
Total %	3.9	53.1	0.0	0.0	57.0	0.0	40.6	0.0	0.0	40.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.3	0.0	2.3	2.3	
Overall Peak Hour Volume	3	23	0	0	26	0	19	0	0	19	0	0	0	0	0	0	0	2	0	2	2	47



Herbert, Rowland & Grubic, Inc.
369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
Route 322 Corridor Evaluation
AM PEAK HOUR

All Vehicles

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	1	0	1	0	2	0	0	0	0	0	21	4	0	0	25	0	1	22	0	23	50
6:15 AM	2	0	2	0	4	0	0	0	0	0	28	10	0	0	38	1	1	26	0	28	70
6:30 AM	0	0	2	0	2	0	0	0	0	0	47	11	0	0	58	2	5	39	0	46	106
6:45 AM	1	1	1	0	3	0	0	0	0	0	67	17	0	0	84	0	8	56	0	64	151
Total	4	1	6	0	11	0	0	0	0	0	163	42	0	0	205	3	15	143	0	161	377
7:00 AM	1	0	1	0	2	0	0	0	0	0	52	26	3	0	81	2	9	45	0	56	139
7:15 AM	3	0	6	1	10	0	0	0	0	0	72	34	0	0	106	4	10	75	0	89	205
7:30 AM	2	0	9	1	12	0	0	0	0	0	84	27	4	0	115	8	13	87	0	108	235
7:45 AM	4	0	4	2	10	1	0	2	1	4	105	35	4	0	144	3	8	107	0	118	276
Total	10	0	20	4	34	1	0	2	1	4	313	122	11	0	446	17	40	314	0	371	855
8:00 AM	6	0	2	2	10	0	1	1	12	14	61	27	4	0	92	8	8	70	0	86	202
8:15 AM	9	0	6	2	17	1	1	2	8	12	57	25	4	0	88	5	13	70	0	88	203
8:30 AM	20	0	9	0	29	0	0	0	1	1	37	19	4	0	60	4	12	68	0	84	174
8:45 AM	28	0	6	0	34	0	0	0	1	1	33	19	0	0	52	4	11	67	0	82	169
Total	63	0	23	4	90	1	2	3	22	28	188	90	12	0	290	21	44	275	0	340	748
Grand Total	77	1	49	8	135	2	2	5	23	32	664	254	23	0	941	41	99	732	0	872	1980
Approch %	57.0	0.7	36.3	5.9		6.3	6.3	15.6	71.9		70.6	27.0	2.4	0.0		4.7	11.4	83.9	0.0		
Total %	3.9	0.1	2.5	0.4	6.8	0.1	0.1	0.3	1.2	1.6	33.5	12.8	1.2	0.0	47.5	2.1	5.0	37.0	0.0	44.0	

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	15	0	21	6	42	1	1	3	13	18	322	123	12	0	457	23	39	339	0	401	918
Percent	35.7	0.0	50.0	14.3		5.6	5.6	16.7	72.2		70.5	26.9	2.6	0.0		5.7	9.7	84.5	0.0		
7:45 AM Volume	4	0	4	2	10	1	0	2	1	4	105	35	4	0	144	3	8	107	0	118	276
Factor																					
High Int.	8:45 AM					8:00 AM					7:45 AM					7:45 AM					
Volume	28	0	6	0	34	0	1	1	12	14	105	35	4	0	144	3	8	107	0	118	0.83
PHF	0.63		0.58	0.75	0.88	0.25	0.25	0.38	0.27	0.32	0.77	0.88	0.75	0.79		0.72	0.75	0.79	0	0.85	
Heavy Vehicles %	7%	0%	0%			0%	0%	0%			0%	2%	0%			0%	13%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total					
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total						
6:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	0	2
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	3
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	2	0	0	2	0	2	1	0	3	0	0	0	0	0	6
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	4
7:45 AM	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	0	0	0	0	0	3
Total	1	0	0	0	1	0	0	0	0	0	0	3	0	0	3	0	6	1	0	7	0	0	0	0	0	11
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	1	0	2	0	3	0	1	0	0	1	1	0	0	0	1	0	0	0	0	0	5
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1
Total	0	0	0	0	0	1	0	2	0	3	1	3	1	0	5	2	0	0	0	2	0	0	0	0	0	10
Grand Total	1	0	1	0	2	1	0	2	0	3	1	8	1	0	10	2	8	2	0	12	0	0	0	0	0	27
Approch %	50.0	0.0	50.0	0.0		33.3	0.0	66.7	0.0		10.0	80.0	10.0	0.0		16.7	66.7	16.7	0.0							
Total %	3.7	0.0	3.7	0.0	7.4	3.7	0.0	7.4	0.0	11.1	3.7	29.6	3.7	0.0	37.0	7.4	29.6	7.4	0.0	44.4						
Overall Peak Hour Volume	1	0	0	0	1	0	0	0	0	0	1	2	0	0	3	0	5	1	0	6						10



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	0	1	1	0	2	0	0	0	0	0	13	6	0	0	19	1	5	11	0	17	38
6:15 AM	2	0	1	0	3	0	0	0	0	0	15	13	0	0	28	0	2	23	0	25	56
6:30 AM	1	1	5	0	7	0	0	0	0	0	21	12	0	0	33	4	7	37	0	48	88
6:45 AM	0	2	6	0	8	0	0	0	0	0	23	16	0	0	39	3	12	61	0	76	123
Total	3	4	13	0	20	0	0	0	0	0	72	47	0	0	119	8	28	132	0	166	305
7:00 AM	0	1	10	0	11	0	0	1	0	1	34	32	0	0	66	5	10	47	0	62	140
7:15 AM	4	1	9	0	14	0	0	0	0	0	42	32	0	0	74	0	11	62	0	73	161
7:30 AM	11	1	9	0	21	0	0	0	0	0	47	20	1	0	68	0	11	76	0	87	176
7:45 AM	4	0	10	0	14	0	0	0	0	0	59	36	0	0	95	1	21	77	0	99	208
Total	19	3	38	0	60	0	0	1	0	1	182	120	1	0	303	6	53	262	0	321	685
8:00 AM	3	0	7	0	10	0	0	0	0	0	44	19	0	0	63	2	12	45	0	59	132
8:15 AM	6	0	14	0	20	0	0	0	0	0	39	28	0	0	67	4	13	46	0	63	150
8:30 AM	12	2	7	0	21	0	0	0	0	0	28	17	0	0	45	2	20	35	0	57	123
8:45 AM	5	3	10	0	18	0	0	0	0	0	23	16	1	0	40	7	13	31	0	51	109
Total	28	5	38	0	69	0	0	0	0	0	134	80	1	0	215	15	58	157	0	230	514
Grand Total	48	12	89	0	149	0	0	1	0	1	388	247	2	0	637	29	137	551	0	717	1504
Apprch %	32.2	8.1	59.7	0.0		0.0	0.0	100.0	0.0		60.9	38.8	0.3	0.0		4.0	19.1	76.8	0.0		
Total %	3.2	0.8	5.9	0.0	9.9	0.0	0.0	0.1	0.0	0.1	25.8	16.4	0.1	0.0	42.4	1.9	9.1	36.6	0.0	47.7	

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total				
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total					
Peak Hour From	7:00 AM to 8:00 AM																								
Volume	19	3	38	0	60	0	0	1	0	1	182	120	1	0	303	6	53	262	0	321	685				
Percent	31.7	5.0	63.3	0.0		0.0	0.0	100.0	0.0		60.1	39.6	0.3	0.0		1.9	16.5	81.6	0.0						
7:45 AM Volume	4	0	10	0	14	0	0	0	0	0	59	36	0	0	95	1	21	77	0	99	208				
Factor																									
High Int. Volume	11	1	9	0	21	0	0	1	0	1	59	36	0	0	95	1	21	77	0	99					
PHF	0.43	0.75	0.95		0.71			0.25		0.25	0.77	0.83	0.25		0.80	0.30	0.63	0.85		0.81	0.82				
Heavy Vehicles %	0%	0%	11%			0%	0%	0%			1%	3%	0%			0%	2%	0%							
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes						
	0		0	0		0		0	0		0		0	0		0		0	0						



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total					
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total						
6:00 AM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	3	0	3	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	3	0	0	4	0	0	1	0	1	0	0	0	0	0	5
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:45 AM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	3
Total	0	0	4	0	4	0	0	0	0	0	1	3	0	0	4	0	1	1	0	2	0	0	0	0	0	10
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	1	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	1	0	1	0	0	0	0	0	5
Grand Total	0	0	7	0	7	0	0	0	0	0	1	8	0	0	9	0	1	2	0	3	0	0	0	0	0	19
Apprch %	0.0	0.0	100.0	0.0		0.0	0.0	0.0	0.0	0.0	11.1	88.9	0.0	0.0		0.0	33.3	66.7	0.0		0.0	0.0	0.0	0.0		
Total %	0.0	0.0	36.8	0.0	36.8	0.0	0.0	0.0	0.0	0.0	5.3	42.1	0.0	0.0	47.4	0.0	5.3	10.5	0.0	15.8	0.0	0.0	0.0	0.0	0.0	
Overall Peak Hour Volume	0	0	4	0	4	0	0	0	0	0	1	3	0	0	4	0	1	1	0	2	0	0	0	0	0	10



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

All Vehicles

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	7	0	0	0	7	0	0	0	0	0	12	43	0	0	55	0	16	2	0	18	80
6:15 AM	13	0	4	0	17	0	0	0	0	0	25	46	0	0	71	0	29	2	0	31	119
6:30 AM	11	0	3	0	14	0	0	0	0	0	38	88	0	0	126	0	26	12	0	38	178
6:45 AM	17	0	3	0	20	0	0	0	0	0	56	89	0	0	145	0	46	16	0	62	227
Total	48	0	10	0	58	0	0	0	0	0	131	266	0	0	397	0	117	32	0	149	604
7:00 AM	32	0	5	0	37	0	0	0	0	0	46	87	0	0	133	0	41	13	0	54	224
7:15 AM	26	0	10	0	36	0	0	0	0	0	71	108	0	0	179	0	53	8	0	61	276
7:30 AM	14	0	16	0	30	0	0	0	0	0	77	92	0	0	169	0	63	10	0	73	272
7:45 AM	25	0	16	0	41	0	0	0	0	0	78	102	0	0	178	0	54	22	0	76	295
Total	97	0	47	0	144	0	0	0	0	0	270	389	0	0	659	0	211	53	0	264	1067
8:00 AM	14	0	7	0	21	0	0	0	0	0	51	100	0	0	151	0	53	11	0	64	236
8:15 AM	25	0	15	0	40	0	0	0	0	0	42	93	0	0	135	0	42	14	0	56	231
8:30 AM	17	0	14	0	31	0	0	0	0	0	40	73	0	0	113	0	56	18	0	74	218
8:45 AM	15	0	7	0	22	0	0	0	0	0	35	99	0	0	134	0	55	18	0	73	229
Total	71	0	43	0	114	0	0	0	0	0	168	365	0	0	533	0	206	61	0	267	814
Grand Total	216	0	100	0	316	0	0	0	0	0	569	1020	0	0	1589	0	534	146	0	680	2585
Approch %	68.4	0.0	31.6	0.0							35.8	64.2	0.0	0.0		0.0	78.5	21.5	0.0		
Total %	8.4	0.0	3.9	0.0	12.2	0.0	0.0	0.0	0.0	0.0	22.0	39.5	0.0	0.0	61.5	0.0	20.7	5.6	0.0	26.3	

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	79	0	49	0	128	0	0	0	0	0	275	402	0	0	677	0	223	51	0	274	1079
Percent	61.7	0.0	38.3	0.0							40.6	59.4	0.0	0.0		0.0	81.4	18.6	0.0		
7:45 AM Volume Peak Factor	25	0	16	0	41	0	0	0	0	0	76	102	0	0	178	0	54	22	0	76	295
High Int. Volume PHF	7:45 AM 25	0	16	0	41	6:00 AM 0	0	0	0	0	7:15 AM 71	108	0	0	179	7:45 AM 0	54	22	0	76	0.91
PHF	0.76		0.77		0.78						0.89	0.93		0.95		0.88	0.58			0.90	
Heavy Vehicles %	1%	0%	0%			0%	0%	0%			1%	2%	0%			0%	4%	8%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total	
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	3
6:15 AM	1	0	0	0	1	0	0	0	0	0	0	2	0	0	2	0	1	0	0	1	0	4
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	4	1	0	5	0	8
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	2	0	0	2	0	6
Total	1	0	0	0	1	0	0	0	0	0	0	12	0	0	12	0	7	1	0	8	0	21
7:00 AM	4	0	0	0	4	0	0	0	0	0	0	7	0	0	7	0	0	1	0	1	0	12
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	4
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	2	2	0	4	0	7
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	3	0	3	1	0	4	0	7
Total	4	0	0	0	4	0	0	0	0	0	2	15	0	0	17	0	5	4	0	9	0	30
8:00 AM	1	0	0	0	1	0	0	0	0	0	2	2	0	0	4	0	4	1	0	5	0	10
8:15 AM	2	0	1	0	3	0	0	0	0	0	0	5	0	0	5	0	2	0	0	2	0	10
8:30 AM	1	0	1	0	2	0	0	0	0	0	1	1	0	0	2	0	2	0	0	2	0	6
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	5	0	0	5	0	1	0	0	1	0	6
Total	4	0	2	0	6	0	0	0	0	0	3	13	0	0	16	0	9	1	0	10	0	32
Grand Total	9	0	2	0	11	0	0	0	0	0	5	40	0	0	45	0	21	6	0	27	0	83
Approch %	81.8	0.0	18.2	0.0							11.1	88.9	0.0	0.0		0.0	77.8	22.2	0.0			
Total %	10.8	0.0	2.4	0.0	13.3	0.0	0.0	0.0	0.0	0.0	6.0	48.2	0.0	0.0	54.2	0.0	25.3	7.2	0.0	32.5		
Overall Peak Hour Volume	1	0	0	0	1	0	0	0	0	0	4	10	0	0	14	0	9	4	0	13	0	28



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AN EMPLOYEE-OWNED COMPANY
Route 322 Corridor Evaluation
AM PEAK HOUR

All Vehicles

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
6:00 AM	7	16	0	0	23	0	5	1	52	58	5	2	2	0	9	3	0	8	0	11	101
6:15 AM	15	22	0	0	37	0	5	4	64	73	8	3	2	1	14	3	0	4	0	7	131
6:30 AM	24	33	0	0	57	0	3	4	87	94	6	1	5	3	15	4	0	9	1	14	180
6:45 AM	29	35	0	0	64	0	4	3	136	143	7	3	11	0	21	5	0	17	0	22	250
Total	75	106	0	0	181	0	17	12	339	368	26	9	20	4	59	15	0	38	1	54	662
7:00 AM	16	35	0	0	51	0	10	5	77	92	8	5	5	1	19	5	0	7	0	12	174
7:15 AM	46	45	0	0	91	0	14	9	98	121	5	5	7	0	17	11	0	12	0	23	252
7:30 AM	41	48	0	0	89	0	20	6	103	129	7	0	8	3	18	7	0	17	0	24	260
7:45 AM	62	55	0	0	117	0	22	8	140	170	11	6	6	2	25	14	0	20	0	34	346
Total	165	183	0	0	348	0	66	28	418	512	31	16	26	6	79	37	0	56	0	93	1032
8:00 AM	35	48	0	0	81	0	9	6	83	98	9	8	10	5	32	12	0	17	0	29	240
8:15 AM	33	42	0	0	75	0	10	14	58	82	13	5	5	1	24	11	0	17	0	28	209
8:30 AM	21	51	0	0	72	0	19	8	53	80	16	2	7	0	25	8	0	16	0	24	201
8:45 AM	22	59	0	0	81	0	21	12	51	84	21	3	7	2	33	24	0	13	0	37	235
Total	111	198	0	0	309	0	59	40	245	344	59	18	29	8	114	55	0	63	0	118	885
Grand Total	351	487	0	0	838	0	142	80	1002	1224	116	43	75	18	252	107	0	157	1	265	2579
Approch %	41.9	58.1	0.0	0.0		0.0	11.6	6.5	81.9		46.0	17.1	29.8	7.1		40.4	0.0	59.2	0.4		
Total %	13.6	18.9	0.0	0.0	32.5	0.0	5.5	3.1	38.9	47.5	4.5	1.7	2.9	0.7	9.8	4.1	0.0	6.1	0.0	10.3	

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	7:15 AM					to					8:15 AM										
Volume	184	194	0	0	378	0	65	29	424	518	32	19	31	12	94	44	0	66	3	113	1103
Percent	48.7	51.3	0.0	0.0		0.0	12.5	5.8	81.9		34.0	20.2	33.0	12.8		38.9	0.0	58.4	2.7		
7:45 AM Volume	62	55	0	0	117	0	22	8	140	170	11	6	6	3	26	14	0	20	0	34	347
Factor																					
High Int. Volume	62	55	0	0	117	0	22	8	140	170	21	3	7	4	35	24	0	13	0	37	
PHF	0.74	0.88			0.81		0.74	0.81	0.76	0.76	0.73	0.59	0.78	0.60	0.73	0.79		0.83	0.38	0.83	0.79
Heavy Vehicles %	3%	1%	0%			0%	14%	0%			0%	0%	26%			2%	0%	3%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		2	0		0		10	2		0		50	3		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
6:00 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	0	0	0	0	0	0
6:15 AM	1	0	0	0	1	0	1	0	0	1	0	1	2	0	3	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	1	0	0	1	0	0	1	0	1	0	0	0	0	1	1
6:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	1	0	1	1	0	0	0	0	1
Total	1	0	0	0	1	0	6	0	0	6	0	1	5	0	6	1	0	0	0	1	2
7:00 AM	1	0	0	0	1	0	4	0	0	4	0	0	2	0	2	0	0	0	0	0	0
7:15 AM	3	1	0	0	4	0	3	0	0	3	0	0	2	0	2	1	0	0	0	0	1
7:30 AM	1	1	0	0	2	0	3	0	0	3	0	0	1	1	2	0	0	1	1	2	2
7:45 AM	0	0	0	0	0	0	2	0	0	2	0	0	2	1	3	0	0	1	0	1	1
Total	5	2	0	0	7	0	12	0	0	12	0	0	7	2	9	1	0	2	1	4	3
8:00 AM	1	0	0	0	1	0	1	0	0	1	0	0	3	0	3	0	0	0	2	2	2
8:15 AM	0	0	0	0	0	0	2	0	0	2	0	1	1	1	3	0	0	0	0	0	0
8:30 AM	0	1	0	0	1	0	4	0	0	4	0	0	2	1	3	0	0	1	1	2	2
8:45 AM	1	1	0	0	2	0	2	0	0	2	0	1	1	2	4	0	0	1	0	1	1
Total	2	2	0	0	4	0	9	0	0	9	0	2	7	4	13	0	0	2	3	5	3
Grand Total	8	4	0	0	12	0	27	0	0	27	0	3	19	6	28	2	0	4	5	11	78
Approch %	66.7	33.3	0.0	0.0		0.0	100.0	0.0	0.0		0.0	10.7	67.9	21.4		18.2	0.0	36.4	45.5		
Total %	10.3	5.1	0.0	0.0	15.4	0.0	34.6	0.0	0.0	34.6	0.0	3.8	24.4	7.7	35.9	2.6	0.0	5.1	6.4	14.1	
Overall Peak Hour Volume	5	2	0	0	7	0	9	0	0	9	0	0	8	2	10	1	0	2	3	6	32



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 AM PEAK HOUR

U-Turn & RTOR

Start Time	Campus Dr Eastbound			Campus Dr Westbound			Centarview Ln Northbound			Centarview Ln Southbound			Int. Total	
	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total		
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	1	1	0	0	0	0	3	3	4	
6:30 AM	0	0	0	0	4	4	0	2	2	0	2	2	8	
6:45 AM	0	0	0	0	0	0	0	4	4	0	6	6	10	
Total	0	0	0	0	5	5	0	6	6	0	11	11	22	
7:00 AM	0	0	0	0	0	0	0	1	1	0	6	6	7	
7:15 AM	0	0	0	0	1	1	0	3	3	0	10	10	14	
7:30 AM	0	0	0	0	0	0	0	2	2	0	13	13	15	
7:45 AM	0	0	0	0	1	1	0	2	2	0	15	15	18	
Total	0	0	0	0	2	2	0	8	8	0	44	44	54	
8:00 AM	0	0	0	0	0	0	0	3	3	0	12	12	15	
8:15 AM	0	0	0	0	4	4	0	2	2	0	10	10	16	
8:30 AM	0	0	0	0	1	1	0	1	1	0	7	7	9	
8:45 AM	0	0	0	0	5	5	0	4	4	0	7	7	16	
Total	0	0	0	0	10	10	0	10	10	0	36	36	56	
Grand Total	0	0	0	0	0	0	0	24	24	0	91	91	115	
Approch %							0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	20.9	20.9	0.0	0.0	79.1	79.1
Overall Peak Hour Volume	0	0	0	0	2	2	0	10	10	0	50	50	62	



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	14	127	49	0	190	19	154	23	3	199	36	40	17	2	95	9	4	9	0	22	506
3:15 PM	16	137	32	0	185	19	129	33	7	188	37	31	24	1	93	8	10	13	0	31	497
3:30 PM	19	122	21	0	162	18	179	39	0	236	54	49	23	2	128	7	12	8	0	27	553
3:45 PM	10	94	29	0	133	12	184	31	9	236	53	43	12	1	109	9	4	12	0	25	503
Total	59	480	131	0	670	68	646	126	19	859	180	163	76	6	425	33	30	42	0	105	2059
4:00 PM	15	108	29	0	152	15	180	52	3	250	53	53	23	4	133	10	10	10	0	30	565
4:15 PM	16	113	25	0	154	16	156	60	2	234	59	56	20	2	137	7	8	9	0	24	549
4:30 PM	17	92	25	0	134	18	166	57	2	243	66	66	36	0	168	12	17	10	0	39	584
4:45 PM	28	102	27	0	157	13	176	58	0	247	55	43	20	2	120	6	18	15	0	39	563
Total	76	415	106	0	597	62	678	227	7	974	233	218	99	8	558	35	53	44	0	132	2261
5:00 PM	21	121	24	1	167	10	175	60	1	246	43	52	27	1	123	5	10	9	0	24	560
5:15 PM	15	89	32	0	136	17	163	45	5	230	52	43	17	0	112	14	7	15	0	36	514
5:30 PM	11	105	26	2	144	14	115	43	0	172	43	39	23	1	106	10	8	7	0	25	447
5:45 PM	17	124	34	0	175	10	138	33	1	182	31	31	18	1	81	10	18	7	0	35	473
Total	64	439	116	3	622	51	591	181	7	830	169	165	85	3	422	39	43	38	0	120	1994
Grand Total	199	1334	353	3	1889	181	1915	534	33	2663	582	546	260	17	1405	107	126	124	0	357	6314
Apprch %	10.5	70.6	18.7	0.2		6.8	71.9	20.1	1.2		41.4	38.8	18.5	1.2		30.0	35.3	34.7	0.0		
Total %	3.2	21.1	5.6	0.0	29.9	2.9	30.3	8.5	0.5	42.2	9.2	8.6	4.1	0.3	22.3	1.7	2.0	2.0	0.0		5.7

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:00 PM					to					5:00 PM										
Volume	76	415	106	0	597	62	678	227	7	974	233	218	99	8	558	35	53	44	0	132	2261
Percent	12.7	69.5	17.8	0.0		6.4	69.6	23.3	0.7		41.8	39.1	17.7	1.4		26.5	40.2	33.3	0.0		
4:30 PM Volume Peak Factor	17	92	25	0	134	18	166	57	2	243	66	66	36	0	168	12	17	10	0	39	584
High Int. Volume PHF	3:00 PM					4:00 PM					4:30 PM					4:30 PM					
PHF	0.68	0.92	0.91	0	0.95	0.86	0.94	0.95	0.58	0.97	0.88	0.83	0.69	0.50	0.83	0.73	0.74	0.73	0	0.85	0.97
Heavy Vehicles %	0%	2%	1%			0%	1%	1%			0%	0%	0%			0%	4%	0%			
Misc.	U-Turn		RTOR		Bikes	U-Turn		RTOR		Bikes	U-Turn		RTOR		Bikes	U-Turn		RTOR		Bikes	
	0		19		0	0		70		0	2		42		0	1		10		0	



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
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Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					University Dr Northbound					University Dr Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	2	1	0	3	0	4	1	0	5	0	0	0	0	0	0	0	0	0	0	8
3:15 PM	0	3	0	1	4	1	0	0	0	1	0	1	1	0	2	0	0	0	1	1	8
3:30 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	3
Total	0	6	1	1	8	1	8	1	0	10	0	1	1	0	2	0	0	0	1	1	21
4:00 PM	0	2	0	0	2	0	0	1	0	1	0	1	0	0	1	0	1	0	0	1	5
4:15 PM	0	4	0	0	4	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	7
4:30 PM	0	2	0	0	2	0	2	0	0	2	0	0	0	0	0	0	1	0	0	1	5
4:45 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0	0	0	0	0	0	4
Total	0	9	1	0	10	0	6	2	0	8	0	1	0	0	1	0	2	0	0	2	21
5:00 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	0	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	4
5:45 PM	0	1	0	0	1	0	3	4	0	7	0	0	0	0	0	0	1	0	0	1	9
Total	0	1	0	0	1	0	10	4	0	14	0	0	0	0	0	0	1	0	0	1	16
Grand Total	0	16	2	1	19	1	24	7	0	32	0	2	1	0	3	0	3	0	1	4	58
Approch %	0.0	84.2	10.5	5.3		3.1	75.0	21.9	0.0		0.0	66.7	33.3	0.0		0.0	75.0	0.0	25.0		
Total %	0.0	27.6	3.4	1.7	32.8	1.7	41.4	12.1	0.0	55.2	0.0	3.4	1.7	0.0	5.2	0.0	5.2	0.0	1.7	6.9	
Overall Peak Hour Volume	0	9	1	0	10	0	6	2	0	8	0	1	0	0	1	0	2	0	0	2	21



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Route 322 Corridor Evaluation
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Herbert, Rowland & Grubic, Inc.
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U-Turn & RTOR

Start Time	Governor Rd (SR 0322) Eastbound				Governor Rd (SR 0322) Westbound				University Dr Northbound				University Dr Southbound				Int. Total
	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	
3:00 PM	0		11	11	0		8	8	0		11	11	0		4	4	34
3:15 PM	0		6	6	0		8	8	0		13	13	0		6	6	33
3:30 PM	0		4	4	0		18	18	1		10	11	0		2	2	35
3:45 PM	0		6	6	0		7	7	0		5	5	0		3	3	21
Total	0		27	27	0		41	41	1		39	40	0		15	15	123
4:00 PM	0		3	3	0		19	19	0		11	11	0		2	2	35
4:15 PM	0		6	6	0		15	15	2		6	8	0		2	2	31
4:30 PM	0		8	8	0		13	13	0		14	14	1		5	6	41
4:45 PM	0		2	2	0		23	23	0		11	11	0		1	1	37
Total	0		19	19	0		70	70	2		42	44	1		10	11	144
5:00 PM	0		5	5	0		22	22	0		7	7	0		0	0	34
5:15 PM	0		7	7	0		13	13	0		6	6	1		5	6	32
5:30 PM	0		4	4	0		15	15	0		14	14	0		3	3	36
5:45 PM	0		4	4	0		9	9	1		9	10	0		0	0	23
Total	0		20	20	0		59	59	1		36	37	1		8	9	125
Grand Total	0		66	66	0		0	0	4		117	121	2		33	35	222
Apprch %	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	96.7	0.0	5.7	0.0	94.3	0.0	
Total %	0.0	0.0	29.7	0.0	0.0	0.0	0.0	0.0	1.8	0.0	52.7	54.5	0.9	0.0	14.9	15.8	
Overall Peak Hour Volume	0		19	19	0		70	70	2		42	44	1		10	11	144



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Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	3	121	18	0	142	16	126	11	0	153	39	9	24	0	72	11	4	4	0	19	386
3:15 PM	4	140	10	0	154	12	122	15	1	150	40	7	27	2	76	12	3	7	0	22	402
3:30 PM	8	120	14	0	142	13	117	15	1	148	100	15	52	0	167	14	5	4	0	23	478
3:45 PM	4	94	9	0	107	11	151	23	1	186	59	19	32	1	111	6	4	8	0	18	422
Total	19	475	51	0	545	52	516	64	3	635	238	50	135	3	426	43	16	23	0	82	1688
4:00 PM	5	110	14	0	129	12	154	11	1	178	69	17	41	3	130	10	5	7	0	22	459
4:15 PM	3	121	6	0	130	10	130	18	1	159	85	12	47	3	147	12	1	3	0	16	452
4:30 PM	3	107	15	0	125	16	121	17	2	156	89	23	58	0	170	8	3	10	0	21	472
4:45 PM	3	101	9	2	115	10	134	23	4	171	81	25	37	1	144	6	8	10	3	27	457
Total	14	439	44	2	499	48	539	69	8	664	324	77	183	7	591	36	17	30	3	88	1840
5:00 PM	6	120	9	0	135	11	135	21	1	168	79	18	28	0	125	13	4	9	0	26	454
5:15 PM	6	103	5	0	114	17	110	22	1	150	61	21	22	0	104	8	5	6	0	19	387
5:30 PM	1	110	5	1	117	10	101	14	0	125	54	23	27	0	104	14	3	7	0	24	370
5:45 PM	6	110	10	0	126	11	120	19	0	150	42	6	26	1	75	8	6	9	0	23	374
Total	19	443	29	1	492	49	466	76	2	593	236	68	103	1	408	43	18	31	0	92	1585
Grand Total	52	1357	124	3	1536	149	1521	209	13	1892	798	195	421	11	1425	122	51	84	3	260	5113
Approch %	3.4	88.3	8.1	0.2		7.9	80.4	11.0	0.7		56.0	13.7	29.5	0.8		48.9	19.6	32.3	1.2		
Total %	1.0	26.5	2.4	0.1	30.0	2.9	29.7	4.1	0.3	37.0	15.6	3.8	8.2	0.2	27.9	2.4	1.0	1.6	0.1	5.1	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:00 PM to 5:00 PM																				
Volume	14	439	44	2	499	48	539	69	8	664	324	77	183	11	595	36	17	30	3	86	1844
Percent	2.8	88.0	8.8	0.4		7.2	81.2	10.4	1.2		54.5	12.9	30.8	1.8		41.9	19.8	34.9	3.5		
3:30 PM Volume	8	120	14	0	142	13	117	15	1	146	100	15	52	3	170	14	5	4	0	23	481
Factor																					
High Int.																					
3:15 PM Volume	4	140	10	0	154	11	151	23	1	186	89	23	58	1	171	6	8	10	3	27	
PHF	0.70	0.91	0.73	0.25	0.96	0.75	0.88	0.75	0.50	0.93	0.91	0.77	0.79	0.55	0.87	0.75	0.53	0.75	0.25	0.80	0.97
Heavy	0%	4%	5%			2%	3%	0%			1%	1%	0%			3%	0%	0%			
Vehicles %																					
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		4	0		0		15	0		0		79	4		0		9	0		



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

Intersection #: 2
Job Number: R002484.0476
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Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	3	0	0	3	1	7	0	0	8	1	1	1	4	7	0	0	0	0	0	18
3:15 PM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
3:30 PM	0	2	0	0	2	1	4	0	0	5	1	1	0	3	5	1	0	0	0	1	13
3:45 PM	0	3	0	0	3	1	3	1	0	5	1	0	0	0	1	0	0	0	0	0	9
Total	0	13	0	0	13	3	16	1	0	20	3	2	1	7	13	1	0	0	0	1	47
4:00 PM	0	6	1	0	7	1	2	0	0	3	1	0	0	2	3	0	0	0	0	0	13
4:15 PM	0	6	0	0	6	0	3	0	0	3	0	0	0	0	0	1	0	0	0	1	10
4:30 PM	0	2	1	0	3	0	4	0	0	4	0	0	0	1	1	0	0	0	0	0	8
4:45 PM	0	2	0	0	2	0	6	0	0	6	2	1	0	1	4	0	0	0	0	0	12
Total	0	16	2	0	18	1	15	0	0	16	3	1	0	4	8	1	0	0	0	1	43
5:00 PM	0	2	0	0	2	0	2	0	0	2	0	0	2	1	3	0	0	0	0	0	7
5:15 PM	0	2	0	0	2	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	0	0	0	1	7	0	0	8	0	1	0	1	2	0	0	0	0	0	10
5:45 PM	0	3	0	0	3	0	5	0	0	5	0	1	0	0	1	0	1	0	0	1	10
Total	0	7	0	0	7	2	17	0	0	19	0	2	2	2	6	0	1	0	0	1	33
Grand Total	0	36	2	0	38	6	48	1	0	55	6	5	3	13	27	2	1	0	0	3	123
Approch %	0.0	94.7	5.3	0.0		10.9	87.3	1.8	0.0		22.2	18.5	11.1	48.1		66.7	33.3	0.0	0.0		
Total %	0.0	29.3	1.6	0.0	30.9	4.9	39.0	0.8	0.0	44.7	4.9	4.1	2.4	10.6	22.0	1.6	0.8	0.0	0.0	2.4	
Overall Peak Hour Volume	0	16	2	0	18	1	15	0	0	16	3	1	0	4	8	1	0	0	0	1	43



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

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U-Turn & RTOR

Start Time	Governor Rd (SR 0322) Eastbound				Governor Rd (SR 0322) Westbound				Centerview Ln Northbound				Centerview Ln Southbound				Int. Total
	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	U-Turn		RTOR	App. Total	
3:00 PM	0		3	3	0		0	0	0		14	14	0		3	3	20
3:15 PM	0		0	0	0		1	1	0		19	19	0		1	1	21
3:30 PM	0		3	3	0		1	1	0		25	25	0		2	2	31
3:45 PM	0		0	0	0		3	3	0		21	21	0		4	4	28
Total	0		6	6	0		5	5	0		79	79	0		10	10	100
4:00 PM	0		1	1	0		4	4	0		16	16	0		3	3	24
4:15 PM	0		0	0	0		2	2	0		16	16	0		0	0	18
4:30 PM	0		1	1	0		5	5	0		24	24	0		3	3	33
4:45 PM	0		2	2	0		4	4	0		23	23	0		3	3	32
Total	0		4	4	0		15	15	0		79	79	0		9	9	107
5:00 PM	0		0	0	0		4	4	0		14	14	0		5	5	23
5:15 PM	0		2	2	0		2	2	0		12	12	0		4	4	20
5:30 PM	0		0	0	0		4	4	0		13	13	0		4	4	21
5:45 PM	0		0	0	0		3	3	0		16	16	0		2	2	21
Total	0		2	2	0		13	13	0		55	55	0		15	15	85
Grand Total	0		12	12	0		0	0	0		213	213	0		34	34	259
Apprch %	0.0	0.0	100.0	0.0					0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0	
Total %	0.0		4.6	4.6	0.0		0.0	0.0	0.0		82.2	82.2	0.0		13.1	13.1	
Overall Peak Hour Volume	0		4	4	0		15	15	0		79	79	0		9	9	107



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
	3:00 PM	0	161	0	0	161	0	147	2	0	149	0	0	0	0	0	0	0	0	0		0
3:15 PM	1	176	0	0	177	0	141	1	0	142	0	0	0	0	0	0	0	1	0	1	0	320
3:30 PM	3	184	0	0	187	0	144	1	0	145	0	0	0	0	0	0	0	1	0	1	0	333
3:45 PM	2	133	0	0	135	0	182	0	0	182	0	0	0	0	0	1	0	4	0	5	0	322
Total	6	654	0	0	660	0	614	4	0	618	0	0	0	0	0	1	0	6	0	7	0	1285
4:00 PM	4	156	0	0	160	0	170	1	0	171	0	0	0	0	0	1	0	0	0	1	0	332
4:15 PM	2	175	0	0	177	0	151	2	0	153	0	0	0	0	0	1	0	3	0	4	0	334
4:30 PM	3	170	0	0	173	0	156	2	0	158	0	0	0	0	0	0	0	1	0	1	0	332
4:45 PM	6	141	0	0	147	0	185	3	0	188	0	0	0	0	0	0	0	1	0	1	0	316
Total	15	642	0	0	657	0	642	8	0	650	0	0	0	0	0	2	0	5	0	7	0	1314
5:00 PM	0	158	0	0	158	0	172	0	0	172	0	0	0	0	0	0	0	1	0	1	0	331
5:15 PM	7	124	0	0	131	0	141	4	0	145	0	0	0	0	0	1	0	1	0	2	0	278
5:30 PM	1	157	0	0	158	0	127	1	0	128	0	0	0	0	0	1	0	0	0	1	0	287
5:45 PM	0	145	0	0	145	0	146	2	0	148	0	0	0	0	0	1	0	2	0	3	0	296
Total	8	584	0	0	592	0	586	7	0	593	0	0	0	0	0	3	0	4	0	7	0	1192
Grand Total	29	1880	0	0	1909	0	1842	19	0	1861	0	0	0	0	0	6	0	15	0	21	0	3791
Approch %	1.5	98.5	0.0	0.0		0.0	99.0	1.0	0.0		0.0	0.0	0.0	0.0	0.0	28.6	0.0	71.4	0.0			
Total %	0.8	49.6	0.0	0.0	50.4	0.0	48.6	0.5	0.0	49.1	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.4	0.0	0.6		

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total			
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total				
Peak Hour From	3:30 PM					to					4:30 PM													
Volume	11	648	0	0	659	0	647	4	0	651	0	0	0	0	0	3	0	8	0	11	0	1321		
Percent	1.7	98.3	0.0	0.0		0.0	99.4	0.6	0.0							27.3	0.0	72.7	0.0					
4:15 PM Volume Peak Factor	2	175	0	0	177	0	151	2	0	153	0	0	0	0	0	1	0	3	0	4	0	334		
High Int. Volume PHF	3:30 PM	3	184	0	0	187	3:45 PM	0	182	0	0	182	3:00 PM	0	0	0	0	0	3:45 PM	1	0	4	0	5
Heavy Vehicles %	0.69	0.88			0.88	0.89	0.50			0.89						0.75		0.50		0.55		0.99		
Misc.	0%	4%	0%			0%	2%	0%			0%	0%	0%			0%	0%	13%						
	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes					
	0		0	0		0		0	0		0		0	0		0		0	0					



Herbert, Rowland & Grubic, Inc.
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 Harrisburg, PA 17111
 (717) 564-1121

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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Hillview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	6	0	0	6	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	13
3:15 PM	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	8
3:30 PM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
3:45 PM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	8
Total	0	22	0	0	22	0	18	0	0	18	0	0	0	0	0	0	0	1	0	1	41
4:00 PM	0	6	0	0	6	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	0	7	0	0	7	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	10
4:30 PM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
4:45 PM	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
Total	0	18	0	0	18	0	18	0	0	18	0	0	0	0	0	0	0	0	0	0	36
5:00 PM	0	4	0	0	4	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
5:45 PM	0	5	0	0	5	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	8
Total	0	11	0	0	11	0	14	0	0	14	0	0	0	0	0	0	0	0	0	0	25
Grand Total	0	51	0	0	51	0	50	0	0	50	0	0	0	0	0	0	0	1	0	1	102
Approch %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0							0.0	0.0	100.0	0.0		
Total %	0.0	50.0	0.0	0.0	50.0	0.0	49.0	0.0	0.0	49.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	1.0	
Overall Peak Hour Volume	0	23	0	0	23	0	15	0	0	15	0	0	0	0	0	0	0	1	0	1	39



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
389 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

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All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	3	156	0	0	159	0	145	0	0	145	0	0	0	0	0	1	0	3	0	4	308
3:15 PM	4	173	0	0	177	0	140	0	0	140	0	0	0	1	1	1	0	0	0	1	319
3:30 PM	8	172	0	0	180	0	143	0	0	143	0	0	0	1	1	1	0	2	0	3	327
3:45 PM	5	124	0	0	129	0	177	4	0	181	1	0	0	1	2	0	0	4	0	4	316
Total	20	625	0	0	645	0	605	4	0	609	1	0	0	3	4	3	0	9	0	12	1270
4:00 PM	8	152	0	0	160	0	165	3	0	168	0	0	0	1	1	1	0	3	1	5	334
4:15 PM	7	168	0	0	175	0	149	4	0	153	1	0	0	2	3	0	0	2	0	2	333
4:30 PM	23	145	0	0	168	0	155	1	0	156	0	0	0	2	2	0	0	3	0	3	329
4:45 PM	15	125	0	0	140	0	167	2	0	169	0	0	0	5	5	0	0	2	0	2	316
Total	53	590	0	0	643	0	636	10	0	646	1	0	0	10	11	1	0	10	1	12	1312
5:00 PM	5	153	0	0	158	0	165	1	0	166	0	0	0	2	2	0	0	6	0	6	332
5:15 PM	6	122	0	0	128	0	138	0	0	138	0	0	0	0	0	0	0	7	0	7	273
5:30 PM	8	153	0	0	161	0	125	1	0	126	0	0	0	2	2	0	0	2	0	2	291
5:45 PM	3	142	0	0	145	0	147	0	0	147	0	0	1	3	4	0	0	2	0	2	298
Total	22	570	0	0	592	0	575	2	0	577	0	0	1	7	8	0	0	17	0	17	1194
Grand Total	95	1785	0	0	1880	0	1816	16	0	1832	2	0	1	20	23	4	0	36	1	41	3776
Approch %	5.1	94.9	0.0	0.0		0.0	99.1	0.9	0.0		8.7	0.0	4.3	87.0		9.8	0.0	87.8	2.4		
Total %	2.5	47.3	0.0	0.0	49.8	0.0	48.1	0.4	0.0	48.5	0.1	0.0	0.0	0.5	0.6	0.1	0.0	1.0	0.0	1.1	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	3:45 PM					to					4:45 PM										
Volume	43	589	0	0	632	0	646	12	0	658	2	0	0	7	9	1	0	12	1	14	1313
Percent	6.8	93.2	0.0	0.0		0.0	98.2	1.8	0.0		22.2	0.0	0.0	77.8		7.1	0.0	85.7	7.1		
4:00 PM Volume Peak Factor	8	152	0	0	160	0	165	3	0	168	0	0	0	1	1	1	0	3	1	5	334
High Int. Volume PHF	8	172	0	0	180	0	177	4	0	181	0	0	0	6	6	0	0	7	0	7	0.98
Heavy Vehicles %	0.47	0.88			0.90		0.91	0.75		0.91	0.50			0.88	0.75	0.25		0.75	0.25	0.70	
	2%	3%	0%			0%	2%	17%			0%	0%	0%			0%	0%	8%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



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Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Private Dwy Northbound					West Areba Ave Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	4	0	0	4	0	7	0	0	7	0	0	0	3	3	0	0	0	0	0	14
3:15 PM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
3:30 PM	0	4	0	0	4	0	5	0	0	5	0	0	0	1	1	0	0	0	0	0	10
3:45 PM	0	3	0	0	3	0	3	2	0	5	0	0	0	1	1	0	0	1	0	1	10
Total	0	16	0	0	16	0	17	2	0	19	0	0	0	5	5	0	0	1	0	1	41
4:00 PM	0	5	0	0	5	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	1	6	0	0	7	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	10
4:30 PM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	2	0	0	2	0	5	0	0	6	0	0	0	1	1	0	0	0	0	0	9
Total	1	16	0	0	17	0	17	0	0	17	0	0	0	1	1	0	0	0	0	0	35
5:00 PM	0	3	0	0	3	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	4
5:15 PM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
5:45 PM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
Total	0	8	0	0	8	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	24
Grand Total	1	40	0	0	41	0	50	2	0	52	0	0	0	6	6	0	0	1	0	1	100
Apprch %	2.4	97.6	0.0	0.0		0.0	96.2	3.8	0.0		0.0	0.0	0.0	100.0		0.0	0.0	100.0	0.0		
Total %	1.0	40.0	0.0	0.0	41.0	0.0	50.0	2.0	0.0	52.0	0.0	0.0	0.0	6.0	6.0	0.0	0.0	1.0	0.0	1.0	
Overall Peak Hour Volume	1	17	0	0	18	0	14	2	0	16	0	0	0	1	1	0	0	1	0	1	38



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

Intersection #: 5
 Job Number: R002484.0476
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	2	159	0	0	161	0	147	1	0	148	0	0	0	0	0	1	0	1	0	2	311
3:15 PM	1	171	0	0	172	0	141	0	0	141	0	0	0	0	0	0	0	0	0	0	313
3:30 PM	0	174	0	0	174	0	144	1	0	145	0	0	0	0	0	0	0	0	0	0	319
3:45 PM	1	124	0	0	125	0	181	0	0	181	0	0	0	0	0	0	0	0	0	0	306
Total	4	628	0	0	632	0	613	2	0	615	0	0	0	0	0	1	0	1	0	2	1249
4:00 PM	2	154	0	0	156	0	171	1	0	172	0	0	0	0	0	0	0	0	0	0	328
4:15 PM	1	159	0	0	160	0	153	1	0	154	0	0	0	0	0	0	0	0	0	0	314
4:30 PM	1	146	0	0	147	0	156	3	0	159	0	0	0	0	0	0	0	0	0	0	306
4:45 PM	7	115	0	0	122	0	168	0	0	168	0	0	0	0	0	0	0	0	0	0	290
Total	11	574	0	0	585	0	648	5	0	653	0	0	0	0	0	0	0	0	0	0	1238
5:00 PM	0	154	0	0	154	0	166	0	0	166	0	0	0	0	0	0	0	0	0	0	320
5:15 PM	1	124	0	0	125	0	137	0	0	137	0	0	0	0	0	0	0	0	0	0	262
5:30 PM	1	153	0	0	154	0	127	1	0	128	0	0	0	0	0	0	0	0	0	0	282
5:45 PM	0	137	0	0	137	0	147	2	0	149	0	0	0	0	0	0	0	0	0	0	286
Total	2	568	0	0	570	0	577	3	0	580	0	0	0	0	0	0	0	0	0	0	1150
Grand Total	17	1770	0	0	1787	0	1838	10	0	1848	0	0	0	0	0	1	0	1	0	2	3637
Approch %	1.0	99.0	0.0	0.0		0.0	99.5	0.5	0.0							50.0	0.0	50.0	0.0		
Total %	0.5	48.7	0.0	0.0	49.1	0.0	50.5	0.3	0.0	50.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	3:30 PM to 4:30 PM																				
Volume	4	611	0	0	615	0	649	3	0	652	0	0	0	0	0	0	0	0	0	0	1267
Percent	0.7	99.3	0.0	0.0		0.0	99.5	0.5	0.0												
4:00 PM Volume Peak Factor	2	154	0	0	156	0	171	1	0	172	0	0	0	0	0	0	0	0	0	0	328
High Int. Volume	0	174	0	0	174	0	181	0	0	181	0	0	0	0	0	1	0	1	0	2	0.97
PHF	0.50	0.88			0.88		0.90	0.75		0.90											
Heavy Vehicles %	0%	4%	0%			0%	2%	0%			0%	0%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



AN EMPLOYEE-OWNED COMPANY

Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
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 (717) 584-1121

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Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Beech Ave Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
3:15 PM	0	8	0	0	8	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	10
3:30 PM	0	7	0	0	7	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	12
3:45 PM	0	5	0	0	5	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	10
Total	0	25	0	0	25	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	44
4:00 PM	0	6	0	0	6	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	9
4:15 PM	0	6	0	0	6	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	9
4:30 PM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	2	0	0	2	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	9
Total	0	17	0	0	17	0	17	0	0	17	0	0	0	0	0	0	0	0	0	0	34
5:00 PM	0	3	0	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	0	0	2	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	5
5:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	7
5:45 PM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
Total	0	8	0	0	8	0	17	0	0	17	0	0	0	0	0	0	0	0	0	0	25
Grand Total	0	50	0	0	50	0	53	0	0	53	0	0	0	0	0	0	0	0	0	0	103
Apprch %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total %	0.0	48.5	0.0	0.0	48.5	0.0	51.5	0.0	0.0	51.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Overall Peak Hour Volume	0	24	0	0	24	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	40



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Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
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(717) 564-1121

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All Vehicles

Start Time	Governor Rd (SR0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	162	0	0	162	0	147	1	0	148	0	0	0	0	0	0	0	1	0	1	311
3:15 PM	1	170	0	0	171	0	138	0	0	138	0	0	0	0	0	1	0	1	0	2	311
3:30 PM	1	172	0	0	173	0	144	3	0	147	0	0	0	0	0	0	0	0	0	0	320
3:45 PM	0	125	0	0	125	0	182	1	0	183	0	0	0	0	0	0	0	1	0	1	309
Total	2	629	0	0	631	0	611	5	0	616	0	0	0	0	0	1	0	3	0	4	1251
4:00 PM	0	150	0	0	150	0	172	0	0	172	0	0	0	0	0	0	0	0	0	0	322
4:15 PM	3	162	0	0	165	0	151	1	0	152	0	0	0	0	0	0	0	1	0	1	318
4:30 PM	3	141	0	0	144	0	163	1	0	164	0	0	0	0	0	0	0	0	0	0	308
4:45 PM	1	118	0	0	119	0	168	1	0	169	0	0	0	0	0	0	0	1	0	1	289
Total	7	571	0	0	578	0	654	3	0	657	0	0	0	0	0	0	0	2	0	2	1237
5:00 PM	1	151	0	0	152	0	162	0	0	162	0	0	0	0	0	0	0	2	0	2	316
5:15 PM	2	120	0	0	122	0	139	0	0	139	0	0	0	0	0	0	0	0	0	0	261
5:30 PM	1	148	0	0	149	0	143	0	0	143	0	0	0	0	0	0	0	0	0	0	292
5:45 PM	2	141	0	0	143	0	144	0	0	144	0	0	0	0	0	0	0	1	0	1	288
Total	6	560	0	0	566	0	588	0	0	588	0	0	0	0	0	0	0	3	0	3	1157
Grand Total	15	1760	0	0	1775	0	1853	8	0	1861	0	0	0	0	0	1	0	8	0	9	3645
Apprch %	0.8	99.2	0.0	0.0		0.0	99.6	0.4	0.0							11.1	0.0	88.9	0.0		
Total %	0.4	48.3	0.0	0.0	48.7	0.0	50.8	0.2	0.0	51.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.2	

Start Time	Governor Rd (SR0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total	
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total		
Peak Hour From	3:30 PM to 4:30 PM																					
Volume	4	609	0	0	613	0	649	5	0	654	0	0	0	0	0	0	0	2	0	2	1269	
Percent	0.7	99.3	0.0	0.0		0.0	99.2	0.8	0.0							0.0	0.0	100.0	0.0			
4:00 PM																						
Volume	0	150	0	0	150	0	172	0	0	172	0	0	0	0	0	0	0	0	0	0	322	
Peak Factor																						
High Int.																						
Volume	1	172	0	0	173	0	182	1	0	183	0	0	0	0	0	1	0	1	0	2		
PHF	0.33	0.89			0.89		0.89	0.42		0.89								0.50			0.50	0.99
Heavy Vehicles %	0%	3%	0%			0%	2%	0%			0%	0%	0%			0%	0%	0%				
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes			
	0		0	0		0		0	0		0		0	0		0		0	0			



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Greenlea Rd Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	5	0	0	5	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	12
3:15 PM	0	5	0	0	5	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	7
3:30 PM	0	5	0	0	5	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	10
3:45 PM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
Total	0	18	0	0	18	0	19	0	0	19	0	0	0	0	0	0	0	0	0	0	37
4:00 PM	0	6	0	0	6	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	10
4:15 PM	0	6	0	0	6	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	8
4:30 PM	0	3	0	0	3	0	4	0	0	4	0	0	0	0	0	0	0	0	0	0	7
4:45 PM	0	2	0	0	2	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	8
Total	0	17	0	0	17	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	33
5:00 PM	0	2	0	0	2	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	1	0	0	1	0	7	0	0	7	0	0	0	0	0	0	0	0	0	0	8
5:45 PM	0	3	0	0	3	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	8
Total	0	7	0	0	7	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	23
Grand Total	0	42	0	0	42	0	51	0	0	51	0	0	0	0	0	0	0	0	0	0	93
Apprch %	0.0	100.0	0.0	0.0		0.0	100.0	0.0	0.0												
Total %	0.0	45.2	0.0	0.0	45.2	0.0	54.8	0.0	0.0	54.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Overall Peak Hour Volume	0	20	0	0	20	0	16	0	0	16	0	0	0	0	0	0	0	0	0	0	36



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Route 322 Corridor Evaluation
PM PEAK HOUR

All Vehicles

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	0	122	33	0	155	24	117	9	1	151	27	6	51	1	85	8	9	0	0	17	408
3:15 PM	1	118	43	0	162	27	102	7	0	136	37	4	62	0	103	5	8	5	0	18	419
3:30 PM	5	127	36	0	168	28	99	3	0	130	37	15	77	0	129	4	9	2	0	15	442
3:45 PM	2	102	24	0	128	20	133	15	0	168	47	8	67	0	122	7	8	5	0	20	438
Total	8	469	136	0	613	99	451	34	1	585	148	33	257	1	439	24	34	12	0	70	1707
4:00 PM	3	121	25	0	149	16	127	11	0	154	41	16	75	0	132	8	13	1	0	22	457
4:15 PM	4	120	22	0	146	9	95	1	0	105	48	15	60	0	123	2	17	4	0	23	397
4:30 PM	4	102	24	0	130	19	115	4	0	138	50	23	90	0	163	7	12	3	0	22	453
4:45 PM	2	108	23	0	133	30	122	9	1	162	42	19	64	1	126	6	15	3	0	24	445
Total	13	451	94	0	558	74	459	25	1	559	181	73	289	1	544	23	57	11	0	91	1752
5:00 PM	4	114	26	0	144	14	123	7	0	144	36	17	74	1	128	7	10	3	0	20	436
5:15 PM	0	106	29	0	135	17	108	6	1	132	26	15	61	0	102	5	8	2	0	15	384
5:30 PM	4	114	30	0	148	13	93	5	0	111	39	18	62	0	119	7	7	0	0	14	392
5:45 PM	3	114	29	0	146	15	104	5	0	124	36	8	35	0	79	4	5	3	0	12	361
Total	11	448	114	0	573	59	428	23	1	511	137	58	232	1	428	23	30	8	0	61	1573
Grand Total	32	1368	344	0	1744	232	1338	82	3	1655	466	164	778	3	1411	70	121	31	0	222	5032
Approch %	1.8	78.4	19.7	0.0		14.0	80.8	5.0	0.2		33.0	11.6	55.1	0.2		31.5	54.5	14.0	0.0		
Total %	0.6	27.2	6.8	0.0	34.7	4.6	26.6	1.6	0.1	32.9	9.3	3.3	15.5	0.1	28.0	1.4	2.4	0.6	0.0	4.4	

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	3:15 PM					to					4:15 PM										
Volume	11	468	128	2	609	91	461	36	0	588	162	43	261	1	487	24	38	13	0	75	1759
Percent	1.8	76.8	21.0	0.3		15.5	78.4	6.1	0.0		33.3	8.8	57.7	0.2		32.0	50.7	17.3	0.0		
4:00 PM																					
Volume Peak	3	121	25	0	149	16	127	11	0	154	41	16	75	0	132	8	13	1	0	22	457
Factor																					
High Int.																					
Volume	5	127	36	1	169	20	133	15	0	168	50	23	90	0	163	6	15	3	0	24	
PHF	0.55	0.92	0.74	0.50	0.90	0.81	0.87	0.60		0.88	0.86	0.67	0.91	0.25	0.92	0.75	0.73	0.65		0.85	0.96
Heavy	0%	3%	1%			3%	3%	3%			1%	0%	0%			0%	3%	8%			
Vehicles %																					
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		49	2		0		6	0		0		80	1		0		5	0		



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Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Rt. 322 Eastbound					Rt. 322 Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	2	0	0	2	0	4	1	0	5	1	0	0	0	1	0	0	0	0	0	8
3:15 PM	0	4	1	0	5	0	2	1	0	3	0	0	1	1	2	0	0	1	0	1	11
3:30 PM	0	2	0	1	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
3:45 PM	0	1	0	1	2	3	5	0	0	8	1	0	0	0	1	0	1	0	0	1	12
Total	0	9	1	2	12	3	14	2	0	19	2	0	1	1	4	0	1	1	0	2	37
4:00 PM	0	6	0	0	6	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	9
4:15 PM	0	5	0	0	5	0	1	0	0	1	1	1	1	0	3	0	0	0	0	0	9
4:30 PM	0	2	0	0	2	0	6	0	0	6	0	0	0	0	0	0	0	0	0	0	8
4:45 PM	0	2	0	0	2	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	7
Total	0	15	0	0	15	0	14	0	0	14	2	1	1	0	4	0	0	0	0	0	33
5:00 PM	0	2	1	0	3	0	2	0	0	2	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	3	0	0	3	0	3	0	0	3	0	0	0	0	0	0	0	0	0	0	6
5:30 PM	0	0	0	0	0	0	7	0	0	7	0	0	0	1	1	0	0	0	0	0	8
5:45 PM	0	4	0	0	4	0	5	0	0	5	0	0	0	0	0	0	0	0	0	0	9
Total	0	9	1	0	10	0	17	0	0	17	0	0	0	1	1	0	0	0	0	0	28
Grand Total	0	33	2	2	37	3	45	2	0	50	4	1	2	2	9	0	1	1	0	2	98
Approch %	0.0	89.2	5.4	5.4		6.0	90.0	4.0	0.0		44.4	11.1	22.2	22.2		0.0	50.0	50.0	0.0		
Total %	0.0	33.7	2.0	2.0	37.8	3.1	45.9	2.0	0.0	51.0	4.1	1.0	2.0	2.0	9.2	0.0	1.0	1.0	0.0	2.0	
Overall Peak Hour Volume	0	13	1	2	16	3	12	1	0	16	2	0	1	1	4	0	1	1	0	2	38



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
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Route 322 Corridor Evaluation
 PM PEAK HOUR

U-Turn & RTOR

Start Time	Rt. 322 Eastbound			Rt. 322 Westbound			Cherry Dr Northbound			Cherry Dr Southbound			Int. Total
	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	
3:00 PM	0	10	10	0	0	0	0	28	28	0	0	0	38
3:15 PM	0	15	15	0	1	1	0	15	15	0	2	2	33
3:30 PM	0	14	14	0	1	1	0	9	9	0	1	1	25
3:45 PM	0	10	10	0	2	2	0	34	34	0	2	2	48
Total	0	49	49	0	4	4	0	86	86	0	5	5	144
4:00 PM	0	10	10	0	2	2	0	22	22	0	0	0	34
4:15 PM	0	5	5	0	0	0	0	3	3	0	1	1	9
4:30 PM	0	11	11	0	0	0	0	10	10	0	3	3	24
4:45 PM	0	7	7	0	0	0	0	9	9	0	2	2	18
Total	0	33	33	0	2	2	0	44	44	0	6	6	85
5:00 PM	0	11	11	0	0	0	0	13	13	0	1	1	25
5:15 PM	0	20	20	0	0	0	0	19	19	0	0	0	39
5:30 PM	0	10	10	0	0	0	0	36	36	0	0	0	46
5:45 PM	0	11	11	0	1	1	0	24	24	0	2	2	38
Total	0	52	52	0	1	1	0	92	92	0	3	3	148
Grand Total	0	134	134	0	0	0	0	222	222	0	14	14	370
Approch %	0.0	0.0	100.0	0.0			0.0	0.0	100.0	0.0	0.0	100.0	0.0
Total %	0.0		36.2	0.0	0.0	0.0	0.0	0.0	60.0	0.0	3.8	3.8	
Overall Peak Hour Volume	0	49	49	0	6	6	0	80	80	0	5	5	140



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Route 322 Corridor Evaluation
PM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	16	125	43	0	184	28	112	29	0	169	40	35	20	0	95	49	48	7	0	104	552
3:15 PM	12	130	40	0	182	18	90	23	0	131	37	32	29	0	98	66	56	11	0	133	544
3:30 PM	14	147	33	0	194	17	90	28	0	135	30	57	30	0	117	39	45	7	0	91	537
3:45 PM	19	124	39	0	182	31	125	31	0	187	32	41	30	0	103	51	62	12	0	125	597
Total	61	526	155	0	742	94	417	111	0	622	139	165	109	0	413	205	211	37	0	453	2230
4:00 PM	13	147	40	0	200	19	111	37	0	167	38	51	23	0	112	47	59	7	0	113	592
4:15 PM	13	125	36	0	174	24	68	24	0	116	28	55	21	0	104	39	57	7	0	103	497
4:30 PM	15	158	23	0	196	22	100	35	0	157	30	39	25	0	94	60	54	10	0	124	571
4:45 PM	10	134	40	0	184	24	113	31	0	168	34	44	30	0	108	49	64	9	0	122	582
Total	51	564	139	0	754	89	392	127	0	608	130	189	99	0	418	195	234	33	0	462	2242
5:00 PM	11	149	31	0	191	29	93	42	0	164	44	45	28	0	117	47	49	7	0	103	575
5:15 PM	13	140	25	0	178	16	90	34	0	140	33	53	26	0	112	49	67	3	0	119	549
5:30 PM	10	130	29	0	169	12	73	26	0	111	38	43	15	0	96	42	48	7	0	97	473
5:45 PM	13	120	35	0	168	17	74	26	0	117	37	38	14	0	89	36	38	8	0	82	456
Total	47	539	120	0	706	74	330	128	0	532	152	179	83	0	414	174	202	25	0	401	2053
Grand Total	159	1629	414	0	2202	257	1139	366	0	1762	421	533	291	0	1245	574	647	95	0	1316	6525
Approch %	7.2	74.0	18.8	0.0		14.6	64.6	20.8	0.0		33.8	42.8	23.4	0.0		43.6	49.2	7.2	0.0		
Total %	2.4	25.0	6.3	0.0	33.7	3.9	17.5	5.6	0.0	27.0	6.5	8.2	4.5	0.0	19.1	8.8	9.9	1.5	0.0	20.2	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:30 PM to 5:30 PM																				
Volume	49	581	119	0	749	91	396	142	0	629	141	181	109	0	431	205	234	29	0	468	2277
Percent	6.5	77.6	15.9	0.0		14.5	63.0	22.6	0.0		32.7	42.0	25.3	0.0		43.8	50.0	6.2	0.0		
3:45 PM Volume Peak Factor	19	124	39	0	182	31	125	31	0	187	32	41	30	0	103	51	62	12	0	125	597
High Int. Volume PHF	13	147	40	0	200	31	125	31	0	187	30	57	30	0	117	66	56	11	0	133	0.98
PHF	0.82	0.92	0.74	0.98		0.78	0.88	0.85	0.94		0.80	0.85	0.91	0.92		0.85	0.87	0.73	0.94		
Heavy Vehicles %	0%	1%	1%			0%	4%	1%			1%	1%	0%			0%	2%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		7	0		0		13	0		0		66	0		0		7	0		



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Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
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Heavy Vehicles & Bicycles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Fishburn Rd (SR 2011) Northbound					Hockersville Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	4	0	0	4	0	6	2	0	8	1	2	2	0	5	0	4	0	0	4	21
3:15 PM	0	4	2	0	6	5	1	1	0	7	1	0	2	0	3	0	6	1	0	7	23
3:30 PM	0	3	1	0	4	0	1	0	0	1	2	1	1	0	4	0	1	0	0	1	10
3:45 PM	0	2	1	0	3	2	7	0	0	9	1	3	0	0	4	0	1	0	0	1	17
Total	0	13	4	0	17	7	15	3	0	25	5	6	5	0	16	0	12	1	0	13	71
4:00 PM	0	4	0	0	4	0	1	1	0	2	1	2	0	0	3	2	0	0	0	2	11
4:15 PM	0	6	0	0	6	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	10
4:30 PM	0	1	1	0	2	0	6	0	0	6	1	0	0	0	1	0	3	0	0	3	12
4:45 PM	0	2	0	0	2	0	6	1	0	7	0	1	0	0	1	0	1	0	0	1	11
Total	0	13	1	0	14	0	14	2	0	16	2	6	0	0	8	2	4	0	0	6	44
5:00 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	4	0	0	4	0	2	0	0	2	1	0	0	0	1	0	0	0	0	0	7
5:30 PM	0	0	0	0	0	0	6	1	0	7	1	0	0	1	2	0	0	0	0	0	9
5:45 PM	0	2	1	0	3	0	3	0	0	3	2	0	0	0	2	1	0	0	0	1	9
Total	0	7	1	0	8	0	12	1	0	13	4	0	0	1	5	1	0	0	0	1	27
Grand Total	0	33	6	0	39	7	41	6	0	54	11	12	5	1	29	3	16	1	0	20	142
Approch %	0.0	84.6	15.4	0.0		13.0	75.9	11.1	0.0		37.9	41.4	17.2	3.4		15.0	80.0	5.0	0.0		
Total %	0.0	23.2	4.2	0.0	27.5	4.9	28.9	4.2	0.0	38.0	7.7	8.5	3.5	0.7	20.4	2.1	11.3	0.7	0.0	14.1	
Overall Peak Hour Volume	0	8	1	0	9	0	15	1	0	16	2	1	0	0	3	0	4	0	0	4	32



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Route 322 Corridor Evaluation
 PM PEAK HOUR

U-Turn & RTOR

Start Time	Governor Rd (SR 0322) Eastbound			Governor Rd (SR 0322) Westbound			Fishburn Rd (SR 2011) Northbound				Hockersville Rd (SR 2011) Southbound				Int. Total
	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	RTOR	App. Total	
3:00 PM	0	3	3	0	1	1	0	8	8	0	2	2		2	14
3:15 PM	0	1	1	0	0	0	0	8	8	0	1	1		1	10
3:30 PM	0	1	1	0	1	1	0	7	7	0	0	0		0	9
3:45 PM	0	0	0	0	2	2	0	14	14	0	1	1		1	17
Total	0	5	5	0	4	4	0	37	37	0	4	4		4	50
4:00 PM	0	9	9	0	0	0	0	11	11	0	1	1		1	21
4:15 PM	0	0	0	0	1	1	0	8	8	0	0	0		0	9
4:30 PM	0	0	0	0	5	5	0	20	20	0	3	3		3	28
4:45 PM	0	4	4	0	3	3	0	15	15	0	2	2		2	24
Total	0	13	13	0	9	9	0	54	54	0	6	6		6	82
5:00 PM	0	0	0	0	4	4	0	17	17	0	1	1		1	22
5:15 PM	0	3	3	0	1	1	0	14	14	0	1	1		1	19
5:30 PM	0	2	2	0	0	0	0	7	7	0	1	1		1	10
5:45 PM	0	1	1	0	3	3	0	11	11	0	2	2		2	17
Total	0	6	6	0	8	8	0	49	49	0	5	5		5	68
Grand Total	0	24	24	0	0	0	0	140	140	0	15	15		15	179
Approch %	0.0	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
Total %	0.0	0.0	13.4	0.0	0.0	0.0	0.0	0.0	0.0	78.2	0.0	0.0	8.4	8.4	
Overall Peak Hour Volume	0	7	7	0	13	13	0	66	66	0	7	7		7	93



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Elm Ave Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	23	171	0	0	194	0	142	0	0	142	0	0	0	0	0	0	0	26	0	26	362
3:15 PM	23	204	0	0	227	0	113	0	0	113	0	0	0	0	0	0	0	18	0	18	358
3:30 PM	23	199	0	0	222	0	126	1	0	127	0	0	0	0	0	0	0	12	1	13	362
3:45 PM	25	182	0	0	207	0	150	0	0	150	0	0	0	0	0	0	0	38	0	38	395
Total	94	756	0	0	850	0	531	1	0	532	0	0	0	0	0	0	0	94	1	95	1477
4:00 PM	30	186	0	0	216	0	156	0	0	156	0	0	0	0	0	0	0	10	0	10	382
4:15 PM	22	167	0	0	189	0	98	0	0	98	0	0	0	0	0	0	0	17	0	17	304
4:30 PM	31	214	0	0	245	0	135	0	0	135	0	0	0	0	0	0	0	28	0	28	408
4:45 PM	20	191	0	0	211	0	141	1	0	142	0	0	0	0	0	0	0	26	0	26	379
Total	103	758	0	0	861	0	530	1	0	531	0	0	0	0	0	0	0	81	0	81	1473
5:00 PM	29	203	0	0	232	0	145	0	0	145	0	0	0	0	0	0	0	19	2	21	398
5:15 PM	24	195	0	0	219	0	121	0	0	121	0	0	0	0	0	0	0	23	0	23	363
5:30 PM	25	167	0	0	192	0	108	0	0	108	0	0	0	0	0	0	0	13	0	13	313
5:45 PM	18	153	0	0	171	0	110	0	0	110	0	0	0	0	0	0	0	11	0	11	292
Total	96	718	0	0	814	0	484	0	0	484	0	0	0	0	0	0	0	66	2	68	1366
Grand Total	293	2232	0	0	2525	0	1545	2	0	1547	0	0	0	0	0	0	0	241	3	244	4316
Approch %	11.6	88.4	0.0	0.0		0.0	99.9	0.1	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	98.8	1.2		
Total %	6.8	51.7	0.0	0.0	58.5	0.0	35.8	0.0	0.0	35.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.8	0.1	5.7	

Start Time	Governor Rd (SR 0322) Eastbound					Governor Rd (SR 0322) Westbound					Northbound					Elm Ave Southbound					Int. Total		
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total			
Peak Hour From	4:30 PM					to 5:30 PM																	
Volume	104	803	0	0	907	0	542	1	0	543	0	0	0	0	0	0	0	96	2	98	1548		
Percent	11.5	88.5	0.0	0.0		0.0	99.8	0.2	0.0							0.0	0.0	98.0	2.0				
4:30 PM Volume Peak Factor	31	214	0	0	245	0	135	0	0	135	0	0	0	0	0	0	0	28	0	28	408		
High Int. Volume PHF	4:30 PM	31	214	0	0	245	4:00 PM	0	156	0	0	156	3:00 PM	0	0	0	0	3:45 PM	0	0	38	0	38
PHF	0.84	0.94			0.93		0.93	0.25		0.94								0.86	0.25	0.88	0.95		
Heavy Vehicles %	0%	1%	0%			0%	3%	0%			0%	0%	0%			0%	0%	0%					
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes				
	0		0	0		0		0	0		0		0	0		0		0	0				



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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	51	0	42	0	93	0	0	0	0	0	9	21	0	0	30	2	40	25	0	67	190
3:15 PM	70	1	51	0	122	1	0	1	0	2	8	23	1	0	32	1	33	41	0	75	231
3:30 PM	93	0	71	1	165	0	0	0	1	1	10	17	0	1	28	1	31	35	0	67	281
3:45 PM	66	0	46	1	115	0	0	0	1	1	4	39	0	0	43	5	27	11	0	43	202
Total	282	1	210	2	495	1	0	1	2	4	31	100	1	1	133	9	131	112	0	252	884
4:00 PM	100	3	85	1	189	0	0	1	0	1	6	26	1	0	33	0	36	10	0	46	289
4:15 PM	81	1	59	1	142	0	0	0	0	0	3	31	1	0	35	5	30	6	0	41	218
4:30 PM	123	1	113	2	239	0	0	0	0	0	7	20	0	0	27	3	35	6	0	44	310
4:45 PM	92	1	82	0	175	0	0	0	0	0	3	29	0	0	32	2	37	9	0	48	255
Total	396	6	339	4	745	0	0	1	0	1	19	106	2	0	127	10	138	31	0	179	1052
5:00 PM	78	3	58	1	140	0	0	0	0	0	2	20	1	0	23	6	38	11	0	55	218
5:15 PM	63	1	76	0	140	0	0	1	1	2	3	29	3	1	36	5	36	10	0	53	231
5:30 PM	57	1	54	1	113	0	0	2	0	2	4	26	1	0	31	6	24	8	0	38	184
5:45 PM	35	2	28	1	66	0	0	0	0	0	5	25	1	0	31	2	36	12	0	50	147
Total	233	7	218	3	459	0	0	3	1	4	14	100	6	1	121	19	136	41	0	196	780
Grand Total	911	14	765	9	1699	1	0	5	3	9	64	306	9	2	381	38	405	184	0	627	2716
Approch %	53.6	0.8	45.0	0.5		11.1	0.0	55.6	33.3		16.8	80.3	2.4	0.5		6.1	64.6	29.3	0.0		
Total %	33.5	0.5	28.2	0.3	62.6	0.0	0.0	0.2	0.1	0.3	2.4	11.3	0.3	0.1	14.0	1.4	14.9	6.8	0.0	23.1	

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:00 PM					to					5:00 PM										
Volume	396	6	339	4	745	0	0	1	0	1	19	106	2	0	127	10	138	31	0	179	1052
Percent	53.2	0.8	45.5	0.5		0.0	0.0	100.0	0.0		15.0	83.5	1.6	0.0		5.6	77.1	17.3	0.0		
4:30 PM Volume	123	1	113	2	239	0	0	0	0	0	7	20	0	0	27	3	35	6	0	44	310
Peak Factor																					
High Int. Volume	123	1	113	2	239	1	0	1	0	2	4	39	0	0	43	1	33	41	0	75	
PHF	0.80	0.50	0.75	0.50	0.78			0.25		0.25	0.68	0.85	0.50		0.91	0.50	0.93	0.78		0.93	0.85
Heavy Vehicles %	0%	0%	0%			0%	0%	0%			0%	2%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

Intersection #: 10
Job Number: R002484.0476
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Heavy Vehicles & Bicycles

Start Time	Hope Dr Eastbound					Kinder Care Dwy Westbound					Cherry Dr Northbound					Cherry Dr Southbound					Int. Total		
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total			
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	1	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	3	2	0	0	5	0	0	0
Total	0	0	0	0	0	1	0	0	0	1	0	2	0	0	2	3	3	0	0	6	0	0	0
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
5:15 PM	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0
Grand Total	0	0	1	0	1	1	0	0	0	1	0	4	0	0	4	3	4	0	0	7	0	0	13
Approch %	0.0	0.0	100.0	0.0		100.0	0.0	0.0	0.0		0.0	100.0	0.0	0.0		42.9	57.1	0.0	0.0		0.0	0.0	
Total %	0.0	0.0	7.7	0.0	7.7	7.7	0.0	0.0	0.0	7.7	0.0	30.8	0.0	0.0	30.8	23.1	30.8	0.0	0.0	53.8			
Overall Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	2



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

All Vehicles

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	34	0	35	0	69	0	0	0	0	0	18	24	0	0	42	2	31	13	0	46	157
3:15 PM	44	1	38	0	83	0	0	0	0	0	21	32	1	0	54	1	30	8	0	39	176
3:30 PM	64	1	38	0	103	0	1	0	0	1	14	24	0	0	38	2	27	12	0	41	183
3:45 PM	41	0	33	0	74	0	0	0	0	0	29	23	1	0	53	0	38	15	0	53	180
Total	183	2	144	0	329	0	1	0	0	1	82	103	2	0	187	5	126	48	0	179	696
4:00 PM	70	1	39	1	111	0	0	0	0	0	24	30	0	2	56	2	35	8	0	45	212
4:15 PM	50	2	34	0	86	0	1	1	0	2	22	28	0	0	50	0	39	10	0	49	187
4:30 PM	93	3	41	0	137	0	0	0	0	0	15	18	0	2	35	2	37	11	0	50	222
4:45 PM	74	0	54	0	128	0	0	1	0	1	20	25	0	0	45	0	30	10	0	40	214
Total	287	6	168	1	462	0	1	2	0	3	81	101	0	4	186	4	141	39	0	184	835
5:00 PM	48	1	46	0	95	0	2	3	0	5	16	28	0	0	44	0	48	7	0	55	199
5:15 PM	62	0	43	0	105	0	3	2	0	5	21	22	0	0	43	2	23	10	0	35	188
5:30 PM	51	1	27	0	79	0	1	0	0	1	15	22	0	0	37	0	23	13	0	36	153
5:45 PM	25	1	41	0	67	0	0	0	0	0	25	20	0	0	45	0	33	6	0	39	151
Total	186	3	157	0	346	0	6	5	0	11	77	92	0	0	169	2	127	36	0	165	681
Grand Total	656	11	469	1	1137	0	8	7	0	15	240	296	2	4	542	11	394	123	0	528	2222
Apprch %	57.7	1.0	41.2	0.1		0.0	53.3	46.7	0.0		44.3	54.6	0.4	0.7		2.1	74.6	23.3	0.0		
Total %	29.5	0.5	21.1	0.0	51.2	0.0	0.4	0.3	0.0	0.7	10.8	13.3	0.1	0.2	24.4	0.5	17.7	5.5	0.0	23.8	

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:00 PM					to					5:00 PM										
Volume	287	6	168	1	462	0	1	2	0	3	81	101	0	4	186	4	141	39	0	184	835
Percent	62.1	1.3	36.4	0.2		0.0	33.3	66.7	0.0		43.5	54.3	0.0	2.2		2.2	76.6	21.2	0.0		
4:30 PM																					
Volume Peak	93	3	41	0	137	0	0	0	0	0	15	18	0	2	35	2	37	11	0	50	222
Factor																					
High Int.	4:30 PM					5:00 PM					4:00 PM					5:00 PM					
Volume	93	3	41	0	137	0	2	3	0	5	24	30	0	2	56	0	48	7	0	55	
PHF	0.77	0.50	0.78	0.25	0.84		0.25	0.50		0.38	0.84	0.84		0.50	0.83	0.50	0.90	0.89		0.92	0.94
Heavy Vehicles %	0%	0%	0%			0%	0%	0%			2%	1%	0%			0%	0%	0%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



AN EMPLOYEE-OWNED COMPANY

Route 322 Corridor Evaluation
PM PEAK HOUR

Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

Intersection #: 11
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Heavy Vehicles & Bicycles

Start Time	Cherry Dr Eastbound					Private Drive Westbound					Sand Hill Rd Northbound					Sand Hill Rd Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2
3:15 PM	1	0	0	0	1	0	0	0	0	0	1	1	0	0	2	0	3	0	0	3	6
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Total	1	0	2	0	3	0	0	0	0	0	1	2	0	0	3	0	4	1	0	5	11
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	3
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	3
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Grand Total	1	0	2	0	3	0	0	0	0	0	3	3	0	0	6	0	4	1	0	5	14
Approch %	33.3	0.0	66.7	0.0							50.0	50.0	0.0	0.0		0.0	80.0	20.0	0.0		
Total %	7.1	0.0	14.3	0.0	21.4	0.0	0.0	0.0	0.0	0.0	21.4	21.4	0.0	0.0	42.9	0.0	28.6	7.1	0.0	35.7	
Overall Peak Hour Volume	0	0	0	0	0	0	0	0	0	0	2	1	0	0	3	0	0	0	0	0	3



Herbert, Rowland & Grubic, Inc.
369 East Park Drive
Harrisburg, PA 17111
(717) 564-1121

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AN EMPLOYEE-OWNED COMPANY
Route 322 Corridor Evaluation
PM PEAK HOUR

All Vehicles

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	18	0	45	0	63	0	0	0	0	0	13	82	0	0	95	0	82	35	0	117	275
3:15 PM	32	0	53	0	85	0	0	0	0	0	13	64	0	0	77	0	86	28	0	112	274
3:30 PM	26	0	61	0	87	0	0	0	0	0	15	94	0	0	109	0	66	29	0	95	291
3:45 PM	21	0	45	0	66	0	0	0	0	0	20	79	0	0	99	0	104	31	0	135	300
Total	97	0	204	0	301	0	0	0	0	0	61	319	0	0	380	0	338	121	0	459	1140
4:00 PM	23	0	63	0	86	0	0	0	0	0	20	92	0	0	112	0	89	27	0	116	314
4:15 PM	29	0	64	0	93	0	0	0	0	0	26	84	0	0	110	0	85	24	0	109	312
4:30 PM	19	0	89	0	108	0	0	0	0	0	22	75	0	0	97	0	76	27	0	103	308
4:45 PM	24	0	78	0	102	0	0	0	0	0	16	78	0	0	94	0	98	21	0	119	315
Total	95	0	294	0	389	0	0	0	0	0	84	329	0	0	413	0	348	99	0	447	1249
5:00 PM	25	0	58	0	81	0	0	0	0	0	21	98	0	0	119	0	81	36	0	117	317
5:15 PM	24	0	62	0	86	0	0	0	0	0	11	85	0	0	96	0	83	22	0	105	287
5:30 PM	17	0	54	0	71	0	0	0	0	0	22	74	0	0	96	0	73	14	2	89	256
5:45 PM	17	0	25	2	44	0	0	0	0	0	18	70	0	0	88	0	74	19	0	93	225
Total	83	0	197	2	282	0	0	0	0	0	72	327	0	0	399	0	311	91	2	404	1085
Grand Total	275	0	695	2	972	0	0	0	0	0	217	975	0	0	1192	0	997	311	2	1310	3474
Apprch %	28.3	0.0	71.5	0.2							18.2	81.8	0.0	0.0		0.0	76.1	23.7	0.2		
Total %	7.9	0.0	20.0	0.1	28.0	0.0	0.0	0.0	0.0	0.0	6.2	28.1	0.0	0.0	34.3	0.0	28.7	9.0	0.1	37.7	

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	4:15 PM to 5:15 PM																				
Volume	97	0	287	0	384	0	0	0	0	0	85	335	0	0	420	0	340	108	0	448	1252
Percent	25.3	0.0	74.7	0.0							20.2	79.8	0.0	0.0		0.0	75.9	24.1	0.0		
5:00 PM																					
Volume Peak	25	0	56	0	81	0	0	0	0	0	21	98	0	0	119	0	81	36	0	117	317
Factor																					
High Int.	4:30 PM					3:00 PM					5:00 PM					3:45 PM					
Volume	19	0	89	0	108	0	0	0	0	0	21	98	0	0	119	0	104	31	0	135	0.99
PHF	0.84		0.81		0.89						0.82	0.85		0.88		0.87	0.75		0.94		
Heavy Vehicles %	2%	0%	0%			0%	0%	0%			0%	1%	0%		0%	2%	0%				
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		0	0		0		0	0		0		0	0		



Herbert, Rowland & Grubic, Inc.
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Sand Hill Rd Eastbound					Westbound					Fishburn Rd (SR 2011) Northbound					Fishburn Rd (SR 2011) Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	2	0	0	0	2	0	0	0	0	0	1	3	0	0	4	0	3	2	0	5	11
3:15 PM	3	0	1	0	4	0	0	0	0	0	0	0	0	0	0	0	5	6	0	11	15
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	2	0	0	2	5
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	0	3	1	0	4	8
Total	5	0	1	0	6	0	0	0	0	0	1	10	0	0	11	0	13	9	0	22	39
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
4:15 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	2	0	0	2	4
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	0	3	5
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Total	1	0	0	0	1	0	0	0	0	0	0	6	0	0	6	0	7	0	0	7	14
5:00 PM	1	0	0	0	1	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	0	1	0	0	1	4
Total	1	0	0	0	1	0	0	0	0	0	0	7	0	0	7	0	1	0	0	1	9
Grand Total	7	0	1	0	8	0	0	0	0	0	1	23	0	0	24	0	21	9	0	30	62
Approch %	87.5	0.0	12.5	0.0							4.2	95.8	0.0	0.0		0.0	70.0	30.0	0.0		
Total %	11.3	0.0	1.6	0.0	12.9	0.0	0.0	0.0	0.0	0.0	1.6	37.1	0.0	0.0	38.7	0.0	33.9	14.5	0.0	48.4	
Overall Peak Hour Volume	2	0	0	0	2	0	0	0	0	0	0	4	0	0	4	0	6	0	0	6	12



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
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All Vehicles

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
3:00 PM	21	26	0	0	47	0	39	16	76	131	17	6	6	2	31	10	0	22	0	32	241
3:15 PM	15	20	0	0	35	0	47	21	81	149	20	15	2	1	38	11	0	20	1	32	254
3:30 PM	24	18	0	0	42	0	41	28	82	151	25	10	7	1	43	10	0	30	1	41	277
3:45 PM	23	15	0	0	38	0	54	23	83	160	20	6	2	1	29	6	0	31	1	38	265
Total	83	79	0	0	162	0	181	88	322	591	82	37	17	5	141	37	0	103	3	143	1037
4:00 PM	40	20	0	0	60	0	52	28	87	167	18	13	2	4	37	7	0	45	1	53	317
4:15 PM	19	18	0	0	35	0	42	25	78	145	26	14	6	0	46	7	0	35	1	43	269
4:30 PM	30	11	0	0	41	0	69	28	113	210	20	6	3	6	35	11	0	63	0	74	360
4:45 PM	26	22	0	0	48	0	49	17	81	127	11	11	7	1	30	6	0	45	0	51	256
Total	115	69	0	0	184	0	212	98	339	649	75	44	18	11	148	31	0	188	2	221	1202
5:00 PM	34	10	0	0	44	0	39	22	75	136	14	6	4	0	24	6	0	35	5	46	250
5:15 PM	27	13	0	0	40	0	35	13	83	131	16	4	1	2	23	5	0	36	2	43	237
5:30 PM	23	13	0	0	36	0	28	15	69	112	18	9	1	4	32	4	0	30	0	34	214
5:45 PM	25	12	0	0	37	0	23	19	56	98	21	6	7	0	34	3	0	21	0	24	193
Total	109	48	0	0	157	0	125	69	283	477	69	25	13	6	113	18	0	122	7	147	894
Grand Total	307	196	0	0	503	0	518	255	944	1717	226	106	48	22	402	86	0	413	12	511	3133
Apprch %	61.0	39.0	0.0	0.0		0.0	30.2	14.9	55.0		56.2	26.4	11.9	5.5		16.8	0.0	80.8	2.3		
Total %	9.8	6.3	0.0	0.0	16.1	0.0	16.5	8.1	30.1	54.8	7.2	3.4	1.5	0.7	12.8	2.7	0.0	13.2	0.4	16.3	

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	
Peak Hour From	3:45 PM					to					4:45 PM										
Volume	112	62	0	0	174	0	217	104	361	682	84	39	13	14	150	31	0	174	5	210	1216
Percent	64.4	35.6	0.0	0.0		0.0	31.8	15.2	52.9		56.0	26.0	8.7	9.3		14.8	0.0	82.9	2.4		
4:30 PM Volume Peak Factor	30	11	0	0	41	0	69	28	113	210	20	6	3	8	37	11	0	63	0	74	362
High Int. Volume	40	20	0	0	60	0	69	28	113	210	28	14	6	0	46	11	0	63	0	74	
PHF	0.70	0.78			0.73	0.79	0.93	0.80	0.81		0.81	0.70	0.54	0.44	0.82	0.70		0.69	0.42	0.71	0.84
Heavy Vehicles %	3%	3%	0%			0%	4%	0%			4%	3%	46%			3%	0%	2%			
Misc.	U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		U-Turn		RTOR	Bikes		
	0		0	0		0		19	0		0		2	3		0		87	2		



Herbert, Rowland & Grubic, Inc.
 369 East Park Drive
 Harrisburg, PA 17111
 (717) 564-1121

Intersection #: 13
 Job Number: R002484.0476
 Date: 1/15/2015
 Page No: 2

AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Heavy Vehicles & Bicycles

Start Time	Campus Dr Eastbound					Campus Dr Westbound					Centerview Ln Northbound					Centerview Ln Southbound					Int. Total
	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	Left	Thru	Right	Bikes	App. Total	
3:00 PM	0	0	0	0	0	0	1	0	0	1	2	0	2	1	5	0	0	2	1	3	9
3:15 PM	0	0	0	0	0	0	1	0	0	1	0	0	0	1	1	0	0	1	0	1	3
3:30 PM	3	0	0	0	3	0	3	0	0	3	3	0	4	0	7	0	0	1	0	1	14
3:45 PM	2	1	0	0	3	0	3	0	0	3	0	0	1	1	2	0	0	1	0	1	9
Total	5	1	0	0	6	0	8	0	0	8	5	0	7	3	15	0	0	5	1	6	35
4:00 PM	1	1	0	0	2	0	1	0	0	1	0	1	2	0	3	0	0	1	0	1	7
4:15 PM	0	0	0	0	0	0	3	0	0	3	3	0	3	0	6	0	0	0	2	2	11
4:30 PM	0	0	0	0	0	0	2	0	0	2	0	0	0	2	2	1	0	1	0	2	6
4:45 PM	2	2	0	0	4	0	3	0	0	3	0	1	2	0	3	0	0	1	0	1	11
Total	3	3	0	0	6	0	9	0	0	9	3	2	7	2	14	1	0	3	2	6	35
5:00 PM	0	0	0	0	0	0	0	1	0	1	2	1	1	0	4	0	0	0	0	0	5
5:15 PM	1	0	0	0	1	0	1	0	0	1	1	0	0	1	2	0	0	0	0	0	4
5:30 PM	1	0	0	0	1	0	1	0	0	1	3	0	0	0	3	0	0	0	0	0	5
5:45 PM	1	0	0	0	1	0	1	0	0	1	0	0	0	1	1	0	0	0	1	1	4
Total	3	0	0	0	3	0	3	1	0	4	6	1	1	2	10	0	0	0	1	1	18
Grand Total	11	4	0	0	15	0	20	1	0	21	14	3	15	7	39	1	0	8	4	13	88
Approch %	73.3	26.7	0.0	0.0		0.0	95.2	4.8	0.0		35.9	7.7	38.5	17.9		7.7	0.0	61.5	30.8		
Total %	12.5	4.5	0.0	0.0	17.0	0.0	22.7	1.1	0.0	23.9	15.9	3.4	17.0	8.0	44.3	1.1	0.0	9.1	4.5	14.8	
Overall Peak Hour Volume	3	2	0	0	5	0	9	0	0	9	3	1	6	3	13	1	0	3	2	6	33



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Intersection #: 13
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 Date: 1/15/2015
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AN EMPLOYEE-OWNED COMPANY
 Route 322 Corridor Evaluation
 PM PEAK HOUR

Start Time	Campus Dr Eastbound			Campus Dr Westbound			Centerview Ln Northbound			Centerview Ln Southbound			Int. Total	
	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total	U-Turn	RTOR	App. Total		
3:00 PM	0	0	0	0	1	1	0	2	2	0	4	4	7	
3:15 PM	0	0	0	0	1	1	0	0	0	0	5	5	6	
3:30 PM	0	0	0	0	13	13	0	0	0	0	6	6	19	
3:45 PM	0	0	0	0	4	4	0	1	1	0	11	11	16	
Total	0	0	0	0	19	19	0	3	3	0	26	26	48	
4:00 PM	0	0	0	0	7	7	0	0	0	0	23	23	30	
4:15 PM	0	0	0	0	3	3	0	0	0	0	13	13	16	
4:30 PM	0	0	0	0	5	5	0	1	1	0	40	40	46	
4:45 PM	0	0	0	0	5	5	0	0	0	0	17	17	22	
Total	0	0	0	0	20	20	0	1	1	0	93	93	114	
5:00 PM	0	0	0	0	5	5	0	2	2	0	17	17	24	
5:15 PM	0	0	0	0	5	5	0	0	0	0	14	14	19	
5:30 PM	0	0	0	0	0	0	0	0	0	0	20	20	20	
5:45 PM	0	0	0	0	0	0	0	3	3	0	13	13	16	
Total	0	0	0	0	10	10	0	5	5	0	64	64	79	
Grand Total	0	0	0	0	0	0	0	9	9	0	183	183	192	
Apprch %							0.0	0.0	100.0	0.0	0.0	0.0	100.0	0.0
Total %	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	4.7	0.0	95.3	95.3		
Overall Peak Hour Volume	0	0	0	0	19	19	0	2	2	0	87	87	108	

EXISTING 2015 TRAFFIC VOLUMES - RAW COUNT DATA

JOB NAME: Route 322 Corridor Evaluation
 JOB NUMBER: R002484.0470
 ANALYST: BJB
 DATE: 02/12/15

- INTERSECTION #1: Governor Rd (SR 0322) and University Dr
- INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln
- INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave
- INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlea Rd
- INTERSECTION #7: Rt. 322 and Cherry Dr
- INTERSECTION #8: Governor Rd (SR 0322) and Flahbum Rd (SR 2011) / Hockersville Rd (SR 2011)
- INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Cane Dwy
- INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12: Flahbum Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13: Centerview Ln and Campus Dr

INTERSECTION	MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
		EXISTING 2015 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES	EXISTING 2015 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES
		INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	24	0	0%	76
EBT	691		17	2%	415	9	2%
EBR	305		1	0%	106	1	1%
WBL	206		0	0%	62	0	0%
WBT	324		9	3%	678	8	1%
WBR	80		3	4%	227	2	1%
NBL	89		0	0%	233	0	0%
NBT	51		1	1%	218	0	0%
NBR	54		1	1%	99	0	0%
SBL	51		1	2%	35	0	0%
SBT	126		3	2%	63	2	4%
SBR	16		0	0%	44	0	0%
OVERALL	2047		36		2246	21	
INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln	EBL	5	0	0%	14	0	0%
	EBT	437	34	8%	430	18	4%
	EBR	329	0	0%	44	2	5%
	WBL	228	1	0%	48	1	2%
	WBT	582	17	3%	530	15	3%
	WBR	43	2	5%	99	0	0%
	NBL	57	2	4%	324	3	1%
	NBT	16	1	6%	77	1	1%
	NBR	73	0	0%	183	0	0%
	SBL	33	0	0%	38	1	3%
	SBT	188	0	0%	17	0	0%
	SBR	9	0	0%	30	0	0%
	OVERALL	1980	57		1820	30	
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	4	0	0%	11	0	0%
	EBT	534	39	7%	648	33	5%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	831	39	5%	647	19	3%
	WBR	1	0	100%	4	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	2	0	0%	3	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	9	1	11%	8	0	13%
	OVERALL	1361	60		1321	30	
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave	EBL	4	0	0%	43	0	2%
	EBT	530	34	6%	669	37	5%
	EBR	2	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	777	20	3%	646	54	8%
	WBR	3	2	67%	12	9	17%
	NBL	2	0	0%	2	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	1	0	0%	1	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	50	1	2%	12	0	8%
	OVERALL	1372	67		1305	35	
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave	EBL	3	0	0%	4	0	0%
	EBT	538	34	6%	611	34	5%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	781	21	3%	649	18	3%
	WBR	1	0	0%	3	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	1	0	0%	0	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	3	0	0%	0	0	0%
	OVERALL	1327	65		1287	40	
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlea Rd	EBL	2	0	0%	4	0	0%
	EBT	628	33	5%	609	23	4%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	769	18	2%	646	19	3%
	WBR	0	0	0%	5	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	4	0	0%	2	0	0%
	OVERALL	1303	51		1260	36	

INTERSECTION	MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
		EXISTING 2018 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES	EXISTING 2018 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES
		INTERSECTION #7: RL 322 and Cherry Dr					
	EBL	4	0	0%	11	0	0%
	EBT	406	30	7%	468	19	3%
	EBR	110	5	4%	128	1	1%
	WBL	253	5	2%	91	3	3%
	WBT	678	18	3%	461	12	3%
	WBR	7	0	0%	36	1	3%
	NBL	103	2	2%	182	2	1%
	NBT	18	0	0%	43	0	0%
	NBR	45	1	2%	281	1	0%
	SBL	31	0	0%	24	0	0%
	SBT	50	0	0%	38	1	3%
	SBR	3	0	0%	13	1	8%
	OVERALL	1730	51		1756	35	
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockersville Rd (SR 2011)							
	EBL	18	1	6%	48	0	0%
	EBT	325	20	6%	681	8	1%
	EBR	108	1	1%	110	1	1%
	WBL	43	3	7%	61	0	0%
	WBT	632	15	2%	395	15	4%
	WBR	137	4	3%	142	1	1%
	NBL	212	4	2%	141	2	1%
	NBT	173	11	6%	181	1	1%
	NBR	87	4	5%	109	0	0%
	SBL	128	1	1%	205	0	0%
	SBT	110	4	4%	234	4	2%
	SBR	37	1	3%	20	0	0%
	OVERALL	2050	69		2277	32	
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave							
	EBL	52	3	6%	104	0	0%
	EBT	465	23	5%	803	11	1%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	745	19	3%	542	14	3%
	WBR	0	0	0%	1	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	108	2	2%	95	0	0%
	OVERALL	1400	47		1548	25	
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy							
	EBL	15	1	7%	369	0	0%
	EBT	0	0	0%	0	0	0%
	EBR	21	0	0%	339	0	0%
	WBL	1	0	0%	0	0	0%
	WBT	1	0	0%	0	0	0%
	WBR	5	0	0%	1	0	0%
	NBL	322	0	0%	19	0	0%
	NBT	123	0	0%	108	2	2%
	NBR	12	0	0%	2	0	0%
	SBL	23	0	0%	10	0	0%
	SBT	39	0	0%	138	0	0%
	SBR	339	1	0%	31	0	0%
	OVERALL	899	10		1048	2	
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive							
	EBL	19	0	0%	287	0	0%
	EBT	3	0	0%	9	0	0%
	EBR	38	0	0%	168	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	0	0	0%	1	0	0%
	WBR	1	0	0%	2	0	0%
	NBL	182	1	1%	81	0	0%
	NBT	120	0	0%	101	0	0%
	NBR	1	0	0%	0	0	0%
	SBL	8	0	0%	4	0	0%
	SBT	53	0	0%	141	0	0%
	SBR	282	0	0%	39	0	0%
	OVERALL	685	10		830	3	
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd							
	EBL	79	1	1%	97	2	2%
	EBT	0	0	0%	0	0	0%
	EBR	49	0	0%	287	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	0	0	0%	0	0	0%
	WBR	0	0	0%	0	0	0%
	NBL	275	0	0%	85	0	0%
	NBT	402	0	0%	325	4	1%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	SBT	223	0	0%	340	6	2%
	SBR	51	0	0%	108	0	0%
	OVERALL	1079	28		1282	12	
INTERSECTION #13: CenterView Ln and Campus Dr							
	EBL	184	3	3%	112	3	3%
	EBT	194	1	1%	82	2	3%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	85	0	0%	217	9	4%
	WBR	29	0	0%	104	0	0%
	NBL	32	0	0%	84	3	4%
	NBT	19	0	0%	39	1	3%
	NBR	31	0	0%	13	0	0%
	SBL	44	1	2%	31	1	3%
	SBT	0	0	0%	0	0	0%
	SBR	86	0	0%	174	3	2%
	OVERALL	684	27		836	28	

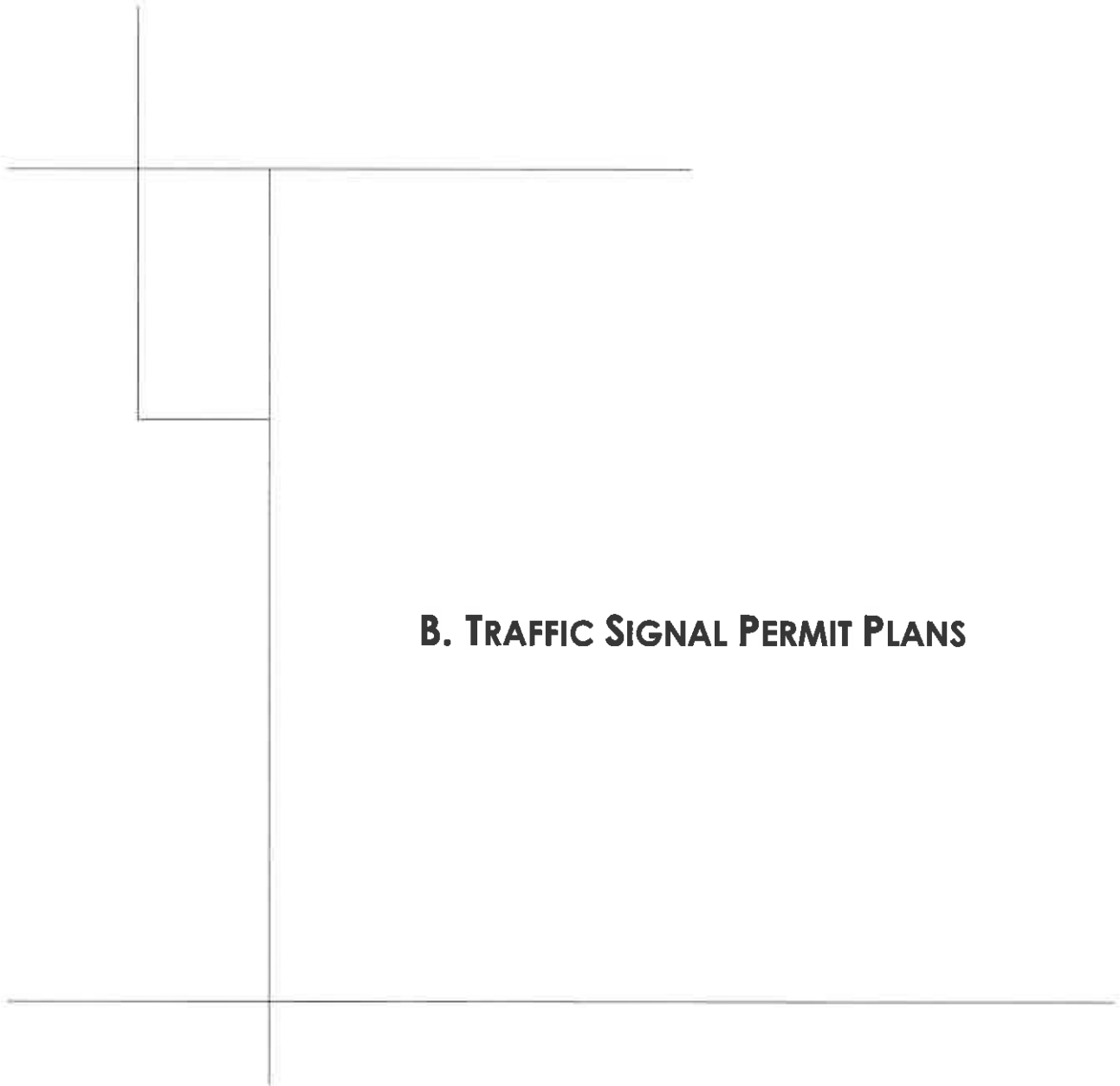
EXISTING 2015 TRAFFIC VOLUMES - ADJUSTED BY MONTH

JOB NAME: Route 322 Corridor Evaluation
 JOB NUMBER: R002484.0476
 ANALYST: BJB
 DATE: 02/12/15

- INTERSECTION #1: Governor Rd (SR 0322) and University Dr
- INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln
- INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave
- INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7: Rt. 322 and Chery Dr
- INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockersville Rd (SR 2011)
- INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10: Chery Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11: Sand Hill Rd and Chery Dr / Private Drive
- INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13: Centerview Ln and Campus Dr

INTERSECTION	MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
		ADJUSTED 2015 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES	ADJUSTED 2015 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	24	0	0%	76	0	0%
	EBT	740	17	2%	457	9	2%
	EBR	306	1	0%	106	1	1%
	WBL	208	0	0%	62	0	0%
	WBT	350	9	3%	746	6	1%
	WBR	30	3	4%	227	2	1%
	NBL	69	0	0%	233	0	0%
	NBT	81	1	1%	218	1	0%
	NBR	84	1	1%	96	0	0%
	öBL	51	1	2%	35	0	0%
	öBT	126	3	2%	53	2	4%
	öBR	16	0	0%	44	0	0%
	OVERALL	2147	36		2366	21	
INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln	EBL	5	0	0%	14	0	0%
	EBT	481	34	7%	483	18	3%
	EBR	329	0	0%	44	2	5%
	WBL	228	1	0%	48	1	2%
	WBT	618	17	3%	593	15	3%
	WBR	43	2	6%	66	0	0%
	NBL	57	2	4%	324	3	1%
	NBT	16	1	6%	77	1	1%
	NBR	73	0	0%	183	0	0%
	SBL	33	0	0%	39	1	3%
	öBT	168	0	0%	17	0	0%
	öBR	9	0	0%	30	0	0%
	OVERALL	2060	57		1918	39	
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	4	0	0%	11	0	0%
	EBT	587	34	6%	718	23	3%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	914	20	2%	712	15	2%
	WBR	1	1	100%	4	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	2	0	0%	3	0	0%
	öBT	0	0	0%	0	0	0%
	öBR	9	1	11%	8	1	13%
	OVERALL	1617	68		1451	39	
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave	EBL	4	0	0%	43	1	2%
	EBT	566	34	6%	648	17	3%
	EBR	2	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	855	20	2%	711	14	2%
	WBR	3	2	67%	12	2	17%
	NBL	2	0	0%	2	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	1	0	0%	1	0	0%
	öBT	0	0	0%	0	0	0%
	öBR	60	1	2%	12	1	8%
	OVERALL	1603	67		1429	35	
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave	EBL	3	0	0%	4	0	0%
	EBT	592	34	6%	672	24	4%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	859	21	2%	714	19	2%
	WBR	1	0	0%	3	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	1	0	0%	0	0	0%
	öBT	0	0	0%	0	0	0%
	öBR	3	0	0%	0	0	0%
	OVERALL	1459	55		1363	40	
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd	EBL	2	0	0%	4	0	0%
	EBT	581	33	6%	670	20	3%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	846	18	2%	714	18	2%
	WBR	0	0	0%	5	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	öBT	0	0	0%	0	0	0%
	öBR	4	0	0%	2	0	0%
	OVERALL	1433	51		1396	36	

INTERSECTION	MOVEMENT	AM PEAK HOUR			PM PEAK HOUR		
		ADJUSTED 2016 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES	ADJUSTED 2016 TRAFFIC VOLUMES	TRUCK VOLUMES	HEAVY VEHICLE PERCENTAGES
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	4	0	0%	11	0	0%
	EBT	450	30	7%	515	13	3%
	EBR	110	5	4%	128	1	1%
	WBL	263	5	2%	91	3	3%
	WBT	748	18	2%	807	12	2%
	WBR	7	0	0%	36	1	3%
	NBL	103	2	2%	182	2	1%
	NBT	18	0	0%	43	0	0%
	NBR	45	1	2%	281	1	0%
	SBL	31	0	0%	24	0	0%
	SBT	50	0	0%	38	1	3%
	SBR	3	0	0%	13	1	8%
	OVERALL	1630	61		1840	35	
INTERSECTION #8: Governor Rd (SR 0322) and Flishburn Rd (SR 2011) / Hookersville Rd (SR 2011)	EBL	18	1	6%	51	0	0%
	EBT	358	20	6%	630	8	1%
	EBR	119	1	1%	131	1	1%
	WBL	47	3	6%	100	0	0%
	WBT	750	15	2%	438	15	3%
	WBR	151	4	3%	156	1	1%
	NBL	233	4	2%	155	2	1%
	NBT	193	11	6%	199	1	1%
	NBR	98	4	4%	120	0	0%
	SBL	141	1	1%	228	0	0%
	SBT	121	4	3%	257	4	2%
	SBR	41	1	2%	32	0	0%
	OVERALL	2268	60		2505	32	
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	52	3	6%	104	0	0%
	EBT	545	23	4%	883	11	1%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	520	19	4%	568	14	2%
	WBR	0	0	0%	1	0	0%
	NBL	0	0	0%	0	0	0%
	NBT	0	0	0%	0	0	0%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	SBT	0	0	0%	0	0	0%
	SBR	106	2	2%	96	0	0%
	OVERALL	1525	47		1680	25	
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dr	EBL	15	1	7%	368	0	0%
	EBT	0	0	0%	5	0	0%
	EBR	21	0	0%	339	0	0%
	WBL	1	0	0%	0	0	0%
	WBT	1	0	0%	0	0	0%
	WBR	3	0	0%	1	0	0%
	NBL	322	1	0%	19	0	0%
	NBT	123	2	2%	106	2	2%
	NBR	12	0	0%	2	0	0%
	SBL	23	0	0%	10	0	0%
	SBT	30	5	15%	138	0	0%
	SBR	330	1	0%	31	0	0%
	OVERALL	890	10		1048	2	
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	19	0	0%	287	0	0%
	EBT	3	0	0%	6	0	0%
	EBR	38	4	11%	168	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	0	0	0%	1	0	0%
	WBR	1	0	0%	2	0	0%
	NBL	182	1	1%	81	2	2%
	NBT	120	3	3%	101	1	1%
	NBR	1	0	0%	0	0	0%
	SBL	8	0	0%	4	0	0%
	SBT	53	1	2%	141	0	0%
	SBR	202	1	0%	30	0	0%
	OVERALL	685	10		830	3	
INTERSECTION #12: Flishburn Rd (SR 2011) and Sand Hill Rd	EBL	70	1	1%	97	2	2%
	EBT	0	0	0%	0	0	0%
	EBR	49	0	0%	287	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	0	0	0%	0	0	0%
	WBR	0	0	0%	0	0	0%
	NBL	276	4	1%	85	0	0%
	NBT	442	10	2%	369	4	1%
	NBR	0	0	0%	0	0	0%
	SBL	0	0	0%	0	0	0%
	SBT	245	9	4%	374	6	2%
	SBR	51	4	8%	108	0	0%
	OVERALL	1141	28		1320	12	
INTERSECTION #13: Centerview Ln and Campus Dr	EBL	184	5	3%	112	3	3%
	EBT	194	2	1%	82	2	2%
	EBR	0	0	0%	0	0	0%
	WBL	0	0	0%	0	0	0%
	WBT	65	9	14%	217	9	4%
	WBR	29	0	0%	104	0	0%
	NBL	32	0	0%	84	3	4%
	NBT	19	0	0%	39	1	3%
	NBR	31	8	26%	13	8	46%
	SBL	44	1	2%	31	1	3%
	SBT	0	0	0%	0	0	0%
	SBR	60	2	3%	174	3	2%
	OVERALL	664	27		638	28	



B. TRAFFIC SIGNAL PERMIT PLANS

PERMIT NO.: 6767 SHEET 2 OF 3

DATE ISSUED: 9/18/1986 DATE REVISED: 7/11/2007

COORDINATION PROGRAM

EVENT NO.	DAY OF WEEK							TIME	CYCLE	SPLIT	OFFSET	REMARKS
	M	T	W	T	F	S	S					
1	x	x	x	x	x			0000				Free
2	x	x	x	x	x			0600	1	1	1	100 sec
3	x	x	x	x	x			0900				Free
4	x	x	x	x	x			1100	2	1	1	80 sec
5	x	x	x	x	x			1500	1	2	2	100 sec
6	x	x	x	x	x			1900				Free
7							x	1000	3	1	1	115 sec
8							x	1500				Free
9												
10												
11												
12												
13												

OFFSETS (SEC.) Reference to Beginning of main street Green (phase 2+6)

CYCLE NO.:	1	2	3	4	5	6
LENGTH: (SEC.)	100	80	115			
OFFSET	1	2	3	4	5	6
	94	47	35			
	2	60				
	3					
	4					

SPLITS (SEC) Phase includes clearance interval times

CYCLE	SPLIT	PHASE							
		1	2	3	4	5	6	7	8
1	1	12	51	12	25	12	51		37
1	2	12	51	25	12	12	51		37
2	1	12	44	12	12	12	44		24
3	1	12	77	12	14	12	77		26

OFFSET REFERENCED TO:
BEGINNING OF PHASE 2 & 6 YELLOW

T-041

Master controller located at Governor Rd SR 0322 & Fishburn Rd / Hockersville Rd SR 2011

COUNTY:	Dauphin County
MUNICIPALITY:	Derry Township
INTERSECTION:	Governor Rd SR 0322 & University Dr

T-041

MOVEMENT, SEQUENCE AND TIMING

PHASE	1+5				1+6				2+5				2+6				3+8				4+8				FLASH
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	
1	R	R	Y	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
2	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
3	R	R	Y	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
4	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	Y
6	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	Y
7,8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	Y
17	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
9,10	H	H	H	H	H	H	H	H	M	F	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
11,12	H	H	H	H	M	F	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	F	H	H	OFF
15,16	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	OFF
FIXED	3.72.0				3.72.0				3.72.0				3.72.0				3.02.4				3.02.4				
MINIMUM	3.0				3.0				3.0				10				3.0				3.0				
ADDED INIT																									
MAX INT													25												
PASSAGE	3.0				3.0				3.0				6.0				3.0				3.0				
TTR													13												
TBR													25												
MIN GAP													3.0												
MAX I	12				12				12				57				25				12				
MAX II																									
PED																									
MEMORY	NON LOCK				NON LOCK				NON LOCK				MIN RECALL				NON LOCK				NON LOCK				

UPON PEDESTRIAN ACTUATION, OTHERWISE HAND AT ALL TIMES

CONTROLLER NOTES:

- R/L IF FOLLOWED BY PHASE 2+5.
- R/L IF FOLLOWED BY PHASE 1+6.
- G/L IF FOLLOWED BY PHASE 2+6.
- G IF FOLLOWED BY PHASE 2+6.
- G IF FOLLOWED BY PHASE 2+5.
- G IF FOLLOWED BY PHASE 1+6.
- G/L IF FOLLOWED BY PHASE 4+8.
- G IF FOLLOWED BY PHASE 4+8.
- Y/L IF FOLLOWED BY PHASE 3+8.
- R/L IF FOLLOWED BY PHASE 3+8.
- R/L IF FOLLOWED BY PHASE 2+5 OR 2+6.
- TIMING WILL BE AS SHOWN IN PHASE 2+6, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.
- TIMING WILL BE AS SHOWN IN PHASE 4+8, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 4+8.
- SIGNAL TO BE COORDINATED WITH ADJACENT SIGNALS ALONG GOVERNOR ROAD.
- PHASE 2 ON OMITTS PHASE 5.
- PHASE 6 ON OMITTS PHASE 1.

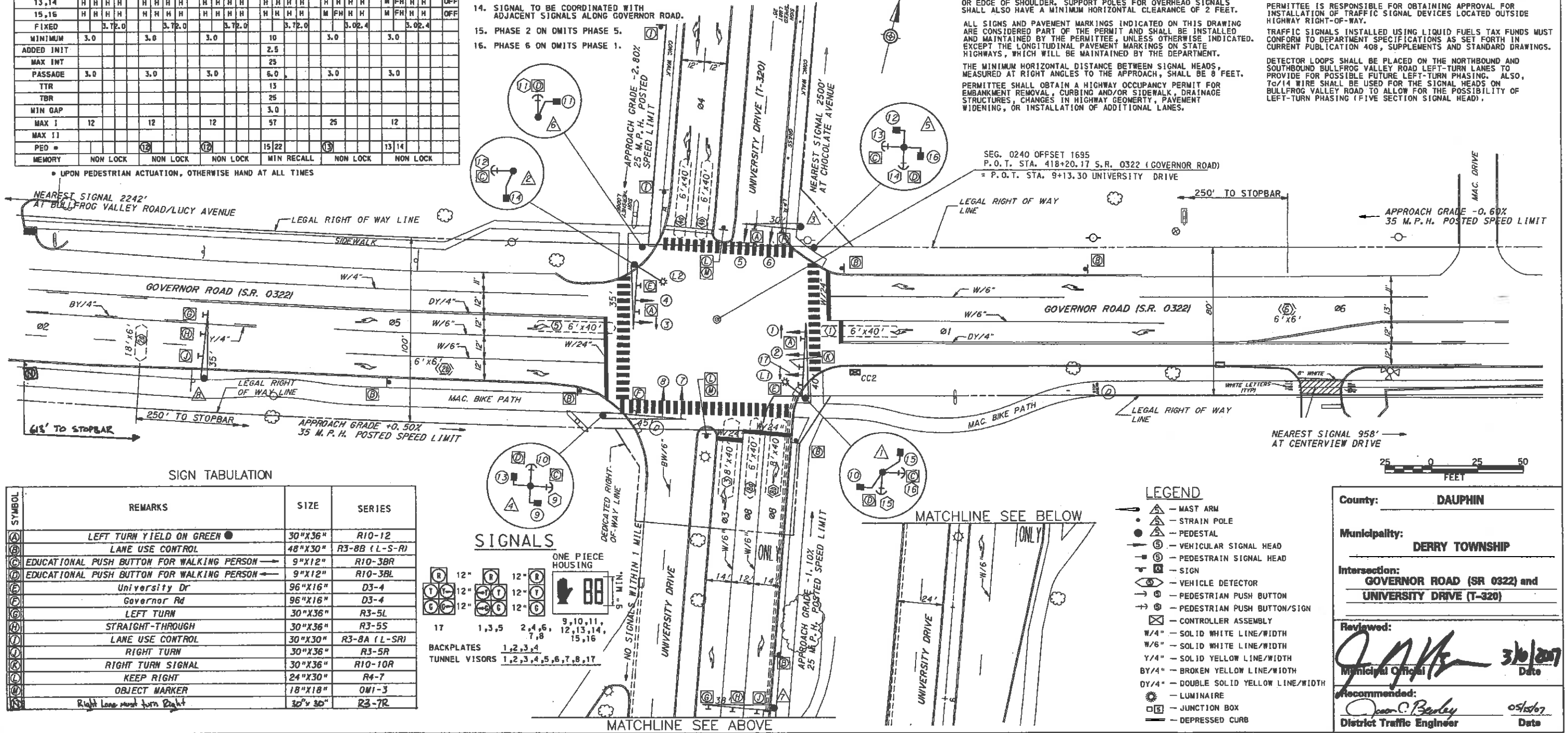
DETECTOR NOTES:

- DETECTOR NO. 1 CALLS AND EXTENDS PHASE 1 - PRESENCE
 DETECTOR NO. 2a CALLS AND EXTENDS PHASE 2 - PRESENCE
 DETECTOR NO. 3 CALLS AND EXTENDS PHASE 3 - PRESENCE
 DETECTOR NO. 4a & 4b CALL AND EXTEND PHASE 4 - PRESENCE
 DETECTOR NO. 5 CALLS AND EXTENDS PHASE 5 - PRESENCE
 DETECTOR NO. 6 CALLS AND EXTENDS PHASE 6 - PRESENCE
 DETECTOR NO. 8a & 8b CALL AND EXTEND PHASE 8 - PRESENCE
 DETECTOR NO. 2b IS FOR COUNTING ONLY
 DETECTOR NO'S 10 & 15 CALL PHASE 2
 DETECTOR NO'S 9 & 12 CALL PHASE 4
 DETECTOR NO'S 11 & 14 CALL PHASE 6
 DETECTOR NO'S 13 & 16 CALL PHASE 8

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.
 NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.
 ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.
 POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.
 ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS, WHICH WILL BE MAINTAINED BY THE DEPARTMENT.
 THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS, MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET.
 PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CURBING AND/OR SIDEWALK, DRAINAGE STRUCTURES, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT WIDENING, OR INSTALLATION OF ADDITIONAL LANES.

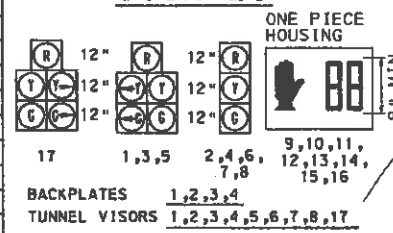
THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.
 CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.
 PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.
 PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.
 TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.
 DETECTOR LOOPS SHALL BE PLACED ON THE NORTHBOUND AND SOUTHBOUND BULLFROG VALLEY ROAD LEFT-TURN LANES TO PROVIDE FOR POSSIBLE FUTURE LEFT-TURN PHASING. ALSO, 7c/14 WIRE SHALL BE USED FOR THE SIGNAL HEADS ON BULLFROG VALLEY ROAD TO ALLOW FOR THE POSSIBILITY OF LEFT-TURN PHASING (FIVE SECTION SIGNAL HEAD).



SIGN TABULATION

SYMBOL	REMARKS	SIZE	SERIES
(A)	LEFT TURN YIELD ON GREEN	30"X36"	R10-12
(B)	LANE USE CONTROL	48"X30"	R3-8B (L-S-R)
(C)	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON	9"X12"	R10-3BR
(D)	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON	9"X12"	R10-3BL
(E)	University Dr	96"X16"	D3-4
(F)	Governor Rd	96"X16"	D3-4
(G)	LEFT TURN	30"X36"	R3-5L
(H)	STRAIGHT-THROUGH	30"X36"	R3-5S
(I)	LANE USE CONTROL	30"X30"	R3-8A (L-SR)
(J)	RIGHT TURN	30"X36"	R3-5R
(K)	RIGHT TURN SIGNAL	30"X36"	R10-10R
(L)	KEEP RIGHT	24"X30"	R4-7
(M)	OBJECT MARKER	18"X18"	OM1-3
(N)	Right Lane must turn Right	30"X30"	R3-7R

SIGNALS



LEGEND

- ▲ - MAST ARM
- - STRAIN POLE
- - PEDESTAL
- ⊙ - VEHICULAR SIGNAL HEAD
- ⊙ - PEDESTRIAN SIGNAL HEAD
- ⊙ - SIGN
- ⊙ - VEHICLE DETECTOR
- ⊙ - PEDESTRIAN PUSH BUTTON
- ⊙ - PEDESTRIAN PUSH BUTTON/SIGN
- ⊙ - CONTROLLER ASSEMBLY
- W/4" - SOLID WHITE LINE/WIDTH
- W/6" - SOLID WHITE LINE/WIDTH
- Y/4" - SOLID YELLOW LINE/WIDTH
- BY/4" - BROKEN YELLOW LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- - LUMINAIRE
- ⊙ - JUNCTION BOX
- - DEPRESSED CURB

County: **DAUPHIN**

Municipality: **DERRY TOWNSHIP**

Intersection: **GOVERNOR ROAD (SR 0322) and UNIVERSITY DRIVE (T-320)**

Reviewed: *[Signature]* 3/10/07
 Municipal Official Date

Recommended: *[Signature]* 05/15/07
 District Traffic Engineer Date

PERMIT NO.: 85-3 SHEET 2 OF 3

DATE ISSUED: 11/2/1984 DATE REVISED: 2/22/2006

COORDINATION PROGRAM

EVENT NO.	DAY OF WEEK							TIME	CYCLE	SPLIT	OFFSET	REMARKS
	M	T	W	T	F	S	S					
1	x	x	x	x	x			0000				Free
2	x	x	x	x	x			0600	1	1	1	100 sec
3	x	x	x	x	x			0900				Free
4	x	x	x	x	x			1100	2	1	1	80 sec
5	x	x	x	x	x			1500	1	2	2	100 sec
6	x	x	x	x	x			1900				Free
7								1000	3	1	1	115 sec
8								1500				Free
9												
10												
11												
12												
13												

OFFSETS (SEC.) Reference to Beginning of main street Green (phase 2+6)

CYCLE NO.:	1	2	3	4	5	6
LENGTH: (SEC.)	100	80	115			
OFFSET	1	2	3	4	5	6
	3	59	5			
	2	8				
	3					
	4					

SPLITS (SEC) Phase includes clearance interval times

CYCLE	SPLIT	PHASE							
		1	2	3	4	5	6	7	8
1	1	12	54	22	12		66		34
1	2	12	57	16	15		69		31
2	1	12	38	17	13		50		30
3	1	14	66	21	14		80		35

OFFSET REFERENCED TO:
BEGINNING OF Main St. green
(Phase 2+6)

T-048

Master controller located at Governor Rd SR 0322 & Fishburn Rd / Hockersville Rd SR 2011

COUNTY: Dauphin County

MUNICIPALITY: Derry Township

INTERSECTION: Governor Rd SR 0322 & Cherry Drive

T-048

Permit No. 85-3 Sheet 3 3
Date Issued 11-2-34 Date Revised

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS, WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNALS SHALL BE MEASURED AT RIGHT ANGLES TO THE APPROACH.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CURBING AND/ OR SIDEWALK, DRAINAGE STRUCTURES, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT WIDENING, OR INSTALLATION OF ADDITIONAL LANES.

CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SER. ES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.

TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.

MOVEMENT, SEQUENCE AND TIMING

PHASE	1+6				2+6				3+8				4+8				FLASH
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
1	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
2	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
3,4	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	Y
5,6	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R
7	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R
8	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R
9,10	M	F	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
11,12	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	OFF
13,14	H	H	H	H	H	H	H	H	H	H	H	H	M	F	H	H	OFF
15,16	H	H	H	H	H	H	H	H	M	F	H	H	M	F	H	H	OFF
FIXED	3.92.0				3.92.0				3.02.0				3.02.0				
MINIMUM	3.0				10				3.0				3.0				
ADDED INT					2.5												
MAX INT					25												
PASSAGE	3.0				6.0				3.0				3.0				
TTR					12.5												
TBR					25												
MIN GAP					3.0												
MAX I	10				45				15				12				
MAX II																	
PED *	5				10				16				10				14
MEMORY	NON LOCK				MIN RECALL				NON LOCK				NON LOCK				

CONTROLLER NOTES:

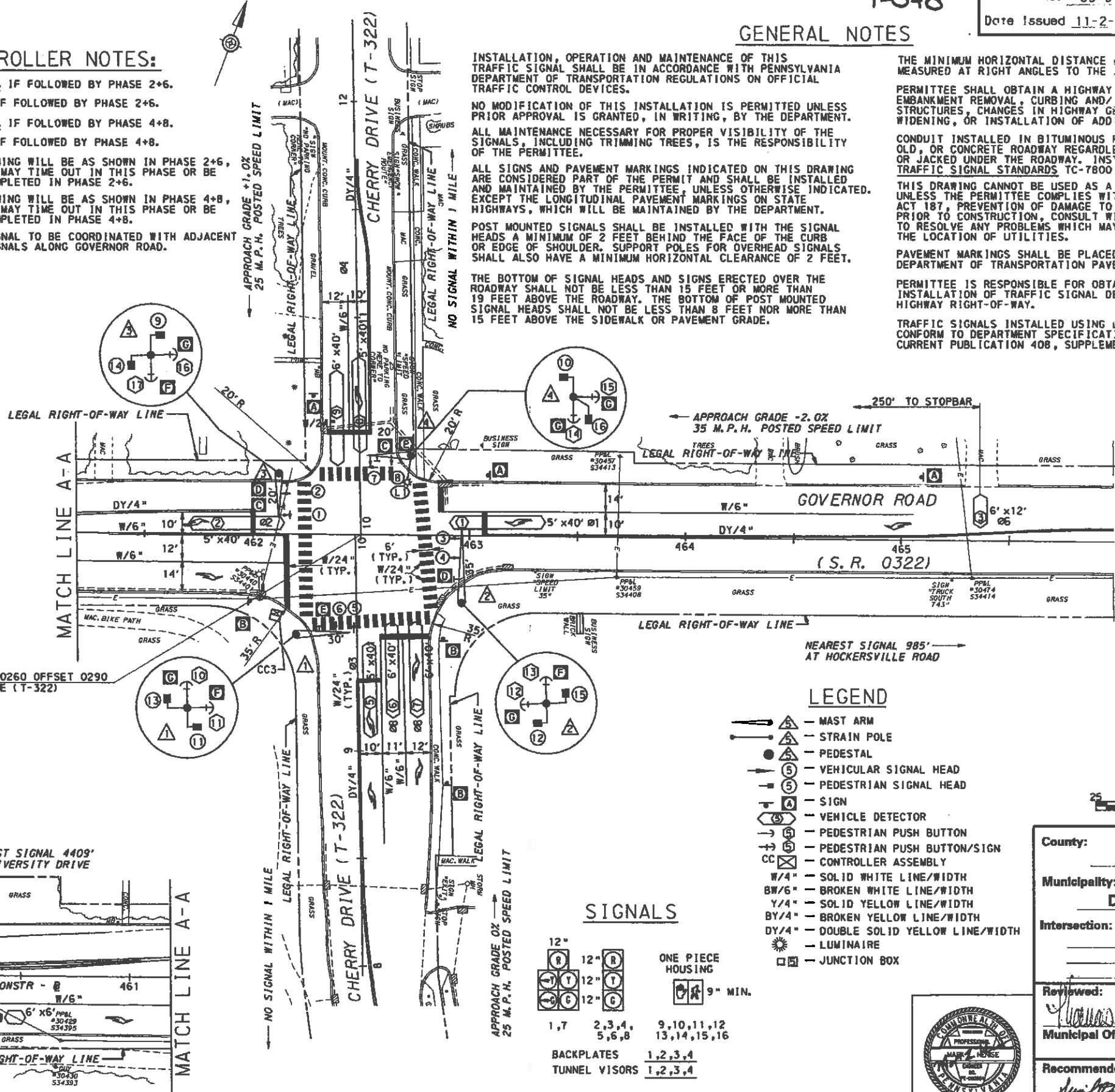
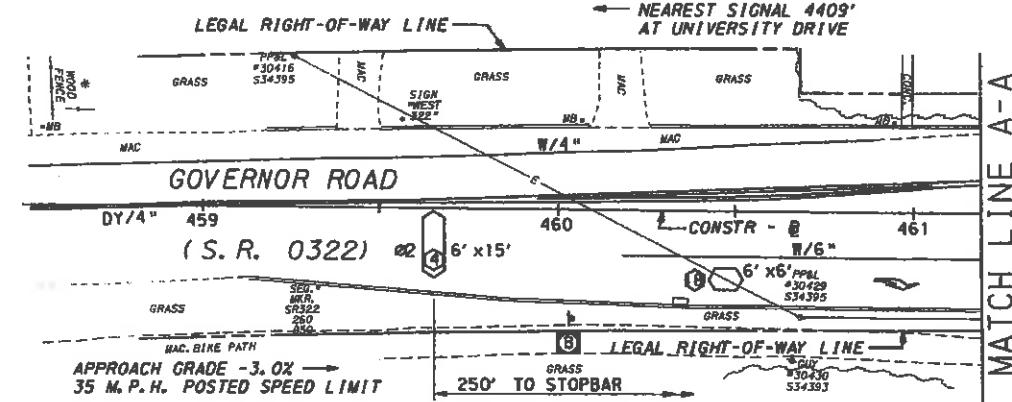
- G4 IF FOLLOWED BY PHASE 2+6.
- G IF FOLLOWED BY PHASE 2+6.
- 3. G4 IF FOLLOWED BY PHASE 4+8.
- 4. G IF FOLLOWED BY PHASE 4+8.
- 5. TIMING WILL BE AS SHOWN IN PHASE 2+6, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.
- 6. TIMING WILL BE AS SHOWN IN PHASE 4+8, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 4+8.
- 7. SIGNAL TO BE COORDINATED WITH ADJACENT SIGNALS ALONG GOVERNOR ROAD.

DETECTOR NOTES:

- DETECTOR NO. 1 CALLS AND EXTENDS PHASE 1 - PRESENCE.
- DETECTOR NO. 4 CALLS AND EXTENDS PHASE 2 - PRESENCE.
- DETECTOR NO. 3 CALLS AND EXTENDS PHASE 6 - PRESENCE.
- DETECTOR NO. 5 CALLS AND EXTENDS PHASE 3 - PRESENCE.
- DETECTOR NO'S. 6 & 7 CALL AND EXTEND PHASE 8 - PRESENCE.
- DETECTOR NO'S. 8 & 9 CALL AND EXTEND PHASE 4 - PRESENCE.
- DETECTOR NO'S. 2 & 18 ARE FOR COUNTING ONLY - PRESENCE.

SIGNS

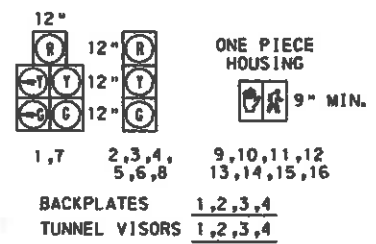
PLAN SYMBOL	DESCRIPTION	SIZE W x H	SERIES DESIGNATION
A	LANE USE CONTROL	30"x30"	R3-8A(L-SR)
B	LANE USE CONTROL	48"x30"	R3-8B(L-S-R)
C	LEFT TURN YIELD ON GREEN	30"x36"	R10-12
D	Cherry Dr	84"x16"	D3-4
E	Governor Rd	96"x16"	D3-4
F	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON	9"x12"	R10-3BR
G	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON	9"x12"	R10-3BL



LEGEND

- ▲ - MAST ARM
- ▲ - STRAIN POLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- ▲ - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON
- - PEDESTRIAN PUSH BUTTON/SIGN
- CC - CONTROLLER ASSEMBLY
- W/4" - SOLID WHITE LINE/WIDTH
- BW/6" - BROKEN WHITE LINE/WIDTH
- Y/4" - SOLID YELLOW LINE/WIDTH
- BY/4" - BROKEN YELLOW LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- ☉ - LUMINAIRE
- - JUNCTION BOX

SIGNALS



County: **DAUPHIN**
Municipality: **DERRY TOWNSHIP**
Intersection: **GOVERNOR ROAD (SR 0322) and CHERRY DRIVE (T-322)**

Reviewed: *[Signature]* 6/24/03
Municipal Officer
Recommended: *[Signature]* 7/25/03
District Traffic Engineer



11:14:14 cherry.dwg
 10/11/03 10:50:00 A:\cadd\construction\permit drawings\cherry.dwg - L:\p-22-24-53

PERMIT NO.: 6476 SHEET 2 OF 4

DATE ISSUED: 8/21/1969 DATE REVISED: 12/27/2013

COORDINATION PROGRAM

EVENT NO.	DAY OF WEEK							TIME	CYCLE	SPLIT	OFFSET	REMARKS
	M	T	W	T	F	S	S					
1	x	x	x	x	x			0000				Free
2	x	x	x	x	x			0600	1	1	1	100 sec
3	x	x	x	x	x			0900				Free
4	x	x	x	x	x			1100	2	1	1	80 sec
5	x	x	x	x	x			1500	1	2	2	100 sec
6	x	x	x	x	x			1900				Free
7							x	1000	3	1	1	115 sec
8							x	1500				Free
9												
10												
11												
12												
13												

OFFSETS (SEC.) Reference to Beginning of main street Green (phase 2+6)

CYCLE NO.:	1	2	3	4	5	6
LENGTH: (SEC.)	100	80	115			
OFFSET	1	0	0	0		
	2	0				
	3					
	4					

SPLITS (SEC) Phase includes clearance interval times

CYCLE	SPLIT	PHASE							
		1	2	3	4	5	6	7	8
1	1	12	51	21	16	12	51	13	24
1	2	12	48	16	24	12	48	21	19
2	1	12	35	15	18	12	35	18	15
3	1	12	57	25	21	12	57	13	33

OFFSET REFERENCED TO:
 BEGINNING OF Main St. green
 (Phase 2+6)

T-004

Master controller located at Governor Rd SR 0322 & Fishburn Rd / Hockersville Rd SR 2011

COUNTY: Dauphin County
MUNICIPALITY: Derry Township
INTERSECTION: Governor Rd SR 0322 & Hockersville Road (SR 2011)/ Fishburn Road (SR 2011)

T-004

Permit No. 6476 Sheet 3 of 4
Issued 8-21-69 Date revised

GENERAL NOTES

INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.

NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.

ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNALS, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.

ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS, WHICH WILL BE MAINTAINED BY THE DEPARTMENT.

POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.

THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.

THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS, MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET.

PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CURBING AND/OR SIDEWALK OF PAVEMENT STRUCTURES, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT WIDENING, OR INSTALLATION OF ADDITIONAL LANES.

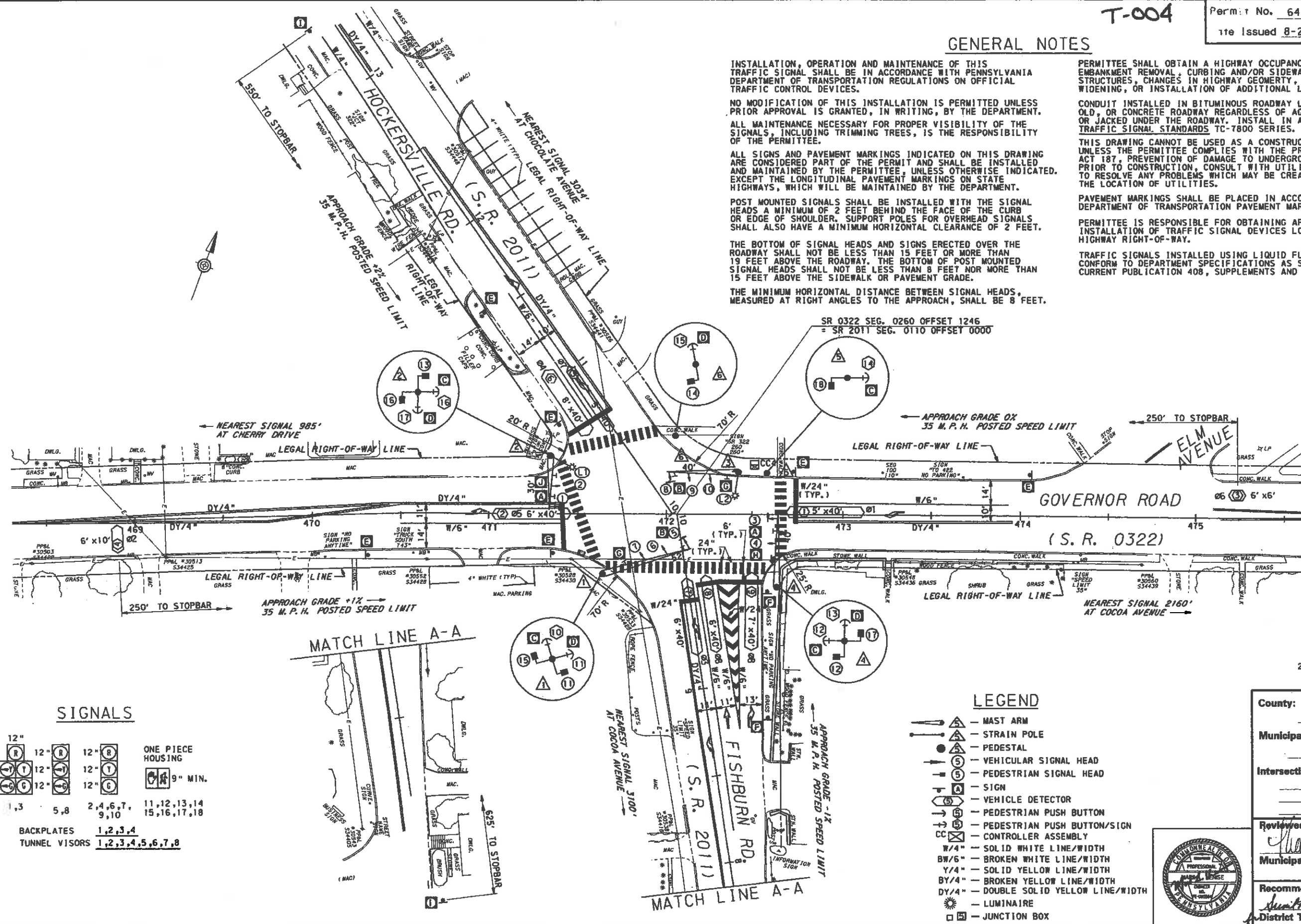
CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.

THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 187, PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.

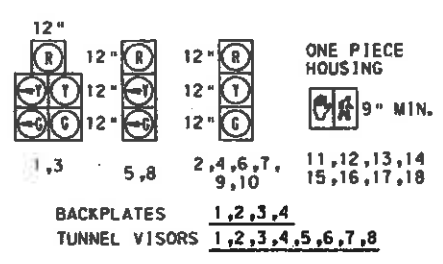
PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.

PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.

TRAFFIC SIGNALS INSTALLED USING LIQUID FUELS TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.



SIGNALS



LEGEND

- ▲ - MAST ARM
- ▲ - STRAIN POLE
- - PEDESTAL
- - VEHICULAR SIGNAL HEAD
- - PEDESTRIAN SIGNAL HEAD
- - SIGN
- - VEHICLE DETECTOR
- - PEDESTRIAN PUSH BUTTON
- - PEDESTRIAN PUSH BUTTON/SIGN
- - CONTROLLER ASSEMBLY
- W/4" - SOLID WHITE LINE/WIDTH
- BW/6" - BROKEN WHITE LINE/WIDTH
- Y/4" - SOLID YELLOW LINE/WIDTH
- BY/4" - BROKEN YELLOW LINE/WIDTH
- DY/4" - DOUBLE SOLID YELLOW LINE/WIDTH
- ☉ - LUMINAIRE
- - JUNCTION BOX



County: **DAUPHIN**

Municipality: **DERRY TOWNSHIP**

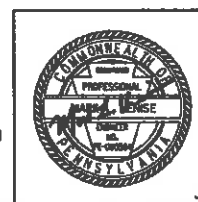
Intersection: **GOVERNOR ROAD (SR 0322) and FISHBURN ROAD (SR 2011) HOCKERSVILLE ROAD (SR 201)**

Reviewed: *Thomas P. [Signature]* 6/29/83 Date

Municipal Official

Recommended: *[Signature]* 7/15/83 Date

District Traffic Engineer



PPF: C:\TEMP\Hockersville\permtt drawings\hockersville322.dgn - L:\4-22-83-63

T-004

MOVEMENT, SEQUENCE AND TIMING (5)

PHASE	1+5			1+6				2+5				2+6				3+7			3+8				4+7				4+8				FLASH	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30		
1	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y	
2	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y	
3	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y	
4	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	Y	
5	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R	R	R	R	R
6,7	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	G	G	Y	R	R	
8	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	R	R	R	R	R	R	R	R	R
9,10	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	R	G	G	Y	R	R	R	R	R	G	G	Y	R	R	
11,12	H	H	H	H	H	H	H	M	F	H	H	M	F	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	OFF	
13,14	H	H	H	M	F	H	H	H	H	H	H	M	F	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	OFF	
15,16	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	F	H	H	M	F	H	H	OFF	
17,18	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	H	M	F	H	H	H	H	H	H	M	F	H	H	OFF	
FIXED				3.62.0				3.62.0				3.62.0				3.62.0			3.72.0				3.72.0				3.72.0				3.72.0	
MINIMUM	3.0			3.0				3.0				10				3.0			3.0				3.0				3.0					
ADDED INIT												2.5																				
MAX INT												25																				
PASSAGE	3.0			3.0				3.0				6.5				3.0			3.0				3.0				3.0					
TTR												12.5																				
TBR												25																				
MIN GAP												3.0																				
MAX I	10			10				10				40				15			15				15				20					
MAX II																																
PED *				(13)				(13)				15 21				(14)			(14)				(14)				11 12					
MEMORY	NON LOCK			NON LOCK				NON LOCK				MIN RECALL				NON LOCK			NON LOCK				NON LOCK				NON LOCK					

* UPON PEDESTRIAN ACTUATION, OTHERWISE HAND AT ALL TIMES

DETECTOR NOTES:

- DETECTOR NO. 1 CALLS AND EXTENDS PHASE 1 - PRESENCE
- DETECTOR NO. 2 CALLS AND EXTENDS PHASE 5 - PRESENCE
- DETECTOR NO. 3 CALLS AND EXTENDS PHASE 6 - PRESENCE
- DETECTOR NO. 4 CALLS AND EXTENDS PHASE 2 - PRESENCE
- DETECTOR NO. 5 CALLS AND EXTENDS PHASE 7 - PRESENCE
- DETECTOR NO. 6 CALLS AND EXTENDS PHASE 4 - PRESENCE
- DETECTOR NO. 7 CALLS AND EXTENDS PHASE 3 - PRESENCE
- DETECTOR NO'S. 8 & 9 CALL AND EXTEND PHASE 8 - PRESENCE

CONTROLLER NOTES:

- 1. R/L IF FOLLOWED BY PHASE 1+6.
- 2. R/L IF FOLLOWED BY PHASE 2+5.
- 3. G/L IF FOLLOWED BY PHASE 2+6.
- 4. G IF FOLLOWED BY PHASE 2+6.
- 5. G IF FOLLOWED BY PHASE 1+6.
- 6. G IF FOLLOWED BY PHASE 2+5.
- 7. -6 IF FOLLOWED BY PHASE 4+7.
- 8. -6 IF FOLLOWED BY PHASE 3+8.
- 9. -6 IF FOLLOWED BY PHASE 3+7.
- 10. G IF FOLLOWED BY PHASE 4+8.
- 11. G IF FOLLOWED BY PHASE 4+7.
- 12. G IF FOLLOWED BY PHASE 3+8.
- 13. TIMING WILL BE AS SHOWN IN PHASE 2+6, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 2+6.
- 14. TIMING WILL BE AS SHOWN IN PHASE 4+8, IT MAY TIME OUT IN THIS PHASE OR BE COMPLETED IN PHASE 4+8.
- 15. SIGNAL TO BE COORDINATED WITH ADJACENT SIGNALS ALONG GOVERNOR ROAD.
- 16. PHASE 6 ON OMITTS PHASE 1.
- 17. PHASE 2 ON OMITTS PHASE 5.

SIGNS

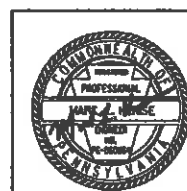
PLAN SYMBOL	DESCRIPTION	SIZE W x H	SERIES DESIGNATION
A	LEFT TURN YIELD ON GREEN ●	30"x36"	R10-12
B	LEFT TURN SIGNAL	30"x36"	R10-10L
C	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON ←	9"x12"	R10-3BL
D	EDUCATIONAL PUSH BUTTON FOR WALKING PERSON →	9"x12"	R10-3BR
E	LANE USE CONTROL	30"x30"	R3-8A(L-S-R)
F	LANE USE CONTROL	48"x30"	R3-8B(L-S-R)
G	Governor Rd	96"x16"	D3-4
H	← Fishburn Rd/Hockersville Rd →	96"x28"	D3-5
I	SIGNAL AHEAD	36"x36"	W3-3
J	← Hockersville Rd/Fishburn Rd →	96"x28"	D3-5



County: **DAUPHIN**
Municipality: **DERRY TOWNSHIP**
Intersection: **GOVERNOR ROAD (SR 0322) and FISHBURN ROAD (SR 2011)/HOCKERSVILLE ROAD (SR 2011)**

Reviewed: *[Signature]* *[Signature]*
Municipal Official Date

Recommended: *[Signature]* *[Signature]*
District Traffic Engineer Date



MOVEMENT, PHASING, AND SEQUENCE CHART

PHASE	2+6			4+8			3			EMERGENCY FLASH
	1	2	3	4	5	6	7	8	9	
1,2	G	Y	R	R	R	R	R	R		Y
3,4	G	Y	R	R	R	R	R	R		Y
5,6	R	R	R	G	Y	R	R	R		R
7,8	R	R	R	G	Y	R	R	R		R
9-20	H	H	H	H	H	H	M	FH		
FIXED	3.0/2.7			3.3/2.7						
MINIMUM	3			3						
ADDED INT										
MAX INITIAL										
PASSAGE	3			3						
TBR										
TTR										
MIN GAP										
MAXIMUM	30			30						
PEDESTRIAN							8/28			
MEMORY	NON-LOCK	NON-LOCK	NON-LOCK	LOCK						

DETECTOR NOTES

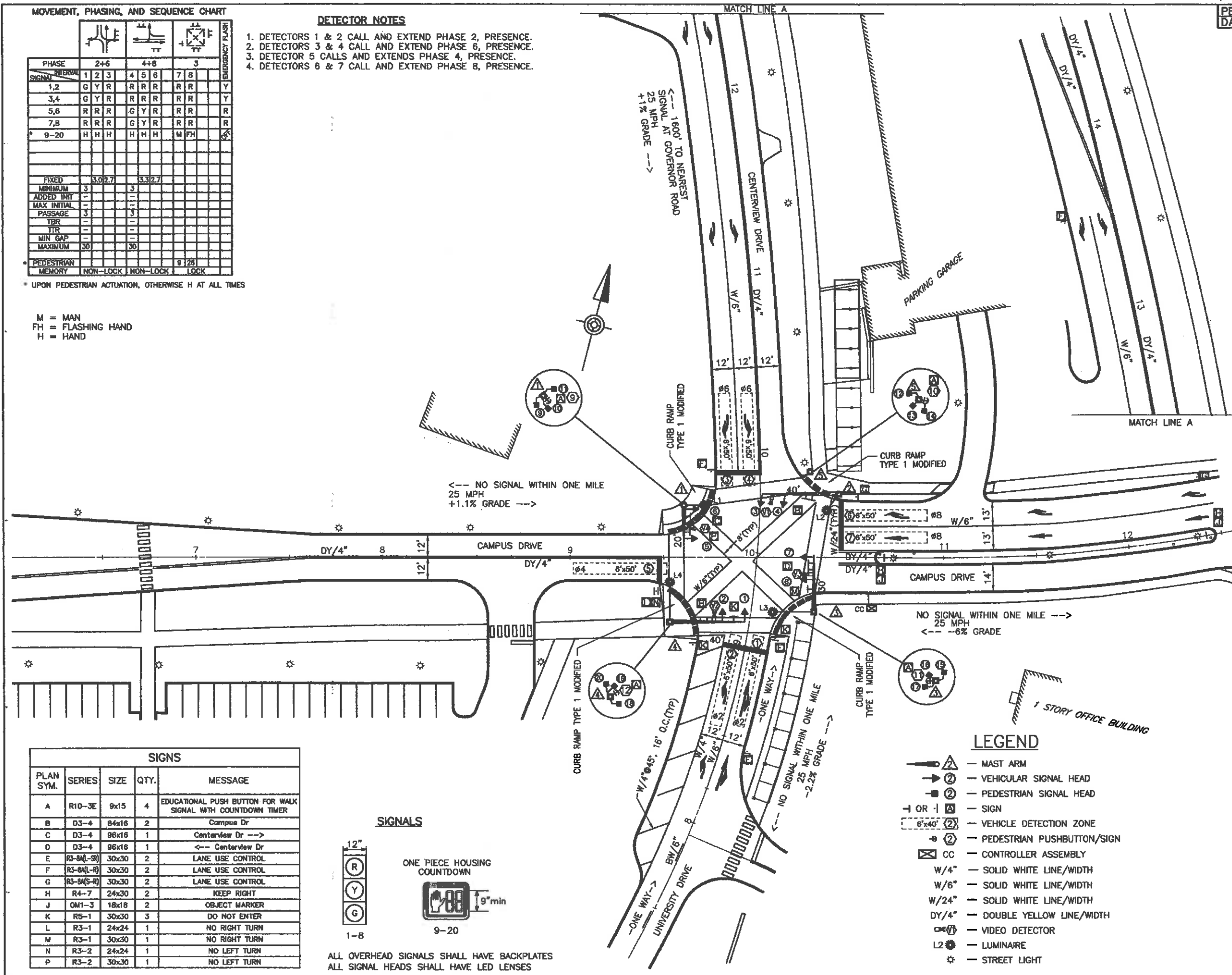
1. DETECTORS 1 & 2 CALL AND EXTEND PHASE 2, PRESENCE.
2. DETECTORS 3 & 4 CALL AND EXTEND PHASE 6, PRESENCE.
3. DETECTOR 5 CALLS AND EXTENDS PHASE 4, PRESENCE.
4. DETECTORS 6 & 7 CALL AND EXTEND PHASE 8, PRESENCE.

GENERAL NOTES

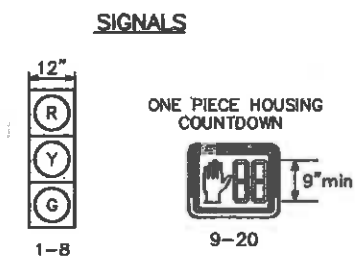
- INSTALLATION, OPERATION AND MAINTENANCE OF THIS TRAFFIC SIGNAL SHALL BE IN ACCORDANCE WITH PENNSYLVANIA DEPARTMENT OF TRANSPORTATION REGULATIONS ON OFFICIAL TRAFFIC CONTROL DEVICES.
- NO MODIFICATION OF THIS INSTALLATION IS PERMITTED UNLESS PRIOR APPROVAL IS GRANTED, IN WRITING, BY THE DEPARTMENT.
- ALL MAINTENANCE NECESSARY FOR PROPER VISIBILITY OF THE SIGNAL, INCLUDING TRIMMING TREES, IS THE RESPONSIBILITY OF THE PERMITTEE.
- ALL SIGNS AND PAVEMENT MARKINGS INDICATED ON THIS DRAWING ARE CONSIDERED PART OF THE PERMIT AND SHALL BE INSTALLED AND MAINTAINED BY THE PERMITTEE, UNLESS OTHERWISE INDICATED. EXCEPT THE LONGITUDINAL PAVEMENT MARKINGS ON STATE HIGHWAYS, WHICH WILL BE MAINTAINED BY THE DEPARTMENT.
- POST MOUNTED SIGNALS SHALL BE INSTALLED WITH THE SIGNAL HEADS A MINIMUM OF 2 FEET BEHIND THE FACE OF THE CURB OR EDGE OF THE SHOULDER. SUPPORT POLES FOR OVERHEAD SIGNALS SHALL ALSO HAVE A MINIMUM HORIZONTAL CLEARANCE OF 2 FEET.
- THE BOTTOM OF SIGNAL HEADS AND SIGNS ERECTED OVER THE ROADWAY SHALL NOT BE LESS THAN 15 FEET OR MORE THAN 19 FEET ABOVE THE ROADWAY. THE BOTTOM OF POST MOUNTED SIGNAL HEADS SHALL NOT BE LESS THAN 8 FEET NOR MORE THAN 15 FEET ABOVE THE SIDEWALK OR PAVEMENT GRADE.
- THE MINIMUM HORIZONTAL DISTANCE BETWEEN SIGNAL HEADS, MEASURED AT RIGHT ANGLES TO THE APPROACH, SHALL BE 8 FEET.
- PERMITTEE SHALL OBTAIN A HIGHWAY OCCUPANCY PERMIT FOR EMBANKMENT REMOVAL, CURBING AND/OR SIDEWALK, DRAINAGE STRUCTURES, CHANGES IN HIGHWAY GEOMETRY, PAVEMENT WIDENING, OR INSTALLATION OF ADDITIONAL LANES.
- CONDUIT INSTALLED IN BITUMINOUS ROADWAY LESS THAN 5 YEARS OLD, OR CONCRETE ROADWAY REGARDLESS OF AGE, MUST BE BORED OR JACKED UNDER THE ROADWAY. INSTALL IN ACCORDANCE WITH TRAFFIC SIGNAL STANDARDS TC-7800 SERIES.
- THIS DRAWING CANNOT BE USED AS A CONSTRUCTION DRAWING UNLESS THE PERMITTEE COMPLIES WITH THE PROVISIONS OF ACT 198. PREVENTION OF DAMAGE TO UNDERGROUND UTILITIES. PRIOR TO CONSTRUCTION, CONSULT WITH UTILITY COMPANIES TO RESOLVE ANY PROBLEMS WHICH MAY BE CREATED DUE TO THE LOCATION OF UTILITIES.
- PAVEMENT MARKINGS SHALL BE PLACED IN ACCORDANCE WITH THE DEPARTMENT OF TRANSPORTATION PAVEMENT MARKING HANDBOOK.
- PERMITTEE IS RESPONSIBLE FOR OBTAINING APPROVAL FOR INSTALLATION OF TRAFFIC SIGNAL DEVICES LOCATED OUTSIDE HIGHWAY RIGHT-OF-WAY.
- TRAFFIC SIGNALS INSTALLED USING LIQUID TAX FUNDS MUST CONFORM TO DEPARTMENT SPECIFICATIONS AS SET FORTH IN CURRENT PUBLICATION 408, SUPPLEMENTS AND STANDARD DRAWINGS.
- THREADED PLATE MAST ARM CONNECTIONS WILL NOT BE PERMITTED FOR THIS TRAFFIC SIGNAL PERMIT.

M = MAN
 FH = FLASHING HAND
 H = HAND

* UPON PEDESTRIAN ACTUATION, OTHERWISE H AT ALL TIMES

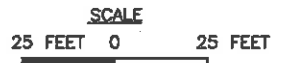


PLAN SYM.	SERIES	SIZE	QTY.	MESSAGE
A	R10-3E	9x15	4	EDUCATIONAL PUSH BUTTON FOR WALK SIGNAL WITH COUNTDOWN TIMER
B	D3-4	84x16	2	Campus Dr
C	D3-4	96x16	1	Centerview Dr -->
D	D3-4	96x16	1	<-- Centerview Dr
E	R3-8(L-R)	30x30	2	LANE USE CONTROL
F	R3-8(L-R)	30x30	2	LANE USE CONTROL
G	R3-8(S-R)	30x30	2	LANE USE CONTROL
H	R4-7	24x30	2	KEEP RIGHT
J	OM1-3	18x18	2	OBJECT MARKER
K	R5-1	30x30	3	DO NOT ENTER
L	R3-1	24x24	1	NO RIGHT TURN
M	R3-1	30x30	1	NO RIGHT TURN
N	R3-2	24x24	1	NO LEFT TURN
P	R3-2	30x30	1	NO LEFT TURN



ALL OVERHEAD SIGNALS SHALL HAVE BACKPLATES
 ALL SIGNAL HEADS SHALL HAVE LED LENSES

- LEGEND
- MAST ARM
 - VEHICULAR SIGNAL HEAD
 - PEDESTRIAN SIGNAL HEAD
 - SIGN
 - VEHICLE DETECTION ZONE
 - PEDESTRIAN PUSHBUTTON/SIGN
 - CONTROLLER ASSEMBLY
 - SOLID WHITE LINE/WIDTH
 - SOLID WHITE LINE/WIDTH
 - SOLID WHITE LINE/WIDTH
 - DOUBLE YELLOW LINE/WIDTH
 - VIDEO DETECTOR
 - LUMINAIRE
 - STREET LIGHT



County: DAUPHIN

Municipality: DERRY TOWNSHIP

Intersection: CAMPUS DRIVE AND CENTERVIEW DRIVE/UNIVERSITY DRIVE (AT P.S.M.S. HERSHEY MEDICAL CENTER)

Reviewed: *[Signature]* 9-23-10 Date

Municipal Official: *[Signature]* 10/25/2010 Date

Recommended: *[Signature]* 10/25/2010 Date

Dist. Traffic Eng. Date



C. TRAFFIC FORECASTS

218,000 SF Clinical Addition

GENERAL OFFICE BUILDING
LAND-USE 710

EXISTING 1000 SQ FT GROSS FLOOR AREA = 333.158

24-HOUR WEEKDAY EQN = $\ln(T) = 0.76 \ln(X) + 3.68$
 50% ENTER 1638
 50% EXIT 1638
 TOTAL 3276

AM EQN = $\ln(T) = 0.80 \ln(X) + 1.57$
 88% ENTER 441
 12% EXIT 60
 TOTAL 501

PM EQN = $T = 1.12(X) + 78.45$
 17% ENTER 77
 83% EXIT 375
 TOTAL 452

PROPOSED 1000 SQ FT GROSS FLOOR AREA = 551.158

24-HOUR WEEKDAY EQN = $\ln(T) = 0.76 \ln(X) + 3.68$
 50% ENTER 2402
 50% EXIT 2402
 TOTAL 4804

AM EQN = $\ln(T) = 0.80 \ln(X) + 1.57$
 88% ENTER 660
 12% EXIT 90
 TOTAL 750

PM EQN = $T = 1.12(X) + 78.45$
 17% ENTER 118
 83% EXIT 577
 TOTAL 695

EXPANSION	Weekday	AM	PM
Enter	764	219	41
Exit	764	30	202
Total	1528	249	243

135,000 SF Research Building

RESEARCH AND DEVELOPMENT CENTER

LAND-USE 760

1000 SQ FT GROSS FLOOR AREA = 135

24-HOUR WEEKDAY

50% ENTER	644
50% EXIT	644
TOTAL	1288

RATE = $\ln(T) = 0.83 \ln(X) + 3.09$

AM	
83% ENTER	140
17% EXIT	29
TOTAL	169

EQN= $\ln(T) = 0.87 \ln(X) + 0.86$

PM	
15% ENTER	25
85% EXIT	144
TOTAL	169

EQN= $\ln(T) = 0.83 \ln(X) + 1.06$

114,000 SF Children's Hospital Expansion

HOSPITAL
LAND-USE 610

EXISTING 1000 SQ FT GROSS FLOOR AREA = 246.615

24-HOUR WEEKDAY EQN = $T = 6.91 (X) + 2923.63$
 50% ENTER 2314
 50% EXIT 2314
 TOTAL 4628

AM EQN = $\ln(T) = 0.66 \ln(X) + 2.11$
 63% ENTER 197
 37% EXIT 116
 TOTAL 313

PM EQN = $\ln(T) = 0.64 \ln(X) + 2.22$
 38% ENTER 119
 62% EXIT 194
 TOTAL 313

PROPOSED 1000 SQ FT GROSS FLOOR AREA = 360.615

24-HOUR WEEKDAY EQN = $T = 6.91 (X) + 2923.63$
 50% ENTER 2708
 50% EXIT 2708
 TOTAL 5416

AM EQN = $\ln(T) = 0.66 \ln(X) + 2.11$
 63% ENTER 253
 37% EXIT 149
 TOTAL 402

PM EQN = $\ln(T) = 0.64 \ln(X) + 2.22$
 38% ENTER 152
 62% EXIT 247
 TOTAL 399

EXPANSION	Weekday	AM	PM
	Enter	394	56
	Exit	394	33
	Total	788	89

50,000 SF Outpatient Facilities

MEDICAL-DENTAL OFFICE BUILDING

LAND-USE 720

1000 SQ FT GROSS FLOOR AREA = 50

24-HOUR WEEKDAY	EQN=	T = 40.89 (X) - 214.97
50% ENTER	915	
50% EXIT	915	
TOTAL	1830	

AM	RATE=	2.39
79% ENTER	94	
21% EXIT	25	
TOTAL	119	

PM	EQN=	T = 0.90 Ln (X) + 1.53
28% ENTER	44	
72% EXIT	112	
TOTAL	156	

75,000 SF Academic Support Building Addition

GENERAL OFFICE BUILDING

LAND-USE 710

EXISTING 1000 SQ FT GROSS FLOOR AREA = 155.264

24-HOUR WEEKDAY EQN = $\ln(T) = 0.76 \ln(X) + 3.68$
 50% ENTER 917
 50% EXIT 917
 TOTAL 1834

AM EQN = $\ln(T) = 0.80 \ln(X) + 1.57$
 88% ENTER 239
 12% EXIT 33
 TOTAL 272

PM EQN = $T = 1.12(X) + 78.45$
 17% ENTER 43
 83% EXIT 209
 TOTAL 252

PROPOSED 1000 SQ FT GROSS FLOOR AREA = 230.264

24-HOUR WEEKDAY EQN = $\ln(T) = 0.76 \ln(X) + 3.68$
 50% ENTER 1237
 50% EXIT 1237
 TOTAL 2474

AM EQN = $\ln(T) = 0.80 \ln(X) + 1.57$
 88% ENTER 328
 12% EXIT 45
 TOTAL 373

PM EQN = $T = 1.12(X) + 78.45$
 17% ENTER 57
 83% EXIT 279
 TOTAL 336

EXPANSION	Weekday	AM	PM
Enter	320	89	14
Exit	320	12	70
Total	640	101	84

AM Peak - Hershey Medical Center Expansion- Trip Distribution and Assignment

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0476
ANALYST: BJB
DATE: 02/12/15

NEW SITE TRIPS (ENTER):	608
NEW SITE TRIPS (EXIT):	120
NEW SITE TRIPS (TOTAL):	727

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and CenterView Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Arabe Ave
- INTERSECTION #6:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #8:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7:** Rt. 322 and Cherry Dr
- INTERSECTION #9:** Governor Rd (SR 0322) and Flehburn Rd (SR 2011) / Hockersville Rd (SR 2011)
- INTERSECTION #10:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12:** Flehburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** CenterView Ln and Campus Dr

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0%	0%	0
	EBT	10%	0%	98
	EBR	10%	0%	60
	WBL	5%	0%	30
	WBT	0%	16%	21
	WBR	0%	6%	6
	NBL	0%	10%	13
	NBT	0%	10%	13
	NBR	0%	6%	6
	SBL	5%	0%	30
	SBT	10%	0%	60
	SBR	0%	0%	0
	OVERALL	46%	46%	335
INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln	EBL	0%	0%	0
	EBT	4%	5%	30
	EBR	17%	0%	102
	WBL	9%	0%	54
	WBT	5%	4%	35
	WBR	0%	1%	1
	NBL	0%	17%	22
	NBT	0%	4%	5
	NBR	0%	9%	12
	SBL	1%	0%	6
	SBT	4%	0%	24
	SBR	0%	0%	0
	OVERALL	40%	40%	291
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	0%	0%	0
	EBT	5%	14%	48
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	90
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	138
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Arabe Ave	EBL	0%	0%	0
	EBT	5%	14%	48
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	90
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	138
INTERSECTION #6: Governor Rd (SR 0322) and Beech Ave	EBL	0%	0%	0
	EBT	5%	14%	48
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	90
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	138

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (6R 0322) and Grassies Rd	EBL	0%	0%	0
	EBT	5%	14%	48
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	90
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	138
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	0%	0%	0
	EBT	0%	14%	16
	EBR	5%	0%	30
	WBL	10%	0%	60
	WBT	14%	0%	84
	WBR	0%	0%	0
	NBL	0%	5%	8
	NBT	0%	1%	1
	NBR	0%	10%	13
	SBL	0%	0%	0
	SBT	1%	0%	8
	SBR	0%	0%	0
	OVERALL	30%	30%	218
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hookersville Rd (SR 2011)	EBL	0%	5%	6
	EBT	0%	17%	22
	EBR	0%	2%	3
	WBL	0%	0%	0
	WBT	17%	0%	102
	WBR	0%	0%	0
	NBL	2%	0%	12
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	5%	0%	30
	OVERALL	24%	24%	175
INTERSECTION #9: Governor Rd (SR 0322) and Elin Ave	EBL	0%	2%	3
	EBT	0%	15%	19
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	16%	0%	90
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	2%	0%	12
	OVERALL	17%	17%	124
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy	EBL	0%	16%	21
	EBT	0%	0%	0
	EBR	0%	14%	18
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	14%	0%	84
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	16%	0%	98
	OVERALL	30%	30%	219
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0%	10%	13
	EBT	0%	0%	0
	EBR	0%	4%	5
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	4%	0%	24
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	10%	0%	50
	OVERALL	14%	14%	102
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	0%	0%	0
	EBT	0%	0%	0
	EBR	0%	10%	13
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	10%	0%	60
	NBR	2%	0%	12
	SBL	0%	0%	0
	SBT	0%	2%	3
	SBR	0%	0%	0
	OVERALL	12%	12%	88

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #13: Centerview Ln and Campus Dr	EBL	7%	0%	42
	EBT	10%	0%	60
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	0%	10%	13
	WBR	0%	5%	6
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	7%	9
	OVERALL	17%	22%	130

PM Peak - Hershey Medical Center Expansion- Trip Distribution and Assignment

JOB NAME: Routes 322 Corridor Evaluation
JOB NUMBER: R002484.0478
ANALYST: BJB
DATE: 02/12/15

NEW SITE TRIPS (ENTER):	157
NEW SITE TRIPS (EXIT):	681
NEW SITE TRIPS (TOTAL):	738

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and CenterView Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Arabe Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7:** Rt. 322 and Cherry Dr
- INTERSECTION #8:** Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hookersville Rd (SR 2011)
- INTERSECTION #9:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12:** Fishburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** CenterView Ln and Campus Dr

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0%	0%	0
	EBT	16%	0%	25
	EBR	10%	0%	16
	WBL	5%	0%	8
	WBT	0%	16%	93
	WBR	0%	8%	29
	NBL	0%	10%	58
	NBT	0%	10%	68
	NBR	0%	8%	29
	SBL	8%	0%	8
	SBT	10%	0%	16
	SBR	0%	0%	0
	OVERALL	46%	48%	340
	INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln	EBL	0%	0%
EBT		4%	5%	36
EBR		17%	0%	27
WBL		9%	0%	14
WBT		5%	4%	31
WBR		0%	1%	8
NBL		0%	17%	99
NBT		0%	4%	23
NBR		0%	0%	0
SBL		1%	0%	2
SBT		4%	0%	8
SBR		0%	0%	0
OVERALL		40%	40%	295
INTERSECTION #3: Governor Rd (SR 0322) and HillView Ln		EBL	0%	0%
	EBT	5%	14%	89
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	51
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	140
	INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Arabe Ave	EBL	0%	0%
EBT		5%	14%	89
EBR		0%	0%	0
WBL		0%	0%	0
WBT		14%	5%	51
WBR		0%	0%	0
NBL		0%	0%	0
NBT		0%	0%	0
NBR		0%	0%	0
SBL		0%	0%	0
SBT		0%	0%	0
SBR		0%	0%	0
OVERALL		19%	19%	140
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave		EBL	0%	0%
	EBT	5%	14%	89
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	51
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	19%	19%	140

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #8: Governor Rd (SR 0322) / Governor Rd (SR 0322) and Greenlea Rd	EBL	0%	0%	0
	EBT	5%	14%	80
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	14%	5%	51
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	0%	0
	OVERALL	18%	18%	140
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	0%	0%	0
	EBT	0%	14%	81
	EBR	5%	0%	8
	WBL	10%	0%	16
	WBT	14%	0%	22
	WBR	0%	0%	0
	NBL	0%	5%	20
	NBT	0%	1%	5
	NBR	0%	10%	58
	SBL	0%	0%	0
	SBT	1%	0%	2
	SBR	0%	0%	0
	OVERALL	30%	30%	222
INTERSECTION #6: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockersville Rd (SR 2011)	EBL	0%	8%	26
	EBT	0%	17%	99
	EBR	0%	2%	12
	WBL	0%	0%	0
	WBT	17%	0%	27
	WBR	0%	0%	0
	NBL	2%	0%	3
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	5%	0%	8
	OVERALL	24%	24%	178
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	0%	2%	12
	EBT	0%	15%	87
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	15%	0%	24
	WBR	0%	0%	0
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	2%	0%	3
	OVERALL	17%	17%	120
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Day	EBL	0%	16%	93
	EBT	0%	0%	0
	EBR	0%	14%	81
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	14%	0%	22
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	16%	0%	25
	OVERALL	30%	30%	221
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0%	10%	68
	EBT	0%	0%	0
	EBR	0%	4%	23
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	4%	0%	8
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	10%	0%	16
	OVERALL	14%	14%	103
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	0%	0%	0
	EBT	0%	0%	0
	EBR	0%	10%	68
	WBL	0%	0%	0
	WBT	0%	0%	0
	WBR	0%	0%	0
	NBL	10%	0%	16
	NBT	2%	0%	3
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	2%	12
	SBR	0%	0%	0
	OVERALL	12%	12%	89

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS
INTERSECTION #13: Centerview Ln and Campus Dr	EBL	7%	0%	11
	EBT	10%	0%	16
	EBR	0%	0%	0
	WBL	0%	0%	0
	WBT	0%	10%	58
	WBR	0%	5%	29
	NBL	0%	0%	0
	NBT	0%	0%	0
	NBR	0%	0%	0
	SBL	0%	0%	0
	SBT	0%	0%	0
	SBR	0%	7%	41
	OVERALL	17%	22%	155

Brownstone Lodge Redevelopment

GASOLINE / SERVICE STATION WITH CONVENIENCE MARKET

ITE LAND USE 945

NUMBER OF FUELING POSITIONS = 16

24-HOUR WEEKDAY		RATE =	162.78
50% ENTER	1303		
50% EXIT	1303		
TOTAL	2606		

CONVENIENCE STORE WITH GASOLINE PUMPS

ITE LAND USE 853

NUMBER OF FUELING POSITIONS = 16

AM		RATE =	16.57
50% ENTER	133		
50% EXIT	133		
TOTAL	266		

AM PASS-BY PERCENTAGE = 63%

	NEW	PASS-BY	TOTAL
ENTER	49	84	133
EXIT	49	84	133
TOTAL	98	168	266

PM		RATE =	19.07
50% ENTER	153		
50% EXIT	153		
TOTAL	306		

PM PASS-BY PERCENTAGE = 66%

	NEW	PASS-BY	TOTAL
ENTER	52	101	153
EXIT	52	101	153
TOTAL	104	202	306

AM Peak - Brownstone Lodge Redevelopment - Trip Distribution and Assignment

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0478
ANALYST: BJB
DATE: 02/12/16

% PASS-BY TRIPS:			
NEW SITE TRIPS (ENTER):	49	PASS-BY TRIPS (ENTER):	84
NEW SITE TRIPS (EXIT):	49	PASS-BY TRIPS (EXIT):	84
NEW SITE TRIPS (TOTAL):	98	PASS-BY TRIPS (TOTAL):	168

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and Centerview Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Arabs Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7:** Rt. 322 and Cherry Dr
- INTERSECTION #8:** Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockareville Rd (SR 2011)
- INTERSECTION #9:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12:** Fishburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** Centerview Ln and Campus Dr

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (INBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	34	0%	0%	0	34
INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	34	0%	0%	0	34
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	34	0%	0%	0	34
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Arabs Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	34	0%	0%	0	34
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	34	0%	0%	0	34

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (INBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #6: Governor Rd (SR 0322) / Governor Rd (SR 0322) and Greenlea Rd	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	36%	35%	34	0%	0%	0	34
INTERSECTION #7: Rt 922 and Cherry Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	36%	0%	17	0%	0%	0	17
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	36%	17	0%	0%	0	17
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	36%	36%	34	0%	0%	0	34
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011)/Hackersville Rd (SR 2011)	EBL	35%	0%	17	25%	0%	21	38
	EBT	0%	0%	0	-25%	0%	-21	-21
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	50%	0%	42	42
	WBR	20%	0%	10	-50%	0%	-42	-52
	NBL	0%	0%	0	0%	0%	0	0
	NBT	15%	0%	7	0%	0%	0	7
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	20%	10	0%	25%	21	31
	SBT	0%	15%	7	0%	0%	0	7
	SBR	0%	35%	17	0%	50%	42	59
	OVERALL	70%	70%	85	0%	75%	63	131
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	20%	10	0%	0%	0	10
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	20%	0%	10	0%	0%	0	10
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	20%	20%	20	0%	0%	0	20
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	0%	0%	0	0%	0%	0	0
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	5%	0%	2	0%	0%	0	2
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	5%	2	0%	0%	0	2
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	5%	5%	4	0%	0%	0	4
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	0%	0%	2	0%	0%	0	2
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	10%	0%	5	0%	0%	0	5
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	10%	5	0%	0%	0	5
	SBR	0%	5%	2	0%	0%	0	2
	OVERALL	16%	16%	14	0%	0%	0	14

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (INBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #15: Centerview Ln and Campus Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
OVERALL	0%	0%	0	0%	0%	0	0	

PM Peak - Brownstone Lodge Redevelopment - Trip Distribution and Assignment

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0476
ANALYST: EJB
DATE: 02/12/16

% PASS-BY TRIPS:			
NEW SITE TRIPS (ENTER):	52	PASS-BY TRIPS (ENTER):	101
NEW SITE TRIPS (EXIT):	52	PASS-BY TRIPS (EXIT):	101
NEW SITE TRIPS (TOTAL):	104	PASS-BY TRIPS (TOTAL):	202

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and Centerview Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Areba Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlea Rd
- INTERSECTION #7:** Rt. 322 and Cherry Dr
- INTERSECTION #8:** Governor Rd (SR 0322) and Flehbum Rd (SR 2011) / Hookersville Rd (SR 2011)
- INTERSECTION #9:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Priyala Drive
- INTERSECTION #12:** Flehbum Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** Centerview Ln and Campus Dr

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (INBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	36	0%	0%	0	36
INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	36	0%	0%	0	36
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	36	0%	0%	0	36
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	36	0%	0%	0	36
INTERSECTION #6: Governor Rd (SR 0322) and Beech Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	35%	35%	36	0%	0%	0	36

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (REBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #6: Governor Rd (SR 0322) / Governor Rd (SR 0322) and Greenba Rd	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
SBR	0%	0%	0	0%	0%	0	0	
OVERALL	35%	35%	36	0%	0%	0	36	
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	35%	0%	18	0%	0%	0	18
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	35%	18	0%	0%	0	18
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
SBR	0%	0%	0	0%	0%	0	0	
OVERALL	35%	35%	36	0%	0%	0	36	
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hocterville Rd (SR 2011)	EBL	35%	0%	18	60%	0%	51	69
	EBT	0%	0%	0	-50%	0%	-51	-51
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	25%	0%	25	25
	WBR	20%	0%	10	-25%	0%	-25	-15
	NBL	0%	0%	0	0%	0%	0	0
	NBT	15%	0%	8	0%	0%	0	8
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	20%	10	0%	50%	51	61
	SBT	0%	15%	8	0%	0%	0	8
SBR	0%	35%	18	0%	25%	25	43	
OVERALL	70%	70%	72	0%	75%	78	148	
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	20%	10	0%	0%	0	10
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	20%	0%	10	0%	0%	0	10
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
SBR	0%	0%	0	0%	0%	0	0	
OVERALL	20%	20%	20	0%	0%	0	20	
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Day	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
SBR	0%	0%	0	0%	0%	0	0	
OVERALL	0%	0%	0	0%	0%	0	0	
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	5%	0%	3	0%	0%	0	3
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	5%	3	0%	0%	0	3
SBR	0%	0%	0	0%	0%	0	0	
OVERALL	5%	5%	3	0%	0%	0	3	
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	10%	0%	5	0%	0%	0	5
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	10%	5	0%	0%	0	5
SBR	0%	5%	3	0%	0%	0	3	
OVERALL	15%	15%	10	0%	0%	0	10	

INTERSECTION	MOVEMENT	NEW TRIP DISTRIBUTION (INBOUND)	NEW TRIP DISTRIBUTION (OUTBOUND)	NEW SITE TRIPS	PASS-BY TRIP DISTRIBUTION (INBOUND)	PASS-BY TRIP DISTRIBUTION (OUTBOUND)	PASS-BY TRIPS	TOTAL SITE TRIPS
INTERSECTION #13: CenterView Ln and Campus Dr	EBL	0%	0%	0	0%	0%	0	0
	EBT	0%	0%	0	0%	0%	0	0
	EBR	0%	0%	0	0%	0%	0	0
	WBL	0%	0%	0	0%	0%	0	0
	WBT	0%	0%	0	0%	0%	0	0
	WBR	0%	0%	0	0%	0%	0	0
	NBL	0%	0%	0	0%	0%	0	0
	NBT	0%	0%	0	0%	0%	0	0
	NBR	0%	0%	0	0%	0%	0	0
	SBL	0%	0%	0	0%	0%	0	0
	SBT	0%	0%	0	0%	0%	0	0
	SBR	0%	0%	0	0%	0%	0	0
	OVERALL	0%	0%	0	0%	0%	0	0

AM Peak - Background Developments - Trip Assignment

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0476
ANALYST: BJB
DATE: 02/12/15

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and CenterView Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Araba Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beach Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7:** Rt 322 and Cherry Dr
- INTERSECTION #8:** Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hookersville Rd (SR 2011)
- INTERSECTION #9:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12:** Fishburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** CenterView Ln and Campus Dr

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107
INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Araba Ave	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107
INTERSECTION #5: Governor Rd (SR 0322) and Beach Ave	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	31	48
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	73	107
INTERSECTION #7: RL 922 and Cherry Dr	EBL	0	0	0
	EBT	17	42	59
	EBR	0	0	0
	WBL	0	0	0
	WBT	17	15	32
	WBR	0	0	0
	NBL	0	18	18
	NBT	0	5	5
	NBR	0	0	0
	SBL	0	7	7
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	34	85	119
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Heckareville Rd (SR 2011)	EBL	38	0	38
	EBT	-21	0	-21
	EBR	0	0	0
	WBL	0	35	35
	WBT	42	0	42
	WBR	-32	0	-32
	NBL	0	15	15
	NBT	7	15	22
	NBR	0	25	25
	SBL	31	0	31
	SBT	7	21	28
	SBR	59	0	59
	OVERALL	131	111	242
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	0	0	0
	EBT	10	25	35
	EBR	0	0	0
	WBL	0	0	0
	WBT	10	35	45
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	20	60	80
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy	EBL	0	0	0
	EBT	0	0	0
	EBR	0	0	0
	WBL	0	0	0
	WBT	0	0	0
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	5	5
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	0	5	5
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0	0	0
	EBT	0	0	0
	EBR	0	0	0
	WBL	0	0	0
	WBT	0	0	0
	WBR	0	0	0
	NBL	0	0	0
	NBT	2	15	17
	NBR	0	0	0
	SBL	0	0	0
	SBT	2	10	12
	SBR	0	5	5
	OVERALL	4	30	34
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	2	55	57
	EBT	0	0	0
	EBR	0	5	5
	WBL	0	0	0
	WBT	0	0	0
	WBR	0	0	0
	NBL	0	21	21
	NBT	5	0	5
	NBR	0	0	0
	SBL	0	0	0
	SBT	5	10	15
	SBR	2	0	2
	OVERALL	14	91	105

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #13: CenterView Ln and Campus Dr	EBL	0	0	0
	EBT	0	0	0
	EBR	0	0	0
	WBL	0	0	0
	WBT	0	0	0
	WBR	0	0	0
	NBL	0	0	0
	NBT	0	0	0
	NBR	0	0	0
	SBL	0	0	0
	SBT	0	0	0
	SBR	0	0	0
	OVERALL	0	0	0

PM Peak - Background Developments - Trip Assignment

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0478
ANALYST: BJB
DATE: 02/12/15

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and Centerview Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Aruba Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd
- INTERSECTION #7:** Rt. 322 and Cherry Dr
- INTERSECTION #8:** Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockersville Rd (SR 2011)
- INTERSECTION #9:** Governor Rd (SR 0322) and Elm Ave
- INTERSECTION #10:** Cherry Dr and Hope Dr / Kinder Care Dwy
- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
- INTERSECTION #12:** Fishburn Rd (SR 2011) and Sand Hill Rd
- INTERSECTION #13:** Centerview Ln and Campus Dr

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT NEW TRIPS	KRAY DEVELOPMENT PASS-BY TRIPS	KRAY DEVELOPMENT TOTAL TRIPS	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	0	0	0	0	0
	EBT	18	46	0	46	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	36	93	0	93	129
INTERSECTION #2: Governor Rd (SR 0322) and Centerview Ln	EBL	0	0	0	0	0
	EBT	18	46	0	46	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	36	93	0	93	129
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln	EBL	0	0	0	0	0
	EBT	18	46	0	46	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	36	93	0	93	129
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Aruba Ave	EBL	0	0	0	0	0
	EBT	18	46	0	46	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	36	93	0	93	129
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave	EBL	0	0	0	0	0
	EBT	18	46	0	46	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	36	93	0	93	129

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT NEW TRIPS	KRAY DEVELOPMENT PASS-BY TRIPS	KRAY DEVELOPMENT TOTAL TRIPS	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlee Rd	EBL	0	0	0	0	0
	EBT	18	46	0	48	64
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	18	47	0	47	65
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	38	93	0	93	129
	INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	0	0	0	0
EBT		18	46	0	48	64
EBR		0	0	0	0	0
WBL		0	0	0	0	0
WBT		18	23	-14	0	27
WBR		0	0	0	0	0
NBL		0	24	14	36	36
NBT		0	8	0	8	8
NBR		0	0	0	0	0
SBL		0	8	0	8	8
SBT		0	0	0	0	0
SBR		0	0	0	0	0
OVERALL		36	109	0	109	145
INTERSECTION #8: Governor Rd (SR 0322) and Flatburn Rd (SR 2011) / Hookersville Rd (SR 2011)		EBL	89	0	0	0
	EBT	-51	0	-27	-27	-76
	EBR	0	0	0	0	0
	WBL	0	37	27	64	64
	WBT	25	0	-27	-27	-2
	WBR	-15	0	0	0	-15
	NBL	0	23	13	36	36
	NBT	8	23	0	23	31
	NBR	0	37	27	64	64
	SBL	51	0	0	0	61
	SBT	8	23	0	23	31
	SBR	43	0	0	0	43
	OVERALL	148	143	13	166	304
	INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave	EBL	0	0	0	0
EBT		10	37	0	37	47
EBR		0	0	0	0	0
WBL		0	0	0	0	0
WBT		10	37	0	37	47
WBR		0	0	0	0	0
NBL		0	0	0	0	0
NBT		0	0	0	0	0
NBR		0	0	0	0	0
SBL		0	0	0	0	0
SBT		0	0	0	0	0
SBR		0	0	0	0	0
OVERALL		20	74	0	74	94
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy		EBL	0	0	0	0
	EBT	0	0	0	0	0
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	0	0	0	0	0
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	8	0	8	8
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	0	8	0	8	8
	INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive	EBL	0	0	0	0
EBT		0	0	0	0	0
EBR		0	0	0	0	0
WBL		0	0	0	0	0
WBT		0	0	0	0	0
WBR		0	0	0	0	0
NBL		0	0	0	0	0
NBT		3	15	0	16	18
NBR		0	0	0	0	0
SBL		0	0	0	0	0
SBT		3	15	0	16	18
SBR		0	8	0	8	8
OVERALL		6	36	0	36	44
INTERSECTION #12: Flatburn Rd (SR 2011) and Sand Hill Rd		EBL	3	83	51	134
	EBT	0	0	0	0	0
	EBR	0	7	0	7	7
	WBL	0	0	0	0	0
	WBT	0	0	0	0	0
	WBR	0	0	0	0	0
	NBL	0	23	11	34	34
	NBT	5	0	-11	-11	-8
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	5	18	0	16	21
	SBR	3	0	0	0	3
	OVERALL	16	128	51	180	196

INTERSECTION	MOVEMENT	BROWNSTONE LODGE REDEVELOPMENT	KRAY DEVELOPMENT NEW TRIPS	KRAY DEVELOPMENT PASS-BY TRIPS	KRAY DEVELOPMENT TOTAL TRIPS	TOTAL BACKGROUND DEVELOPMENT TRIPS
INTERSECTION #13: CenterView Ln and Campus Dr	EBL	0	0	0	0	0
	EBT	0	0	0	0	0
	EBR	0	0	0	0	0
	WBL	0	0	0	0	0
	WBT	0	0	0	0	0
	WBR	0	0	0	0	0
	NBL	0	0	0	0	0
	NBT	0	0	0	0	0
	NBR	0	0	0	0	0
	SBL	0	0	0	0	0
	SBT	0	0	0	0	0
	SBR	0	0	0	0	0
	OVERALL	0	0	0	0	0

Growth Factors for December 2014 to July 2015				
County	Urban Interstate	Rural Interstate	Urban Non-Interstate	Rural Non-Interstate
ADAMS	*	*	1.77	0.93
ALLEGHENY	1.24	*	0.12	0.53
ARMSTRONG	1.33	*	0.16	0.54
BEAVER	1.23	2.30	0.13	0.52
BEDFORD	*	2.38	*	0.60
BERKS	1.47	2.42	0.64	0.65
BLAIR	0.77	1.89	0.00	0.36
BRADFORD	1.31	*	0.28	0.50
BUCKS	2.02	2.60	1.36	0.80
BUTLER	1.92	2.83	1.00	0.83
CAMBRIA	0.37	*	0.00	0.23
CAMERON	*	*	*	0.32
CARBON	1.91	2.82	1.18	0.84
CENTRE	1.95	2.63	1.22	0.82
CHESTER	2.50	3.02	1.80	1.02
CLARION	1.34	2.29	0.40	0.55
CLEARFIELD	*	2.52	0.10	0.57
CLINTON	1.38	2.10	0.59	0.54
COLUMBIA	1.76	2.23	1.18	0.68
CRAWFORD	1.04	2.20	0.00	0.47
CUMBERLAND	1.69	2.09	1.29	0.68
DAUPHIN	1.43	2.28	0.69	0.61
DELAWARE	1.33	*	0.44	*
ELK	*	*	0.04	0.41
ERIE	0.93	1.84	0.08	0.41
FAYETTE	1.08	*	0.03	0.48
FOREST	*	*	*	0.70
FRANKLIN	2.44	2.74	1.90	0.97
FULTON	*	2.54	*	0.79
GREENE	0.98	2.10	0.00	0.44
HUNTINGDON	*	2.19	0.28	0.51
INDIANA	1.61	*	0.53	0.65
JEFFERSON	*	2.80	0.17	0.61
JUNIATA	*	*	*	0.70
LACKAWANNA	1.27	2.35	0.13	0.52
LANCASTER	2.00	2.51	1.34	0.81
LAWRENCE	1.21	2.26	0.11	0.50
LEBANON	*	2.41	1.02	0.70
LEHIGH	1.90	2.94	1.05	0.85
LUZERNE	1.26	2.36	0.12	0.53
LYCOMING	1.01	1.71	0.21	0.39
MCKEAN	1.04	*	0.04	0.44
MERCER	1.04	1.92	0.13	0.42
MIFFLIN	1.26	*	0.15	0.54
MONROE	2.29	2.88	1.78	0.98
MONTGOMERY	1.49	2.38	0.67	0.63
MONTOUR	*	3.00	1.38	0.92
NORTHAMPTON	2.15	*	1.47	0.94
NORTHUMBERLAND	1.20	1.94	0.19	0.43
PERRY	*	*	1.83	0.82
PHILADELPHIA	1.06	*	0.00	*
PIKE	*	3.11	*	1.14
POTTER	*	*	*	0.44
SCHUYLKILL	*	2.03	0.08	0.44
SNYDER	1.57	*	0.93	0.61
SOMERSET	1.03	2.05	0.04	0.45
SULLIVAN	*	*	*	0.51
SUSQUEHANNA	1.51	2.49	0.59	0.64
TOGA	*	*	*	0.46
UNION	*	2.38	1.44	0.75
VENANGO	1.06	1.89	0.14	0.42
WARREN	*	*	0.04	0.53
WASHINGTON	1.48	2.79	0.24	0.66
WAYNE	*	2.48	1.09	0.75
WESTMORELAND	1.35	2.43	0.27	0.57
WYOMING	*	*	0.45	0.46
YORK	1.93	2.45	1.43	0.79

* = Functional Class Doesn't Exist in County

Questions? Please contact Andrew O'Neill at the Bureau of Planning and Research, 717-346-3250 or andoneill@pa.gov

NOTE: The projected growth factors are derived using historical VMT (Vehicle Miles Traveled) data (1994 to 2013), as well as Woods and Poole demographic and economic data. The factors should not be used to project traffic beyond a 20-year period. Please be aware that these factors are estimates, and unforeseen events (opening of shopping centers, fast food franchises, gas stations, etc) could cause growth to change over time.



AM Peak Hour Volumes

JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0476
ANALYST: BJB
DATE: 02/12/15

GROWTH FACTOR (2020) 1.0345
GROWTH FACTOR (2040) 1.1846
 0.88% Annually

INTERSECTION #1: Governor Rd (SR 0322) and University Dr
INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln
INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave
INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenies Rd
INTERSECTION #7: Rt. 322 and Cherry Dr
INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hackersville Rd (SR 2011)
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave
INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive
INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd
INTERSECTION #13: CenterView Ln and Campus Dr

INTERSECTION	MOVEMENT	AM PEAK Existing 2015	AM PEAK 2020 No Build	AM PEAK 2040 No Build	AM PEAK Background Development Trips	AM PEAK 2020 No Build with Background	AM PEAK 2040 No Build with Background	AM PEAK Site Trips	AM PEAK 2020 With Development & Background	AM PEAK 2040 With Development & Background	
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	24	26	28	0	25	28	0	25	28	
	EBT	749	775	887	59	834	846	56	930	1042	
	EBR	305	316	381	0	316	381	60	376	421	
	WBL	206	213	244	0	213	244	30	243	274	
	WBR	350	365	422	48	416	470	21	437	481	
	NBL	30	33	35	0	33	35	6	33	35	
	NBT	89	71	82	0	71	82	13	84	85	
	NBR	81	84	98	0	84	98	13	87	109	
	SBL	84	87	100	0	87	100	6	83	106	
	SBT	51	53	60	0	53	60	30	63	60	
	SBR	126	130	149	0	130	149	60	190	209	
	OVERALL	2147	2222	2543	107	2320	2660	335	2664	2985	
	INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln	EBL	5	5	6	0	5	6	0	5	6
		EBT	481	498	570	59	557	629	30	587	659
EBR		329	340	390	0	340	390	102	442	482	
WBL		228	236	270	0	236	270	54	236	324	
WBR		818	830	732	48	887	780	35	722	815	
NBL		43	44	51	0	44	51	1	45	52	
NBT		57	59	68	0	59	68	22	81	90	
NBR		18	17	19	0	17	19	5	22	24	
SBL		73	76	86	0	76	86	12	86	98	
SBT		33	34	39	0	34	39	8	40	45	
SBR		108	174	199	0	174	199	24	188	223	
OVERALL		2080	2131	2441	107	2238	2548	291	2529	2830	
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln		EBL	4	5	5	0	4	5	0	4	5
		EBT	587	607	685	59	688	754	48	714	802
	EBR	0	0	0	0	0	0	0	0	0	
	WBL	0	0	0	0	0	0	0	0	0	
	WBR	914	946	1083	48	994	1131	80	1084	1221	
	NBL	1	1	1	0	1	1	0	1	1	
	NBT	0	0	0	0	0	0	0	0	0	
	NBR	0	0	0	0	0	0	0	0	0	
	SBL	2	2	2	0	2	2	0	2	2	
	SBT	0	0	0	0	0	0	0	0	0	
	SBR	9	9	11	0	9	11	0	9	11	
	OVERALL	1517	1589	1787	107	1678	1804	138	1814	2042	
	INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave	EBL	4	4	5	0	4	5	0	4	5
		EBT	588	606	694	59	665	753	48	713	801
EBR		2	2	2	0	2	2	0	2	2	
WBL		0	0	0	0	0	0	0	0	0	
WBR		855	884	1013	48	932	1061	90	1022	1151	
NBL		3	3	4	0	3	4	0	3	4	
NBT		2	2	2	0	2	2	0	2	2	
NBR		0	0	0	0	0	0	0	0	0	
SBL		1	1	1	0	1	1	0	1	1	
SBT		0	0	0	0	0	0	0	0	0	
SBR		50	52	59	0	52	59	0	52	59	
OVERALL		1503	1664	1780	107	1681	1887	138	1789	2025	
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave		EBL	3	3	4	0	3	4	0	3	4
		EBT	592	612	701	59	671	760	48	719	808
	EBR	0	0	0	0	0	0	0	0	0	
	WBL	0	0	0	0	0	0	0	0	0	
	WBR	859	888	1018	48	937	1066	90	1027	1158	
	NBL	0	0	0	0	0	0	0	0	0	
	NBT	0	0	0	0	0	0	0	0	0	
	NBR	0	0	0	0	0	0	0	0	0	
	SBL	1	1	1	0	1	1	0	1	1	
	SBT	0	0	0	0	0	0	0	0	0	
	SBR	3	3	4	0	3	4	0	3	4	
	OVERALL	1459	1506	1729	107	1616	1836	138	1754	1974	
	INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenies Rd	EBL	2	2	2	0	2	2	0	2	2
		EBT	581	601	688	59	660	747	48	708	795
EBR		0	0	0	0	0	0	0	0	0	
WBL		0	0	0	0	0	0	0	0	0	
WBR		846	875	1002	48	923	1050	90	1013	1140	
NBL		0	0	0	0	0	0	0	0	0	
NBT		0	0	0	0	0	0	0	0	0	
NBR		0	0	0	0	0	0	0	0	0	
SBL		0	0	0	0	0	0	0	0	0	
SBT		4	4	5	0	4	5	0	4	5	
SBR		4	4	5	0	4	5	0	4	5	
OVERALL		1433	1482	1687	107	1586	1804	138	1727	1942	

INTERSECTION	MOVEMENT	AM PEAK Existing 2015	AM PEAK 2020 No Build	AM PEAK 2040 No Build	AM PEAK Background Development Trips	AM PEAK 2020 No Build with Background	AM PEAK 2040 No Build with Background	AM PEAK Site Trips	AM PEAK 2020 With Development & Background	AM PEAK 2040 With Development & Background
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	4	4	5	0	4	5	0	4	5
	EBT	450	466	533	50	525	522	18	543	610
	EBR	118	123	141	0	123	141	30	153	171
	WBL	283	272	312	0	272	312	80	332	372
	WBT	746	772	864	32	804	818	84	888	1000
	WBR	7	7	8	0	7	8	0	7	8
	NBL	103	107	122	16	123	138	8	128	144
	NBT	18	19	21	5	24	26	1	25	27
	NBR	45	47	53	0	47	53	13	60	66
	SBL	31	32	37	7	38	44	0	39	44
	SBT	50	52	59	0	52	59	6	58	65
	SBR	3	3	4	0	3	4	0	3	4
	OVERALL	1639	1904	2178	119	2023	2288	218	2241	2516
	INTERSECTION #8: Governor Rd (SR 0322) and Fishum Rd (SR 2011) / Hookersville Rd (SR 2011)	EBL	18	19	21	38	57	59	6	63
EBT		358	370	424	-21	348	403	22	371	425
EBR		119	123	141	0	123	141	3	126	144
WBL		47	49	58	95	84	91	0	84	91
WBT		750	776	888	42	818	930	102	920	1032
WBR		151	156	179	-32	124	147	0	124	147
NBL		233	241	276	15	256	291	12	268	303
NBT		193	200	229	22	222	251	0	222	251
NBR		88	99	114	23	124	139	0	124	139
SBL		141	146	167	31	177	198	0	177	198
SBT		121	125	143	28	153	171	0	153	171
SBR		41	42	49	50	101	108	30	131	136
OVERALL		2268	2346	2687	242	2588	2828	175	2783	3164
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave		EBL	52	54	62	0	54	62	3	57
	EBT	545	564	640	35	599	681	19	618	700
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	820	848	971	45	863	1018	90	953	1106
	WBR	0	0	0	0	0	0	0	0	0
	NBL	0	0	0	0	0	0	0	0	0
	NBT	0	0	0	0	0	0	0	0	0
	NBR	0	0	0	0	0	0	0	0	0
	SBL	0	0	0	0	0	0	0	0	0
	SBT	0	0	0	0	0	0	0	0	0
	SBR	108	112	128	0	112	128	12	124	140
	OVERALL	1625	1578	1807	80	1658	1887	124	1782	2011
	INTERSECTION #10: Cherry Dr and Hopsa Dr / Kinder Care Dwy	EBL	15	18	18	0	18	18	21	37
EBT		0	0	0	0	0	0	0	0	0
EBR		21	22	25	0	22	25	18	40	43
WBL		1	1	1	0	1	1	0	1	1
WBT		1	1	1	0	1	1	0	1	1
WBR		3	3	4	0	3	4	0	3	4
NBL		322	333	381	0	333	381	84	417	465
NBT		123	127	146	5	132	151	0	132	151
NBR		12	12	14	0	12	14	0	12	14
SBL		23	24	27	0	24	27	0	24	27
SBT		39	40	46	0	40	46	0	40	46
SBR		339	351	402	0	351	402	96	447	498
OVERALL		899	930	1065	5	935	1070	219	1154	1289
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive		EBL	18	20	23	0	20	23	13	33
	EBT	3	3	4	0	3	4	0	3	4
	EBR	38	39	45	0	39	45	5	44	50
	WBL	0	0	0	0	0	0	0	0	0
	WBT	0	0	0	0	0	0	0	0	0
	WBR	1	1	1	0	1	1	0	1	1
	NBL	182	188	216	0	188	216	24	212	240
	NBT	120	124	142	17	141	159	0	141	159
	NBR	1	1	1	0	1	1	0	1	1
	SBL	8	6	7	0	6	7	0	6	7
	SBT	53	55	63	12	67	75	0	67	75
	SBR	282	271	310	5	276	315	80	336	375
	OVERALL	685	708	812	34	742	846	102	844	968
	INTERSECTION #12: Fishum Rd (SR 2011) and Sand Hill Rd	EBL	79	82	94	57	139	151	0	139
EBT		0	0	0	0	0	0	0	0	0
EBR		49	51	58	5	58	63	13	69	76
WBL		0	0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0	0
WBR		0	0	0	0	0	0	0	0	0
NBL		276	284	326	21	305	347	80	385	407
NBT		442	457	524	6	462	529	12	474	541
NBR		0	0	0	0	0	0	0	0	0
SBL		0	0	0	0	0	0	0	0	0
SBT		245	253	290	15	268	305	3	271	308
SBR		51	53	60	2	55	62	0	55	62
OVERALL		1141	1180	1352	105	1285	1457	88	1373	1545
INTERSECTION #13: CenterView Ln and Campus Dr		EBL	184	190	218	0	190	218	42	232
	EBT	194	201	230	0	201	230	60	261	290
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	65	67	74	0	67	77	13	80	80
	WBR	29	30	34	0	30	34	6	36	40
	NBL	32	33	38	0	33	38	0	33	38
	NBT	19	20	23	0	20	23	0	20	23
	NBR	31	32	37	0	32	37	0	32	37
	SBL	44	46	52	0	46	52	0	46	52
	SBT	0	0	0	0	0	0	0	0	0
	SBR	66	68	78	0	68	78	9	77	87
	OVERALL	664	687	787	0	687	787	130	817	917

PM Peak Hour Volumes

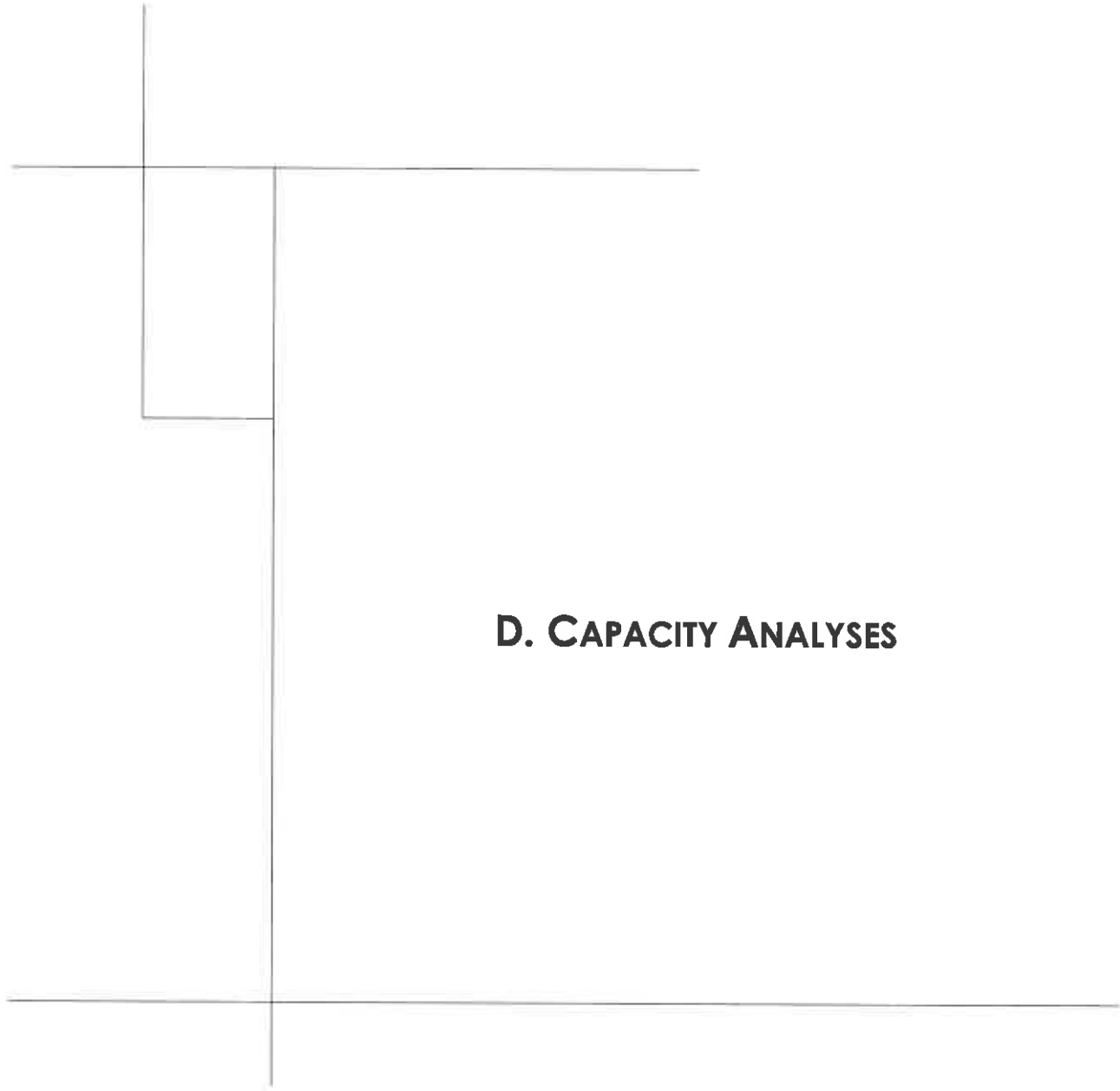
JOB NAME: Route 322 Corridor Evaluation
JOB NUMBER: R002484.0478
ANALYST: BJB
DATE: 02/12/16

GROWTH FACTOR [2020] 1.0345
GROWTH FACTOR [2040] 1.1846
 0.88% Annually

- INTERSECTION #1:** Governor Rd (SR 0322) and University Dr
- INTERSECTION #2:** Governor Rd (SR 0322) and CenterView Ln
- INTERSECTION #3:** Governor Rd (SR 0322) and Hillview Ln
- INTERSECTION #4:** Governor Rd (SR 0322) and Private Dwy / West Areba Ave
- INTERSECTION #5:** Governor Rd (SR 0322) and Beech Ave
- INTERSECTION #6:** Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlea Rd
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- INTERSECTION #11:** Sand Hill Rd and Cherry Dr / Private Drive
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- INTERSECTION #13:** CenterView Ln and Campus Dr

INTERSECTION	MOVEMENT	PM PEAK Existing 2015	PM PEAK 2020 No Build	PM PEAK 2040 No Build	PM PEAK Background Development Trips	PM PEAK 2020 No Build with Background	PM PEAK 2040 No Build with Background	PM PEAK Site Trips	PM PEAK 2020 With Development & Background	PM PEAK 2040 With Development & Background
INTERSECTION #1: Governor Rd (SR 0322) and University Dr	EBL	76	79	90	0	79	90	0	79	90
	EBT	457	473	541	64	537	605	25	562	630
	EBR	106	110	126	0	110	126	16	126	142
	WBL	82	84	73	0	84	73	8	73	81
	WBT	748	772	884	65	837	949	83	930	1042
	WBR	227	235	269	0	235	269	29	264	308
	NBL	233	241	278	0	241	278	58	298	334
	NBT	218	226	258	0	226	258	58	264	318
	NBR	99	102	117	0	102	117	29	131	148
	SBL	35	36	41	0	36	41	8	44	49
	SBT	53	55	63	0	55	63	18	71	79
	SBR	44	48	52	0	48	52	0	48	52
	OVERALL	2356	2439	2790	129	2568	2919	340	2908	3269
	INTERSECTION #2: Governor Rd (SR 0322) and CenterView Ln	EBL	14	14	17	0	14	17	0	14
EBT		483	500	572	64	544	636	35	579	671
EBR		44	46	52	0	46	52	27	73	79
WBL		48	50	57	0	50	57	14	64	71
WBT		593	613	702	65	678	787	31	708	798
WBR		89	71	82	0	71	82	8	77	88
NBL		324	335	384	0	335	384	99	434	483
NBT		77	80	91	0	80	91	23	103	114
NBR		183	189	217	0	189	217	52	241	268
SBL		38	37	43	0	37	43	2	39	45
SBT		17	18	20	0	18	20	8	24	26
SBR		30	31	36	0	31	36	0	31	36
OVERALL		1918	1984	2273	129	2113	2402	295	2408	2697
INTERSECTION #3: Governor Rd (SR 0322) and Hillview Ln		EBL	11	11	13	0	11	13	0	11
	EBT	713	738	845	64	802	908	89	891	998
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	712	737	843	65	802	908	51	853	959
	WBR	4	4	5	0	4	5	0	4	5
	NBL	0	0	0	0	0	0	0	0	0
	NBT	0	0	0	0	0	0	0	0	0
	NBR	0	0	0	0	0	0	0	0	0
	SBL	3	3	4	0	3	4	0	3	4
	SBT	0	0	0	0	0	0	0	0	0
	SBR	8	8	9	0	8	9	0	8	9
	OVERALL	1451	1501	1718	129	1630	1848	140	1770	1988
	INTERSECTION #4: Governor Rd (SR 0322) and Private Dwy / West Areba Ave	EBL	43	44	51	0	44	51	0	44
EBT		848	870	788	64	734	832	89	823	921
EBR		0	0	0	0	0	0	0	0	0
WBL		0	0	0	0	0	0	0	0	0
WBT		711	736	842	65	801	907	51	852	958
WBR		12	12	14	0	12	14	0	12	14
NBL		2	2	2	0	2	2	0	2	2
NBT		0	0	0	0	0	0	0	0	0
NBR		0	0	0	0	0	0	0	0	0
SBL		1	1	1	0	1	1	0	1	1
SBT		0	0	0	0	0	0	0	0	0
SBR		12	12	14	0	12	14	0	12	14
OVERALL		1429	1477	1692	129	1608	1821	140	1748	1961
INTERSECTION #5: Governor Rd (SR 0322) and Beech Ave		EBL	4	4	5	0	4	5	0	4
	EBT	672	695	798	64	759	860	89	848	949
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	714	739	848	65	804	911	51	855	962
	WBR	3	3	4	0	3	4	0	3	4
	NBL	0	0	0	0	0	0	0	0	0
	NBT	0	0	0	0	0	0	0	0	0
	NBR	0	0	0	0	0	0	0	0	0
	SBL	0	0	0	0	0	0	0	0	0
	SBT	0	0	0	0	0	0	0	0	0
	SBR	0	0	0	0	0	0	0	0	0
	OVERALL	1393	1441	1651	129	1570	1780	140	1710	1920
	INTERSECTION #6: Governor Rd (SR0322) / Governor Rd (SR 0322) and Greenlea Rd	EBL	4	4	5	0	4	5	0	4
EBT		870	893	794	64	757	858	89	846	947
EBR		0	0	0	0	0	0	0	0	0
WBL		0	0	0	0	0	0	0	0	0
WBT		714	739	848	65	804	911	51	855	962
WBR		5	5	6	0	5	6	0	5	6
NBL		0	0	0	0	0	0	0	0	0
NBT		0	0	0	0	0	0	0	0	0
NBR		0	0	0	0	0	0	0	0	0
SBL		0	0	0	0	0	0	0	0	0
SBT		0	0	0	0	0	0	0	0	0
SBR		2	2	2	0	2	2	0	2	2
OVERALL		1385	1443	1653	129	1572	1782	140	1712	1922

INTERSECTION	MOVEMENT	PM PEAK Existing 2015	PM PEAK 2020 No Build	PM PEAK 2040 No Build	PM PEAK Background Development Trips	PM PEAK 2020 No Build with Background	PM PEAK 2040 No Build with Background	PM PEAK Site Trips	PM PEAK 2020 With Development & Background	PM PEAK 2040 With Development & Background
INTERSECTION #7: Rt. 322 and Cherry Dr	EBL	11	11	13	0	11	13	0	11	13
	EBT	515	533	610	64	597	674	81	678	755
	EBR	128	132	152	0	132	152	6	140	160
	WBL	91	94	108	0	94	108	16	110	124
	WBT	507	524	601	27	551	628	22	673	850
	WBR	36	37	43	0	37	43	0	37	43
	NBL	182	168	162	38	206	230	29	235	259
	NBT	45	44	51	8	52	59	8	58	65
	NBR	281	281	333	0	281	333	58	349	391
	SBL	24	25	28	8	33	38	0	33	38
	SBT	38	39	45	0	39	45	2	41	47
	SBR	13	13	15	0	13	15	0	13	15
	OVERALL	1849	1911	2191	145	2058	2330	222	2278	2658
	INTERSECTION #8: Governor Rd (SR 0322) and Fishburn Rd (SR 2011) / Hockerville Rd (SR 2011)	EBL	54	56	64	69	125	133	29	154
EBT		639	661	757	-78	583	679	99	682	778
EBR		131	136	155	0	136	155	12	148	167
WBL		100	103	118	84	167	182	0	167	182
WBT		438	451	516	-2	449	514	27	476	541
WBR		158	161	185	-15	148	170	0	146	170
NBL		155	160	184	38	196	220	3	199	223
NBT		198	208	236	31	237	267	0	237	267
NBR		120	124	142	84	188	208	0	188	208
SBL		228	234	268	61	295	329	0	295	329
SBT		257	268	304	31	297	335	0	297	335
SBR		32	33	38	43	76	81	8	84	89
OVERALL		2505	2591	2867	304	2865	3271	178	3073	3449
INTERSECTION #9: Governor Rd (SR 0322) and Elm Ave		EBL	104	108	123	0	108	123	12	120
	EBT	883	913	1046	47	980	1093	87	1047	1180
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	588	617	708	47	664	763	24	688	777
	WBR	1	1	1	0	1	1	0	1	1
	NBL	0	0	0	0	0	0	0	0	0
	NBT	0	0	0	0	0	0	0	0	0
	NBR	0	0	0	0	0	0	0	0	0
	SBL	0	0	0	0	0	0	0	0	0
	SBT	0	0	0	0	0	0	0	0	0
	SBR	88	88	114	0	88	114	3	102	117
	OVERALL	1690	1738	1950	94	1832	2084	126	1858	2210
	INTERSECTION #10: Cherry Dr and Hope Dr / Kinder Care Dwy	EBL	398	410	469	0	410	469	83	503
EBT		8	8	7	0	8	7	0	8	7
EBR		339	351	402	0	351	402	61	432	483
WBL		0	0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0	0
WBR		1	1	1	0	1	1	0	1	1
NBL		19	20	23	0	20	23	22	42	45
NBT		106	110	128	8	118	134	0	118	134
NBR		2	2	2	0	2	2	0	2	2
SBL		10	10	12	0	10	12	0	10	12
SBT		138	143	163	0	143	163	0	143	163
SBR		31	32	37	0	32	37	25	57	63
OVERALL		1048	1085	1242	8	1093	1250	221	1314	1471
INTERSECTION #11: Sand Hill Rd and Cherry Dr / Private Drive		EBL	287	297	340	0	297	340	58	355
	EBT	6	6	7	0	6	7	0	6	7
	EBR	168	174	189	0	174	189	23	197	222
	WBL	0	0	0	0	0	0	0	0	0
	WBT	1	1	1	0	1	1	0	1	1
	WBR	2	2	2	0	2	2	0	2	2
	NBL	81	84	96	0	84	96	8	90	102
	NBT	101	104	120	18	122	138	0	122	138
	NBR	0	0	0	0	0	0	0	0	0
	SBL	4	4	5	0	4	5	0	4	5
	SBT	141	148	167	18	164	185	0	164	185
	SBR	39	40	46	8	46	54	18	54	70
	OVERALL	830	858	983	44	902	1027	103	1005	1130
	INTERSECTION #12: Fishburn Rd (SR 2011) and Sand Hill Rd	EBL	97	100	115	137	237	252	0	237
EBT		0	0	0	0	0	0	0	0	0
EBR		287	297	340	7	304	347	58	382	405
WBL		0	0	0	0	0	0	0	0	0
WBT		0	0	0	0	0	0	0	0	0
WBR		0	0	0	0	0	0	0	0	0
NBL		85	88	101	34	122	135	16	138	151
NBT		389	382	437	-6	376	431	3	379	434
NBR		0	0	0	0	0	0	0	0	0
SBL		0	0	0	0	0	0	0	0	0
SBT		374	387	443	21	408	464	12	420	476
SBR		108	112	128	3	115	131	0	115	131
OVERALL		1320	1366	1584	196	1582	1760	88	1651	1849
INTERSECTION #13: CenterView Ln and Campus Dr		EBL	112	116	133	0	116	133	11	127
	EBT	62	64	73	0	64	73	16	80	88
	EBR	0	0	0	0	0	0	0	0	0
	WBL	0	0	0	0	0	0	0	0	0
	WBT	217	224	257	0	224	257	58	282	316
	WBR	104	108	123	0	108	123	28	137	152
	NBL	84	87	100	0	87	100	0	87	100
	NBT	39	40	46	0	40	46	0	40	46
	NBR	13	13	15	0	13	15	0	13	15
	SBL	31	32	37	0	32	37	0	32	37
	SBT	0	0	0	0	0	0	0	0	0
	SBR	174	180	206	0	180	206	41	221	247
	OVERALL	836	864	990	0	864	990	155	1019	1145



D. CAPACITY ANALYSES

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	749	305	206	356	80	69	81	84	51	126	16
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1522	1719	1815	1479	1833	1791	1624	1702	1760	0
Flt Permitted	0.533			0.078			0.387			0.700		
Satd. Flow (perm)	954	1756	1502	141	1815	1460	745	1791	1568	1237	1760	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			332			147			92		6	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)	1		2	2		1	2		8	8		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	3%	4%	0%	1%	1%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	26	814	332	224	387	87	75	88	91	55	154	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.7	42.7	42.7	12.4	32.4	32.4	15.0	15.0	15.0
Total Split (s)	12.0	51.0	12.0	12.0	51.0	51.0	12.0	37.0	37.0	25.0	25.0	25.0
Total Split (%)	12.0%	51.0%	12.0%	12.0%	51.0%	51.0%	12.0%	37.0%	37.0%	25.0%	25.0%	25.0%
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	53.3	46.3	54.0	63.0	59.3	59.3	26.7	26.7	26.7	14.9	14.9	14.9
Actuated g/C Ratio	0.53	0.46	0.54	0.63	0.59	0.59	0.27	0.27	0.27	0.15	0.15	0.15
v/c Ratio	0.05	1.00	0.34	0.76	0.36	0.09	0.27	0.18	0.19	0.30	0.58	0.58
Control Delay	8.3	60.0	2.1	47.4	11.9	1.9	28.9	27.8	6.3	40.6	46.0	46.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	60.0	2.1	47.4	11.9	1.9	28.9	27.8	6.3	40.6	46.0	46.0
LOS	A	E	A	D	B	A	C	C	A	D	D	D
Approach Delay		42.5			22.0			20.4			44.6	
Approach LOS		D			C			C			D	

Intersection Summary

Area Type: Other

DONE BY BJB DATE 5/28/15
 CHECKED BY EPS DATE 5/28/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 94 (94%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.00

Intersection Signal Delay: 34.2

Intersection LOS: C

Intersection Capacity Utilization 81.8%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	• ↙	• ↘		• ↙	• ↘			• ↙	• ↘		• ↙	• ↘
Volume (vph)	• 5	481	• 329	• 228	• 618	• 43	• 57	• 16	• 73	• 33	• 168	• 9
Ideal Flow (vphpl)	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800
Lane Width (ft)	• 12	• 14	• 14	• 12	• 12	• 12	• 12	• 12	• 14	• 16	• 16	• 16
Grade (%)		• 1%			• -2%			• 1%			• -1%	
Storage Length (ft)	• 170		• 0	• 170		• 0	• 0		• 300	• 0		• 0
Storage Lanes	• 1		• 0	• 1		• 0	• 0		• 1	• 0		• 0
Taper Length (ft)	• 25			• 25			• 25			• 25		
Satd. Flow (prot)	• 1701	• 1697	• 0	• 1727	• 1743	• 0	• 0	• 1651	• 1624	• 0	• 2022	• 0
Fit Permitted	• 0.374			• 0.069				• 0.426			• 0.939	
Satd. Flow (perm)	• 669	• 1697	• 0	• 125	• 1743	• 0	• 0	• 730	• 1565	• 0	• 1909	• 0
Right Turn on Red			• Yes			• Yes			• Yes			• Yes
Satd. Flow (RTOR)		• 46			• 7				• 85			• 2
Link Speed (mph)		• 35			• 35			• 25			• 25	
Link Distance (ft)		• 974			• 921			• 1602			• 866	
Travel Time (s)		• 19.0			• 17.9			• 43.7			• 23.6	
Confl. Peds. (#/hr)	• 1		• 1	• 1		• 1			• 8	• 8		
Peak Hour Factor	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86	• 0.86
Heavy Vehicles (%)	• 0%	• 8%	• 0%	• 0%	• 3%	• 5%	• 4%	• 6%	• 0%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 6	• 942	• 0	• 265	• 769	• 0	• 0	• 85	• 85	• 0	• 243	• 0
Turn Type	• Perm	• NA		• pm+pt	• NA		• Perm	• NA	• Perm	• Perm	• NA	
Protected Phases		• 2		• 1	• 6			• 8			• 4	
Permitted Phases	• 2			• 6			• 8		• 8	• 4		
Detector Phase	• 2	• 2		• 1	• 6		• 8	• 8	• 8	• 4	• 4	
Switch Phase												
Minimum Initial (s)	• 10.0	• 10.0		• 3.0	• 10.0		• 3.0	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0
Minimum Split (s)	• 15.1	• 15.1		• 12.1	• 15.1		• 11.9	• 11.9	• 11.9	• 11.9	• 11.9	• 11.9
Total Split (s)	• 51.0	• 51.0		• 19.0	• 70.0		• 30.0	• 30.0	• 30.0	• 30.0	• 30.0	• 30.0
Total Split (%)	• 51.0%	• 51.0%		• 19.0%	• 70.0%		• 30.0%	• 30.0%	• 30.0%	• 30.0%	• 30.0%	• 30.0%
Yellow Time (s)	• 3.8	• 3.8		• 3.8	• 3.8		• 3.0	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0
All-Red Time (s)	• 1.3	• 1.3		• 1.3	• 1.3		• 1.9	• 1.9	• 1.9	• 1.9	• 1.9	• 1.9
Lost Time Adjust (s)	• -1.0	• -1.0		• -1.0	• -1.0			• -0.5	• -0.5		• -0.5	
Total Lost Time (s)	• 4.1	• 4.1		• 4.1	• 4.1			• 4.4	• 4.4		• 4.4	
Lead/Lag	• Lag	• Lag		• Lead								
Lead-Lag Optimize?												
Recall Mode	• C-Max	• C-Max		• None	• C-Max		• None	• None	• None	• None	• None	• None
Act Effct Green (s)	53.6	53.6		73.0	73.0			18.5	18.5		18.5	
Actuated g/C Ratio	0.54	0.54		0.73	0.73			0.18	0.18		0.18	
v/c Ratio	0.02	1.01		0.79	0.60			0.63	0.24		0.69	
Control Delay	4.4	34.5		35.4	15.8			57.7	8.7		47.5	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	4.4	34.5		35.4	15.8			57.7	8.7		47.5	
LOS	A	C		D	B			E	A		D	
Approach Delay		34.3			20.8			33.2			47.5	
Approach LOS		C			C			C			D	

Intersection Summary

Area Type: Other

DONE BY BOM DATE 5/28/15

CHECKED BY EJS DATE 5/29/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 12 (12%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.01

Intersection Signal Delay: 29.7

Intersection LOS: C

Intersection Capacity Utilization 90.3%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY JSB DATE 5/28/15
CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↕	• ↕		• ↕	
Volume (vph)	• 4	• 587	• 914	• 1	• 2	• 9
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 1%	• 0%		• -3%	
Satd. Flow (prot)	• 0	• 1725	• 1799	• 0	• 1710	• 0
Flt Permitted					0.992	
Satd. Flow (perm)	• 0	• 1725	• 1799	• 0	• 1710	• 0
Link Speed (mph)		• 35	• 30		• 25	
Link Distance (ft)		• 921	• 400		• 1058	
Travel Time (s)		• 17.9	• 9.1		• 28.9	
Peak Hour Factor	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	0.93
Heavy Vehicles (%)	• 0%	• 6%	• 2%	100%	• 0%	• 11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 635	• 984	• 0	• 12	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 58.2% ICU Level of Service B
 Analysis Period (min) 15

DONE BY Bob DATE 5/22/15
 CHECKED BY eps DATE 5/22/15

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	587	914	1	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	6	2	100	0	11
Mvmt Flow	4	631	983	1	2	10

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	984	0	1623
Stage 1	-	-	983
Stage 2	-	-	640
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	710	-	150
Stage 1	-	-	431
Stage 2	-	-	589
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	710	-	149
Mov Capacity-2 Maneuver	-	-	149
Stage 1	-	-	431
Stage 2	-	-	584

Approach

	EB	WB	SB
HCM Control Delay, s	0.1	0	19.4
HCM LOS			C

Minor Lane / Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	710	-	-	-	262
HCM Lane V/C Ratio	0.006	-	-	-	0.045
HCM Control Delay (s)	10.101	0	-	-	19.4
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.018	-	-	-	0.141

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY COM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		• ↕			• ↕			• ↕			• ↕	
Volume (vph)	• 4	• 586	• 2	• 0	• 855	• 3	• 2	• 0	• 0	• 1	• 0	• 50
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 11	• 11	• 10	• 10	• 10	• 16	• 16	• 16
Grade (%)		• -2%			• 1%			• 7%			• 1%	
Satd Flow (prot)	• 0	• 1751	• 0	• 0	• 1771	• 0	• 0	• 1626	• 0	• 0	• 1820	• 0
Flt Permitted								• 0.950			• 0.999	
Satd Flow (perm)	• 0	• 1751	• 0	• 0	• 1771	• 0	• 0	• 1626	• 0	• 0	• 1820	• 0
Link Speed (mph)		• 35			• 35			• 30			• 25	
Link Distance (ft)		• 400			• 375			• 85			• 1017	
Travel Time (s)		• 7.8			• 7.3			• 1.9			• 27.7	
Confl. Peds. (#/hr)			• 10	• 10								
Peak Hour Factor	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93
Heavy Vehicles (%)	• 0%	• 6%	• 0%	• 0%	• 3%	• 67%	• 0%	• 0%	• 0%	• 0%	• 0%	• 2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 636	• 0	• 0	• 922	• 0	• 0	• 2	• 0	• 0	• 55	• 0
Sign Control		• Free			• Free			• Stop			• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 55.2% ICU Level of Service B
 Analysis Period (min) 15

DONE BY com DATE 5/20/15

CHECKED BY eps DATE 5/20/15

Intersection

Intersection Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	586	2	0	855	3	2	0	0	1	0	50
Conflicting Peds, #/hr	0	0	10	10	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	3	67	0	0	0	0	0	2
Mvmt Flow	4	630	2	0	919	3	2	0	0	1	0	54

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	923	0	0	632
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.2	-	-	2.2
Pot Capacity-1 Maneuver	748	-	-	960
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	742	-	-	953
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	102.6	19.8
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	39	742	-	-	953	-	-	297
HCM Lane V/C Ratio	0.055	0.006	-	-	-	-	-	0.185
HCM Control Delay (s)	102.6	9.88	0	-	0	-	-	19.8
HCM Lane LOS	F	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.169	0.017	-	-	0	-	-	0.665

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY BTB DATE 5/20/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	3	592	859	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Satd Flow (prot)	0	1742	1783	0	1903	0
Flt Permitted					0.988	
Satd Flow (perm)	0	1742	1783	0	1903	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	646	935	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 55.3% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BWB DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

5/20/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	3	592	859	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	3	643	934	1	1	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	935	0	1584
Stage 1	-	-	934
Stage 2	-	-	650
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	741	-	110
Stage 1	-	-	366
Stage 2	-	-	505
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	741	-	109
Mov Capacity-2 Maneuver	-	-	109
Stage 1	-	-	366
Stage 2	-	-	502

Approach	EB	WB	SB
HCM Control Delay, s	0	0	22.1
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	741	-	-	-	215
HCM Lane V/C Ratio	0.004	-	-	-	0.02
HCM Control Delay (s)	9.88	0	-	-	22.1
HCM Lane LOS	A	A			C
HCM 95th %tile Q(veh)	0.013	-	-	-	0.062

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY BJB DATE 5/28/15
CHECKED BY EPS DATE 5/28/15

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 2	• 581	• 846	• 0	• 0	• 4
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• 3%	
Satd. Flow (prot)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 0%	• 6%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 620	• 900	• 0	• 4	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 54.5% ICU Level of Service A
 Analysis Period (min) 15

DONE BY BTM DATE 5/28/15
 CHECKED BY EPB DATE 5/28/15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	581	846	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	6	2	0	0	0
Mvmt Flow	2	618	900	0	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	900	0	1522
Stage 1	-	-	900
Stage 2	-	-	622
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	763	-	102
Stage 1	-	-	344
Stage 2	-	-	486
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	763	-	102
Mov Capacity-2 Maneuver	-	-	102
Stage 1	-	-	344
Stage 2	-	-	484

Approach	EB	WB	SB
HCM Control Delay, s	0	0	16.6
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	763	-	-	-	315
HCM Lane V/C Ratio	0.003	-	-	-	0.014
HCM Control Delay (s)	9.731	0	-	-	16.6
HCM Lane LOS	A	A			C
HCM 95th %tile Q(veh)	0.008	-	-	-	0.041

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/28/15
CHECKED BY EPB DATE 5/28/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	450	119	263	746	7	103	18	45	31	50	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1707	1593	1580	1881	0	1565	1740	1500	1588	1775	0
Flt Permitted	0.285			0.324			0.479			0.744		
Satd. Flow (perm)	486	1707	1548	538	1881	0	788	1740	1464	1239	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141		1				96		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)	1		3	3		1	1		2	2		1
Confl. Bikes (#/hr)			3	3								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	7%	4%	2%	3%	0%	2%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	500	132	292	837	0	114	20	50	34	59	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	54.0	54.0	54.0	12.0	66.0		22.0	34.0	34.0	12.0	12.0	
Total Split (%)	54.0%	54.0%	54.0%	12.0%	66.0%		22.0%	34.0%	34.0%	12.0%	12.0%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	53.0	53.0	53.0	67.5	67.5		23.6	23.6	23.6	9.1	9.1	
Actuated g/C Ratio	0.53	0.53	0.53	0.68	0.68		0.24	0.24	0.24	0.09	0.09	
v/c Ratio	0.02	0.55	0.15	0.63	0.66		0.40	0.05	0.12	0.30	0.36	
Control Delay	7.0	14.6	2.5	11.7	10.7		33.5	26.1	1.4	49.4	47.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	7.0	14.6	2.5	11.7	10.7		33.5	26.1	1.4	49.4	47.7	
LOS	A	B	A	B	B		C	C	A	D	D	
Approach Delay		12.1			11.0			24.0			48.3	
Approach LOS		B			B			C			D	

Intersection Summary

DONE BY BJM DATE 5/28/15
CHECKED BY EJA DATE 5/29/15

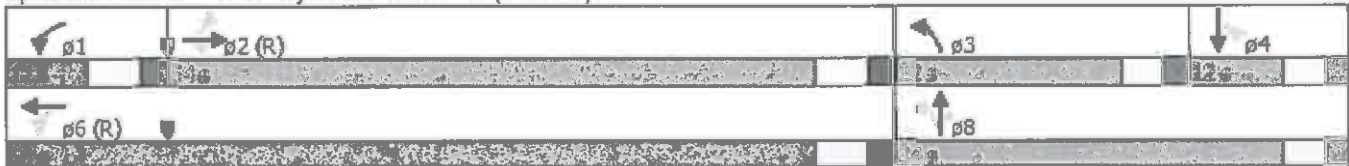
Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 3 (3%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 70
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.66
 Intersection Signal Delay: 14.2
 Intersection Capacity Utilization: 74.9%
 Analysis Period (min): 15
 Intersection LOS: B
 ICU Level of Service: D

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DESIGNED BY RSB DATE 5/28/15
 CHECKED BY EPB DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	358	119	47	750	151	233	193	96	141	121	41
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1422	1508	0	1367	1575	0	1493	1512	1298	1434	1515	0
Flt Permitted	0.084			0.301			0.277			0.629		
Satd. Flow (perm)	126	1508	0	433	1575	0	435	1512	1298	949	1515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		22			14				152			14
Link Speed (mph)		35			35			35				35
Link Distance (ft)		950			214			348				1493
Travel Time (s)		18.5			4.2			6.8				29.1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	1%	7%	2%	3%	2%	6%	5%	1%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	19	508	0	50	959	0	248	205	102	150	173	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.6	15.6		12.6	15.6		12.7	15.7	15.7	12.7	15.7	15.7
Total Split (s)	12.0	51.0		12.0	51.0		21.0	24.0	24.0	13.0	16.0	16.0
Total Split (%)	12.0%	51.0%		12.0%	51.0%		21.0%	24.0%	24.0%	13.0%	16.0%	16.0%
Yellow Time (s)	3.6	3.6		3.6	3.6		3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.6	4.6		4.6	4.6		4.7	4.7	4.7	4.7	4.7	4.7
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	54.5	48.8		56.6	53.6		32.3	19.3	19.3	20.0	11.7	
Actuated g/C Ratio	0.54	0.49		0.57	0.54		0.32	0.19	0.19	0.20	0.12	
v/c Ratio	0.12	0.68		0.16	1.13		0.81	0.70	0.27	0.65	0.91	
Control Delay	10.8	16.0		10.3	97.1		49.2	52.2	3.6	43.1	88.1	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	10.8	16.0		10.3	97.1		49.2	52.2	3.6	43.1	88.1	
LOS	B	B		B	F		D	D	A	D	F	
Approach Delay		15.8			92.8			41.9			67.2	
Approach LOS		B			F			D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 100

DESIGNED BY BOB DATE 5/20/15
 CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.13

Intersection Signal Delay: 60.9

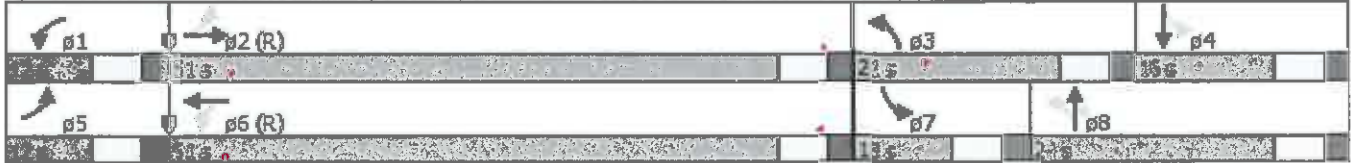
Intersection LOS: E

Intersection Capacity Utilization: 92.8%

ICU Level of Service: F

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Volume (vph)	52	545	820	0	0	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1921	2039	0	1817	0
Flt Permitted		0.996				
Satd. Flow (perm)	0	1921	2039	0	1817	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	635	872	0	115	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 85.2% ICU Level of Service E
 Analysis Period (min) 15

DONE BY ASB DATE 5/28/15
 CHECKED BY EPB DATE 5/28/15

Intersection

Intersection Delay, s/veh 1.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	52	545	820	0	0	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	5	3	0	0	2
Mvmt Flow	55	580	872	0	0	115

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	872	0	872
Stage 1	-	-	872
Stage 2	-	-	690
Follow-up Headway	2.254	-	3.5
Pot Capacity-1 Maneuver	757	-	342
Stage 1	-	-	393
Stage 2	-	-	483
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	757	-	342
Mov Capacity-2 Maneuver	-	-	102
Stage 1	-	-	393
Stage 2	-	-	431

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	20.8
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLr1
Capacity (veh/h)	757	-	-	-	342
HCM Lane V/C Ratio	0.073	-	-	-	0.336
HCM Control Delay (s)	10.13	0	-	-	20.8
HCM Lane LOS	B	A			C
HCM 95th %tile Q(veh)	0.236	-	-	-	1.444

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJS DATE 5/20/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	15	0	21	1	1	3	322	123	12	23	39	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Flt Permitted		0.950			0.992		0.950			0.950		
Satd. Flow (perm)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds (#/hr)							6		13	13		6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	18	25	0	6	0	388	162	0	28	455	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 54.7%

ICU Level of Service A

Analysis Period (min) 15

DONE BY BSTB DATE 5/28/15
 CHECKED BY Eps DATE 5/28/15

Intersection	
Intersection Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	15	0	21	1	1	3	322	123	12	23	39	339
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	13	13	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	0	0	0	0	0	0	2	0	0	13	0
Mvmt Flow	18	0	25	1	1	4	388	148	14	28	47	408

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1241	1246	264	1238	1442	168	455	0	0	163	0	0
Stage 1	307	307	-	931	931	-	-	-	-	-	-	-
Stage 2	934	939	-	307	511	-	-	-	-	-	-	-
Follow-up Headway	3.563	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	182	216	797	117	97	865	1116	-	-	1428	-	-
Stage 1	729	699	-	262	283	-	-	-	-	-	-	-
Stage 2	365	404	-	661	482	-	-	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	127	137	788	80	62	856	1104	-	-	1413	-	-
Mov Capacity-2 Maneuver	127	137	-	80	62	-	-	-	-	-	-	-
Stage 1	473	685	-	170	184	-	-	-	-	-	-	-
Stage 2	232	262	-	620	472	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	21.8	29	7.1	0.4
HCM LOS	C	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1104	-	-	173	788	156	1413	-	-
HCM Lane V/C Ratio	0.351	-	-	0.153	0.021	0.039	0.02	-	-
HCM Control Delay (s)	10.017	-	-	29.5	9.7	29	7.599	-	-
HCM Lane LOS	B	-	-	D	A	D	A	-	-
HCM 95th %tile Q(veh)	1.597	-	-	0.528	0.066	0.12	0.06	-	-

Notes

- Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/20/15
 CHECKED BY Ejs DATE 5/21/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	19	3	38	0	0	1	182	120	1	6	53	262
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	45	15	15	10	40	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1628	0	0	1826	0	0	1717	0	0	1571	0
Flt. Permitted		0.984						0.971			0.999	
Satd. Flow (perm)	0	1628	0	0	1826	0	0	1717	0	0	1571	0
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	11%	0%	0%	0%	1%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	73	0	0	1	0	0	369	0	0	392	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 55.9% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BSM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Intersection

Intersection Delay, s/veh 10.7
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	19	3	38	0	0	1	182	120	1	6	53	262
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	11	0	0	0	1	3	0	0	2	0
Mvmt Flow	23	4	46	0	0	1	222	146	1	7	65	320
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.8	8.1	11.7	10.1
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	32%	0%	2%
Vol Thru, %	40%	5%	0%	17%
Vol Right, %	0%	63%	100%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	303	60	1	321
LT Vol	120	3	0	53
Through Vol	1	38	1	262
RT Vol	182	19	0	6
Lane Flow Rate	370	73	1	391
Geometry Grp	1	1	1	1
Degree of Util (X)	0.472	0.105	0.002	0.436
Departure Headway (Hd)	4.596	5.163	5.009	4.008
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	783	691	709	896
Service Time	2.629	3.219	3.077	2.036
HCM Lane V/C Ratio	0.473	0.106	0.001	0.436
HCM Control Delay	11.7	8.8	8.1	10.1
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.6	0.4	0	2.2

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

BY ATB DATE 5/28/15
 BY EP DATE 5/28/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	• W			• ↑	• ↑	
Volume (vph)	• 79	• 49	• 275	• 442	• 245	• 51
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	1900
Lane Width (ft)	• 9	• 9	• 10	• 10	• 14	• 14
Grade (%)	• 0%			• 1%	• -4%	
Satd. Flow (prot)	• 1563	• 0	• 0	• 1703	• 1929	• 0
Flt Permitted	• 0.970			• 0.981		
Satd. Flow (perm)	• 1563	• 0	• 0	• 1703	• 1929	• 0
Link Speed (mph)	• 35			• 35	• 35	
Link Distance (ft)	• 1171			• 1607	• 348	
Travel Time (s)	• 22.8			• 31.3	• 6.8	
Peak Hour Factor	• 0.91	• 0.91	• 0.91	• 0.91	• 0.91	0.91
Heavy Vehicles (%)	• 1%	• 0%	• 1%	• 2%	• 4%	• 8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 141	• 0	• 0	• 788	• 325	• 0
Sign Control	• Stop			• Free	• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 71.8% ICU Level of Service C
 Analysis Period (min) 15

DONE BY BTB DATE 5/28/15
 CHECKED BY efg DATE 5/28/15

HCM 2010 TWSC
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 13.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	79	49	275	442	245	51
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	1	2	4	8
Mvmt Flow	87	54	302	486	269	56

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1387	297	325	0	-	0
Stage 1	297	-	-	-	-	-
Stage 2	1090	-	-	-	-	-
Follow-up Headway	3.509	3.3	2.209	-	-	-
Pot Capacity-1 Maneuver	158	747	1240	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	324	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-
Mov Capacity-1 Maneuver	105	747	1240	-	-	-
Mov Capacity-2 Maneuver	105	-	-	-	-	-
Stage 1	756	-	-	-	-	-
Stage 2	216	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	105.2	3.4	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1240	-	156	-	-
HCM Lane V/C Ratio	0.244	-	0.902	-	-
HCM Control Delay (s)	8.836	0	105.2	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.959	-	6.367	-	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DESIGNED BY BDB DATE 5/20/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖	↖	↖	↖		↖	↖	
Volume (vph)	184	194	0	0	65	29	32	19	31	44	0	66
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1714	0	0	1681	1628	1727	1420	0	1668	1478	0
Flt Permitted		0.804					0.702			0.716		
Satd. Flow (perm)	0	1412	0	0	1681	1590	1276	1420	0	1257	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						48		39			934	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	3		2	2		3						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	3%	1%	0%	0%	14%	0%	0%	0%	26%	2%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	479	0	0	82	37	41	63	0	56	84	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	36.0	36.0			36.0	36.0	35.7	35.7		35.7	35.7	
Total Split (%)	33.7%	33.7%			33.7%	33.7%	33.5%	33.5%		33.5%	33.5%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effct Green (s)		31.2			31.2	31.2	10.3	10.3		10.3	10.3	
Actuated g/C Ratio		0.37			0.37	0.37	0.12	0.12		0.12	0.12	
v/c Ratio		0.91			0.13	0.06	0.26	0.30		0.36	0.08	
Control Delay		51.4			20.2	4.9	38.4	21.2		41.5	0.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		51.4			20.2	4.9	38.4	21.2		41.5	0.2	
LOS		D			C	A	D	C		D	A	
Approach Delay		51.4			15.4			28.0			16.7	
Approach LOS		D			B			C			B	

Intersection Summary

Area Type: Other

ONE BY BTB DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lane Group		09
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases		-9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)		- 33.0
Minimum Split (s)		- 35.0
Total Split (s)		- 35.0
Total Split (%)		- 33%
Yellow Time (s)		- 2.0
All-Red Time (s)		- 0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode		- Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

DONE BY BMB DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 106.7

Actuated Cycle Length: 83.9

Natural Cycle: 90

Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 37.6






Intersection LOS: D

Intersection Capacity Utilization: 45.5%

ICU Level of Service: A

Analysis Period (min): 15

Splits and Phases: 13: Centerview Dr & Campus Dr

 p2	 p4	 p9
 p6	 p8	

DONE BY BJB DATE 5/28/15
CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	• ↙	• ↑	• ↗	• ↙	• ↑	• ↗	• ↙	• ↑	• ↗	• ↙	• ↑	• ↗
Volume (vph)	76	457	106	62	746	227	233	218	99	35	53	44
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1507	1719	1851	1522	1833	1809	1640	1736	1666	0
Flt Permitted	0.132			0.366			0.401			0.618		
Satd. Flow (perm)	236	1756	1480	660	1851	1522	774	1809	1587	1118	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109			200			102		32	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)			8	8					7	7		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	78	471	109	64	769	234	240	225	102	36	100	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.0	42.7	12.4	12.0	42.7	42.7	12.4	32.4	32.4	12.0	12.0	
Total Split (s)	12.0	51.0	25.0	12.0	51.0	51.0	25.0	37.0	37.0	12.0	12.0	
Total Split (%)	12.0%	51.0%	25.0%	12.0%	51.0%	51.0%	25.0%	37.0%	37.0%	12.0%	12.0%	
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	
Act Effect Green (s)	57.3	51.4	68.8	57.2	51.4	51.4	29.9	29.9	29.9	8.4	8.4	
Actuated g/C Ratio	0.57	0.51	0.69	0.57	0.51	0.51	0.30	0.30	0.30	0.08	0.08	
v/c Ratio	0.32	0.52	0.10	0.14	0.81	0.27	0.58	0.42	0.19	0.39	0.60	
Control Delay	12.7	20.5	1.1	12.0	31.3	6.4	33.8	30.0	5.9	56.2	46.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.7	20.5	1.1	12.0	31.3	6.4	33.8	30.0	5.9	56.2	46.3	
LOS	B	C	A	B	C	A	C	C	A	E	D	
Approach Delay		16.4			24.7			27.3			48.9	
Approach LOS		B			C			C			D	

Intersection Summary

Area Type: Other

DONE BY AMS DATE 5/20/15
CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 60 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 24.4

Intersection LOS: C

Intersection Capacity Utilization 80.5%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY ASD DATE 5/28/15

CHECKED BY E:PS DATE 5/28/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	483	44	48	593	69	324	77	183	36	17	30
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1807	0	1693	1737	0	0	1704	1624	0	1868	0
Fit Permitted	0.338			0.286				0.726			0.559	
Satd. Flow (perm)	604	1807	0	507	1737	0	0	1284	1565	0	1064	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			11				189		29	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	3		11	11		3	2		8	8		2
Confl. Bikes (#/hr)			4	4								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	5%	2%	3%	0%	1%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	543	0	49	682	0	0	413	189	0	86	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	11.9
Total Split (s)	52.0	52.0		14.0	66.0		34.0	34.0	34.0	34.0	34.0	34.0
Total Split (%)	52.0%	52.0%		14.0%	66.0%		34.0%	34.0%	34.0%	34.0%	34.0%	34.0%
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Total Lost Time (s)	4.1	4.1		4.1	4.1		4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	52.3	52.3		61.9	61.9			29.6	29.6		29.6	
Actuated g/C Ratio	0.52	0.52		0.62	0.62			0.30	0.30		0.30	
v/c Ratio	0.04	0.57		0.12	0.63			1.09	0.32		0.26	
Control Delay	9.9	21.3		6.7	12.5			106.7	5.6		20.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	9.9	21.3		6.7	12.5			106.7	5.6		20.8	
LOS	A	C		A	B			F	A		C	
Approach Delay		21.0			12.1			75.0			20.8	
Approach LOS		C			B			E			C	

Intersection Summary

DONE BY ADW DATE 5/20/15
 CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 99 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.09
Intersection Signal Delay: 34.1
Intersection Capacity Utilization: 79.1%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: D

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 11	• 713	• 712	• 4	• 3	• 8
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 1%	• 0%		• -3%	
Satd. Flow (prot)	• 0	• 1756	• 1799	• 0	• 1725	• 0
Flt Permitted		• 0.999			• 0.987	
Satd. Flow (perm)	• 0	• 1756	• 1799	• 0	• 1725	• 0
Link Speed (mph)		• 35	• 30		• 25	
Link Distance (ft)		• 921	• 400		• 1058	
Travel Time (s)		• 17.9	• 9.1		• 28.9	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 0%	• 4%	• 2%	• 0%	• 0%	• 13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 731	• 723	• 0	• 11	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.3% ICU Level of Service B
 Analysis Period (min) 15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	11	713	712	4	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	4	2	0	0	13
Mvmt Flow	11	720	719	4	3	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	723	0	1463
Stage 1	-	-	721
Stage 2	-	-	742
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	889	-	183
Stage 1	-	-	547
Stage 2	-	-	537
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	889	-	179
Mov Capacity-2 Maneuver	-	-	179
Stage 1	-	-	547
Stage 2	-	-	526

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	16.9
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	889	-	-	-	313
HCM Lane V/C Ratio	0.012	-	-	-	0.035
HCM Control Delay (s)	9.101	0	-	-	16.9
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.038	-	-	-	0.11

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•			•			•			•	
Volume (vph)	43	648	0	0	711	12	2	0	0	1	0	12
Ideal Flow (vphpl)	1900	• 1900	1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	1900
Lane Width (ft)	• 11	• 11	• 11	• 11	11	• 11	• 10	• 10	• 10	• 16	• 16	• 16
Grade (%)		• -2%	•		• 1%			• 7%			• 1%	
Satd Flow (prot)	• 0	• 1797	• 0	• 0	• 1784	• 0	• 0	• 1626	• 0	• 0	• 1739	• 0
Flt Permitted		• 0.997						• 0.950			• 0.996	
Satd Flow (perm)	• 0	• 1797	• 0	• 0	• 1784	• 0	• 0	• 1626	• 0	• 0	• 1739	• 0
Link Speed (mph)		• 35			• 35			• 30			• 25	
Link Distance (ft)		• 400			• 375			• 85			• 1017	
Travel Time (s)		• 7.8			• 7.3			• 1.9			• 27.7	
Confl. Peds. (#/hr)	• 1		• 7	• 7		• 1						
Peak Hour Factor	• 0.98	• 0.98	• 0.98	0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98
Heavy Vehicles (%)	• 2%	• 3%	• 0%	• 0%	• 2%	17%	• 0%	• 0%	• 0%	• 0%	• 0%	• 8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 705	• 0	• 0	• 738	• 0	• 0	• 2	• 0	• 0	• 13	• 0
Sign Control		• Free			• Free			• Stop			• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 79.4% ICU Level of Service D
 Analysis Period (min) 15

HCM 2010 TWSC
4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Intersection	
Intersection Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	43	648	0	0	711	12	2	0	0	1	0	12
Conflicting Peds, #/hr	1	0	7	7	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	3	0	0	2	17	0	0	0	0	0	8
Mvmt Flow	44	661	0	0	726	12	2	0	0	1	0	12

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	738	0	0	661
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.2
Pot Capacity-1 Maneuver	868	-	-	937
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	863	-	-	932
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	77	17
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	52	863	-	-	932	-	-	314
HCM Lane V/C Ratio	0.039	0.051	-	-	-	-	-	0.042
HCM Control Delay (s)	77	9.395	0	-	0	-	-	17
HCM Lane LOS	F	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.12	0.16	-	-	0	-	-	0.132

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↖	
Volume (vph)	• 4	• 672	• 714	• 3	• 0	• 0
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 16	• 16
Grade (%)		• -1%	• 0%		• 1%	
Satd. Flow (prot)	• 0	• 1775	• 1799	• 0	• 2143	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1775	• 1799	• 0	• 2143	• 0
Link Speed (mph)		• 30	• 30		• 25	
Link Distance (ft)		• 375	• 379		• 801	
Travel Time (s)		• 8.5	• 8.6		• 21.8	
Peak Hour Factor	0.97	• 0.97	• 0.97	0.97	• 0.97	• 0.97
Heavy Vehicles (%)	• 0%	• 4%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 697	• 739	• 0	• 0	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

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

DONE BY BJA DATE 5/28/15
 CHECKED BY EPS DATE 5/28/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

5/20/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	672	714	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	2	0	0	0
Mvmt Flow	4	693	736	3	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	739	0	1439
Stage 1	-	-	738
Stage 2	-	-	701
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	876	-	137
Stage 1	-	-	457
Stage 2	-	-	477
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	876	-	136
Mov Capacity-2 Maneuver	-	-	136
Stage 1	-	-	457
Stage 2	-	-	474

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	0
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	876	-	-	-	0
HCM Lane V/C Ratio	0.005	-	-	-	+
HCM Control Delay (s)	9.129	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.014	-	-	-	+

Notes

- Volume Exceeds Capacity; \$ Delay Exceeds 300 Seconds, Error Computation Not Defined

Lanes, Volumes, Timings

6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 4	• 670	• 714	• 5	• 0	• 2
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• 3%	
Satd. Flow (prot)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 0%	• 3%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 681	• 726	• 0	• 2	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 48.4% ICU Level of Service A
 Analysis Period (min) 15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	670	714	5	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	4	677	721	5	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	726	0	1409
Stage 1	-	-	724
Stage 2	-	-	685
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	886	-	122
Stage 1	-	-	429
Stage 2	-	-	450
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	886	-	121
Mov Capacity-2 Maneuver	-	-	121
Stage 1	-	-	429
Stage 2	-	-	447

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	886	-	-	-	404
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	9.082	0	-	-	14
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.014	-	-	-	0.015

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	515	128	91	507	36	162	43	281	24	38	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1774	1640	1565	1864	0	1580	1740	1530	1588	1637	0
Flt Permitted	0.452			0.322			0.479			0.728		
Satd. Flow (perm)	771	1774	1603	530	1864	0	794	1740	1530	1217	1637	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141		7				293		14	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			1	1			2					2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	1%	3%	3%	3%	1%	0%	0%	0%	3%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	536	133	95	566	0	169	45	293	25	54	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	57.0	57.0	57.0	12.0	69.0		16.0	31.0	31.0	15.0	15.0	
Total Split (%)	57.0%	57.0%	57.0%	12.0%	69.0%		16.0%	31.0%	31.0%	15.0%	15.0%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	58.2	58.2	58.2	68.4	68.4		22.7	22.7	22.7	9.0	9.0	
Actuated g/C Ratio	0.58	0.58	0.58	0.68	0.68		0.23	0.23	0.23	0.09	0.09	
v/c Ratio	0.02	0.52	0.13	0.21	0.44		0.62	0.11	0.51	0.23	0.34	
Control Delay	20.0	29.9	10.9	6.6	7.4		42.8	29.0	7.0	46.6	39.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	20.0	29.9	10.9	6.6	7.4		42.8	29.0	7.0	46.6	39.1	
LOS	B	C	B	A	A		D	C	A	D	D	
Approach Delay		26.0			7.3			20.9			41.5	
Approach LOS		C			A			C			D	

Intersection Summary

DONE BY BSM DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings







7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 8 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.62
 Intersection Signal Delay: 18.9
 Intersection Capacity Utilization: 66.4%
 Analysis Period (min): 15

Intersection LOS: B
 ICU Level of Service: C

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)

 p1  p2 (R)	 p3 16 s	 p4 15 s
 p6 (R)	 p8 31 s	

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	• ↙	• ↘		• ↙	• ↘		• ↙	• ↘	• ↘	• ↙	• ↘	
Volume (vph)	• 54	• 749	• 151	• 100	• 436	• 156	• 155	• 199	• 120	• 226	• 257	• 32
Ideal Flow (vphpl)	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650	• 1650
Lane Width (ft)	• 11	• 12	• 12	• 10	• 12	• 12	• 11	• 11	• 11	• 10	• 12	• 12
Grade (%)		• 1%			• 0%			• -1%			• -2%	
Storage Length (ft)	• 150		• 0	• 0		• 0	• 135		• 90	• 125		• 0
Storage Lanes	• 1		• 0	• 1		• 0	• 1		• 1	• 1		• 0
Taper Length (ft)	• 25			• 25			• 25			• 25		
Satd. Flow (prot)	• 1508	• 1585	• 0	• 1463	• 1536	• 0	• 1508	• 1587	• 1363	• 1448	• 1578	• 0
Flt Permitted	• 0.215			• 0.089			• 0.330			• 0.286		
Satd. Flow (perm)	• 341	• 1585	• 0	• 137	• 1536	• 0	• 524	• 1587	• 1363	• 436	• 1578	• 0
Right Turn on Red			• Yes			• Yes			• Yes			• Yes
Satd. Flow (RTOR)		• 13			• 23				• 152		• 6	
Link Speed (mph)		• 35			• 35			• 35			• 35	
Link Distance (ft)		• 950			• 214			• 348			• 1493	
Travel Time (s)		• 18.5			• 4.2			• 6.8			• 29.1	
Peak Hour Factor	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98
Heavy Vehicles (%)	• 0%	• 1%	• 1%	• 0%	• 4%	• 1%	• 1%	• 1%	• 0%	• 0%	• 2%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 55	• 918	• 0	• 102	• 604	• 0	• 158	• 203	• 122	• 231	• 295	• 0
Turn Type	• pm+pt	• NA		• pm+pt	• NA		• pm+pt	• NA	• Perm	• pm+pt	• NA	
Protected Phases	• 5	• 2		• 1	• 6		• 3	• 8		• 7	• 4	
Permitted Phases	• 2			• 6			• 8		• 8	• 4		
Detector Phase	• 5	• 2		• 1	• 6		• 3	• 8	• 8	• 7	• 4	
Switch Phase												
Minimum Initial (s)	• 3.0	• 10.0		• 3.0	• 10.0		• 3.0	• 3.0	• 3.0	• 3.0	• 3.0	
Minimum Split (s)	• 12.6	• 15.6		• 12.6	• 15.6		• 12.7	• 15.7	• 15.7	• 12.7	• 15.7	
Total Split (s)	• 12.0	• 48.0		• 12.0	• 48.0		• 16.0	• 19.0	• 19.0	• 21.0	• 24.0	
Total Split (%)	• 12.0%	• 48.0%		• 12.0%	• 48.0%		• 16.0%	• 19.0%	• 19.0%	• 21.0%	• 24.0%	
Yellow Time (s)	• 3.6	• 3.6		• 3.6	• 3.6		• 3.7	• 3.7	• 3.7	• 3.7	• 3.7	
All-Red Time (s)	• 2.0	• 2.0		• 2.0	• 2.0		• 2.0	• 2.0	• 2.0	• 2.0	• 2.0	
Lost Time Adjust (s)	• -1.0	• -1.0		• -1.0	• -1.0		• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	
Total Lost Time (s)	• 4.6	• 4.6		• 4.6	• 4.6		• 4.7	• 4.7	• 4.7	• 4.7	• 4.7	
Lead/Lag	• Lead	• Lag		• Lead	• Lag		• Lead	• Lag	• Lag	• Lead	• Lag	
Lead-Lag Optimize?												
Recall Mode	• None	• C-Max		• None	• C-Max		• None	• None	• None	• None	• None	
Act Effct Green (s)	50.6	43.4		51.7	45.8		26.0	15.0	15.0	35.0	19.6	
Actuated g/C Ratio	0.51	0.43		0.52	0.46		0.26	0.15	0.15	0.35	0.20	
v/c Ratio	0.21	1.32		0.61	0.84		0.65	0.86	0.37	0.75	0.94	
Control Delay	15.6	179.7		31.6	37.0		38.0	74.2	6.8	41.5	77.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	15.6	179.7		31.6	37.0		38.0	74.2	6.8	41.5	77.8	
LOS	B	F		C	D		D	E	A	D	E	
Approach Delay		170.5			36.2			45.3			61.8	
Approach LOS		F			D			D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 100

P:\0024\002484_0476\Admin\Traffic\SYNCHRO\2015 Existing PM.syn

DONE BY BSTB DATE 5/28/15
 CHECKED BY efs DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.32

Intersection Signal Delay: 91.5

Intersection LOS: F

Intersection Capacity Utilization: 105.5%

ICU Level of Service: G

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

<p>φ1</p>	<p>φ2 (R)</p>	<p>φ3</p>	<p>φ4</p>
<p>φ5</p>	<p>φ6 (R)</p>	<p>φ7</p>	<p>φ8</p>

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↖		• ↖	
Volume (vph)	• 104	• 883	• 596	• 1	• 0	• 96
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 14	• 14	• 15	• 15	• 16	• 16
Grade (%)		• 0%	• -1%		• 1%	
Satd. Flow (prot)	• 0	• 1999	• 2039	• 0	• 1853	• 0
Flt Permitted		0.995				
Satd. Flow (perm)	• 0	• 1999	• 2039	• 0	• 1853	• 0
Link Speed (mph)		• 35	• 35		• 35	
Link Distance (ft)		• 214	• 1855		• 620	
Travel Time (s)		• 4.2	• 36.1		• 12.1	
Conf. Peds. (#/hr)	• 2			• 2		
Peak Hour Factor	• 0.95	• 0.95	• 0.95	• 0.95	• 0.95	• 0.95
Heavy Vehicles (%)	• 0%	• 1%	• 3%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 1038	• 628	• 0	• 101	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 99.6% ICU Level of Service F
 Analysis Period (min) 15

DONE BY BSM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Intersection

Intersection Delay, s/veh 1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	104	883	596	1	0	96
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	109	929	627	1	0	101

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	628	0	1776
Stage 1	-	-	628
Stage 2	-	-	1148
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	964	-	83
Stage 1	-	-	517
Stage 2	-	-	286
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	962	-	64
Mov Capacity-2 Maneuver	-	-	64
Stage 1	-	-	517
Stage 2	-	-	219

Approach	EB	WB	SB
HCM Control Delay, s	1	0	14.6
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	962	-	-	-	476
HCM Lane V/C Ratio	0.114	-	-	-	0.212
HCM Control Delay (s)	9.222	0	-	-	14.6
HCM Lane LOS	A	A			B
HCM 95th %tile Q(veh)	0.384	-	-	-	0.795

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY ASD DATE 5/28/15
 CHECKED BY ES DATE 5/29/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	396	6	339	0	0	1	19	106	2	10	138	31	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Grade (%)		-3%			4%			-2%			0%		
Storage Length (ft)	0		150	0		0	125		0	125		0	
Storage Lanes	0		1	0		0	1		0	1		0	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	0	1838	1639	0	1611	0	1823	1878	0	1805	1849	0	
Flt Permitted		0.953					0.950			0.950			
Satd. Flow (perm)	0	1838	1639	0	1611	0	1823	1878	0	1805	1849	0	
Link Speed (mph)		25			15			25			25		
Link Distance (ft)		1016			81			540			763		
Travel Time (s)		27.7			3.7			14.7			20.8		
Confl Peds (#/hr)							4					4	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	0	473	399	0	1	0	22	127	0	12	198	0	
Sign Control		Stop			Stop			Free			Free		

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 51.4% ICU Level of Service A
 Analysis Period (min) 15

HCM 2010 TWSC
10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Intersection

Intersection Delay, s/veh 24.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	396	6	339	0	0	1	19	106	2	10	138	31
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	466	7	399	0	0	1	22	125	2	12	162	36

Major/Minor	Minor2		Minor1			Major1			Major2			
Conflicting Flow All	375	376	185	379	393	130	199	0	0	127	0	0
Stage 1	204	204	-	171	171	-	-	-	-	-	-	-
Stage 2	171	172	-	208	222	-	-	-	-	-	-	-
Follow-up Headway	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	624	595	876	535	501	912	1385	-	-	1472	-	-
Stage 1	830	762	-	804	733	-	-	-	-	-	-	-
Stage 2	860	782	-	763	689	-	-	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	610	581	873	282	489	909	1380	-	-	1467	-	-
Mov Capacity-2 Maneuver	610	581	-	282	489	-	-	-	-	-	-	-
Stage 1	817	756	-	791	721	-	-	-	-	-	-	-
Stage 2	842	770	-	406	683	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.5	9	1.1	0.4
HCM LOS	D	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1380	-	-	653	873	909	1467	-	-
HCM Lane V/C Ratio	0.016	-	-	0.928	0.305	0.001	0.008	-	-
HCM Control Delay (s)	7.652	-	-	44.9	10.9	9	7.474	-	-
HCM Lane LOS	A	-	-	E	B	A	A	-	-
HCM 95th %tile Q(veh)	0.049	-	-	12.413	1.292	0.004	0.024	-	-

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY ROM DATE 5/25/15
CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		• ↕			• ↕			• ↕			• ↕	
Volume (vph)	• 287	• 6	• 168	• 0	• 1	• 2	• 81	• 101	• 0	• 4	• 141	• 39
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 13	• 13	• 13	• 15	• 15	• 15	• 10	• 10	• 10	• 10	• 10	• 10
Grade (%)		• 3%			• -2%			• -3%			• 0%	
Satd. Flow (prot)	• 0	• 1784	• 0	• 0	• 1921	• 0	• 0	• 1735	• 0	• 0	• 1722	• 0
Flt Permitted		• 0.970						• 0.978			• 0.999	
Satd. Flow (perm)	• 0	• 1784	• 0	• 0	• 1921	• 0	• 0	• 1735	• 0	• 0	• 1722	• 0
Link Speed (mph)		• 25			• 25			• 35			• 30	
Link Distance (ft)		• 540			• 357			• 1410			• 1171	
Travel Time (s)		• 14.7			• 9.7			• 27.5			• 26.6	
Confl. Peds. (#/hr)			• 4	• 4			• 1					• 1
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 0%	• 0%	• 0%	• 0%	• 0%	• 0%	• 2%	• 1%	• 0%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 490	• 0	• 0	• 3	• 0	• 0	• 193	• 0	• 0	• 195	• 0
Sign Control		• Stop			• Stop			• Stop			• Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 63.3%

ICU Level of Service B

Analysis Period (min) 15

Intersection

Intersection Delay, s/veh 14.1
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	287	6	168	0	1	2	81	101	0	4	141	39
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	2	1	0	0	0	0
Mvmt Flow	305	6	179	0	1	2	86	107	0	4	150	41
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	16.8	8.4	11.1	10.6
HCM LOS	C	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	62%	0%	2%
Vol Thru, %	55%	1%	33%	77%
Vol Right, %	0%	36%	67%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	461	3	184
LT Vol	101	6	1	141
Through Vol	0	168	2	39
RT Vol	81	287	0	4
Lane Flow Rate	194	490	3	196
Geometry Grp	1	1	1	1
Degree of Util (X)	0.303	0.655	0.005	0.294
Departure Headway (Hd)	5.639	4.919	5.342	5.399
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	641	741	670	669
Service Time	3.647	2.919	3.373	3.407
HCM Lane V/C Ratio	0.303	0.661	0.004	0.293
HCM Control Delay	11.1	16.8	8.4	10.6
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.3	4.9	0	1.2

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	•			•	•	
Volume (vph)	• 97	• 287	• 85	• 369	• 374	• 108
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 9	• 9	• 10	• 10	• 14	• 14
Grade (%)	• 0%			• 1%	• 4%	
Satd. Flow (prot)	• 1511	• 0	• 0	• 1734	• 1975	• 0
Flt Permitted	• 0.988			• 0.991		
Satd. Flow (perm)	1511	• 0	• 0	• 1734	• 1975	• 0
Link Speed (mph)	• 35			• 35	• 35	
Link Distance (ft)	• 1171			• 1607	• 348	
Travel Time (s)	• 22.8			• 31.3	• 6.8	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 2%	• 0%	• 0%	• 1%	• 2%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 388	• 0	• 0	• 459	• 487	• 0
Sign Control	Stop			• Free	• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 83.4% ICU Level of Service E
 Analysis Period (min) 15

Intersection

Intersection Delay, s/veh 13.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	97	287	85	369	374	108
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	2	0
Mvmt Flow	98	290	86	373	378	109

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	976	432	487
Stage 1	432	-	-
Stage 2	544	-	-
Follow-up Headway	3.518	3.3	2.2
Pot Capacity-1 Maneuver	279	628	1086
Stage 1	655	-	-
Stage 2	582	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	251	628	1086
Mov Capacity-2 Maneuver	251	-	-
Stage 1	655	-	-
Stage 2	524	-	-

Approach	EB	NB	SB
HCM Control Delay, s	44	1.6	0
HCM LOS	E		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1086	-	455	-	-
HCM Lane V/C Ratio	0.079	-	0.852	-	-
HCM Control Delay (s)	8.599	0	44	-	-
HCM Lane LOS	A	A	E	-	-
HCM 95th %tile Q(veh)	0.257	-	8.574	-	-

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	112	62	0	0	217	104	84	39	13	31	0	174
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1685	0	0	1842	1628	1661	1541	0	1652	1492	0
Flt Permitted		0.528					0.449			0.717		
Satd. Flow (perm)	0	918	0	0	1842	1592	785	1541	0	1247	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						124		15			736	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	2		3	3		2						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	0%	0%	4%	0%	4%	3%	46%	3%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	207	0	0	258	124	100	61	0	37	207	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	36.0	36.0			36.0	36.0	35.7	35.7		35.7	35.7	
Total Split (%)	33.7%	33.7%			33.7%	33.7%	33.5%	33.5%		33.5%	33.5%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effct Green (s)		26.4			26.4	26.4	16.1	16.1		16.1	16.1	
Actuated g/C Ratio		0.30			0.30	0.30	0.18	0.18		0.18	0.18	
v/c Ratio		0.75			0.47	0.22	0.70	0.21		0.16	0.24	
Control Delay		47.4			28.8	5.9	59.9	26.4		32.4	0.6	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		47.4			28.8	5.9	59.9	26.4		32.4	0.6	
LOS		D			C	A	E	C		C	A	
Approach Delay		47.4			21.4			47.2			5.5	
Approach LOS		D			C			D			A	

Intersection Summary

Area Type: Other

DONE BY BOM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Lane Group	09
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	• 9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	• 33.0
Minimum Split (s)	• 35.0
Total Split (s)	• 35.0
Total Split (%)	• 33%
Yellow Time (s)	• 2.0
All-Red Time (s)	• 0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	• Min
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary






Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 106.7
Actuated Cycle Length: 88
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 27.1
Intersection Capacity Utilization: 54.5%
Analysis Period (min): 15

Intersection LOS: C
ICU Level of Service: A

Splits and Phases: 13: Centerview Dr & Campus Dr

 p2	 p4	 p9
 p6	 p8	

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Volume (vph)	25	775	316	213	368	83	71	84	87	53	130	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1522	1719	1815	1479	1833	1791	1624	1702	1760	0
Flt Permitted	0.519			0.109			0.324			0.698		
Satd. Flow (perm)	929	1756	1501	197	1815	1459	623	1791	1563	1231	1760	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			123			95		4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)	1		2	2		1	2		8	8		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	3%	4%	0%	1%	1%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	842	343	232	400	90	77	91	95	58	159	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.0	42.7	12.4	12.7	42.7	42.7	12.4	32.4	32.4	15.0	15.0	
Total Split (s)	12.0	68.0	13.0	17.0	73.0	73.0	13.0	35.0	35.0	22.0	22.0	
Total Split (%)	10.0%	56.7%	10.8%	14.2%	60.8%	60.8%	10.8%	29.2%	29.2%	18.3%	18.3%	
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	72.4	65.3	74.0	82.6	75.5	75.5	28.3	28.3	28.3	15.5	15.5	
Actuated g/C Ratio	0.60	0.54	0.62	0.69	0.63	0.63	0.24	0.24	0.24	0.13	0.13	
v/c Ratio	0.04	0.88	0.33	0.79	0.35	0.09	0.33	0.22	0.22	0.36	0.69	
Control Delay	7.2	37.1	3.2	44.6	9.1	0.9	39.8	37.5	8.1	53.7	64.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.2	37.1	3.2	44.6	9.1	0.9	39.8	37.5	8.1	53.7	64.1	
LOS	A	D	A	D	A	A	D	D	A	D	E	
Approach Delay		26.9			19.5			27.6			61.3	
Approach LOS		C			B			C			E	

Intersection Summary

Area Type: Other

DONE BY ASB DATE 5/20/15
 CHECKED BY EJS DATE 5/20/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 14 (12%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 100

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 27.8

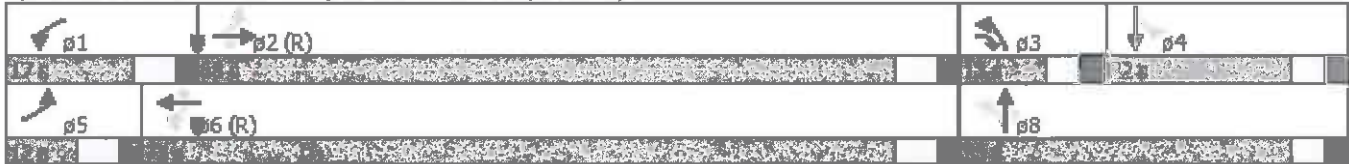
Intersection LOS: C

Intersection Capacity Utilization 84.1%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY AM DATE 5/20/15

CHECKED BY eps DATE 5/28/15

Queues

1: University Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	27	842	343	232	400	90	77	91	95	58	159
v/c Ratio	0.04	0.88	0.33	0.79	0.35	0.09	0.33	0.22	0.22	0.36	0.69
Control Delay	7.2	37.1	3.2	44.6	9.1	0.9	39.8	37.5	8.1	53.7	64.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	37.1	3.2	44.6	9.1	0.9	39.8	37.5	8.1	53.7	64.1
Queue Length 50th (ft)	6	570	21	102	101	0	47	56	0	41	115
Queue Length 95th (ft)	16	#854	57	#217	153	m8	88	101	43	84	188
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	609	956	1031	298	1141	963	233	456	469	180	261
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.88	0.33	0.78	0.35	0.09	0.33	0.20	0.20	0.32	0.61

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ADP DATE 5/23/15

CHECKED BY EPS DATE 5/20/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	498	340	236	639	44	59	17	76	34	174	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%				1%			-1%
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1697	0	1727	1743	0	0	1651	1624	0	2024	0
Flt Permitted	0.365			0.059				0.378			0.936	
Satd. Flow (perm)	653	1697	0	107	1743	0	0	648	1560	0	1904	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			6				88		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	1		1	1		1			8	8		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	8%	0%	0%	3%	5%	4%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	974	0	274	794	0	0	89	88	0	252	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	11.9
Total Split (s)	68.0	68.0		13.0	81.0		39.0	39.0	39.0	39.0	39.0	39.0
Total Split (%)	56.7%	56.7%		10.8%	67.5%		32.5%	32.5%	32.5%	32.5%	32.5%	32.5%
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-0.5	-0.5		-0.5	
Total Lost Time (s)	4.1	4.1		4.1	4.1			4.4	4.4		4.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	63.9	63.9		89.8	89.8			21.7	21.7		21.7	
Actuated g/C Ratio	0.53	0.53		0.75	0.75			0.18	0.18		0.18	
v/c Ratio	0.02	1.05		0.73	0.61			0.77	0.25		0.73	
Control Delay	7.0	51.8		48.4	10.1			83.6	9.5		58.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	7.0	51.8		48.4	10.1			83.6	9.5		58.1	
LOS	A	D		D	B			F	A		E	
Approach Delay		51.5			20.0			46.8			58.1	
Approach LOS		D			B			D			E	

Intersection Summary

Area Type: Other

DONE BY BJB DATE 5/25/15

CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 28 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.05

Intersection Signal Delay: 38.2

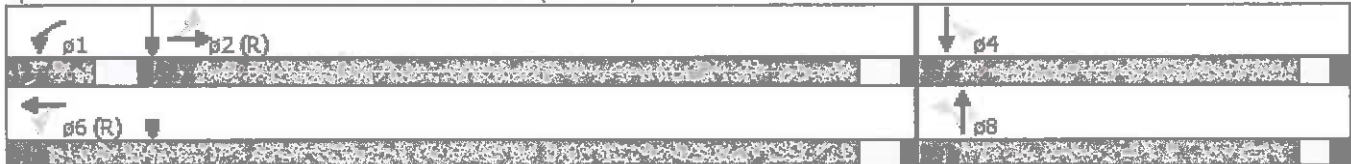
Intersection LOS: D

Intersection Capacity Utilization 92.8%

ICU Level of Service F

Analysis Period (min) 15

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY AM DATE 5/29/15

CHECKED BY EP DATE 5/29/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	6	974	274	794	89	88	252
v/c Ratio	0.02	1.05	0.73	0.61	0.77	0.25	0.73
Control Delay	7.0	51.8	48.4	10.1	83.6	9.5	58.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	51.8	48.4	10.1	83.6	9.5	58.1
Queue Length 50th (ft)	1	~812	174	220	66	0	185
Queue Length 95th (ft)	m1	#963	#323	315	116	38	244
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	347	924	374	1305	186	512	550
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.05	0.73	0.61	0.48	0.17	0.46

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY BTB DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↖		• ↖	
Volume (vph)	• 4	• 607	• 946	• 1	• 2	• 9
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 1%	• 0%		• -3%	
Satd. Flow (prot)	• 0	• 1725	• 1799	• 0	• 1710	• 0
Flt Permitted					• 0.992	
Satd. Flow (perm)	• 0	• 1725	• 1799	• 0	• 1710	• 0
Link Speed (mph)		• 35	• 30		• 25	
Link Distance (ft)		• 921	• 400		• 1058	
Travel Time (s)		• 17.9	• 9.1		• 28.9	
Peak Hour Factor	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93
Heavy Vehicles (%)	• 0%	• 6%	• 2%	• 100%	• 0%	• 11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 657	• 1018	• 0	• 12	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 59.9% ICU Level of Service B
 Analysis Period (min) 15

DONE BY SDJ DATE 5/20/15

CHECKED BY EJS DATE 5/22/15

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	607	946	1	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	6	2	100	0	11
Mvmt Flow	4	653	1017	1	2	10

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1018	0	1679
Stage 1	-	-	1018
Stage 2	-	-	661
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	689	-	140
Stage 1	-	-	417
Stage 2	-	-	578
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	689	-	139
Mov Capacity-2 Maneuver	-	-	139
Stage 1	-	-	417
Stage 2	-	-	573

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	20.2
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	689	-	-	-	248
HCM Lane V/C Ratio	0.006	-	-	-	0.048
HCM Control Delay (s)	10.258	0	-	-	20.2
HCM Lane LOS	B	A			C
HCM 95th %tile Q(veh)	0.019	-	-	-	0.149

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY MDJ DATE 5/23/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	4	606	2	0	884	3	2	0	0	1	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%			1%	
Satd. Flow (prot)	0	1751	0	0	1771	0	0	1626	0	0	1820	0
Flt Permitted								0.950			0.999	
Satd. Flow (perm)	0	1751	0	0	1771	0	0	1626	0	0	1820	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds (#/hr)			10	10								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	0%	0%	3%	67%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	658	0	0	954	0	0	2	0	0	57	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

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

DONE BY AM DATE 5/28/15
 CHECKED BY efs DATE 5/28/15

HCM 2010 TWSC

4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Intersection

Intersection Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	606	2	0	884	3	2	0	0	1	0	52
Conflicting Peds, #/hr	0	0	10	10	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	3	67	0	0	0	0	0	2
Mvmt Flow	4	652	2	0	951	3	2	0	0	1	0	56

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	954	0	0	654
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.2	-	2.2	-
Pot Capacity-1 Maneuver	729	-	943	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	723	-	936	-
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	117.9	20.8
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	723	-	-	936	-	-	284
HCM Lane V/C Ratio	0.063	0.006	-	-	-	-	-	0.201
HCM Control Delay (s)	117.9	10.009	0	-	0	-	-	20.8
HCM Lane LOS	F	B	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.193	0.018	-	-	0	-	-	0.734

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY ASTD DATE 5/20/15

CHECKED BY epj DATE 5/28/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↖		• ↖	
Volume (vph)	• 3	• 612	• 889	• 1	• 1	• 3
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 16	• 16
Grade (%)		• -1%	• 0%		• 1%	
Satd Flow (prot)	• 0	• 1742	• 1783	• 0	• 1903	• 0
Flt Permitted					• 0.988	
Satd Flow (perm)	• 0	• 1742	• 1783	• 0	• 1903	• 0
Link Speed (mph)		• 30	• 30		• 25	
Link Distance (ft)		• 375	• 379		• 801	
Travel Time (s)		• 8.5	• 8.6		• 21.8	
Peak Hour Factor	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92
Heavy Vehicles (%)	• 0%	• 6%	• 3%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 668	• 967	• 0	• 4	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.9% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BJB DATE 5/28/15
 CHECKED BY ES DATE 5/28/15

HCM 2010 TWSC
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	3	612	889	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	3	665	966	1	1	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	967	0	1639
Stage 1	-	-	967
Stage 2	-	-	672
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	720	-	102
Stage 1	-	-	353
Stage 2	-	-	493
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	720	-	101
Mov Capacity-2 Maneuver	-	-	101
Stage 1	-	-	353
Stage 2	-	-	490

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.2
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	720	-	-	-	202
HCM Lane V/C Ratio	0.005	-	-	-	0.022
HCM Control Delay (s)	10.023	0	-	-	23.2
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.014	-	-	-	0.066

Notes

- Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 2	• 601	• 875	• 0	• 0	• 4
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• 3%	
Satd Flow (prot)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Flt Permitted						
Satd Flow (perm)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 0%	• 6%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 641	• 931	• 0	• 4	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.1% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BOB DATE 5/20/15
 CHECKED BY EJS DATE 5/27/15

HCM 2010 TWSC

6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	601	875	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	6	2	0	0	0
Mvmt Flow	2	639	931	0	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	931	0	1575
Stage 1	-	-	931
Stage 2	-	-	644
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	743	-	94
Stage 1	-	-	331
Stage 2	-	-	473
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	743	-	94
Mov Capacity-2 Maneuver	-	-	94
Stage 1	-	-	331
Stage 2	-	-	471

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.1
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	743	-	-	-	302
HCM Lane V/C Ratio	0.003	-	-	-	0.014
HCM Control Delay (s)	9.859	0	-	-	17.1
HCM Lane LOS	A	A			C
HCM 95th %tile Q(veh)	0.009	-	-	-	0.043

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	466	123	272	772	7	107	19	47	32	52	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1707	1593	1580	1881	0	1565	1740	1500	1588	1776	0
Fit Permitted	0.315			0.334			0.521			0.744		
Satd. Flow (perm)	537	1707	1546	556	1881	0	856	1740	1463	1238	1776	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			128		1				80		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)	1		3	3		1	1		2	2		1
Confl. Bikes (#/hr)			3	3								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	7%	4%	2%	3%	0%	2%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	518	137	302	866	0	119	21	52	36	61	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	55.0	55.0	55.0	28.0	83.0		13.0	37.0	37.0	24.0	24.0	
Total Split (%)	45.8%	45.8%	45.8%	23.3%	69.2%		10.8%	30.8%	30.8%	20.0%	20.0%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	68.5	68.5	68.5	88.5	88.5		22.6	22.6	22.6	11.8	11.8	
Actuated g/C Ratio	0.57	0.57	0.57	0.74	0.74		0.19	0.19	0.19	0.10	0.10	
v/c Ratio	0.01	0.53	0.15	0.56	0.62		0.56	0.06	0.15	0.30	0.35	
Control Delay	8.5	10.1	0.9	11.0	11.9		50.9	36.3	3.8	54.5	52.5	
Queue Delay	0.0	0.0	0.0	0.0	0.3		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.5	10.1	0.9	11.0	12.3		50.9	36.3	3.8	54.5	52.5	
LOS	A	B	A	B	B		D	D	A	D	D	
Approach Delay		8.1			11.9			36.5			53.2	
Approach LOS		A			B			D			D	

Intersection Summary

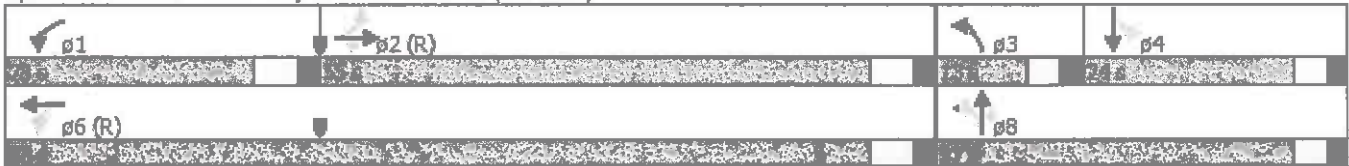
DONE BY BSM DATE 5/28/15
CHECKED BY EJS DATE 5/29/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 14.9
Intersection Capacity Utilization: 76.6%
Analysis Period (min): 15
Intersection LOS: B
ICU Level of Service: D

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY BJB DATE 5/21/15

CHECKED BY EJS DATE 5/28/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	518	137	302	866	119	21	52	36	61
v/c Ratio	0.01	0.53	0.15	0.56	0.62	0.56	0.06	0.15	0.30	0.35
Control Delay	8.5	10.1	0.9	11.0	11.9	50.9	36.3	3.8	54.5	52.5
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	10.1	0.9	11.0	12.3	50.9	36.3	3.8	54.5	52.5
Queue Length 50th (ft)	0	66	0	78	317	81	13	0	27	44
Queue Length 95th (ft)	m1	m275	m11	m117	m387	125	33	14	57	81
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	306	974	938	607	1387	214	478	460	206	297
Starvation Cap Reductn	0	0	0	0	140	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.53	0.15	0.50	0.69	0.56	0.04	0.11	0.17	0.21

Intersection Summary

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

DONE BY BSB DATE 5/28/15

CHECKED BY EPS DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔	↔
Volume (vph)	19	370	123	49	776	156	241	200	99	146	125	42
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1422	1509	0	1367	1575	0	1493	1512	1298	1434	1515	0
Flt Permitted	0.069			0.284			0.352			0.496		
Satd. Flow (perm)	103	1509	0	409	1575	0	553	1512	1298	749	1515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			10				126			13
Link Speed (mph)		35			35			35				35
Link Distance (ft)		950			214			348				1493
Travel Time (s)		18.5			4.2			6.8				29.1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	1%	7%	2%	3%	2%	6%	5%	1%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	525	0	52	992	0	256	213	105	155	178	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6		12.6	15.6		12.7	15.7	15.7	12.7	15.7	
Total Split (s)	13.0	55.0		13.0	55.0		22.0	34.0	34.0	18.0	30.0	
Total Split (%)	10.8%	45.8%		10.8%	45.8%		18.3%	28.3%	28.3%	15.0%	25.0%	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6		4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Act Effct Green (s)	65.3	59.2		68.3	64.7		40.4	23.4	23.4	32.0	19.2	
Actuated g/C Ratio	0.54	0.49		0.57	0.54		0.34	0.20	0.20	0.27	0.16	
v/c Ratio	0.15	0.70		0.17	1.16		0.80	0.72	0.30	0.57	0.71	
Control Delay	14.4	18.6		14.0	113.8		50.6	59.1	6.2	37.4	58.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	14.4	18.6		14.0	113.8		50.6	59.1	6.2	37.4	58.7	
LOS	B	B		B	F		D	E	A	D	E	
Approach Delay		18.5			108.8			45.6			48.8	
Approach LOS		B			F			D			D	

Intersection Summary

Area Type: Other
 Cycle Length: 120

DONE BY ASM DATE 5/28/15
 CHECKED BY EPS DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.16

Intersection Signal Delay: 66.5

Intersection LOS: E

Intersection Capacity Utilization: 95.5%

ICU Level of Service: F

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



DONE BY BOB DATE 5/28/15

CHECKED BY EJS DATE 5/29/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	525	52	992	256	213	105	155	178
v/c Ratio	0.15	0.70	0.17	1.16	0.80	0.72	0.30	0.57	0.71
Control Delay	14.4	18.6	14.0	113.8	50.6	59.1	6.2	37.4	58.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.4	18.6	14.0	113.8	50.6	59.1	6.2	37.4	58.7
Queue Length 50th (ft)	3	209	17	~862	156	156	0	88	122
Queue Length 95th (ft)	m11	#187	40	#1321	#230	229	31	134	190
Internal Link Dist (ft)		870		134		268			1413
Turn Bay Length (ft)	150				135		90	125	
Base Capacity (vph)	148	753	302	853	321	369	412	278	329
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.70	0.17	1.16	0.80	0.58	0.25	0.56	0.54

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY BMB DATE 5/18/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↗	• ↖		• ↘	
Volume (vph)	54	• 564	• 848	• 0	• 0	• 112
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	1900	• 1900	• 1900
Lane Width (ft)	• 14	• 14	• 15	• 15	• 16	• 16
Grade (%)		• 0%	• -1%		• 1%	
Satd. Flow (prot)	• 0	• 1921	• 2039	• 0	• 1817	• 0
Flt Permitted		• 0.996				
Satd. Flow (perm)	• 0	• 1921	• 2039	• 0	• 1817	• 0
Link Speed (mph)		• 35	• 35		• 35	
Link Distance (ft)		• 214	• 1855		• 620	
Travel Time (s)		• 4.2	• 36.1		• 12.1	
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 6%	• 5%	• 3%	• 0%	• 0%	• 2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 657	• 902	• 0	• 119	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 88.1% ICU Level of Service E
 Analysis Period (min) 15

DONE BY MB DATE 5/28/15
 CHECKED BY EJ DATE 5/28/15

HCM 2010 TWSC
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015

Intersection

Intersection Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	54	564	848	0	0	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	5	3	0	0	2
Mvmt Flow	57	600	902	0	0	119

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	902	0	1617
Stage 1	-	-	902
Stage 2	-	-	715
Follow-up Headway	2.254	-	3.5
Pot Capacity-1 Maneuver	737	-	105
Stage 1	-	-	380
Stage 2	-	-	469
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	737	-	93
Mov Capacity-2 Maneuver	-	-	93
Stage 1	-	-	380
Stage 2	-	-	415

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	22.1
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	737	-	-	-	328
HCM Lane V/C Ratio	0.078	-	-	-	0.363
HCM Control Delay (s)	10.297	0	-	-	22.1
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.253	-	-	-	1.612

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	0	22	1	1	3	333	127	12	24	40	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Flt Permitted		0.950			0.992		0.950			0.950		
Satd. Flow (perm)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds (#/hr)							6		13	13		6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	27	0	6	0	401	167	0	29	471	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	56.1%
Analysis Period (min)	15
	ICU Level of Service B

DONE BY ASD DATE 5/28/15

CHECKED BY EPS DATE 5/29/15

Intersection

Intersection Delay, s/veh 5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol. veh/h	16	0	22	1	1	3	333	127	12	24	40	351
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	13	13	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	0	0	0	0	0	0	2	0	0	13	0
Mvmt Flow	19	0	27	1	1	4	401	153	14	29	48	423

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1282	1287	273	1280	1492	173	471	0	0	167	0	0
Stage 1	317	317	-	963	963	-	-	-	-	-	-	-
Stage 2	965	970	-	317	529	-	-	-	-	-	-	-
Follow-up Headway	3.563	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	172	205	788	108	89	859	1101	-	-	1423	-	-
Stage 1	721	694	-	250	272	-	-	-	-	-	-	-
Stage 2	352	393	-	651	472	-	-	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	117	127	779	73	55	850	1089	-	-	1408	-	-
Mov Capacity-2 Maneuver	117	127	-	73	55	-	-	-	-	-	-	-
Stage 1	456	680	-	158	172	-	-	-	-	-	-	-
Stage 2	218	248	-	609	462	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	23.5	31.7	7.2	0.4
HCM LOS	C	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLh1	SBL	SBT	SBR
Capacity (veh/h)	1089	-	-	160	779	141	1408	-	-
HCM Lane V/C Ratio	0.368	-	-	0.176	0.023	0.043	0.021	-	-
HCM Control Delay (s)	10.221	-	-	32.2	9.7	31.7	7.61	-	-
HCM Lane LOS	B	-	-	D	A	D	A	-	-
HCM 95th %tile Q(veh)	1.716	-	-	0.616	0.07	0.133	0.063	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•			•			•			•	
Volume (vph)	• 20	• 3	• 39	• 0	• 0	• 1	• 188	• 124	• 1	• 6	• 55	• 271
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 13	• 13	• 13	• 15	• 15	• 15	• 10	• 10	• 10	• 10	• 10	• 10
Grade (%)		• 3%			• -2%			• -3%			• 0%	
Satd Flow (prot)	• 0	1628	• 0	• 0	• 1826	• 0	• 0	1717	• 0	• 0	1571	• 0
Flt Permitted		• 0.984						0.971			0.999	
Satd Flow (perm)	• 0	• 1628	• 0	• 0	• 1826	• 0	• 0	1717	• 0	• 0	1571	• 0
Link Speed (mph)		• 25			• 25			• 35			• 30	
Link Distance (ft)		• 540			• 357			• 1410			• 1171	
Travel Time (s)		• 14.7			• 9.7			• 27.5			• 26.6	
Peak Hour Factor	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82	• 0.82
Heavy Vehicles (%)	• 0%	• 0%	• 11%	• 0%	• 0%	• 0%	• 1%	• 3%	• 0%	• 0%	• 2%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 76	• 0	• 0	• 1	• 0	• 0	• 381	• 0	• 0	• 404	• 0
Sign Control		• Stop			• Stop			• Stop			• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 57.3% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BDJ DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

HCM 2010 AWSC
11: Cherry Dr & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 11
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	3	39	0	0	1	188	124	1	6	55	271
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	11	0	0	0	1	3	0	0	2	0
Mvmt Flow	24	4	48	0	0	1	229	151	1	7	67	330
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.2	12	10.4
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	32%	0%	2%
Vol Thru, %	40%	5%	0%	17%
Vol Right, %	0%	63%	100%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	313	62	1	332
LT Vol	124	3	0	55
Through Vol	1	39	1	271
RT Vol	188	20	0	6
Lane Flow Rate	382	76	1	405
Geometry Grp	1	1	1	1
Degree of Util (X)	0.49	0.11	0.002	0.453
Departure Headway (Hd)	4.619	5.221	5.071	4.032
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	683	700	891
Service Time	2.655	3.28	3.145	2.062
HCM Lane V/C Ratio	0.49	0.111	0.001	0.455
HCM Control Delay	12	8.9	8.2	10.4
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.7	0.4	0	2.4

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	• 4			• 4	• 4	
Volume (vph)	• 82	• 51	• 284	• 457	• 253	• 53
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 9	• 9	• 10	• 10	• 14	• 14
Grade (%)	• 0%			• 1%	• -4%	
Satd. Flow (prot)	• 1563	• 0	• 0	• 1703	• 1929	• 0
Flt Permitted	• 0.970			• 0.981		
Satd. Flow (perm)	• 1563	• 0	• 0	• 1703	• 1929	• 0
Link Speed (mph)	• 35			• 35	• 35	
Link Distance (ft)	• 1171			• 1607	• 348	
Travel Time (s)	• 22.8			• 31.3	• 6.8	
Peak Hour Factor	• 0.91	• 0.91	• 0.91	• 0.91	• 0.91	• 0.91
Heavy Vehicles (%)	• 1%	• 0%	• 1%	• 2%	• 4%	• 8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 146	• 0	• 0	• 814	• 336	• 0
Sign Control	• Stop			• Free	• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 74.0% ICU Level of Service D
 Analysis Period (min) 15

DONE BY BOM DATE 5/20/15
 CHECKED BY efs DATE 5/28/15

HCM 2010 TWSC
12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 17.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	82	51	284	457	253	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	1	2	4	8
Mvmt Flow	90	56	312	502	278	58

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1433	307	336	0	-	0
Stage 1	307	-	-	-	-	-
Stage 2	1126	-	-	-	-	-
Follow-up Headway	3.509	3.3	2.209	-	-	-
Pot Capacity-1 Maneuver	148	738	1229	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	311	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-
Mov Capacity-1 Maneuver	96	738	1229	-	-	-
Mov Capacity-2 Maneuver	96	-	-	-	-	-
Stage 1	748	-	-	-	-	-
Stage 2	202	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	140.3	3.4	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1229	-	144	-	-
HCM Lane V/C Ratio	0.254	-	1.015	-	-
HCM Control Delay (s)	8.923	0	140.3	-	-
HCM Lane LOS	A	A	F		
HCM 95th %tile Q(veh)	1.012	-	7.539	-	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY Bob DATE 5/20/15

CHECKED BY efj DATE 5/20/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	190	201	0	0	67	30	33	20	32	46	0	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	43	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1714	0	0	1681	1628	1727	1420	0	1668	1478	0
Flt Permitted		0.802					0.701			0.714		
Satd. Flow (perm)	0	1409	0	0	1681	1591	1274	1420	0	1254	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						57		41			955	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	3		2	2		3						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	3%	1%	0%	0%	14%	0%	0%	0%	26%	2%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	495	0	0	85	38	42	66	0	58	86	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	39.0	39.0			39.0	39.0	16.0	16.0		16.0	16.0	
Total Split (%)	43.3%	43.3%			43.3%	43.3%	17.8%	17.8%		17.8%	17.8%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effect Green (s)		32.2			32.2	32.2	9.7	9.7		9.7	9.7	
Actuated g/C Ratio		0.38			0.38	0.38	0.11	0.11		0.11	0.11	
v/c Ratio		0.92			0.13	0.06	0.29	0.33		0.40	0.08	
Control Delay		51.2			19.0	3.0	41.5	22.9		45.4	0.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		51.2			19.0	3.0	41.5	22.9		45.4	0.2	
LOS		D			B	A	D	C		D	A	
Approach Delay		51.2			14.0			30.1			18.4	
Approach LOS		D			B			C			B	

Intersection Summary

Area Type: Other

DONE BY BDP DATE 5/28/15
 CHECKED BY EPS DATE 5/28/15

Lane Group	09
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	• 9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	• 33.0
Minimum Split (s)	• 35.0
Total Split (s)	• 35.0
Total Split (%)	• 39%
Yellow Time (s)	• 2.0
All-Red Time (s)	• 0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	• Min
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary


DONE BY 201 DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 90
Actuated Cycle Length: 84.4
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 37.9
Intersection Capacity Utilization: 46.4%
Analysis Period (min): 15
Intersection LOS: D
ICU Level of Service: A

Splits and Phases: 13: Centerview Dr & Campus Dr

 p2	 p4	 p9
 p6	 p8	

DONE BY BDM DATE 5/28/15
CHECKED BY EJS DATE 5/28/15

Queues

13: Centerview Dr & Campus Dr

5/20/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	495	85	38	42	66	58	86
v/c Ratio	0.92	0.13	0.06	0.29	0.33	0.40	0.08
Control Delay	51.2	19.0	3.0	41.5	22.9	45.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	19.0	3.0	41.5	22.9	45.4	0.2
Queue Length 50th (ft)	261	31	0	22	13	31	0
Queue Length 95th (ft)	#368	54	8	47	42	60	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	576	688	685	173	228	170	1026
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.12	0.06	0.24	0.29	0.34	0.08

Intersection Summary

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

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	79	473	110	64	772	235	241	226	102	36	55	46
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1507	1719	1851	1522	1833	1809	1640	1736	1666	0
Flt Permitted	0.122			0.357			0.373			0.613		
Satd. Flow (perm)	219	1756	1480	644	1851	1522	720	1809	1587	1109	1666	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			113			200			105			33
Link Speed (mph)		35			35			25				25
Link Distance (ft)		1985			974			881				833
Travel Time (s)		38.7			19.0			24.0				22.7
Confl. Peds. (#/hr)			8	8					7	7		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	81	488	113	66	796	242	248	233	105	37	104	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.0	42.7	42.7	12.4	32.4	32.4	12.0	12.0	12.0
Total Split (s)	12.0	51.0	23.0	12.0	51.0	51.0	23.0	37.0	37.0	14.0	14.0	14.0
Total Split (%)	12.0%	51.0%	23.0%	12.0%	51.0%	51.0%	23.0%	37.0%	37.0%	14.0%	14.0%	14.0%
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	59.3	53.4	70.4	59.2	53.3	53.3	27.9	27.9	27.9	9.0	9.0	9.0
Actuated g/C Ratio	0.59	0.53	0.70	0.59	0.53	0.53	0.28	0.28	0.28	0.09	0.09	0.09
v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.64	0.46	0.20	0.37	0.58	0.58
Control Delay	13.0	20.3	1.2	12.5	33.5	8.0	37.0	31.7	5.9	53.6	43.5	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	20.3	1.2	12.5	33.5	8.0	37.0	31.7	5.9	53.6	43.5	43.5
LOS	B	C	A	B	C	A	D	C	A	D	D	D
Approach Delay		16.2			26.7			29.3			46.1	
Approach LOS		B			C			C			D	

Intersection Summary

Area Type: Other

DONE BY SM DATE 5/28/15

CHECKED BY ES DATE 5/28/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 60 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)

p1 p2 (R) 31 s	p3 23 s	p4 14 s
p5 p6 (R) 5 s	p8 37 s	

DONE BY DS DATE 5/28/15

CHECKED BY EP DATE 5/29/15

Queues

1: University Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	488	113	66	796	242	248	233	105	37	104
v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.64	0.46	0.20	0.37	0.58
Control Delay	13.0	20.3	1.2	12.5	33.5	8.0	37.0	31.7	5.9	53.6	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	20.3	1.2	12.5	33.5	8.0	37.0	31.7	5.9	53.6	43.5
Queue Length 50th (ft)	21	224	0	24	519	33	122	114	0	22	43
Queue Length 95th (ft)	42	330	15	m29	m#722	m62	193	183	36	55	99
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	239	937	1103	460	987	905	415	589	588	107	191
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.60	0.40	0.18	0.35	0.54

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY ASB DATE 5/20/15

CHECKED BY EPB DATE 5/20/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	500	46	50	613	71	335	80	189	37	18	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1805	0	1693	1737	0	0	1704	1624	0	1868	0
Ft Permitted	0.270			0.212				0.726			0.678	
Satd. Flow (perm)	483	1805	0	378	1737	0	0	1284	1565	0	1290	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			9				195		32	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	3		11	11		3	2		8	8		2
Confl. Bikes (#/hr)			4	4								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	5%	2%	3%	0%	1%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	562	0	52	705	0	0	427	195	0	89	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	
Total Split (s)	42.0	42.0		14.0	56.0		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	42.0%	42.0%		14.0%	56.0%		44.0%	44.0%	44.0%	44.0%	44.0%	
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-0.5	-0.5	-0.5	-0.5	-0.5	
Total Lost Time (s)	4.1	4.1		4.1	4.1		4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	44.8	44.8		54.8	54.8			36.7	36.7		36.7	
Actuated g/C Ratio	0.45	0.45		0.55	0.55			0.37	0.37		0.37	
v/c Ratio	0.06	0.69		0.17	0.74			0.91	0.28		0.18	
Control Delay	11.7	24.8		13.5	24.2			54.5	4.0		14.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	11.7	24.8		13.5	24.2			54.5	4.0		14.3	
LOS	B	C		B	C			D	A		B	
Approach Delay		24.4			23.5			38.7			14.3	
Approach LOS		C			C			D			B	

Intersection Summary

DONE BY BJB DATE 5/28/15
CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 99 (99%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 28.0

Intersection LOS: C

Intersection Capacity Utilization: 81.6%

ICU Level of Service: D

Analysis Period (min): 15

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY ASB DATE 5/28/15

CHECKED BY EP DATE 5/28/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	14	562	52	705	427	195	89
v/c Ratio	0.06	0.69	0.17	0.74	0.91	0.28	0.18
Control Delay	11.7	24.8	13.5	24.2	54.5	4.0	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	24.8	13.5	24.2	54.5	4.0	14.3
Queue Length 50th (ft)	5	362	16	336	242	0	23
Queue Length 95th (ft)	m10	#506	m35	538	#419	43	56
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	216	812	337	956	508	737	530
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.69	0.15	0.74	0.84	0.26	0.17

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ASB DATE 5/20/15
 CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 11	• 738	• 737	• 4	• 3	• 8
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 1%	• 0%		• -3%	
Satd. Flow (prot)	• 0	• 1756	• 1799	• 0	• 1725	• 0
Flt Permitted		• 0.999			• 0.987	
Satd. Flow (perm)	• 0	• 1756	• 1799	• 0	• 1725	• 0
Link Speed (mph)		• 35	• 30		• 25	
Link Distance (ft)		• 921	• 400		• 1058	
Travel Time (s)		• 17.9	• 9.1		• 28.9	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 0%	• 4%	• 2%	• 0%	• 0%	• 13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 756	• 748	• 0	• 11	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 57.6% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BSB DATE 5/28/15
 CHECKED BY EPS DATE 5/28/15

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	11	738	737	4	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	4	2	0	0	13
Mvmt Flow	11	745	744	4	3	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	748	0	1514
Stage 1	-	-	746
Stage 2	-	-	768
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	870	-	171
Stage 1	-	-	535
Stage 2	-	-	524
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	870	-	167
Mov Capacity-2 Maneuver	-	-	167
Stage 1	-	-	535
Stage 2	-	-	512

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.5
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	870	-	-	-	298
HCM Lane V/C Ratio	0.013	-	-	-	0.037
HCM Control Delay (s)	9.191	0	-	-	17.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.039	-	-	-	0.116

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DESIGNED BY ASJ/S DATE 5/20/15
 CHECKED BY EPB DATE 5/20/15

Lanes, Volumes, Timings
4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•			•			•			•	
Volume (vph)	• 44	• 670	• 0	• 0	• 736	• 12	• 2	• 0	• 0	• 1	• 0	• 12
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 11	• 11	• 10	• 10	• 10	• 16	• 16	• 16
Grade (%)		• -2%			• 1%			• 7%			• 1%	
Satd. Flow (prot)	• 0	• 1797	• 0	• 0	• 1784	• 0	• 0	• 1626	• 0	• 0	• 1739	• 0
Flt Permitted		• 0.997						• 0.950			• 0.996	
Satd. Flow (perm)	• 0	• 1797	• 0	• 0	• 1784	• 0	• 0	• 1626	• 0	• 0	• 1739	• 0
Link Speed (mph)		• 35			• 35			• 30			• 25	
Link Distance (ft)		• 400			• 375			• 85			• 1017	
Travel Time (s)		• 7.8			• 7.3			• 1.9			• 27.7	
Confl. Peds. (#/hr)	• 1		• 7	• 7		• 1						
Peak Hour Factor	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98	• 0.98
Heavy Vehicles (%)	• 2%	• 3%	• 0%	• 0%	• 2%	• 17%	• 0%	• 0%	• 0%	• 0%	• 0%	• 8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 729	• 0	• 0	• 763	• 0	• 0	• 2	• 0	• 0	• 13	• 0
Sign Control		• Free			• Free			• Stop			• Stop	

Intersection Summary

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

DONE BY BJB DATE 5/28/15

CHECKED BY EJG DATE 5/28/15

Intersection

Intersection Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	44	670	0	0	736	12	2	0	0	1	0	12
Conflicting Peds, #/hr	1	0	7	7	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	3	0	0	2	17	0	0	0	0	0	8
Mvmt Flow	45	684	0	0	751	12	2	0	0	1	0	12

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	763	0	0	684
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.2
Pot Capacity-1 Maneuver	850	-	-	919
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	845	-	-	914
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	83.3	17.6
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	48	845	-	-	914	-	-	300
HCM Lane V/C Ratio	0.043	0.053	-	-	-	-	-	0.044
HCM Control Delay (s)	83.3	9.499	0	-	0	-	-	17.6
HCM Lane LOS	F	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.13	0.168	-	-	0	-	-	0.138

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ADP DATE 5/26/15
CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 4	• 695	• 739	• 3	• 0	• 0
Ideal Flow (vphpl)	• 1900	• 1900	1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 16	• 16
Grade (%)		• -1%	• 0%		• 1%	
Satd. Flow (prot)	• 0	• 1775	• 1799	• 0	• 2143	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1775	• 1799	• 0	• 2143	• 0
Link Speed (mph)		• 30	• 30		• 25	
Link Distance (ft)		• 375	• 379		• 801	
Travel Time (s)		• 8.5	• 8.6		21.8	
Peak Hour Factor	• 0.97	• 0.97	• 0.97	• 0.97	• 0.97	• 0.97
Heavy Vehicles (%)	• 0%	• 4%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 720	• 765	• 0	• 0	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 43.1% ICU Level of Service A
 Analysis Period (min) 15

DONE BY BJB DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Intersection	
Intersection Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	695	739	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	2	0	0	0
Mvmt Flow	4	716	762	3	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	765	0	1488
Stage 1	-	-	763
Stage 2	-	-	725
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	857	-	127
Stage 1	-	-	445
Stage 2	-	-	464
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	857	-	126
Mov Capacity-2 Maneuver	-	-	126
Stage 1	-	-	445
Stage 2	-	-	460

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	0
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	857	-	-	-	0
HCM Lane V/C Ratio	0.005	-	-	-	+
HCM Control Delay (s)	9.221	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.015	-	-	-	+

Notes
- Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ASTB DATE 5/28/15
CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↕	• ↕		• ↕	
Volume (vph)	• 4	• 693	• 739	• 5	• 0	• 2
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• 3%	
Satd. Flow (prot)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 0%	• 3%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 704	• 751	• 0	• 2	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 49.7% ICU Level of Service A
 Analysis Period (min) 15

DONE BY CS DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	693	739	5	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	4	700	746	5	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	752	0	1457
Stage 1	-	-	749
Stage 2	-	-	708
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	867	-	113
Stage 1	-	-	416
Stage 2	-	-	437
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	867	-	112
Mov Capacity-2 Maneuver	-	-	112
Stage 1	-	-	416
Stage 2	-	-	434

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.3
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLr1
Capacity (veh/h)	867	-	-	-	390
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	9.172	0	-	-	14.3
HCM Lane LOS	A	A			B
HCM 95th %tile Q(veh)	0.014	-	-	-	0.016

Notes

- Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJS DATE 5/20/15

CHECKED BY CP DATE 5/20/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	533	132	94	524	37	168	44	291	25	39	13
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1774	1640	1565	1864	0	1580	1740	1530	1588	1639	0
Flt Permitted	0.444			0.309			0.479			0.727		
Satd. Flow (perm)	757	1774	1603	509	1864	0	794	1740	1530	1215	1639	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			141		7				303		14	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			1	1			2					2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	1%	3%	3%	3%	1%	0%	0%	0%	3%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	11	555	138	98	585	0	175	46	303	26	55	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	57.0	57.0	57.0	12.0	69.0		16.0	31.0	31.0	15.0	15.0	
Total Split (%)	57.0%	57.0%	57.0%	12.0%	69.0%		16.0%	31.0%	31.0%	15.0%	15.0%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effect Green (s)	58.1	58.1	58.1	68.4	68.4		22.7	22.7	22.7	9.1	9.1	
Actuated g/C Ratio	0.58	0.58	0.58	0.68	0.68		0.23	0.23	0.23	0.09	0.09	
v/c Ratio	0.03	0.54	0.14	0.23	0.46		0.64	0.12	0.52	0.24	0.34	
Control Delay	19.8	30.5	11.2	6.5	7.4		43.7	29.0	7.0	46.8	39.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	19.8	30.5	11.2	6.5	7.4		43.7	29.0	7.0	46.8	39.3	
LOS	B	C	B	A	A		D	C	A	D	D	
Approach Delay		26.6			7.2			21.2			41.7	
Approach LOS		C			A			C			D	

Intersection Summary

DONE BY BJS DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 8 (8%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.64

Intersection Signal Delay: 19.1

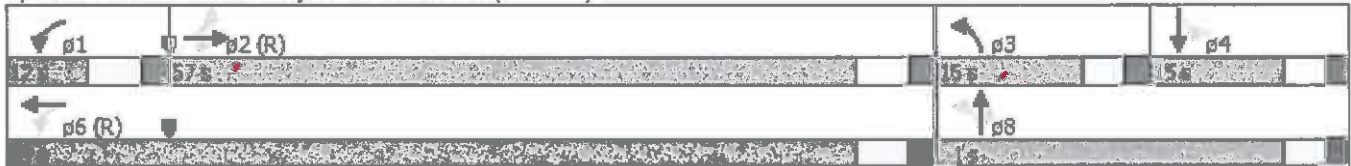
Intersection LOS: B

Intersection Capacity Utilization: 67.8%

ICU Level of Service: C

Analysis Period (min): 15

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY ADW DATE 5/28/15

CHECKED BY EJS DATE 5/29/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	555	138	98	585	175	46	303	26	55
v/c Ratio	0.03	0.54	0.14	0.23	0.46	0.64	0.12	0.52	0.24	0.34
Control Delay	19.8	30.5	11.2	6.5	7.4	43.7	29.0	7.0	46.8	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	30.5	11.2	6.5	7.4	43.7	29.0	7.0	46.8	39.3
Queue Length 50th (ft)	6	344	36	18	125	94	23	0	16	25
Queue Length 95th (ft)	m13	463	m70	m22	m164	155	50	63	42	62
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	440	1031	990	429	1276	276	469	634	133	192
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.54	0.14	0.23	0.46	0.63	0.10	0.48	0.20	0.29

Intersection Summary

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

DONE BY DJB DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	56	771	156	103	451	161	160	206	124	234	266	33
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1508	1585	0	1463	1536	0	1508	1587	1363	1448	1578	0
Flt Permitted	0.204			0.088			0.336			0.331		
Satd. Flow (perm)	324	1585	0	136	1536	0	533	1587	1363	505	1578	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			23				152		6	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		950			214			348			1493	
Travel Time (s)		18.5			4.2			6.8			29.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	4%	1%	1%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	946	0	105	624	0	163	210	127	239	305	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6		12.6	15.6		12.7	15.7	15.7	12.7	15.7	
Total Split (s)	12.0	48.0		12.0	48.0		13.0	23.0	23.0	17.0	27.0	
Total Split (%)	12.0%	48.0%		12.0%	48.0%		13.0%	23.0%	23.0%	17.0%	27.0%	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6		4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	51.3	44.1		52.5	46.5		25.9	17.6	17.6	33.9	21.6	
Actuated g/C Ratio	0.51	0.44		0.52	0.46		0.26	0.18	0.18	0.34	0.22	
v/c Ratio	0.23	1.34		0.62	0.86		0.75	0.76	0.35	0.84	0.89	
Control Delay	16.0	188.3		32.7	38.3		48.2	57.1	6.6	52.2	64.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.0	188.3		32.7	38.3		48.2	57.1	6.6	52.2	64.9	
LOS	B	F		C	D		D	E	A	D	E	
Approach Delay		178.5			37.5			41.4			59.3	
Approach LOS		F			D			D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 100

DESIGNED BY BJS DATE 5/28/15
 CHECKED BY EP DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2-EBTL and 6-WBTL, Start of Green, Master Intersection

Natural Cycle: 140

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.34

Intersection Signal Delay: 93.4

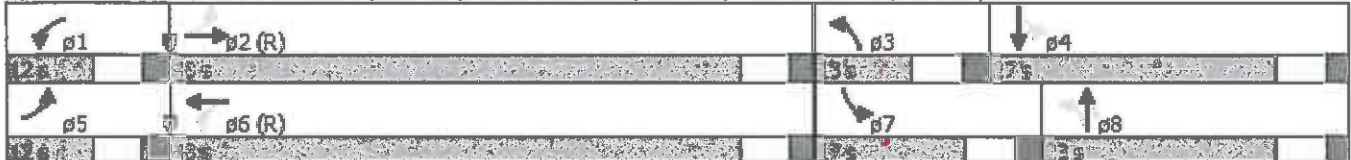
Intersection LOS: F

Intersection Capacity Utilization: 108.3%

ICU Level of Service: G

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	946	105	624	163	210	127	239	305
v/c Ratio	0.23	1.34	0.62	0.86	0.75	0.76	0.35	0.84	0.89
Control Delay	16.0	188.3	32.7	38.3	48.2	57.1	6.6	52.2	64.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.0	188.3	32.7	38.3	48.2	57.1	6.6	52.2	64.9
Queue Length 50th (ft)	17	~771	30	354	75	127	0	117	184
Queue Length 95th (ft)	m38	#1024	#95	#586	#131	#231	34	#199	#333
Internal Link Dist (ft)		870		134		268			1413
Turn Bay Length (ft)	150				135		90	125	
Base Capacity (vph)	254	706	170	727	218	290	373	286	356
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	1.34	0.62	0.86	0.75	0.72	0.34	0.84	0.86

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ASB DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	108	913	617	1	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1999	2039	0	1853	0
Flt Permitted		0.995				
Satd. Flow (perm)	0	1999	2039	0	1853	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Confl. Peds. (#/hr)	2			2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1075	650	0	104	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 102.7% ICU Level of Service G
 Analysis Period (min) 15

DONE BY BJB DATE 5/28/15

CHECKED BY eps DATE 5/28/15

HCM 2010 TWSC
9: Governor Rd (SR 0322) & Elm Ave

5/20/2015

Intersection

Intersection Delay, s/veh 1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	108	913	617	1	0	99
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	114	961	649	1	0	104

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	651	0	1838
Stage 1	-	-	650
Stage 2	-	-	1188
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	945	-	76
Stage 1	-	-	505
Stage 2	-	-	273
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	943	-	56
Mov Capacity-2 Maneuver	-	-	56
Stage 1	-	-	505
Stage 2	-	-	202

Approach

	EB	WB	SB
HCM Control Delay, s	1	0	15
HCM LOS			C

Minor Lane / Major Mvmt

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	462
HCM Lane V/C Ratio	0.121	-	-	-	0.226
HCM Control Delay (s)	9.34	0	-	-	15
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.41	-	-	-	0.857

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/28/15
CHECKED BY EJS DATE 5/29/15

Lanes, Volumes, Timings
10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	6	351	0	0	1	20	110	2	10	143	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd Flow (prot)	0	1838	1639	0	1611	0	1823	1878	0	1805	1847	0
Flt Permitted		0.953					0.950			0.950		
Satd Flow (perm)	0	1838	1639	0	1611	0	1823	1878	0	1805	1847	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds (#/hr)							4					4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	489	413	0	1	0	24	131	0	12	206	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 53.0%

ICU Level of Service A

Analysis Period (min) 15

Intersection

Intersection Delay, s/veh 30.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	410	6	351	0	0	1	20	110	2	10	143	32
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	482	7	413	0	0	1	24	129	2	12	168	38

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	389	390	191	392
Stage 1	211	211	-	178
Stage 2	178	179	-	214
Follow-up Headway	3.5	4	3.3	3.5
Pot Capacity-1 Maneuver	612	585	870	523
Stage 1	824	758	-	796
Stage 2	853	778	-	756
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	597	570	867	265
Mov Capacity-2 Maneuver	597	570	-	265
Stage 1	810	752	-	782
Stage 2	834	764	-	388

Approach	EB	WB	NB	SB
HCM Control Delay, s	42.4	9	1.2	0.4
HCM LOS	E	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1372	-	-	640	867	903	1461	-	-
HCM Lane V/C Ratio	0.017	-	-	0.98	0.318	0.001	0.008	-	-
HCM Control Delay (s)	7.67	-	-	56.1	11.1	9	7.484	-	-
HCM Lane LOS	A	-	-	F	B	A	A	-	-
HCM 95th %tile Q(veh)	0.052	-	-	14.547	1.37	0.004	0.024	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY SVK DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•			•			•			•	
Volume (vph)	• 297	• 6	• 174	• 0	• 1	• 2	• 84	• 104	• 0	• 4	• 146	• 40
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 13	• 13	• 13	• 15	• 15	• 15	• 10	• 10	• 10	• 10	• 10	• 10
Grade (%)		• 3%			• -2%			• -3%			• 0%	
Satd. Flow (prot)	• 0	• 1784	• 0	• 0	• 1921	• 0	• 0	• 1735	• 0	• 0	• 1720	• 0
Flt Permitted		0.970						0.978			0.999	
Satd. Flow (perm)	• 0	• 1784	• 0	• 0	• 1921	• 0	• 0	• 1735	• 0	• 0	• 1720	• 0
Link Speed (mph)		• 25			• 25			• 35			• 30	
Link Distance (ft)		• 540			• 357			• 1410			• 1171	
Travel Time (s)		• 14.7			• 9.7			• 27.5			• 26.6	
Confl. Peds (#/hr)			• 4	• 4			• 1					• 1
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 0%	• 0%	• 0%	• 0%	• 0%	• 0%	• 2%	• 1%	• 0%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 507	• 0	• 0	• 3	• 0	• 0	• 200	• 0	• 0	• 202	• 0
Sign Control		• Stop			• Stop			• Stop			• Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 64.8%

ICU Level of Service C

Analysis Period (min) 15

DONE BY BOM DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Intersection												
Intersection Delay, s/veh	14.9											
Intersection LOS	B											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	297	6	174	0	1	2	84	104	0	4	146	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	2	1	0	0	0	0
Mvmt Flow	316	6	185	0	1	2	89	111	0	4	155	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18	8.5	11.4	10.9
HCM LOS	C	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	62%	0%	2%
Vol Thru, %	55%	1%	33%	77%
Vol Right, %	0%	36%	67%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	188	477	3	190
LT Vol	104	6	1	146
Through Vol	0	174	2	40
RT Vol	84	297	0	4
Lane Flow Rate	200	507	3	202
Geometry Grp	1	1	1	1
Degree of Util (X)	0.317	0.683	0.005	0.307
Departure Headway (Hd)	5.712	4.966	5.435	5.474
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	632	731	659	659
Service Time	3.72	2.966	3.467	3.482
HCM Lane V/C Ratio	0.316	0.694	0.005	0.307
HCM Control Delay	11.4	18	8.5	10.9
HCM Lane LOS	B	C	A	B
HCM 95th-ile Q	1.4	5.4	0	1.3

Notes
 ~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	• Y			• ↑	• ↓	
Volume (vph)	• 100	297	• 88	• 382	• 387	• 112
Ideal Flow (vphpl)	• 1900	1900	• 1900	• 1900	• 1900	1900
Lane Width (ft)	• 9	• 9	• 10	• 10	• 14	• 14
Grade (%)	• 0%			• 1%	• -4%	
Satd. Flow (prot)	• 1511	• 0	• 0	• 1734	• 1975	• 0
Flt Permitted	• 0.988			• 0.991		
Satd. Flow (perm)	• 1511	• 0	• 0	• 1734	• 1975	• 0
Link Speed (mph)	• 35			• 35	• 35	
Link Distance (ft)	• 1171			• 1607	• 348	
Travel Time (s)	• 22.8			• 31.3	• 6.8	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 2%	• 0%	• 0%	• 1%	• 2%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 401	• 0	• 0	• 475	• 504	• 0
Sign Control	• Stop			• Free	• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 86.0% ICU Level of Service E
 Analysis Period (min) 15

DONE BY BJB DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 16.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	100	297	88	382	387	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	2	0
Mvmt Flow	101	300	89	386	391	113

Major/Minor

	Minor2	Major1			Major2	
Conflicting Flow All	1011	447	504	0	-	0
Stage 1	447	-	-	-	-	-
Stage 2	564	-	-	-	-	-
Follow-up Headway	3.518	3.3	2.2	-	-	-
Pot Capacity-1 Maneuver	265	616	1071	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	569	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-
Mov Capacity-1 Maneuver	237	616	1071	-	-	-
Mov Capacity-2 Maneuver	237	-	-	-	-	-
Stage 1	644	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach

	EB	NB	SB
HCM Control Delay, s	55	1.6	0
HCM LOS	F		

Minor Lane / Major Mvmt

	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1071	-	439	-	-
HCM Lane V/C Ratio	0.083	-	0.913	-	-
HCM Control Delay (s)	8.665	0	55	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.271	-	10.116	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY 2073 DATE 5/28/15
CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	.116	.64	.0	.0	.224	.108	.87	.40	.13	.32	.0	.180
Ideal Flow (vphpl)	.1800	.1800	.1800	.1800	.1800	.1800	.1800	.1800	.1800	.1800	.1800	.1800
Lane Width (ft)	.12	.12	.12	.13	.13	.13	.12	.12	.12	.12	.12	.12
Grade (%)		.1%			-.6%			-.2%			.1%	
Storage Length (ft)	.0		.0	.0		.0	.0		.0	.315		.0
Storage Lanes	.0		.0	.0		.1	.1		.0	.1		.0
Taper Length (ft)	.25			.25			.25			.25		
Satd. Flow (prot)	.0	.1685	.0	.0	.1842	.1628	.1661	.1548	.0	.1652	.1492	.0
Flt Permitted		.0518					.0434			.0716		
Satd. Flow (perm)	.0	.901	.0	.0	.1842	.1592	.759	.1548	.0	.1245	.1492	.0
Right Turn on Red			Yes			Yes		Yes				Yes
Satd. Flow (RTOR)						.129		.15			.729	
Link Speed (mph)		.25			.25			.25			.25	
Link Distance (ft)		.505			.274			.408			.1602	
Travel Time (s)		.13.8			.7.5			.11.1			.43.7	
Confl. Bikes (#/hr)	.2		.3	.3		.2						
Peak Hour Factor	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84	.0.84
Heavy Vehicles (%)	.3%	.3%	.0%	.0%	.4%	.0%	.4%	.3%	.46%	.3%	.0%	.2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	.0	.214	.0	.0	.267	.129	.104	.63	.0	.38	.214	.0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		.4			.8			.2			.6	
Permitted Phases	.4					.8	.2			.6		
Detector Phase	.4	.4			.8	.8	.2	.2		.6	.6	
Switch Phase												
Minimum Initial (s)	.3.0	.3.0			.3.0	.3.0	.3.0	.3.0		.3.0	.3.0	
Minimum Split (s)	.12.7	.12.7			.12.7	.12.7	.16.0	.16.0		.16.0	.16.0	
Total Split (s)	.36.0	.36.0			.36.0	.36.0	.35.7	.35.7		.35.7	.35.7	
Total Split (%)	.33.7%	.33.7%			.33.7%	.33.7%	.33.5%	.33.5%		.33.5%	.33.5%	
Yellow Time (s)	.3.3	.3.3			.3.3	.3.3	.3.0	.3.0		.3.0	.3.0	
All-Red Time (s)	.2.7	.2.7			.2.7	.2.7	.2.7	.2.7		.2.7	.2.7	
Lost Time Adjust (s)		-.1.0			-.1.0	-.1.0	-.1.0	-.1.0		-.1.0	-.1.0	
Total Lost Time (s)		.5.0			.5.0	.5.0	.4.7	.4.7		.4.7	.4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	.None	.None			.None	.None	.None	.None		.None	.None	
Act Effct Green (s)		.27.9			.27.9	.27.9	.16.9	.16.9		.16.9	.16.9	
Actuated g/C Ratio		.0.31			.0.31	.0.31	.0.19	.0.19		.0.19	.0.19	
v/c Ratio		.0.77			.0.47	.0.22	.0.73	.0.21		.0.16	.0.25	
Control Delay		.49.2			.29.1	.5.8	.64.1	.26.4		.32.3	.0.7	
Queue Delay		.0.0			.0.0	.0.0	.0.0	.0.0		.0.0	.0.0	
Total Delay		.49.2			.29.1	.5.8	.64.1	.26.4		.32.3	.0.7	
LOS		D			C	A	E	C		C	A	
Approach Delay		.49.2			.21.5			.49.9			.5.4	
Approach LOS		D			C			D			A	

Intersection Summary

Area Type: Other

PREPARED BY ADP DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Lane Group		09
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Fit Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases		9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	33.0	
Minimum Split (s)	35.0	
Total Split (s)	35.0	
Total Split (%)	33%	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Min	
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		






Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 106.7
 Actuated Cycle Length: 90.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 27.9
 Intersection Capacity Utilization: 55.8%
 Analysis Period (min): 15

Intersection LOS: C
 ICU Level of Service: B

Splits and Phases: 13: Centerview Dr & Campus Dr

 p2	 p4	 p9
 p6	 p8	

DONE BY ASB DATE 5/28/15

CHECKED BY efs DATE 5/28/15

Queues

13: Centerview Dr & Campus Dr

5/20/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	214	267	129	104	63	38	214
v/c Ratio	0.77	0.47	0.22	0.73	0.21	0.16	0.25
Control Delay	49.2	29.1	5.8	64.1	26.4	32.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	29.1	5.8	64.1	26.4	32.3	0.7
Queue Length 50th (ft)	109	121	0	58	24	19	0
Queue Length 95th (ft)	#223	202	35	107	53	43	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	314	641	638	264	549	433	995
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.42	0.20	0.39	0.11	0.09	0.22

Intersection Summary

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

DONE BY ADP DATE 5/20/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	• ↖	• ↗	• ↖	• ↗	• ↗	• ↖	• ↖	• ↗	• ↖	• ↖	• ↗	• ↖
Volume (vph)	• 28	• 1042	• 421	• 274	• 491	• 101	• 95	• 109	• 106	• 90	• 209	• 19
Ideal Flow (vphpl)	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800	• 1800
Lane Width (ft)	• 12	• 12	• 12	• 12	• 13	• 12	• 14	• 12	• 14	• 12	• 12	• 12
Grade (%)		• 1%			• -1%			• -1%			• -3%	
Storage Length (ft)	• 180		• 0	• 220		• 220	• 0		• 165	• 0		• 0
Storage Lanes	• 1		• 1	• 1		• 1	• 1		• 1	• 1		• 0
Taper Length (ft)	• 25			• 25			• 25			• 25		
Satd. Flow (prot)	• 1701	• 1756	• 1522	• 1719	• 1815	• 1479	• 1833	• 1791	• 1624	• 1702	• 1767	• 0
Flt Permitted	• 0.417			• 0.058			• 0.200			• 0.681		
Satd. Flow (perm)	• 747	• 1756	• 1501	• 105	• 1815	• 1459	• 385	• 1791	• 1563	• 1201	• 1767	• 0
Right Turn on Red			• Yes			• Yes			• Yes			• Yes
Satd. Flow (RTOR)			• 125			• 123			• 128		• 3	
Link Speed (mph)		• 35			• 35			• 25			• 25	
Link Distance (ft)		• 1985			• 974			• 881			• 833	
Travel Time (s)		• 38.7			• 19.0			• 24.0			• 22.7	
Confl. Peds. (#/hr)	• 1		• 2	• 2		• 1	• 2		• 8	• 8		• 2
Peak Hour Factor	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92
Heavy Vehicles (%)	• 0%	• 2%	• 0%	• 0%	• 3%	• 4%	• 0%	• 1%	• 1%	• 2%	• 2%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 30	• 1133	• 458	• 298	• 534	• 110	• 103	• 118	• 115	• 98	• 248	• 0
Turn Type	• pm+pt	• NA	• pm+ov	• pm+pt	• NA	• Perm	• pm+pt	• NA	• Perm	• Perm	• NA	
Protected Phases	• 5	• 2	• 3	• 1	• 6		• 3	• 8			• 4	
Permitted Phases	• 2		• 2	• 6		• 6	• 8		• 8	• 4		
Detector Phase	• 5	• 2	• 3	• 1	• 6	• 6	• 3	• 8	• 8	• 4	• 4	
Switch Phase												
Minimum Initial (s)	• 3.0	• 10.0	• 3.0	• 3.0	• 10.0	• 10.0	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0
Minimum Split (s)	• 12.0	• 42.7	• 12.4	• 12.7	• 42.7	• 42.7	• 12.4	• 32.4	• 32.4	• 15.0	• 15.0	• 15.0
Total Split (s)	• 12.0	• 69.0	• 13.0	• 18.0	• 75.0	• 75.0	• 13.0	• 33.0	• 33.0	• 20.0	• 20.0	• 20.0
Total Split (%)	• 10.0%	• 57.5%	• 10.8%	• 15.0%	• 62.5%	• 62.5%	• 10.8%	• 27.5%	• 27.5%	• 16.7%	• 16.7%	• 16.7%
Yellow Time (s)	• 3.7	• 3.7	• 3.0	• 3.7	• 3.7	• 3.7	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0	• 3.0
All-Red Time (s)	• 2.0	• 2.0	• 2.4	• 2.0	• 2.0	• 2.0	• 2.4	• 2.4	• 2.4	• 2.4	• 2.4	• 2.4
Lost Time Adjust (s)	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0	• -1.0
Total Lost Time (s)	• 4.7	• 4.7	• 4.4	• 4.7	• 4.7	• 4.7	• 4.4	• 4.4	• 4.4	• 4.4	• 4.4	• 4.4
Lead/Lag	• Lead	• Lag	• Lead	• Lead	• Lag	• Lag	• Lead			• Lag	• Lag	
Lead-Lag Optimize?												
Recall Mode	• None	• C-Max	• None	• None	• C-Max	• C-Max	• None	• None	• None	• None	• None	• None
Act Effct Green (s)	71.4	64.3	73.2	82.3	75.1	75.1	28.6	28.6	28.6	15.6	15.6	15.6
Actuated g/C Ratio	0.60	0.54	0.61	0.69	0.63	0.63	0.24	0.24	0.24	0.13	0.13	0.13
v/c Ratio	0.06	1.21	0.47	1.19	0.47	0.11	0.53	0.28	0.24	0.63	1.07	1.07
Control Delay	6.8	130.2	9.2	139.1	13.5	2.7	47.3	39.4	6.3	68.2	127.5	127.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	130.2	9.2	139.1	13.5	2.7	47.3	39.4	6.3	68.2	127.5	127.5
LOS	A	F	A	F	B	A	D	D	A	E	F	F
Approach Delay		93.7			52.0			30.5			110.7	
Approach LOS		F			D			C			F	

Intersection Summary

Area Type: Other

DONE BY BOR DATE 5/28/15
CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 7 (6%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.21

Intersection Signal Delay: 76.9

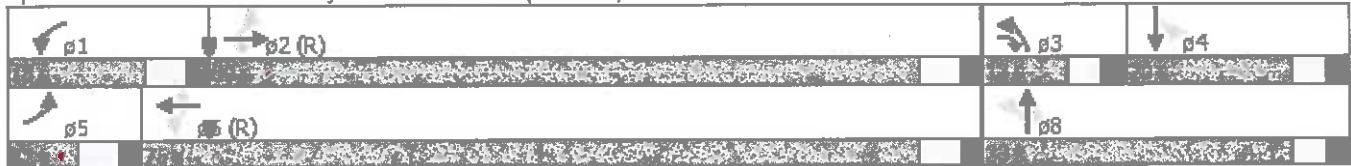
Intersection LOS: E

Intersection Capacity Utilization: 108.1%

ICU Level of Service: G

Analysis Period (min): 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY SPB DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Queues

1: University Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	30	1133	458	298	534	110	103	118	115	98	248
v/c Ratio	0.06	1.21	0.47	1.19	0.47	0.11	0.53	0.28	0.24	0.63	1.07
Control Delay	6.8	130.2	9.2	139.1	13.5	2.7	47.3	39.4	6.3	68.2	127.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	130.2	9.2	139.1	13.5	2.7	47.3	39.4	6.3	68.2	127.5
Queue Length 50th (ft)	7	~1068	113	~233	176	2	65	75	0	73	~211
Queue Length 95th (ft)	16	#1324	181	m#337	m276	m11	115	129	39	#145	#380
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	503	940	965	250	1136	959	195	426	470	156	232
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	1.21	0.47	1.19	0.47	0.11	0.53	0.28	0.24	0.63	1.07

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ASB DATE 5/28/15

CHECKED BY EJ DATE 5/28/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	659	492	324	815	52	90	24	98	45	223	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1693	0	1727	1745	0	0	1650	1624	0	2024	0
Flt Permitted	0.218			0.056				0.309			0.907	
Satd. Flow (perm)	390	1693	0	102	1745	0	0	530	1560	0	1846	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		51			7				114			2
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	1		1	1		1			8	8		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	8%	0%	0%	3%	5%	4%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	1338	0	377	1008	0	0	133	114	0	324	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	11.9
Total Split (s)	71.0	71.0		20.0	91.0		29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	59.2%	59.2%		16.7%	75.8%		24.2%	24.2%	24.2%	24.2%	24.2%	24.2%
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0			-0.5	-0.5		-0.5	
Total Lost Time (s)	4.1	4.1		4.1	4.1			4.4	4.4		4.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	66.9	66.9		86.9	86.9			24.6	24.6		24.6	
Actuated g/C Ratio	0.56	0.56		0.72	0.72			0.20	0.20		0.20	
v/c Ratio	0.03	1.39		1.30	0.80			1.23	0.28		0.85	
Control Delay	4.0	189.8		188.1	13.6			202.5	9.1		67.2	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	4.0	189.8		188.1	13.6			202.5	9.1		67.2	
LOS	A	F		F	B			F	A		E	
Approach Delay		188.9			61.1			113.2			67.2	
Approach LOS		F			E			F			E	

Intersection Summary

Area Type: Other

DONE BY ASB DATE 5/28/15

CHECKED BY EJ DATE 5/28/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 120

Actuated Cycle Length: 120

Offset: 26 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.39

Intersection Signal Delay: 117.7

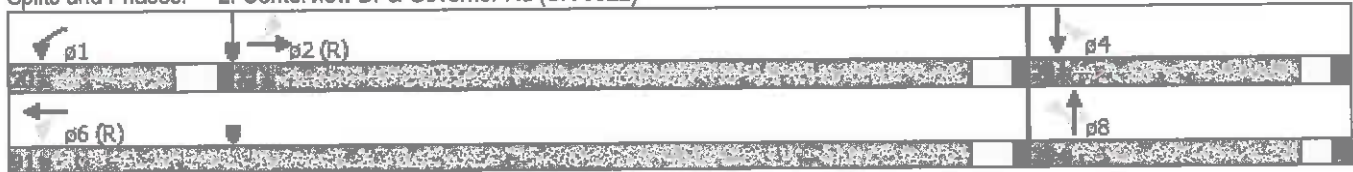
Intersection LOS: F

Intersection Capacity Utilization: 121.5%

ICU Level of Service: H

Analysis Period (min): 15

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY 3003 DATE 5/28/15

CHECKED BY EP DATE 5/28/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	7	1338	377	1008	133	114	324
v/c Ratio	0.03	1.39	1.30	0.80	1.23	0.28	0.85
Control Delay	4.0	189.8	188.1	13.6	202.5	9.1	67.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.0	189.8	188.1	13.6	202.5	9.1	67.2
Queue Length 50th (ft)	1	~1385	~335	307	~127	0	242
Queue Length 95th (ft)	m1	m#1095	m#462	373	#241	43	#367
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	217	966	289	1265	108	410	380
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	1.39	1.30	0.80	1.23	0.28	0.85

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY 3073 DATE 5/28/15

CHECKED BY [Signature] DATE 5/28/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Volume (vph)	5	802	4221	1	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd. Flow (prot)	0	1725	1799	0	1702	0
Flt Permitted					0.993	
Satd. Flow (perm)	0	1725	1799	0	1702	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	2%	100%	0%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	867	1314	0	14	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 74.3% ICU Level of Service D
 Analysis Period (min) 15

DONE BY BDP DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	802	1221	1	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	6	2	100	0	11
Mvmt Flow	5	862	1313	1	2	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1314	0	2186
Stage 1	-	-	1313
Stage 2	-	-	873
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	533	-	73
Stage 1	-	-	316
Stage 2	-	-	476
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	533	-	72
Mov Capacity-2 Maneuver	-	-	72
Stage 1	-	-	316
Stage 2	-	-	467

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	29.6
HCM LOS			D

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	533	-	-	-	160
HCM Lane V/C Ratio	0.01	-	-	-	0.087
HCM Control Delay (s)	11.823	0	-	-	29.6
HCM Lane LOS	B	A			D
HCM 95th %tile Q(veh)	0.031	-	-	-	0.283

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BOB DATE 5/28/15
 CHECKED BY EJS DATE 5/29/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		•			•			•			•	
Volume (vph)	• 5	• 801	• 2	• 0	• 1151	• 4	• 2	• 0	• 0	• 1	• 0	• 59
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 11	• 11	• 10	• 10	• 10	• 16	• 16	• 16
Grade (%)		• -2%			• 1%			• 7%			• 1%	
Satd Flow (prot)	• 0	• 1751	• 0	• 0	• 1771	• 0	• 0	• 1626	• 0	• 0	• 1820	• 0
Flt Permitted								0.950			0.999	
Satd Flow (perm)	• 0	• 1751	• 0	• 0	• 1771	• 0	• 0	• 1626	• 0	• 0	• 1820	• 0
Link Speed (mph)		• 35			• 35			• 30			• 25	
Link Distance (ft)		• 400			• 375			• 85			• 1017	
Travel Time (s)		• 7.8			• 7.3			• 1.9			• 27.7	
Confl. Peds. (#/hr)			• 10	• 10								
Peak Hour Factor	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93	• 0.93
Heavy Vehicles (%)	• 0%	• 6%	• 0%	• 0%	• 3%	• 67%	• 0%	• 0%	• 0%	• 0%	• 0%	• 2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 868	• 0	• 0	• 1242	• 0	• 0	• 2	• 0	• 0	• 64	• 0
Sign Control		• Free			• Free			• Stop			• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 71.2%
 Analysis Period (min) 15
 ICU Level of Service C

DONE BY BDS DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Intersection

Intersection Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	801	2	0	1151	4	2	0	0	1	0	59
Conflicting Peds, #/hr	0	0	10	10	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	3	67	0	0	0	0	0	2
Mvmt Flow	5	861	2	0	1238	4	2	0	0	1	0	63

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1242	0	0	863
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.2	-	-	2.2
Pot Capacity-1 Maneuver	568	-	-	788
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	564	-	-	782
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	\$ 445.4	34.3
HCM LOS			F	D

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	10	564	-	-	782	-	-	186
HCM Lane V/C Ratio	0.215	0.01	-	-	-	-	-	0.347
HCM Control Delay (s)	\$ 445.4	11.444	0	-	0	-	-	34.3
HCM Lane LOS	F	B	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.533	0.029	-	-	0	-	-	1.454

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↖		• ↖	
Volume (vph)	• 4	• 808	• 1156	• 1	• 1	• 4
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 16	• 16
Grade (%)		• -1%	• 0%		• 1%	
Satd Flow (prot)	• 0	• 1742	• 1783	• 0	• 1892	• 0
Flt Permitted					• 0.990	
Satd Flow (perm)	• 0	• 1742	• 1783	• 0	• 1892	• 0
Link Speed (mph)		• 30	• 30		• 25	
Link Distance (ft)		• 375	• 379		• 801	
Travel Time (s)		• 8.5	• 8.6		• 21.8	
Peak Hour Factor	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92	• 0.92
Heavy Vehicles (%)	• 0%	• 6%	• 3%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 882	• 1258	• 0	• 5	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 70.9% ICU Level of Service C
 Analysis Period (min) 15

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	808	1156	1	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	4	878	1257	1	1	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1258	0	2144
Stage 1	-	-	1257
Stage 2	-	-	887
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	560	-	48
Stage 1	-	-	252
Stage 2	-	-	386
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	560	-	47
Mov Capacity-2 Maneuver	-	-	47
Stage 1	-	-	252
Stage 2	-	-	381

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	35.9
HCM LOS			E

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	560	-	-	-	122
HCM Lane V/C Ratio	0.008	-	-	-	0.045
HCM Control Delay (s)	11.479	0	-	-	35.9
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0.023	-	-	-	0.139

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↩	• ↩		• ↩	
Volume (vph)	• 2	• 795	• 1140	• 0	• 0	• 5
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• -3%	
Satd Flow (prot)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Flt Permitted						
Satd Flow (perm)	• 0	• 1716	• 1819	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94	• 0.94
Heavy Vehicles (%)	• 0%	• 6%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 848	• 1213	• 0	• 5	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 70.0% ICU Level of Service C
 Analysis Period (min) 15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	795	1140	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	6	2	0	0	0
Mvmt Flow	2	846	1213	0	0	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1213	0	2063
Stage 1	-	-	1213
Stage 2	-	-	850
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	582	-	43
Stage 1	-	-	232
Stage 2	-	-	367
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	582	-	43
Mov Capacity-2 Maneuver	-	-	43
Stage 1	-	-	232
Stage 2	-	-	365

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.3
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	582	-	-	-	202
HCM Lane V/C Ratio	0.004	-	-	-	0.026
HCM Control Delay (s)	11.208	0	-	-	23.3
HCM Lane LOS	B	A			C
HCM 95th %tile Q(veh)	0.011	-	-	-	0.081

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	610	171	372	1000	8	144	27	66	44	65	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1707	1593	1580	1881	0	1565	1740	1500	1588	1775	0
Flt Permitted	0.157			0.104			0.497			0.738		
Satd. Flow (perm)	268	1707	1546	173	1881	0	817	1740	1463	1228	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			140		1				80		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)	1		3	3		1	1		2	2		1
Confl. Bikes (#/hr)			3	3								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	7%	4%	2%	3%	0%	2%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	678	190	413	120	0	160	30	73	49	76	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	57.0	57.0	57.0	20.0	77.0		15.0	43.0	43.0	28.0	28.0	
Total Split (%)	47.5%	47.5%	47.5%	16.7%	64.2%		12.5%	35.8%	35.8%	23.3%	23.3%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	52.1	52.1	52.1	85.1	85.1		26.0	26.0	26.0	13.3	13.3	
Actuated g/C Ratio	0.43	0.43	0.43	0.71	0.71		0.22	0.22	0.22	0.11	0.11	
v/c Ratio	0.05	0.91	0.25	0.91	0.84		0.65	0.08	0.19	0.36	0.38	
Control Delay	11.8	22.6	1.8	33.7	20.2		51.9	33.5	7.0	54.5	51.9	
Queue Delay	0.0	0.0	0.0	0.0	2.3		0.0	0.0	0.0	0.0	0.0	
Total Delay	11.8	22.6	1.8	33.7	22.4		51.9	33.5	7.0	54.5	51.9	
LOS	B	C	A	C	C		D	C	A	D	D	
Approach Delay		18.0			25.5			37.4			52.9	
Approach LOS		B			C			D			D	

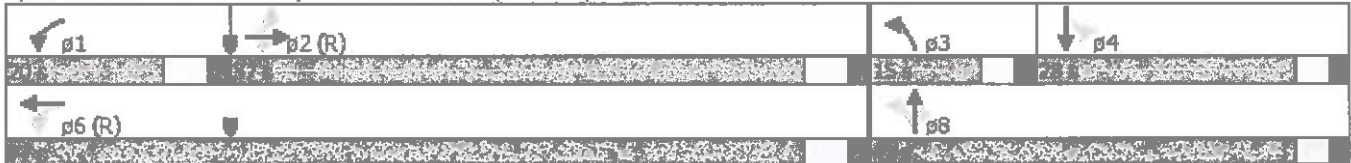
Intersection Summary

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 114 (95%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 25.5
Intersection Capacity Utilization: 91.3%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: F

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



Queues

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	678	190	413	1120	160	30	73	49	76
v/c Ratio	0.05	0.91	0.25	0.91	0.84	0.65	0.08	0.19	0.36	0.38
Control Delay	11.8	22.6	1.8	33.7	20.2	51.9	33.5	7.0	54.5	51.9
Queue Delay	0.0	0.0	0.0	0.0	2.3	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	22.6	1.8	33.7	22.4	51.9	33.5	7.0	54.5	51.9
Queue Length 50th (ft)	2	450	16	266	632	108	19	0	36	55
Queue Length 95th (ft)	m2	m304	m11	m#179	m436	153	39	30	69	94
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	116	741	750	452	1334	245	565	529	245	356
Starvation Cap Reductn	0	0	0	0	111	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.91	0.25	0.91	0.92	0.65	0.05	0.14	0.20	0.21

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	425	144	91	1032	147	303	251	139	198	171	138
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1422	1508	0	1367	1585	0	1493	1512	1298	1434	1472	0
Fit Permitted	0.066			0.247			0.207			0.231		
Satd. Flow (perm)	99	1508	0	355	1585	0	325	1512	1298	349	1472	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20			9				126		28	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		950			214			348			1493	
Travel Time (s)		18.5			4.2			6.8			29.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	1%	7%	2%	3%	2%	6%	5%	1%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	605	0	97	1254	0	322	267	148	211	329	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6		12.6	15.6		12.7	15.7	15.7	12.7	15.7	
Total Split (s)	13.0	65.0		13.0	65.0		20.0	24.0	24.0	18.0	22.0	
Total Split (%)	10.8%	54.2%		10.8%	54.2%		16.7%	20.0%	20.0%	15.0%	18.3%	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6		4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Act Effct Green (s)	68.6	60.6		69.8	63.1		34.6	19.3	19.3	30.6	17.3	
Actuated g/C Ratio	0.57	0.50		0.58	0.53		0.29	0.16	0.16	0.26	0.14	
v/c Ratio	0.48	0.79		0.35	1.50		1.33	1.10	0.47	1.01	1.39	
Control Delay	37.0	11.0		13.6	256.4		205.4	133.5	16.4	101.9	236.6	
Queue Delay	0.0	0.0		0.0	0.4		0.0	0.0	0.0	0.0	0.1	
Total Delay	37.0	11.0		13.6	256.8		205.4	133.5	16.4	101.9	236.6	
LOS	D	B		B	F		F	F	B	F	F	
Approach Delay		13.7			239.4			141.4			184.0	
Approach LOS		B			F			F			F	

Intersection Summary

Area Type: Other
 Cycle Length: 120

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 120

Offset 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 150

Control Type Actuated-Coordinated

Maximum v/c Ratio: 1.50

Intersection Signal Delay: 162.4

Intersection LOS: F

Intersection Capacity Utilization: 131.9%

ICU Level of Service: H

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	69	605	97	1254	322	267	148	211	329
v/c Ratio	0.48	0.79	0.35	1.50	1.33	1.10	0.47	1.01	1.39
Control Delay	37.0	11.0	13.6	256.4	205.4	133.5	16.4	101.9	236.6
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.1
Total Delay	37.0	11.0	13.6	256.8	205.4	133.5	16.4	101.9	236.6
Queue Length 50th (ft)	23	50	30	~1383	~279	~234	15	~133	~323
Queue Length 95th (ft)	m36	m102	54	#1649	#469	#405	79	#285	#509
Internal Link Dist (ft)		870		134		268			1413
Turn Bay Length (ft)	150				135		90	125	
Base Capacity (vph)	149	770	277	837	242	243	314	209	236
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	62	0	0	0	0	1
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.79	0.35	1.62	1.33	1.10	0.47	1.01	1.40

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↗	↖		↘	↘
Volume (vph)	65	700	1106	0	0	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1921	2039	0	1817	0
Flt Permitted		0.996				
Satd. Flow (perm)	0	1921	2039	0	1817	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	814	1177	0	149	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 106.1% ICU Level of Service G
 Analysis Period (min) 15

DONE BY BDM DATE 5/28/15

CHECKED BY EP DATE 5/28/15

Intersection

Intersection Delay, s/veh 3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	65	700	1106	0	0	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	5	3	0	0	2
Mvmt Flow	69	745	1177	0	0	149

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1177	0	2060
Stage 1	-	-	1177
Stage 2	-	-	883
Follow-up Headway	2.254	-	3.5
Pot Capacity-1 Maneuver	579	-	55
Stage 1	-	-	277
Stage 2	-	-	388
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	579	-	44
Mov Capacity-2 Maneuver	-	-	44
Stage 1	-	-	277
Stage 2	-	-	309

Approach	EB	WB	SB
HCM Control Delay, s	1	0	47.7
HCM LOS			E

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	579	-	-	-	225
HCM Lane V/C Ratio	0.119	-	-	-	0.662
HCM Control Delay (s)	12.059	0	-	-	47.7
HCM Lane LOS	B	A			E
HCM 95th %tile Q(veh)	0.404	-	-	-	4.103

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings

10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	0	43	1	1	4	465	151	14	27	46	498
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd Flow (prot)	0	1712	1639	0	1671	0	1823	1860	0	1805	1622	0
Flt Permitted		0.950			0.993		0.950			0.950		
Satd Flow (perm)	0	1712	1639	0	1671	0	1823	1860	0	1805	1622	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl Peds (#/hr)							6		13	13		6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	52	0	7	0	560	199	0	33	655	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

HCM 2010 TWSC
10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Intersection

Intersection Delay, s/veh 18

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	39	0	43	1	1	4	465	151	14	27	46	498
Conflicting Peds, #/hr	0	0	0	0	0	0	6	0	13	13	0	6
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	83	83	83	83	83	83	83	83	83	83	83	83
Heavy Vehicles, %	7	0	0	0	0	0	0	2	0	0	13	0
Mvmt Flow	47	0	52	1	1	5	560	182	17	33	55	600

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1734	1739	368	1731	2031	203	655	0	0	199	0	0
Stage 1	420	420	-	1311	1311	-	-	-	-	-	-	-
Stage 2	1314	1319	-	420	720	-	-	-	-	-	-	-
Follow-up Headway	3.563	4	3.3	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Capacity-1 Maneuver	89	118	703	48	37	824	942	-	-	1385	-	-
Stage 1	645	636	-	147	172	-	-	-	-	-	-	-
Stage 2	236	285	-	560	371	-	-	-	-	-	-	-
Time blocked-Platoon, %	-	-	-	-	-	-	-	-	-	-	-	-
Mov Capacity-1 Maneuver	# 42	46	695	23	14	815	932	-	-	1370	-	-
Mov Capacity-2 Maneuver	# 42	46	-	23	14	-	-	-	-	-	-	-
Stage 1	257	621	-	59	69	-	-	-	-	-	-	-
Stage 2	91	114	-	500	362	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	190.7	88.8	10.7	0.4
HCM LOS	F	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	932	-	-	56	695	50	1370	-	-
HCM Lane V/C Ratio	0.601	-	-	1.147	0.05	0.145	0.024	-	-
HCM Control Delay (s)	14.506	-	-	287.6	10.5	88.8	7.692	-	-
HCM Lane LOS	B	-	-	F	B	F	A	-	-
HCM 95th %tile Q(veh)	4.15	-	-	5.452	0.157	0.466	0.073	-	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	36	4	50	0	0	1	240	159	1	7	75	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1652	0	0	1826	0	0	1717	0	0	1570	0
Flt Permitted		0.980						0.971			0.999	
Satd. Flow (perm)	0	1652	0	0	1826	0	0	1717	0	0	1570	0
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	11%	0%	0%	0%	1%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	0	0	1	0	0	488	0	0	557	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 71.1%

ICU Level of Service C

Analysis Period (min) 15

DESIGNED BY BDS DATE 5/28/15
CHECKED BY eps DATE 5/28/15

Intersection

Intersection Delay, s/veh 15.8
Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	36	4	50	0	0	1	240	159	1	7	75	375
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	11	0	0	0	1	3	0	0	2	0
Mvmt Flow	44	5	61	0	0	1	293	194	1	9	91	457
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	10.3	8.9	17.4	15.6
HCM LOS	B	A	C	C











Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	40%	0%	2%
Vol Thru, %	40%	4%	0%	16%
Vol Right, %	0%	56%	100%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	400	90	1	457
LT Vol	159	4	0	75
Through Vol	1	50	1	375
RT Vol	240	36	0	7
Lane Flow Rate	488	110	1	557
Geometry Grp	1	1	1	1
Degree of Util (X)	0.666	0.181	0.002	0.666
Departure Headway (Hd)	4.915	5.949	5.917	4.299
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	727	607	608	830
Service Time	3.003	3.949	3.922	2.372
HCM Lane V/C Ratio	0.671	0.181	0.002	0.671
HCM Control Delay	17.4	10.3	8.9	15.6
HCM Lane LOS	C	B	A	C
HCM 95th-tile Q	5.1	0.7	0	5.2

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	151	76	407	541	308	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	10	10	14	14
Grade (%)	0%			1%	-4%	
Satd. Flow (prot)	1570	0	0	1701	1930	0
Flt Permitted	0.968			0.979		
Satd. Flow (perm)	1570	0	0	1701	1930	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1171			1607	348	
Travel Time (s)	22.8			31.3	6.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	1%	2%	4%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	250	0	0	1042	406	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 94.0% ICU Level of Service F
 Analysis Period (min) 15

DONE BY BJT DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 290.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol. veh/h	151	76	407	541	308	62
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	1	2	4	8
Mvmt Flow	166	84	447	595	338	68

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1862	373	407	0	-	0
Stage 1	373	-	-	-	-	-
Stage 2	1489	-	-	-	-	-
Follow-up Headway	3.509	3.3	2.209	-	-	-
Pot Capacity-1 Maneuver	# 81	678	1157	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	207	-	-	-	-	-
Time blocked-Platoon, %						
Mov Capacity-1 Maneuver	# 34	678	1157	-	-	-
Mov Capacity-2 Maneuver	# 34	-	-	-	-	-
Stage 1	699	-	-	-	-	-
Stage 2	# 88	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 1958	4.3	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1157	-	50	-	-
HCM Lane V/C Ratio	0.387	-	4.989	-	-
HCM Control Delay (s)	10.058	0	\$ 1958	-	-
HCM Lane LOS	B	A	F		
HCM 95th %tile Q(veh)	1.852	-	28.243	-	-

Notes

-- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 5/28/15
CHECKED BY EJF DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	260	290	0	0	90	40	38	23	37	52	0	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1716	0	0	1681	1628	1727	1421	0	1668	1478	0
Flt Permitted		0.793					0.570			0.708		
Satd. Flow (perm)	0	1393	0	0	1681	1592	1036	1421	0	1243	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						51		47			919	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	3		2	2		3						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	3%	1%	0%	0%	14%	0%	0%	0%	26%	2%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	696	0	0	114	51	48	76	0	66	110	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	59.0	59.0			59.0	59.0	16.0	16.0		16.0	16.0	
Total Split (%)	53.6%	53.6%			53.6%	53.6%	14.5%	14.5%		14.5%	14.5%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effct Green (s)		54.0			54.0	54.0	10.2	10.2		10.2	10.2	
Actuated g/C Ratio		0.50			0.50	0.50	0.09	0.09		0.09	0.09	
v/c Ratio		1.01			0.14	0.06	0.49	0.43		0.57	0.11	
Control Delay		65.3			15.7	4.3	64.7	29.8		66.6	0.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		65.3			15.7	4.3	64.7	29.8		66.6	0.2	
LOS		E			B	A	E	C		E	A	
Approach Delay		65.3			12.2			43.3			25.1	
Approach LOS		E			B			D			C	

Intersection Summary

Area Type: Other

DONE BY ASD DATE 5/20/15

CHECKED BY EP DATE 5/21/15

Lane Group		ø9
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases		• 9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	•	33.0
Minimum Split (s)	•	35.0
Total Split (s)	•	35.0
Total Split (%)	•	32%
Yellow Time (s)	•	2.0
All-Red Time (s)	•	0.0
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	•	Min
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Intersection Summary		

DONE BY BDS DATE 5/28/15
 CHECKED BY EP DATE 5/28/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 110
 Actuated Cycle Length: 108.9
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 1.01
 Intersection Signal Delay: 49.3
 Intersection Capacity Utilization: 55.8%
 Analysis Period (min): 15

Intersection LOS: D
 ICU Level of Service: B

Splits and Phases: 13: Centerview Dr & Campus Dr

↑ p2	→ p4	↗ p9
5s	5s	5s
↓ p6	← p8	
5s	5s	

Queues

13: Centerview Dr & Campus Dr

5/20/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	696	114	51	48	76	66	110
v/c Ratio	1.01	0.14	0.06	0.49	0.43	0.57	0.11
Control Delay	65.3	15.7	4.3	64.7	29.8	66.6	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	65.3	15.7	4.3	64.7	29.8	66.6	0.2
Queue Length 50th (ft)	~501	42	0	32	19	45	0
Queue Length 95th (ft)	#595	65	15	63	53	79	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	690	833	815	107	189	128	977
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	1.01	0.14	0.06	0.45	0.40	0.52	0.11

Intersection Summary

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

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	90	630	142	81	1042	298	334	316	146	49	79	52
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1507	1719	1851	1522	1833	1809	1640	1736	1677	0
Flt Permitted	0.068			0.245			0.286			0.563		
Satd. Flow (perm)	122	1756	1479	442	1851	1522	552	1809	1584	1019	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			191			151		24	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)			8	8					7	7		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	649	146	84	1074	307	344	326	151	51	135	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.0	42.7	42.7	12.4	32.4	32.4	12.0	12.0	12.0
Total Split (s)	12.0	62.0	22.0	12.0	62.0	62.0	22.0	36.0	36.0	14.0	14.0	14.0
Total Split (%)	10.9%	56.4%	20.0%	10.9%	56.4%	56.4%	20.0%	32.7%	32.7%	12.7%	12.7%	12.7%
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	65.6	59.7	77.6	65.6	59.7	59.7	31.6	31.6	31.6	9.6	9.6	9.6
Actuated g/C Ratio	0.60	0.54	0.71	0.60	0.54	0.54	0.29	0.29	0.29	0.09	0.09	0.09
v/c Ratio	0.53	0.68	0.13	0.24	1.07	0.34	0.95	0.63	0.27	0.58	0.81	0.81
Control Delay	25.3	23.7	1.0	7.9	59.9	4.8	72.3	40.5	6.1	74.8	74.1	74.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	23.7	1.0	7.9	59.9	4.8	72.3	40.5	6.1	74.8	74.1	74.1
LOS	C	C	A	A	E	A	E	D	A	E	E	E
Approach Delay		20.1			45.4			47.5			74.3	
Approach LOS		C			D			D			E	

Intersection Summary

Area Type: Other

DONE BY BJB DATE 5/28/15

CHECKED BY EPB DATE 5/28/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

5/20/2015

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 24 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 40.8

Intersection LOS: D

Intersection Capacity Utilization 105.6%

ICU Level of Service G

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY BJB DATE 5/28/15

CHECKED BY EJS DATE 5/10/15

Queues

1: University Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	649	146	84	1074	307	344	326	151	51	135
v/c Ratio	0.53	0.68	0.13	0.24	1.07	0.34	0.95	0.63	0.27	0.58	0.81
Control Delay	25.3	23.7	1.0	7.9	59.9	4.8	72.3	40.5	6.1	74.8	74.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.3	23.7	1.0	7.9	59.9	4.8	72.3	40.5	6.1	74.8	74.1
Queue Length 50th (ft)	24	334	0	19	~870	31	213	200	0	35	78
Queue Length 95th (ft)	70	477	16	m20	m#774	m28	#366	298	47	#91	#185
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	177	953	1091	348	1005	913	363	519	562	88	168
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.68	0.13	0.24	1.07	0.34	0.95	0.63	0.27	0.58	0.80

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ASJ DATE 5/28/15

CHECKED BY EJ DATE 5/28/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	671	79	71	798	88	483	114	269	45	26	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1797	0	1693	1739	0	0	1704	1624	0	1879	0
Flt Permitted	0.092			0.084				0.703			0.479	
Satd. Flow (perm)	165	1797	0	150	1739	0	0	1243	1562	0	919	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			7				252		29	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	3		11	11		3	2		8	8		2
Confl. Bikes (#/hr)			4	4								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	5%	2%	3%	0%	1%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	773	0	73	914	0	0	616	277	0	110	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	11.9
Total Split (s)	46.0	46.0		13.0	59.0		51.0	51.0	51.0	51.0	51.0	51.0
Total Split (%)	41.8%	41.8%		11.8%	53.6%		46.4%	46.4%	46.4%	46.4%	46.4%	46.4%
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	1.9
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-0.5	-0.5	-0.5	-0.5	-0.5	-0.5
Total Lost Time (s)	4.1	4.1		4.1	4.1		4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effct Green (s)	44.7	44.7		54.9	54.9			46.6	46.6		46.6	
Actuated g/C Ratio	0.41	0.41		0.50	0.50			0.42	0.42		0.42	
v/c Ratio	0.27	1.05		0.38	1.05			1.17	0.34		0.27	
Control Delay	33.0	71.6		18.0	62.8			126.7	4.7		17.1	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	33.0	71.6		18.0	62.8			126.7	4.7		17.1	
LOS	C	E		B	E			F	A		B	
Approach Delay		70.7			59.5			88.9			17.1	
Approach LOS		E			E			F			B	

Intersection Summary

DONE BY JSB DATE 5/20/15
CHECKED BY EPB DATE 5/20/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 30 (27%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 120
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 70.4
Intersection Capacity Utilization: 110.1%
Analysis Period (min): 15
Intersection LOS: E
ICU Level of Service: H

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



Queues

2: Centerview Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	18	773	73	914	616	277	110
v/c Ratio	0.27	1.05	0.38	1.05	1.17	0.34	0.27
Control Delay	33.0	71.6	18.0	62.8	126.7	4.7	17.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	71.6	18.0	62.8	126.7	4.7	17.1
Queue Length 50th (ft)	5	~605	19	~714	~520	10	35
Queue Length 95th (ft)	m13	#853	m41	#940	#739	61	78
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	66	733	199	871	526	806	406
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.27	1.05	0.37	1.05	1.17	0.34	0.27

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	13	998	959	5	4	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd. Flow (prot)	0	1756	1799	0	1739	0
Flt Permitted		0.999			0.985	
Satd. Flow (perm)	0	1756	1799	0	1739	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	4%	2%	0%	0%	13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1021	974	0	13	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 72.9% ICU Level of Service C
 Analysis Period (min) 15

DONE BY BTM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
3: Governor Rd (SR 0322) & Hillview Ln

5/20/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	13	998	959	5	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	4	2	0	0	13
Mvmt Flow	13	1008	969	5	4	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	974	0	2005
Stage 1	-	-	971
Stage 2	-	-	1034
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	716	-	92
Stage 1	-	-	435
Stage 2	-	-	411
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	716	-	88
Mov Capacity-2 Maneuver	-	-	88
Stage 1	-	-	435
Stage 2	-	-	394

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	27.1
HCM LOS			D

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	716	-	-	-	176
HCM Lane V/C Ratio	0.018	-	-	-	0.075
HCM Control Delay (s)	10.122	0	-	-	27.1
HCM Lane LOS	B	A			D
HCM 95th %tile Q(veh)	0.056	-	-	-	0.239

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY BDM DATE 5/20/15
CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings

4: Governor Rd (SR 0322) & Areba Ave

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	51	921	0	0	958	14	2	0	0	1	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%			1%	
Satd. Flow (prot)	0	1797	0	0	1784	0	0	1626	0	0	1737	0
Flt Permitted		0.997						0.950			0.997	
Satd. Flow (perm)	0	1797	0	0	1784	0	0	1626	0	0	1737	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds (#/hr)	1		7	7		1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	0%	0%	2%	17%	0%	0%	0%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	992	0	0	992	0	0	2	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 100.1% ICU Level of Service G
 Analysis Period (min) 15

DONE BY BJB DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

HCM 2010 TWSC

4: Governor Rd (SR 0322) & Areba Ave

5/20/2015

Intersection

Intersection Delay, s/veh 0.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	921	0	0	958	14	2	0	0	1	0	14
Conflicting Peds, #/hr	1	0	7	7	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	3	0	0	2	17	0	0	0	0	0	8
Mvmt Flow	52	940	0	0	978	14	2	0	0	1	0	14

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	992	0	0	940
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.2
Pot Capacity-1 Maneuver	697	-	-	737
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	693	-	-	733
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	260.5	25.7
HCM LOS			F	D

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	16	693	-	-	733	-	-	189
HCM Lane V/C Ratio	0.128	0.075	-	-	-	-	-	0.081
HCM Control Delay (s)	260.5	10.616	0	-	0	-	-	25.7
HCM Lane LOS	F	B	A	-	A	-	-	D
HCM 95th %tile Q(veh)	0.363	0.243	-	-	0	-	-	0.261

Notes

- Volume Exceeds Capacity; \$ Delay Exceeds 300 Seconds; Error Computation Not Defined

DONE BY BJB DATE 5/28/15

CHECKED BY CJS DATE 5/29/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	
Volume (vph)	5	949	962	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Satd. Flow (prot)	0	1775	1799	0	2143	0
Flt Permitted						
Satd. Flow (perm)	0	1775	1799	0	2143	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	983	996	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 57.3% ICU Level of Service B
 Analysis Period (min) 15

APPROVED BY BOTB DATE 5/28/15
 CHECKED BY eps DATE 5/20/15

Intersection	
Intersection Delay, s/veh	0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	949	962	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	2	0	0	0
Mvmt Flow	5	978	992	4	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	996	0	1983
Stage 1	-	-	994
Stage 2	-	-	989
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	703	-	61
Stage 1	-	-	342
Stage 2	-	-	344
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	703	-	60
Mov Capacity-2 Maneuver	-	-	60
Stage 1	-	-	342
Stage 2	-	-	338

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	0
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	703	-	-	-	0
HCM Lane V/C Ratio	0.007	-	-	-	+
HCM Control Delay (s)	10.159	0	-	-	0
HCM Lane LOS	B	A	-	-	A
HCM 95th %tile Q(veh)	0.022	-	-	-	+

Notes
 ~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY BSB DATE 5/28/15
 CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		• ↖	• ↗		• ↘	
Volume (vph)	• 5	• 947	• 962	• 6	• 0	• 2
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 11	• 11	• 11	• 11	• 15	• 15
Grade (%)		• 2%	• -2%		• 3%	
Satd. Flow (prot)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Flt Permitted						
Satd. Flow (perm)	• 0	• 1766	• 1817	• 0	• 1781	• 0
Link Speed (mph)		• 35	• 35		• 25	
Link Distance (ft)		• 379	• 1359		• 567	
Travel Time (s)		• 7.4	• 26.5		• 15.5	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 0%	• 3%	• 2%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 0	• 962	• 978	• 0	• 2	• 0
Sign Control		• Free	• Free		• Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 63.8% ICU Level of Service B
 Analysis Period (min) 15

DONE BY MSB DATE 5/20/15
 CHECKED BY EJ DATE 5/20/15

HCM 2010 TWSC

6: Governor Rd (SR 0322) & Greenlea Rd

5/20/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	947	962	6	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	5	957	972	6	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	978	0	1942
Stage 1	-	-	975
Stage 2	-	-	967
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	714	-	52
Stage 1	-	-	313
Stage 2	-	-	317
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	714	-	51
Mov Capacity-2 Maneuver	-	-	51
Stage 1	-	-	313
Stage 2	-	-	312

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.8
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	284
HCM Lane V/C Ratio	0.007	-	-	-	0.007
HCM Control Delay (s)	10.078	0	-	-	17.8
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.021	-	-	-	0.021

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BDB DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	755	160	124	650	43	259	65	391	36	47	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1774	1640	1565	1866	0	1580	1740	1530	1588	1642	0
Flt Permitted	0.341			0.126			0.495			0.713		
Satd. Flow (perm)	581	1774	1603	208	1866	0	820	1740	1530	1192	1642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			129		6				245		12	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)			1	1				2				2
Confl. Bikes (#/hr)			1	1				2				2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	1%	3%	3%	3%	1%	0%	0%	0%	3%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	786	167	129	722	0	270	68	407	38	65	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	12.0
Total Split (s)	59.0	59.0	59.0	13.0	72.0		21.0	38.0	38.0	17.0	17.0	
Total Split (%)	53.6%	53.6%	53.6%	11.8%	65.5%		19.1%	34.5%	34.5%	15.5%	15.5%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	4.0
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	58.3	58.3	58.3	72.2	72.2		28.9	28.9	28.9	10.1	10.1	
Actuated g/C Ratio	0.53	0.53	0.53	0.66	0.66		0.26	0.26	0.26	0.09	0.09	
v/c Ratio	0.05	0.84	0.18	0.52	0.59		0.81	0.15	0.70	0.35	0.40	
Control Delay	7.1	15.9	0.5	15.0	17.3		55.0	29.8	20.1	54.8	45.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	7.1	15.9	0.5	15.0	17.3		55.0	29.8	20.1	54.8	45.9	
LOS	A	B	A	B	B		D	C	C	D	D	
Approach Delay		13.1			17.0			33.6			49.2	
Approach LOS		B			B			C			D	

Intersection Summary

DONE BY BJM DATE 5/20/15
CHECKED BY eps DATE 5/20/15

Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015

Area Type: Other

Cycle Length: 110

Actuated Cycle Length: 110

Offset: 94 (85%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization: 82.5%

ICU Level of Service: E

Analysis Period (min): 15

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY ASB DATE 5/20/15

CHECKED BY eps DATE 5/20/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	786	167	129	722	270	68	407	38	65
v/c Ratio	0.05	0.84	0.18	0.52	0.59	0.81	0.15	0.70	0.35	0.40
Control Delay	7.1	15.9	0.5	15.0	17.3	55.0	29.8	20.1	54.8	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.1	15.9	0.5	15.0	17.3	55.0	29.8	20.1	54.8	45.9
Queue Length 50th (ft)	2	118	0	44	355	165	36	98	26	36
Queue Length 95th (ft)	m3	m242	m0	m46	m332	#257	69	203	59	78
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	307	940	910	248	1226	333	537	642	140	204
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.84	0.18	0.52	0.59	0.81	0.13	0.63	0.27	0.32

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY BSM DATE 5/20/15

CHECKED BY EJD DATE 5/20/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	162	888	187	182	541	170	223	267	206	329	335	89
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1508	1583	0	1463	1540	0	1508	1587	1363	1448	1557	0
Flt Permitted	0.104			0.081			0.245			0.190		
Satd. Flow (perm)	165	1583	0	125	1540	0	889	1587	1363	290	1557	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		13			19				194			11
Link Speed (mph)		35			35			35				35
Link Distance (ft)		950			214			348				1493
Travel Time (s)		18.5			4.2			6.8				29.1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	4%	1%	1%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1097	0	186	725	0	228	272	210	336	433	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		
Detector Phase	5	2		1	6		3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6		12.6	15.6		12.7	15.7	15.7	12.7	15.7	
Total Split (s)	13.0	54.0		13.0	54.0		15.0	21.0	21.0	22.0	28.0	
Total Split (%)	11.8%	49.1%		11.8%	49.1%		13.6%	19.1%	19.1%	20.0%	25.5%	
Yellow Time (s)	3.6	3.6		3.6	3.6		3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6		4.6	4.6		4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	
Act Effect Green (s)	57.8	49.4		57.8	49.4		26.6	16.3	16.3	38.3	23.3	
Actuated g/C Ratio	0.53	0.45		0.53	0.45		0.24	0.15	0.15	0.35	0.21	
v/c Ratio	0.87	1.53		1.11	1.03		1.15	1.16	0.57	1.19	1.28	
Control Delay	57.6	264.6		130.8	72.9		141.3	150.3	14.5	143.7	183.3	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	57.6	264.6		130.8	72.9		141.3	150.3	14.5	143.7	183.3	
LOS	E	F		F	E		F	F	B	F	F	
Approach Delay		237.5			84.8			107.3			166.0	
Approach LOS		F			F			F			F	

Intersection Summary

Area Type: Other
 Cycle Length: 110

DONE BY ADS DATE 5/28/15
 CHECKED BY CPS DATE 5/28/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2 EBTL and 6 WBTL, Start of Green, Master Intersection

Natural Cycle: 150

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.53

Intersection Signal Delay: 159.0

Intersection LOS: F

Intersection Capacity Utilization 134.8%

ICU Level of Service H

Analysis Period (min) 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



DONE BY BJB DATE 5/22/15

CHECKED BY EPA DATE 5/28/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

5/20/2015



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	165	1097	186	725	228	272	210	336	433
v/c Ratio	0.87	1.53	1.11	1.03	1.15	1.16	0.57	1.19	1.28
Control Delay	57.6	264.6	130.8	72.9	141.3	150.3	14.5	143.7	183.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.6	264.6	130.8	72.9	141.3	150.3	14.5	143.7	183.3
Queue Length 50th (ft)	68	~1082	~108	~543	~145	~228	10	~246	~384
Queue Length 95th (ft)	m#133	#1335	#254	#776	#298	#392	82	#429	#584
Internal Link Dist (ft)		870		134		268			1413
Turn Bay Length (ft)	150				135		90	125	
Base Capacity (vph)	189	718	167	702	198	235	367	283	338
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.87	1.53	1.11	1.03	1.15	1.16	0.57	1.19	1.28

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ASTB DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

5/20/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖ ↗	↖ ↗		↖ ↗	
Volume (vph)	135	1180	777	1	0	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1999	2039	0	1853	0
Flt Permitted		0.995				
Satd. Flow (perm)	0	1999	2039	0	1853	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Confl. Peds. (#/hr)	2			2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1384	819	0	123	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 127.8%
 Analysis Period (min) 15
 ICU Level of Service H

DONE BY AM DATE 5/20/15
 CHECKED BY efs DATE 5/20/15

Intersection

Intersection Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	135	1180	777	1	0	117
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	142	1242	818	1	0	123

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	819	0	2344
Stage 1	-	-	818
Stage 2	-	-	1526
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	818	-	36
Stage 1	-	-	418
Stage 2	-	-	184
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	816	-	16
Mov Capacity-2 Maneuver	-	-	16
Stage 1	-	-	418
Stage 2	-	-	81

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	19.6
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	816	-	-	-	369
HCM Lane V/C Ratio	0.174	-	-	-	0.334
HCM Control Delay (s)	10.34	0	-	-	19.6
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.628	-	-	-	1.436

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BTA DATE 5/20/15
 CHECKED BY EP DATE 5/20/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		• ↖	• ↗		• ↕		• ↙	• ↘		• ↙	• ↘	
Volume (vph)	• 562	• 7	• 483	• 0	• 0	• 1	• 45	• 134	• 2	• 12	• 163	• 62
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Grade (%)		• -3%			• 4%			• -2%			• 0%	
Storage Length (ft)	• 0		• 150	• 0		• 0	• 125		• 0	• 125		• 0
Storage Lanes	• 0		• 1	• 0		• 0	• 1		• 0	• 1		• 0
Taper Length (ft)	• 25			• 25			• 25			• 25		
Satd. Flow (prot)	• 0	• 1838	• 1639	• 0	• 1611	• 0	• 1823	• 1878	• 0	• 1805	• 1822	• 0
Flt Permitted		• 0.953					• 0.950			• 0.950		
Satd. Flow (perm)	• 0	• 1838	• 1639	• 0	• 1611	• 0	• 1823	• 1878	• 0	• 1805	• 1822	• 0
Link Speed (mph)		• 25			• 15			• 25			• 25	
Link Distance (ft)		• 1016			• 81			• 540			• 763	
Travel Time (s)		• 27.7			• 3.7			• 14.7			• 20.8	
Confl. Peds (#/hr)							• 4					• 4
Peak Hour Factor	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85	• 0.85
Heavy Vehicles (%)	• 0%	• 0%	• 0%	• 0%	• 0%	• 0%	• 0%	• 2%	• 0%	• 0%	• 0%	• 0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	• 0	• 669	• 568	• 0	• 1	• 0	• 53	• 160	• 0	• 14	• 265	• 0
Sign Control		• Stop			• Stop			• Free			• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 64.1%
 Analysis Period (min) 15
 ICU Level of Service C

DONE BY BJS DATE 5/28/15

CHECKED BY eps DATE 5/28/15

Intersection

Intersection Delay, s/veh 150.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	562	7	483	0	0	1	45	134	2	12	163	62
Conflicting Peds, #/hr	0	0	0	0	0	0	4	0	0	0	0	4
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	150	-	-	-	125	-	-	125	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-3	-	-	4	-	-	-2	-	-	0	-
Peak Hour Factor	85	85	85	85	85	85	85	85	85	85	85	85
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	661	8	568	0	0	1	53	158	2	14	192	73

Major/Minor	Minor2	Minor1	Major1	Major2
Conflicting Flow All	521	522	232	526
Stage 1	256	256	-	265
Stage 2	265	266	-	261
Follow-up Headway	3.5	4	3.3	3.5
Pot Capacity-1 Maneuver	# 512	504	828	414
Stage 1	786	730	-	702
Stage 2	778	724	-	706
Time blocked-Platoon, %				
Mov Capacity-1 Maneuver	# 490	479	825	122
Mov Capacity-2 Maneuver	# 490	479	-	122
Stage 1	754	723	-	674
Stage 2	743	695	-	214

Approach	EB	WB	NB	SB
HCM Control Delay, s	210	9.2	2	0.4
HCM LOS	F	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1307	-	-	538	825	868	1427	-	-
HCM Lane V/C Ratio	0.041	-	-	1.596	0.459	0.001	0.01	-	-
HCM Control Delay (s)	7.871	-	-	296.9	13	9.2	7.548	-	-
HCM Lane LOS	A			F	B	A	A		
HCM 95th %tile Q(veh)	0.127	-	-	46.961	2.44	0.004	0.03	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DESIGNED BY CSM DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
 11: Cherry Dr & Sand Hill Rd

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEL	SBT	SBR
Lane Configurations												
Volume (vph)	398	7	222	0	1	2	102	138	0	5	185	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1784	0	0	1921	0	0	1737	0	0	1708	0
Flt Permitted		0.969						0.979			0.999	
Satd. Flow (perm)	0	1784	0	0	1921	0	0	1737	0	0	1708	0
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	666	0	0	3	0	0	256	0	0	276	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other

Control Type: Unsignalized

Intersection Capacity Utilization 80.0%

ICU Level of Service D

Analysis Period (min) 15

DONE BY ASB DATE 5/28/15
 CHECKED BY EPB DATE 5/28/15

Intersection												
Intersection Delay, s/veh	38.9											
Intersection LOS	E											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	398	7	222	0	1	2	102	138	0	5	185	70
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	2	1	0	0	0	0
Mvmt Flow	423	7	236	0	1	2	109	147	0	5	197	74
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	58.3	9.6	14.9	14.7
HCM LOS	F	A	B	B










Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	42%	63%	0%	2%
Vol Thru, %	57%	1%	33%	71%
Vol Right, %	0%	35%	67%	27%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	240	627	3	260
LT Vol	138	7	1	185
Through Vol	0	222	2	70
RT Vol	102	398	0	5
Lane Flow Rate	255	667	3	277
Geometry Grp	1	1	1	1
Degree of Util (X)	0.462	1	0.006	0.477
Departure Headway (Hd)	6.509	5.438	6.483	6.208
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	559	660	551	584
Service Time	4.495	3.51	4.531	4.201
HCM Lane V/C Ratio	0.456	1.011	0.005	0.474
HCM Control Delay	14.9	58.3	9.6	14.7
HCM Lane LOS	B	F	A	B
HCM 95th-ile Q	2.4	15.7	0	2.6

Notes
~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ADP DATE 5/20/15
CHECKED BY EJS DATE 5/20/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	• 			• 	• 	
Volume (vph)	• 252	• 405	• 151	• 434	• 476	• 131
Ideal Flow (vphpl)	• 1900	• 1900	• 1900	• 1900	• 1900	• 1900
Lane Width (ft)	• 9	• 9	• 10	• 10	• 14	• 14
Grade (%)	• 0%			• 1%	• -4%	
Satd Flow (prot)	• 1527	• 0	• 0	• 1729	• 1976	• 0
Flt Permitted	0.981			0.987		
Satd Flow (perm)	• 1527	• 0	• 0	• 1729	• 1976	• 0
Link Speed (mph)	• 35			• 35	• 35	
Link Distance (ft)	• 1171			• 1607	• 348	
Travel Time (s)	• 22.8			• 31.3	• 6.8	
Peak Hour Factor	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99	• 0.99
Heavy Vehicles (%)	• 2%	• 0%	• 0%	• 1%	• 2%	• 0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	• 664	• 0	• 0	• 591	• 613	• 0
Sign Control	• Stop			• Free	• Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 113.1% ICU Level of Service H
 Analysis Period (min) 15

DONE BY ADJ DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

HCM 2010 TWSC
12: Fishburn Rd (SR 2011) & Sand Hill Rd

5/20/2015

Intersection

Intersection Delay, s/veh 260.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	252	405	151	434	476	131
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	2	0
Mvmt Flow	255	409	153	438	481	132

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1290	547	613
Stage 1	547	-	-
Stage 2	743	-	-
Follow-up Headway	3.518	3.3	2.2
Pot Capacity-1 Maneuver	# 180	541	976
Stage 1	580	-	-
Stage 2	470	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	# 143	541	976
Mov Capacity-2 Maneuver	# 143	-	-
Stage 1	580	-	-
Stage 2	373	-	-

Approach	EB	NB	SB
HCM Control Delay, s	\$ 730.6	2.4	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	976	-	262	-	-
HCM Lane V/C Ratio	0.156	-	2.533	-	-
HCM Control Delay (s)	9.37	0	\$ 730.6	-	-
HCM Lane LOS	A	A	F	-	-
HCM 95th %tile Q(veh)	0.553	-	54.75	-	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ASB DATE 5/20/15
CHECKED BY eps DATE 5/28/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

5/20/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	144	89	0	0	315	152	100	46	15	37	0	247
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1687	0	0	1842	1628	1661	1541	0	1652	1492	0
Flt Permitted		0.427					0.308			0.709		
Satd. Flow (perm)	0	742	0	0	1842	1593	538	1541	0	1233	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						181		12			630	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	2		3	3		2						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	0%	0%	4%	0%	4%	3%	46%	3%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	277	0	0	375	181	119	73	0	44	294	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	55.0	55.0			55.0	55.0	36.0	36.0		36.0	36.0	
Total Split (%)	43.7%	43.7%			43.7%	43.7%	28.6%	28.6%		28.6%	28.6%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effct Green (s)		47.4			47.4	47.4	28.4	28.4		28.4	28.4	
Actuated g/C Ratio		0.39			0.39	0.39	0.24	0.24		0.24	0.24	
v/c Ratio		0.95			0.52	0.25	0.94	0.20		0.15	0.35	
Control Delay		79.5			31.5	4.3	114.1	33.1		38.7	1.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		79.5			31.5	4.3	114.1	33.1		38.7	1.2	
LOS		E			C	A	F	C		D	A	
Approach Delay		79.5			22.6			83.3			6.1	
Approach LOS		E			C			F			A	

Intersection Summary

Area Type: Other

DONE BY BDS DATE 5/28/15

CHECKED BY EJS DATE 5/28/15

Lane Group	09
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	• 9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	• 33.0
Minimum Split (s)	• 35.0
Total Split (s)	• 35.0
Total Split (%)	• 28%
Yellow Time (s)	• 2.0
All-Red Time (s)	• 0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	• Min
Act Effect Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	
Intersection Summary	

DONE BY ASD DATE 5/20/15
 CHECKED BY EJS DATE 5/20/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

5/20/2015

Cycle Length: 126
 Actuated Cycle Length: 120.8
 Natural Cycle: 110
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.95
 Intersection Signal Delay: 38.6
 Intersection Capacity Utilization: 69.0%
 Analysis Period (min): 15

Intersection LOS: D
 ICU Level of Service: C

Splits and Phases: 13: Centerview Dr & Campus Dr

↑ p2	→ p4	↑↑ p9
55%	55%	55%
↓ p6	← p8	
55%	55%	

DONE BY MDM DATE 5/28/15
 CHECKED BY eps DATE 5/28/15

Queues

13: Centerview Dr & Campus Dr

5/20/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	277	375	181	119	73	44	294
v/c Ratio	0.95	0.52	0.25	0.94	0.20	0.15	0.35
Control Delay	79.5	31.5	4.3	114.1	33.1	38.7	1.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	31.5	4.3	114.1	33.1	38.7	1.2
Queue Length 50th (ft)	215	229	0	94	39	28	0
Queue Length 95th (ft)	#352	296	36	#194	75	57	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	309	767	769	140	410	322	855
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.90	0.49	0.24	0.85	0.18	0.14	0.34

Intersection Summary

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

DONE BY BOM DATE 5/28/15
 CHECKED BY EJS DATE 5/28/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↘	↙	↑	↘	↖	↑	↘	↙	↖	↙
Volume (vph)	25	775	316	213	368	83	71	84	87	53	130	17
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1756	1522	1719	1815	1479	1833	1791	1624	1702	1760	0
Flt Permitted	0.519			0.109			0.324			0.698		
Satd. Flow (perm)	929	1756	1501	197	1815	1459	623	1791	1563	1231	1760	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			267			123			95		4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)	1		2	2		1	2		8	8		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	3%	4%	0%	1%	1%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	842	343	232	400	90	77	91	95	58	159	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.7	42.7	42.7	12.4	32.4	32.4	15.0	15.0	
Total Split (s)	12.0	68.0	13.0	17.0	73.0	73.0	13.0	35.0	35.0	22.0	22.0	
Total Split (%)	10.0%	56.7%	10.8%	14.2%	60.8%	60.8%	10.8%	29.2%	29.2%	18.3%	18.3%	
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	72.4	65.3	74.0	82.6	75.5	75.5	28.3	28.3	28.3	15.5	15.5	
Actuated g/C Ratio	0.60	0.54	0.62	0.69	0.63	0.63	0.24	0.24	0.24	0.13	0.13	
v/c Ratio	0.04	0.88	0.33	0.79	0.35	0.09	0.33	0.22	0.22	0.36	0.69	
Control Delay	7.2	37.1	3.2	44.4	9.5	0.9	39.8	37.5	8.1	53.7	64.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	7.2	37.1	3.2	44.4	9.5	0.9	39.8	37.5	8.1	53.7	64.1	
LOS	A	D	A	D	A	A	D	D	A	D	E	
Approach Delay		26.9			19.7			27.6			61.3	
Approach LOS		C			B			C			E	

Intersection Summary

Area Type: Other

DONE BY Bors DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 14 (12%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 27.9
Intersection Capacity Utilization: 84.1%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: E

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)

DONE BY BOM DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Queues

1: University Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	27	842	343	232	400	90	77	91	95	58	159
v/c Ratio	0.04	0.88	0.33	0.79	0.35	0.09	0.33	0.22	0.22	0.36	0.69
Control Delay	7.2	37.1	3.2	44.4	9.5	0.9	39.8	37.5	8.1	53.7	64.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.2	37.1	3.2	44.4	9.5	0.9	39.8	37.5	8.1	53.7	64.1
Queue Length 50th (ft)	6	570	21	102	108	0	47	56	0	41	115
Queue Length 95th (ft)	16	#854	57	#217	152	m8	88	101	43	84	188
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	609	956	1031	298	1141	963	233	456	469	180	261
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.04	0.88	0.33	0.78	0.35	0.09	0.33	0.20	0.20	0.32	0.61

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

DONE BY BDB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	498	340	236	639	44	59	17	76	34	174	9
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1697	0	1727	1743	0	0	1651	1624	0	2024	0
Flt Permitted	0.365			0.059				0.378			0.936	
Satd. Flow (perm)	653	1697	0	107	1743	0	0	648	1560	0	1904	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		44			6				88			2
Link Speed (mph)		35			35			25				25
Link Distance (ft)		974			921			1602				866
Travel Time (s)		19.0			17.9			43.7				23.6
Confl. Peds. (#/hr)	1		1	1		1			8	8		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	8%	0%	0%	3%	5%	4%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	974	0	274	794	0	0	89	88	0	252	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8				4
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4		4
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0		3.0
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9		11.9
Total Split (s)	68.0	68.0		13.0	81.0		39.0	39.0	39.0	39.0		39.0
Total Split (%)	56.7%	56.7%		10.8%	67.5%		32.5%	32.5%	32.5%	32.5%		32.5%
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0		3.0
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9		1.9
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-0.5	-0.5	-0.5	-0.5		-0.5
Total Lost Time (s)	4.1	4.1		4.1	4.1		4.4	4.4	4.4	4.4		4.4
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None		None
Act Effct Green (s)	63.9	63.9		89.8	89.8			21.7	21.7			21.7
Actuated g/C Ratio	0.53	0.53		0.75	0.75			0.18	0.18			0.18
v/c Ratio	0.02	1.05		0.73	0.61			0.77	0.25			0.73
Control Delay	7.0	51.8		48.0	10.2			83.6	9.5			58.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0			0.0
Total Delay	7.0	51.8		48.0	10.2			83.6	9.5			58.1
LOS	A	D		D	B			F	A			E
Approach Delay		51.5			19.9			46.8				58.1
Approach LOS		D			B			D				E

Intersection Summary

Area Type: Other

DONE BY ATV DATE 6/18/15

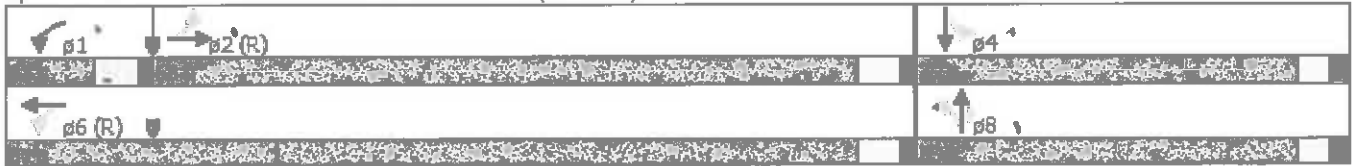
CHECKED BY ESP DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 120
Actuated Cycle Length: 120
Offset: 28 (23%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 38.2
Intersection Capacity Utilization: 92.8%
Analysis Period (min): 15
Intersection LOS: D
ICU Level of Service: F

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY CSM DATE 6/18/15
CHECKED BY EJD DATE 6/18/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	6	974	274	794	89	88	252
v/c Ratio	0.02	1.05	0.73	0.61	0.77	0.25	0.73
Control Delay	7.0	51.8	48.0	10.2	83.6	9.5	58.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.0	51.8	48.0	10.2	83.6	9.5	58.1
Queue Length 50th (ft)	1	-812	174	238	66	0	185
Queue Length 95th (ft)	m1	#963	#323	317	116	38	244
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	347	924	374	1305	186	512	550
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.02	1.05	0.73	0.61	0.48	0.17	0.46

Intersection Summary

- Volume exceeds capacity, queue is theoretically infinite
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY BOB DATE 6/18/15

CHECKED BY EJD DATE 6/18/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	↗		↘	↘
Volume (vph)	4	607	946	1	2	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd. Flow (prot)	0	1725	1799	0	1710	0
Flt Permitted					0.992	
Satd. Flow (perm)	0	1725	1799	0	1710	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	2%	100%	0%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	657	1018	0	12	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 59.9% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BOB DATE 6/18/15

CHECKED BY EP DATE 6/18/15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	607	946	1	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	6	2	100	0	11
Mvmt Flow	4	653	1017	1	2	10

Major/Minor

	Major1	Major2	Minor2
Conflicting Flow All	1018	0	1679
Stage 1	-	-	1018
Stage 2	-	-	661
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	689	-	140
Stage 1	-	-	417
Stage 2	-	-	578
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	689	-	139
Mov Capacity-2 Maneuver	-	-	139
Stage 1	-	-	417
Stage 2	-	-	573

Approach

	EB	WB	SB
HCM Control Delay, s	0.1	0	20.2
HCM LOS			C

Minor Lane / Major Minor

	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	689	-	-	-	248
HCM Lane V/C Ratio	0.006	-	-	-	0.048
HCM Control Delay (s)	10.258	0	-	-	20.2
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.019	-	-	-	0.149

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY Bois DATE 6/18/15
 CHECKED BY esp DATE 6/18/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Volume (vph)	4	606	2	0	884	3	2	0	0	1	0	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%			1%	
Satd Flow (prot)	0	1751	0	0	1771	0	0	1626	0	0	1820	0
Flt Permitted								0.950			0.999	
Satd Flow (perm)	0	1751	0	0	1771	0	0	1626	0	0	1820	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds. (#/hr)			10	10								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	0%	0%	3%	67%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	658	0	0	954	0	0	2	0	0	57	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

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

DATE BY BOB DATE 6/18/15
 CHECKED BY EJP DATE 6/19/15

HCM 2010 TWSC
4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	606	2	0	884	3	2	0	0	1	0	52
Conflicting Peds, #/hr	0	0	10	10	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	3	67	0	0	0	0	0	2
Mvmt Flow	4	652	2	0	951	3	2	0	0	1	0	56

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	954	0	0	654
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.2	-	-	2.2
Pot Capacity-1 Maneuver	729	-	-	943
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	723	-	-	936
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	117.9	20.8
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	34	723	-	-	936	-	-	284
HCM Lane V/C Ratio	0.063	0.006	-	-	-	-	-	0.201
HCM Control Delay (s)	117.9	10.009	0	-	0	-	-	20.8
HCM Lane LOS	F	B	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.193	0.018	-	-	0	-	-	0.734

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ASM DATE 6/18/15
CHECKED BY EPD DATE 6/18/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↖	→		↗	
Volume (vph)	3	612	889	1	1	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Satd. Flow (prot)	0	1742	1783	0	1903	0
Flt Permitted					0.988	
Satd. Flow (perm)	0	1742	1783	0	1903	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	668	967	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.9% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BJB DATE 6/18/15
 CHECKED BY EP DATE 6/18/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	3	612	889	1	1	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	3	665	966	1	1	3

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	967	0	1639
Stage 1	-	-	967
Stage 2	-	-	672
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	720	-	102
Stage 1	-	-	353
Stage 2	-	-	493
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	720	-	101
Mov Capacity-2 Maneuver	-	-	101
Stage 1	-	-	353
Stage 2	-	-	490

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.2
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	720	-	-	-	202	-
HCM Lane V/C Ratio	0.005	-	-	-	0.022	-
HCM Control Delay (s)	10.023	0	-	-	23.2	-
HCM Lane LOS	B	A	-	-	C	-
HCM 95th %tile Q(veh)	0.014	-	-	-	0.066	-

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY Bors DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	2	601	875	0	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		2%	-2%		3%	
Satd Flow (prot)	0	1716	1819	0	1781	0
Flt Permitted						
Satd Flow (perm)	0	1716	1819	0	1781	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		379	1359		567	
Travel Time (s)		7.4	26.5		15.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	641	931	0	4	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.1% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BOB DATE 6/18/15
 CHECKED BY EPD DATE 6/18/15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	601	875	0	0	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	6	2	0	0	0
Mvmt Flow	2	639	931	0	0	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	931	0	1575
Stage 1	-	-	931
Stage 2	-	-	644
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	743	-	94
Stage 1	-	-	331
Stage 2	-	-	473
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	743	-	94
Mov Capacity-2 Maneuver	-	-	94
Stage 1	-	-	331
Stage 2	-	-	471

Approach	EB	WB	SB
HCM Control Delay, s	0	0	17.1
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBL	SBR
Capacity (veh/h)	743	-	-	-	302	-
HCM Lane V/C Ratio	0.003	-	-	-	0.014	-
HCM Control Delay (s)	9.859	0	-	-	17.1	-
HCM Lane LOS	A	A	-	-	C	-
HCM 95th %tile Q(veh)	0.009	-	-	-	0.043	-

Notes

- Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY CSM DATE 6/18/15
CHECKED BY EPS DATE 6/19/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↘	↙	↖		↖	↑	↘	↖	↖	↖
Volume (vph)	4	466	123	272	772	7	107	19	47	32	52	3
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	200		0	140		65	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	1707	1593	1580	1881	0	1565	1740	1500	1588	1776	0
Flt Permitted	0.315			0.334			0.521			0.744		
Satd. Flow (perm)	537	1707	1546	556	1881	0	856	1740	1478	1240	1776	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			128		1				80		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)	1		3	3		1	1		2	2		1
Confl. Bikes (#/hr)			3	3								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	7%	4%	2%	3%	0%	2%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	4	518	137	302	866	0	119	21	52	36	61	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	55.0	55.0	55.0	28.0	83.0		13.0	37.0	37.0	24.0	24.0	
Total Split (%)	45.8%	45.8%	45.8%	23.3%	69.2%		10.8%	30.8%	30.8%	20.0%	20.0%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effect Green (s)	68.5	68.5	68.5	88.5	88.5		22.6	22.6	22.6	11.8	11.8	
Actuated g/C Ratio	0.57	0.57	0.57	0.74	0.74		0.19	0.19	0.19	0.10	0.10	
v/c Ratio	0.01	0.53	0.15	0.56	0.62		0.56	0.06	0.15	0.30	0.35	
Control Delay	8.5	10.1	0.9	12.2	11.8		50.9	36.3	3.8	54.5	52.5	
Queue Delay	0.0	0.0	0.0	0.0	0.2		0.0	0.0	0.0	0.0	0.0	
Total Delay	8.5	10.1	0.9	12.2	12.0		50.9	36.3	3.8	54.5	52.5	
LOS	A	B	A	B	B		D	D	A	D	D	
Approach Delay		8.1			12.1			36.5			53.2	
Approach LOS		A			B			D			D	

Intersection Summary

DONE BY BJB DATE 6/18/15
CHECKED BY eps DATE 6/18/15

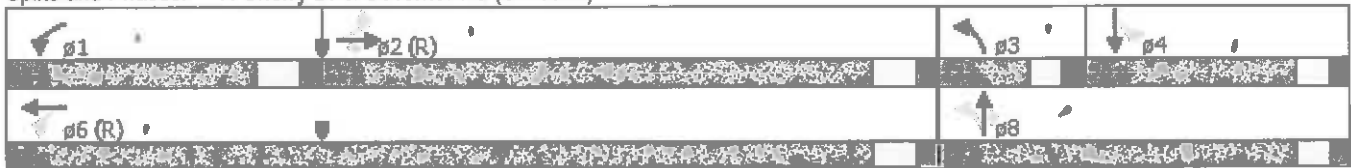
Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 116 (97%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.62
Intersection Signal Delay: 15.0
Intersection Capacity Utilization: 76.6%
Analysis Period (min): 15
Intersection LOS: B
ICU Level of Service: D

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY BJV DATE 6/18/15

CHECKED BY EPB DATE 6/18/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	4	518	137	302	866	119	21	52	36	61
v/c Ratio	0.01	0.53	0.15	0.56	0.62	0.56	0.06	0.15	0.30	0.35
Control Delay	8.5	10.1	0.9	12.2	11.8	50.9	36.3	3.8	54.5	52.5
Queue Delay	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	10.1	0.9	12.2	12.0	50.9	36.3	3.8	54.5	52.5
Queue Length 50th (ft)	0	66	0	57	263	81	13	0	27	44
Queue Length 95th (ft)	m1	m275	m11	m141	m463	125	33	14	57	81
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	306	974	938	607	1387	214	478	464	206	297
Starvation Cap Reductn	0	0	0	0	104	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.01	0.53	0.15	0.50	0.67	0.56	0.04	0.11	0.17	0.21

Intersection Summary

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

DONE BY BJB DATE 6/18/15

CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SBR
Lane Configurations												
Volume (vph)	19	370	123	49	776	156	241	200	99	146	125	42
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1422	1549	1382	1367	1618	1362	1493	1512	1298	1434	1515	0
Flt Permitted	0.099			0.391			0.352			0.496		
Satd. Flow (perm)	148	1549	1382	563	1618	1362	553	1512	1298	749	1515	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			131			127			126		13	
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		950			214			348			1493	
Travel Time (s)		18.5			4.2			6.8			29.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	1%	7%	2%	3%	2%	6%	5%	1%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	20	394	131	52	826	166	256	213	105	155	178	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6	15.6	12.6	15.6	15.6	12.7	15.7	15.7	12.7	15.7	
Total Split (s)	13.0	55.0	55.0	13.0	55.0	55.0	22.0	34.0	34.0	18.0	30.0	
Total Split (%)	10.8%	45.8%	45.8%	10.8%	45.8%	45.8%	18.3%	28.3%	28.3%	15.0%	25.0%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6	5.6	4.6	4.6	5.6	4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	65.3	59.2	58.2	68.3	64.7	63.7	40.4	23.4	23.4	32.0	19.2	
Actuated g/C Ratio	0.54	0.49	0.48	0.57	0.54	0.53	0.34	0.20	0.20	0.27	0.16	
v/c Ratio	0.13	0.52	0.18	0.14	0.95	0.21	0.80	0.72	0.30	0.57	0.71	
Control Delay	11.8	14.9	2.7	13.5	48.8	6.6	50.6	59.1	6.2	37.4	58.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	11.8	14.9	2.7	13.5	48.8	6.6	50.6	59.1	6.2	37.4	58.7	
LOS	B	B	A	B	D	A	D	E	A	D	E	
Approach Delay		11.8			40.3			45.6			48.8	
Approach LOS		B			D			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 120

DONE BY BMB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Actuated Cycle Length: 120

Offset: 0 (0%), Referenced to phase 2 EBTL and 6 WBTL, Start of Green, Master Intersection

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 36.4

Intersection LOS: D

Intersection Capacity Utilization: 84.6%

ICU Level of Service: E

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



DONE BY Bob DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	20	394	131	52	826	166	256	213	105	155	178
v/c Ratio	0.13	0.52	0.18	0.14	0.95	0.21	0.80	0.72	0.30	0.57	0.71
Control Delay	11.8	14.9	2.7	13.5	48.8	6.6	50.6	59.1	6.2	37.4	58.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.8	14.9	2.7	13.5	48.8	6.6	50.6	59.1	6.2	37.4	58.7
Queue Length 50th (ft)	3	70	1	17	525	13	156	156	0	88	122
Queue Length 95th (ft)	m11	143	17	40	#1027	64	#230	229	31	134	190
Internal Link Dist (ft)		870			134			268			1413
Turn Bay Length (ft)	150						135		90	125	
Base Capacity (vph)	170	764	737	378	872	782	321	369	412	278	329
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.52	0.18	0.14	0.95	0.21	0.80	0.58	0.25	0.56	0.54

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

DONE BY BWB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		↓	↓
Volume (vph)	54	564	848	0	0	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1921	2039	0	1817	0
Flt Permitted		0.996				
Satd. Flow (perm)	0	1921	2039	0	1817	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	657	902	0	119	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type:	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	88.1%
Analysis Period (min)	15
	ICU Level of Service E

DONE BY com DATE 6/18/15
 CHECKED BY eps DATE 6/19/15

HCM 2010 TWSC
9: Governor Rd (SR 0322) & Elm Ave

6/18/2015

Intersection

Intersection Delay, s/veh 1.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	54	564	848	0	0	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	5	3	0	0	2
Mvmt Flow	57	600	902	0	0	119

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	902	0	1617
Stage 1	-	-	902
Stage 2	-	-	715
Follow-up Headway	2.254	-	3.5
Pot Capacity-1 Maneuver	737	-	105
Stage 1	-	-	380
Stage 2	-	-	469
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	737	-	93
Mov Capacity-2 Maneuver	-	-	93
Stage 1	-	-	380
Stage 2	-	-	415

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	22.1
HCM LOS			C

Minor Lane / Major Myrd	EBL	EBT	WBT	WBR	SBL
Capacity (veh/h)	737	-	-	-	328
HCM Lane V/C Ratio	0.078	-	-	-	0.363
HCM Control Delay (s)	10.297	0	-	-	22.1
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.253	-	-	-	1.612

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (vph)	16	0	22	1	1	3	333	127	12	24	40	351
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Flt Permitted		0.950			0.992		0.950			0.950		
Satd. Flow (perm)	0	1712	1639	0	1681	0	1823	1860	0	1805	1622	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds. (#/hr)							6		13	13		6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	19	27	0	6	0	401	167	0	29	471	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 56.1% ICU Level of Service B
 Analysis Period (min) 15

DONE BY ASTB DATE 6/18/15
 CHECKED BY egs DATE 6/18/15

HCM 2010 AWSC

10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Intersection

Intersection Delay, s/veh 14.6
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	16	0	22	1	1	3	333	127	12	24	40	351
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles, %	7	0	0	0	0	0	0	2	0	0	13	0
Mvmt Flow	19	0	27	1	1	4	401	153	14	29	48	423
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	9.8	9.7	14.7	15
HCM LOS	A	A	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	20%	100%	0%
Vol Thru, %	0%	91%	0%	0%	20%	0%	10%
Vol Right, %	0%	9%	0%	100%	60%	0%	90%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	333	139	16	22	5	24	391
LT Vol	0	127	0	0	1	0	40
Through Vol	0	12	0	22	3	0	351
RT Vol	333	0	16	0	1	24	0
Lane Flow Rate	401	167	19	27	6	29	471
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.619	0.234	0.04	0.045	0.011	0.046	0.629
Departure Headway (Hd)	5.552	5.023	7.44	6.098	6.654	5.721	4.808
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	650	712	478	581	541	625	749
Service Time	3.304	2.774	5.24	3.897	4.654	3.469	2.556
HCM Lane V/C Ratio	0.617	0.235	0.04	0.046	0.011	0.046	0.629
HCM Control Delay	17	9.3	10.6	9.2	9.7	8.7	15.4
HCM Lane LOS	C	A	B	A	A	A	C
HCM 95th-tile Q	4.3	0.9	0.1	0.1	0	0.1	4.5

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BJB DATE 6/18/15

CHECKED BY Ejs DATE 6/18/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	20	3	39	0	0	1	188	124	1	6	55	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1628	0	0	1826	0	0	1717	0	0	1571	0
Flt Permitted		0.984						0.971			0.999	
Satd. Flow (perm)	0	1628	0	0	1826	0	0	1717	0	0	1571	0
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	11%	0%	0%	0%	1%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	0	0	1	0	0	381	0	0	404	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization: 57.3%
 Analysis Period (min): 15
 ICU Level of Service: B

DONE BY BJB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

HCM 2010 AWSC
11: Cherry Dr & Sand Hill Rd

6/18/2015

Intersection

Intersection Delay, s/veh 11
Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	20	3	39	0	0	1	188	124	1	6	55	271
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles, %	0	0	11	0	0	0	1	3	0	0	2	0
Mvmt Flow	24	4	48	0	0	1	229	151	1	7	67	330
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	8.2	12	10.4
HCM LOS	A	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	32%	0%	2%
Vol Thru, %	40%	5%	0%	17%
Vol Right, %	0%	63%	100%	82%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	313	62	1	332
LT Vol	124	3	0	55
Through Vol	1	39	1	271
RT Vol	188	20	0	6
Lane Flow Rate	382	76	1	405
Geometry Grp	1	1	1	1
Degree of Util (X)	0.49	0.11	0.002	0.453
Departure Headway (Hd)	4.619	5.221	5.071	4.032
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	779	683	700	891
Service Time	2.655	3.28	3.145	2.062
HCM Lane V/C Ratio	0.49	0.111	0.001	0.455
HCM Control Delay	12	8.9	8.2	10.4
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.7	0.4	0	2.4

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BSM DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	82	51	284	457	253	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	10	10	14	14
Grade (%)	0%			1%	-4%	
Satd Flow (prot)	1563	0	0	1703	1929	0
Flt Permitted	0.970			0.981		
Satd Flow (perm)	1563	0	0	1703	1929	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1171			1607	348	
Travel Time (s)	22.8			31.3	6.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	1%	2%	4%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	146	0	0	814	336	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 74.0% ICU Level of Service D
 Analysis Period (min) 15

DONE BY BOB DATE 6/18/15
 CHECKED BY EPS DATE 6/18/15

HCM 2010 TWSC
12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015

Intersection

Intersection Delay, s/veh 17.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	82	51	284	457	253	53
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	91	91	91	91	91	91
Heavy Vehicles, %	1	0	1	2	4	8
Mvmt Flow	90	56	312	502	278	58

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1433	307	336
Stage 1	307	-	-
Stage 2	1126	-	-
Follow-up Headway	3.509	3.3	2.209
Pot Capacity-1 Maneuver	148	738	1229
Stage 1	748	-	-
Stage 2	311	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	96	738	1229
Mov Capacity-2 Maneuver	96	-	-
Stage 1	748	-	-
Stage 2	202	-	-

Approach	EB	NB	SB
HCM Control Delay, s	140.3	3.4	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1229	-	144	-	-
HCM Lane V/C Ratio	0.254	-	1.015	-	-
HCM Control Delay (s)	8.923	0	140.3	-	-
HCM Lane LOS	A	A	F		
HCM 95th %tile Q(veh)	1.012	-	7.539	-	-

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY RAM DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖			↖	↖	↖	↖		↖	↖	
Volume (vph)	190	201	0	0	67	30	33	20	32	46	0	68
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1714	0	0	1681	1628	1727	1420	0	1668	1478	0
Flt Permitted		0.802					0.701			0.714		
Satd. Flow (perm)	0	1409	0	0	1681	1591	1274	1420	0	1254	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						57		41			955	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confi. Bikes (#/hr)	3		2	2		3						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	3%	1%	0%	0%	14%	0%	0%	0%	26%	2%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	495	0	0	85	38	42	66	0	58	86	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	39.0	39.0			39.0	39.0	16.0	16.0		16.0	16.0	
Total Split (%)	43.3%	43.3%			43.3%	43.3%	17.8%	17.8%		17.8%	17.8%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effect Green (s)		32.2			32.2	32.2	9.7	9.7		9.7	9.7	
Actuated g/C Ratio		0.38			0.38	0.38	0.11	0.11		0.11	0.11	
v/c Ratio		0.92			0.13	0.06	0.29	0.33		0.40	0.08	
Control Delay		51.2			19.0	3.0	41.5	22.9		45.4	0.2	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		51.2			19.0	3.0	41.5	22.9		45.4	0.2	
LOS		D			B	A	D	C		D	A	
Approach Delay		51.2			14.0			30.1			18.4	
Approach LOS		D			B			C			B	

Intersection Summary

Area Type: Other

DONE BY BM DATE 6/18/15

CHECKED BY ES DATE 6/18/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Lane Group		g9
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases		9
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	33.0	
Minimum Split (s)	35.0	
Total Split (s)	35.0	
Total Split (%)	39%	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Min	
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

DONE BY MDJ DATE 6/18/15
 CHECKED BY EPB DATE 6/19/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Cycle Length: 90
 Actuated Cycle Length: 84.4
 Natural Cycle: 90
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.92
 Intersection Signal Delay: 37.9
 Intersection Capacity Utilization: 46.4%
 Analysis Period (min): 15

Intersection LOS: D
 ICU Level of Service: A

Splits and Phases: 13: Centerview Dr & Campus Dr

↑ ø2	→ ø4	↗ ø9
↓ ø6	← ø8	

DONE BY RCM DATE 6/18/15
 CHECKED BY EPB DATE 6/18/15

Queues

13: Centerview Dr & Campus Dr

6/18/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	495	85	38	42	66	58	86
v/c Ratio	0.92	0.13	0.06	0.29	0.33	0.40	0.08
Control Delay	51.2	19.0	3.0	41.5	22.9	45.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	19.0	3.0	41.5	22.9	45.4	0.2
Queue Length 50th (ft)	261	31	0	22	13	31	0
Queue Length 95th (ft)	#368	54	8	47	42	60	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	576	688	685	173	228	170	1026
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.12	0.06	0.24	0.29	0.34	0.08

Intersection Summary

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

DONE BY COM DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Volume (vph)	79	473	110	64	772	235	241	226	102	36	55	46	
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12	
Grade (%)		1%			-1%			-1%				-3%	
Storage Length (ft)	180		0	220		220	0		165	0		0	
Storage Lanes	1		1	1		1	1		1	1		0	
Taper Length (ft)	25			25			25			25			
Satd. Flow (prot)	1701	1756	1507	1719	1851	1522	1833	1809	1640	1736	1666	0	
Flt Permitted	0.122			0.357			0.373			0.613			
Satd. Flow (perm)	219	1756	1480	644	1851	1522	720	1809	1587	1109	1666	0	
Right Turn on Red			Yes			Yes			Yes			Yes	
Satd. Flow (RTOR)			113			200			105			33	
Link Speed (mph)		35			35			25				25	
Link Distance (ft)		1985			974			881				833	
Travel Time (s)		38.7			19.0			24.0				22.7	
Confl. Peds. (#/hr)			8	8					7	7			
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	4%	0%	
Shared Lane Traffic (%)													
Lane Group Flow (vph)	81	488	113	66	796	242	248	233	105	37	104	0	
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		
Protected Phases	5	2	3	1	6		3	8			4		
Permitted Phases	2		2	6		6	8		8	4			
Detector Phase	5	2	3	1	6	6	3	8	8	4	4		
Switch Phase													
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.0	42.7	12.4	12.0	42.7	42.7	12.4	32.4	32.4	12.0	12.0		
Total Split (s)	12.0	51.0	23.0	12.0	51.0	51.0	23.0	37.0	37.0	14.0	14.0		
Total Split (%)	12.0%	51.0%	23.0%	12.0%	51.0%	51.0%	23.0%	37.0%	37.0%	14.0%	14.0%		
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag		
Lead-Lag Optimize?													
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None	
Act Effct Green (s)	59.3	53.4	70.4	59.2	53.3	53.3	27.9	27.9	27.9	9.0	9.0		
Actuated g/C Ratio	0.59	0.53	0.70	0.59	0.53	0.53	0.28	0.28	0.28	0.09	0.09		
v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.64	0.46	0.20	0.37	0.58		
Control Delay	13.0	20.3	1.2	12.6	33.6	8.1	37.0	31.7	5.9	53.6	43.5		
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
Total Delay	13.0	20.3	1.2	12.6	33.6	8.1	37.0	31.7	5.9	53.6	43.5		
LOS	B	C	A	B	C	A	D	C	A	D	D		
Approach Delay		16.2			26.7			29.3			46.1		
Approach LOS		B			C			C			D		

Intersection Summary

Area Type: Other

DONE BY Bom DATE 6/18/15
 CHECKED BY ep DATE 6/18/15

Lanes, Volumes, Timings

1: University Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 100

Actuated Cycle Length: 100

Offset: 60 (60%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 25.6

Intersection LOS: C

Intersection Capacity Utilization 82.8%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY Bois DATE 6/18/15

CHECKED BY eps DATE 6/18/15

Queues

1: University Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	81	488	113	66	796	242	248	233	105	37	104
v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.64	0.46	0.20	0.37	0.58
Control Delay	13.0	20.3	1.2	12.6	33.6	8.1	37.0	31.7	5.9	53.6	43.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.0	20.3	1.2	12.6	33.6	8.1	37.0	31.7	5.9	53.6	43.5
Queue Length 50th (ft)	21	224	0	24	519	36	122	114	0	22	43
Queue Length 95th (ft)	42	330	15	m29	m#722	m62	193	183	36	55	99
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180			220		220			165		
Base Capacity (vph)	239	937	1103	460	987	905	415	589	588	107	191
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.52	0.10	0.14	0.81	0.27	0.60	0.40	0.18	0.35	0.54

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY CSJ DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	14	500	46	50	613	71	335	80	189	37	18	31
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		0	170		0	0		300	0		0
Storage Lanes	1		0	1		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	1805	0	1693	1737	0	0	1704	1624	0	1868	0
Flt Permitted	0.270			0.212				0.726			0.678	
Satd. Flow (perm)	483	1805	0	378	1737	0	0	1284	1565	0	1290	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			9				195		32	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	3		11	11		3	2		8	8		2
Confl. Bikes (#/hr)			4	4								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	5%	2%	3%	0%	1%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	562	0	52	705	0	0	427	195	0	89	0
Turn Type	Perm	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Detector Phase	2	2		1	6		8	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0		3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.1	15.1		12.1	15.1		11.9	11.9	11.9	11.9	11.9	
Total Split (s)	42.0	42.0		14.0	56.0		44.0	44.0	44.0	44.0	44.0	
Total Split (%)	42.0%	42.0%		14.0%	56.0%		44.0%	44.0%	44.0%	44.0%	44.0%	
Yellow Time (s)	3.8	3.8		3.8	3.8		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	1.3	1.3		1.3	1.3		1.9	1.9	1.9	1.9	1.9	
Lost Time Adjust (s)	-1.0	-1.0		-1.0	-1.0		-0.5	-0.5	-0.5	-0.5	-0.5	
Total Lost Time (s)	4.1	4.1		4.1	4.1		4.4	4.4	4.4	4.4	4.4	
Lead/Lag	Lag	Lag		Lead								
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max		None	C-Max		None	None	None	None	None	None
Act Effect Green (s)	44.8	44.8		54.8	54.8			36.7	36.7		36.7	
Actuated g/C Ratio	0.45	0.45		0.55	0.55			0.37	0.37		0.37	
v/c Ratio	0.06	0.69		0.17	0.74			0.91	0.28		0.18	
Control Delay	11.7	24.8		13.4	25.2			54.5	4.0		14.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	
Total Delay	11.7	24.8		13.4	25.2			54.5	4.0		14.3	
LOS	B	C		B	C			D	A		B	
Approach Delay		24.4			24.4			38.7			14.3	
Approach LOS		C			C			D			B	

Intersection Summary

DONE BY BOB DATE 6/18/15

CHECKED BY ESB DATE 6/18/15

Lanes, Volumes, Timings

2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset 99 (99%), Referenced to phase 2 EBTL and 6:WBTL, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 28.3
Intersection Capacity Utilization: 81.6%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: D

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DESIGNED BY Bois DATE 6/18/15
CHECKED BY efs DATE 6/18/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	WBL	WBT	NBT	NBR	SBT
Lane Group Flow (vph)	14	562	52	705	427	195	89
v/c Ratio	0.06	0.69	0.17	0.74	0.91	0.28	0.18
Control Delay	11.7	24.8	13.4	25.2	54.5	4.0	14.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.7	24.8	13.4	25.2	54.5	4.0	14.3
Queue Length 50th (ft)	5	362	16	414	242	0	23
Queue Length 95th (ft)	m10	#506	m34	566	#419	43	56
Internal Link Dist (ft)		894		841	1522		786
Turn Bay Length (ft)	170		170			300	
Base Capacity (vph)	216	812	337	956	508	737	530
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.69	0.15	0.74	0.84	0.26	0.17

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY CS DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	11	738	737	4	3	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd. Flow (prot)	0	1756	1799	0	1725	0
Flt Permitted		0.999			0.987	
Satd. Flow (perm)	0	1756	1799	0	1725	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	4%	2%	0%	0%	13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	756	748	0	11	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 57.6% ICU Level of Service B
 Analysis Period (min) 15

DONE BY BSB DATE 6/18/15
 CHECKED BY EPS DATE 6/18/15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	11	738	737	4	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	4	2	0	0	13
Mvmt Flow	11	745	744	4	3	8

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	748	0	1514
Stage 1	-	-	746
Stage 2	-	-	768
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	870	-	171
Stage 1	-	-	535
Stage 2	-	-	524
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	870	-	167
Mov Capacity-2 Maneuver	-	-	167
Stage 1	-	-	535
Stage 2	-	-	512

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.5
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBL
Capacity (veh/h)	870	-	-	-	298
HCM Lane V/C Ratio	0.013	-	-	-	0.037
HCM Control Delay (s)	9.191	0	-	-	17.5
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.039	-	-	-	0.116

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BOB DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	44	670	0	0	736	12	2	0	0	1	0	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%			1%	
Satd Flow (prot)	0	1797	0	0	1784	0	0	1626	0	0	1739	0
Flt Permitted		0.997						0.950			0.996	
Satd Flow (perm)	0	1797	0	0	1784	0	0	1626	0	0	1739	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds. (#/hr)	1		7	7		1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	0%	0%	2%	17%	0%	0%	0%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	729	0	0	763	0	0	2	0	0	13	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

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

DONE BY BTM DATE 6/18/15

CHECKED BY EPS DATE 6/18/15

HCM 2010 TWSC
4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	44	670	0	0	736	12	2	0	0	1	0	12
Conflicting Peds, #/hr	1	0	7	7	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	3	0	0	2	17	0	0	0	0	0	8
Mvmt Flow	45	684	0	0	751	12	2	0	0	1	0	12

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	763	0	0	684
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.2
Pot Capacity-1 Maneuver	850	-	-	919
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	845	-	-	914
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	83.3	17.6
HCM LOS			F	C

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	48	845	-	-	914	-	-	300
HCM Lane V/C Ratio	0.043	0.053	-	-	-	-	-	0.044
HCM Control Delay (s)	83.3	9.499	0	-	0	-	-	17.6
HCM Lane LOS	F	A	A	-	A	-	-	C
HCM 95th %tile Q(veh)	0.13	0.168	-	-	0	-	-	0.138

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY POB DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	4	695	739	3	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Satd Flow (prot)	0	1775	1799	0	2143	0
Flt Permitted						
Satd Flow (perm)	0	1775	1799	0	2143	0
Link Speed (mph)		30	30		25	
Lnk Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	720	765	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization: 43.1%
 Analysis Period (min): 15
 ICU Level of Service: A

DONE BY BJB DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	695	739	3	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	2	0	0	0
Mvmt Flow	4	716	762	3	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	765	0	763
Stage 1	-	-	-
Stage 2	-	-	-
Follow-up Headway	2.2	-	3.3
Pot Capacity-1 Maneuver	857	-	399
Stage 1	-	-	-
Stage 2	-	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	857	-	399
Mov Capacity-2 Maneuver	-	-	-
Stage 1	-	-	-
Stage 2	-	-	-

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	0
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	857	-	-	-	0
HCM Lane V/C Ratio	0.005	-	-	-	+
HCM Control Delay (s)	9.221	0	-	-	0
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0.015	-	-	-	+

Notes

- : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY OSTA DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↔		↕	↕
Volume (vph)	4	693	739	5	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		2%	-2%		3%	
Satd. Flow (prot)	0	1766	1817	0	1781	0
Flt Permitted						
Satd. Flow (perm)	0	1766	1817	0	1781	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		379	1359		567	
Travel Time (s)		7.4	26.5		15.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	704	751	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 49.7% ICU Level of Service A
 Analysis Period (min) 15

DONE BY BSM DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	693	739	5	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	4	700	746	5	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	752	0	1457
Stage 1	-	-	749
Stage 2	-	-	708
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	867	-	113
Stage 1	-	-	416
Stage 2	-	-	437
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	867	-	112
Mov Capacity-2 Maneuver	-	-	112
Stage 1	-	-	416
Stage 2	-	-	434

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	14.3
HCM LOS			B

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLA1
Capacity (veh/h)	867	-	-	-	390
HCM Lane V/C Ratio	0.005	-	-	-	0.005
HCM Control Delay (s)	9.172	0	-	-	14.3
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0.014	-	-	-	0.016

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ADM DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR				
Lane Configurations																
Volume (vph)	11	533	132	94	524	37	168	44	291	25	39	13				
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800				
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12				
Grade (%)		-3%			-2%			0%			1%					
Storage Length (ft)	100		210	200		0	140		65	100		0				
Storage Lanes	1		1	1		0	1		1	1		0				
Taper Length (ft)	25			25			25			25						
Satd. Flow (prot)	1620	1774	1640	1565	1864	0	1580	1740	1530	1588	1639	0				
Flt Permitted	0.444			0.309			0.479			0.727						
Satd. Flow (perm)	757	1774	1603	509	1864	0	794	1740	1530	1215	1639	0				
Right Turn on Red			Yes			Yes			Yes			Yes				
Satd. Flow (RTOR)			141		7				303		14					
Link Speed (mph)		35			35			25			25					
Link Distance (ft)		1359			950			763			556					
Travel Time (s)		26.5			18.5			20.8			15.2					
Confl. Peds. (#/hr)			1	1			2					2				
Confl. Bikes (#/hr)			1	1			2					2				
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96				
Heavy Vehicles (%)	0%	3%	1%	3%	3%	3%	1%	0%	0%	0%	3%	8%				
Shared Lane Traffic (%)																
Lane Group Flow (vph)	11	555	138	98	585	0	175	46	303	26	55	0				
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA					
Protected Phases		2		1	6		3	8			4					
Permitted Phases	2		2	6			8		8	4						
Detector Phase	2	2	2	1	6		3	8	8	4	4					
Switch Phase																
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0					
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0					
Total Split (s)	57.0	57.0	57.0	12.0	69.0		16.0	31.0	31.0	15.0	15.0					
Total Split (%)	57.0%	57.0%	57.0%	12.0%	69.0%		16.0%	31.0%	31.0%	15.0%	15.0%					
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0					
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0					
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0					
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0					
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag					
Lead-Lag Optimize?																
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None					
Act Effct Green (s)	58.1	58.1	58.1	68.4	68.4		22.7	22.7	22.7	9.1	9.1					
Actuated g/C Ratio	0.58	0.58	0.58	0.68	0.68		0.23	0.23	0.23	0.09	0.09					
v/c Ratio	0.03	0.54	0.14	0.23	0.46		0.64	0.12	0.52	0.24	0.34					
Control Delay	19.8	30.5	11.2	6.3	7.2		43.7	29.0	7.0	46.8	39.3					
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0					
Total Delay	19.8	30.5	11.2	6.3	7.2		43.7	29.0	7.0	46.8	39.3					
LOS	B	C	B	A	A		D	C	A	D	D					
Approach Delay		26.6			7.0			21.2			41.7					
Approach LOS		C			A			C			D					

Intersection Summary

DONE BY BJB DATE 6/18/15

CHECKED BY Ejs DATE 6/18/15


Lanes, Volumes, Timings

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
 Cycle Length: 100
 Actuated Cycle Length: 100
 Offset: 8 (8%), Referenced to phase 2-EBTL and 6-WBTL, Start of Green
 Natural Cycle: 65
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.64
 Intersection Signal Delay: 19.1
 Intersection Capacity Utilization: 67.8%
 Analysis Period (min): 15
 Intersection LOS: B
 ICU Level of Service: C

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)

 <p>ø1</p>	 <p>ø2 (R)</p>	 <p>ø3</p>	 <p>ø4</p>
 <p>ø5</p>	 <p>ø6 (R)</p>	 <p>ø7</p>	 <p>ø8</p>

DONE BY BDB DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	11	555	138	98	585	175	46	303	26	55
v/c Ratio	0.03	0.54	0.14	0.23	0.46	0.64	0.12	0.52	0.24	0.34
Control Delay	19.8	30.5	11.2	6.3	7.2	43.7	29.0	7.0	46.8	39.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	30.5	11.2	6.3	7.2	43.7	29.0	7.0	46.8	39.3
Queue Length 50th (ft)	6	344	36	18	125	94	23	0	16	25
Queue Length 95th (ft)	m13	463	m70	m26	m167	155	50	63	42	62
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	200		140		65	100	
Base Capacity (vph)	440	1031	990	429	1276	276	469	634	133	192
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.03	0.54	0.14	0.23	0.46	0.63	0.10	0.48	0.20	0.29

Intersection Summary

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

DONE BY MB DATE 6/18/15

CHECKED BY EPB DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SBR
Lane Configurations												
Volume (vph)	56	771	156	103	451	161	160	206	124	234	266	33
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		0	0		0	135		90	125		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1508	1625	1382	1463	1587	1389	1508	1587	1363	1448	1578	0
Flt Permitted	0.362			0.086			0.308			0.307		
Satd. Flow (perm)	575	1625	1382	132	1587	1389	489	1587	1363	468	1578	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			153			164			152			6
Link Speed (mph)		35			35			35				35
Link Distance (ft)		950			214			348				1493
Travel Time (s)		18.5			4.2			6.8				29.1
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	4%	1%	1%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	787	159	105	460	164	163	210	127	239	305	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	12.6	15.6	15.6	12.6	15.6	15.6	12.7	15.7	15.7	12.7	15.7	
Total Split (s)	12.0	50.0	50.0	12.0	50.0	50.0	13.0	21.0	21.0	17.0	25.0	
Total Split (%)	12.0%	50.0%	50.0%	12.0%	50.0%	50.0%	13.0%	21.0%	21.0%	17.0%	25.0%	
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.6	4.6	5.6	4.6	4.6	5.6	4.7	4.7	4.7	4.7	4.7	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	
Act Effct Green (s)	52.6	45.4	44.4	53.7	47.8	46.8	24.6	16.3	16.3	32.6	20.3	
Actuated g/C Ratio	0.53	0.45	0.44	0.54	0.48	0.47	0.25	0.16	0.16	0.33	0.20	
v/c Ratio	0.15	1.07	0.23	0.62	0.61	0.22	0.80	0.81	0.36	0.88	0.94	
Control Delay	13.1	78.2	6.8	32.6	24.4	3.5	56.3	65.5	7.1	60.2	76.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.1	78.2	6.8	32.6	24.4	3.5	56.3	65.5	7.1	60.2	76.5	
LOS	B	E	A	C	C	A	E	E	A	E	E	
Approach Delay		63.2			20.9			47.7			69.3	
Approach LOS		E			C			D			E	

Intersection Summary

Area Type: Other
 Cycle Length: 100

DONE BY BDB DATE 6/18/15

CHECKED BY EPS DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Actuated Cycle Length: 100

Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green, Master Intersection

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.07

Intersection Signal Delay: 50.5

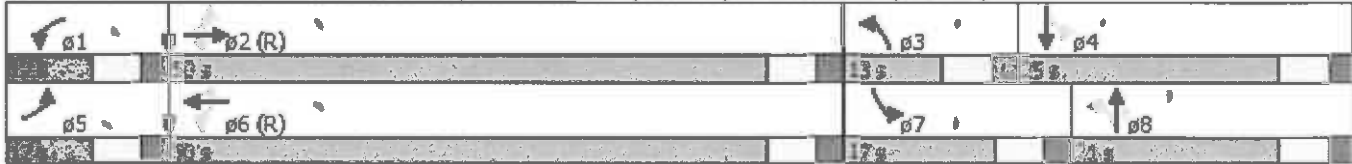
Intersection LOS: D

Intersection Capacity Utilization: 97.4%

ICU Level of Service: F

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



DONE BY MP DATE 6/18/15

CHECKED BY EP DATE 6/18/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	57	787	159	105	460	164	163	210	127	239	305
v/c Ratio	0.15	1.07	0.23	0.62	0.61	0.22	0.80	0.81	0.36	0.88	0.94
Control Delay	13.1	78.2	6.8	32.6	24.4	3.5	56.3	65.5	7.1	60.2	76.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	78.2	6.8	32.6	24.4	3.5	56.3	65.5	7.1	60.2	76.5
Queue Length 50th (ft)	15	~535	8	29	219	0	77	131	0	121	190
Queue Length 95th (ft)	m35	#776	38	#93	330	36	#155	#252	35	#223	#355
Internal Link Dist (ft)		870			134			268			1413
Turn Bay Length (ft)	150						135		90	125	
Base Capacity (vph)	372	737	698	169	758	736	204	258	349	273	325
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	1.07	0.23	0.62	0.61	0.22	0.80	0.81	0.36	0.88	0.94

Intersection Summary

- ~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ADJ DATE 6/18/15

CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↶	↷		↶	↷
Volume (vph)	108	913	617	1	0	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1999	2039	0	1853	0
Flt Permitted		0.995				
Satd. Flow (perm)	0	1999	2039	0	1853	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Confl. Peds. (#/hr)	2			2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1075	650	0	104	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 102.7% ICU Level of Service G
 Analysis Period (min) 15

DONE BY ASD DATE 6/18/15
 CHECKED BY ESD DATE 6/18/15

HCM 2010 TWSC
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015

Intersection

Intersection Delay, s/veh 1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	108	913	617	1	0	99
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	114	961	649	1	0	104

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	651	0	1838
Stage 1	-	-	650
Stage 2	-	-	1188
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	945	-	76
Stage 1	-	-	505
Stage 2	-	-	273
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	943	-	56
Mov Capacity-2 Maneuver	-	-	56
Stage 1	-	-	505
Stage 2	-	-	202

Approach	EB	WB	SB
HCM Control Delay, s	1	0	15
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	943	-	-	-	462
HCM Lane V/C Ratio	0.121	-	-	-	0.226
HCM Control Delay (s)	9.34	0	-	-	15
HCM Lane LOS	A	A	-	-	C
HCM 95th %tile Q(veh)	0.41	-	-	-	0.857

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY COB DATE 6/18/15
 CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
 10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	410	6	351	0	0	1	20	110	2	10	143	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	125		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd Flow (prot)	0	1838	1639	0	1611	0	1823	1878	0	1805	1847	0
Flt Permitted		0.953					0.950			0.950		
Satd Flow (perm)	0	1838	1639	0	1611	0	1823	1878	0	1805	1847	0
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds (#/hr)							4					4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	489	413	0	1	0	24	131	0	12	206	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 53.0% ICU Level of Service A
 Analysis Period (min) 15

DONE BY ESP DATE 6/15/15
 CHECKED BY ESP DATE 6/18/15

HCM 2010 AWSC
 10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Intersection

Intersection Delay, s/veh 21.8
 Intersection LOS C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	410	6	351	0	0	1	20	110	2	10	143	32
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles, %	0	0	0	0	0	0	0	2	0	0	0	0
Mvmt Flow	482	7	413	0	0	1	24	129	2	12	168	38
Number of Lanes	0	1	1	0	1	0	1	1	0	1	1	0

Approach

	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	1	2
HCM Control Delay	25.5	9.4	12.1	13.7
HCM LOS	D	A	B	B

Lane

	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	SBLn1	SBLn2
Vol Left, %	100%	0%	99%	0%	0%	100%	0%
Vol Thru, %	0%	98%	1%	0%	0%	0%	82%
Vol Right, %	0%	2%	0%	100%	100%	0%	18%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	20	112	416	351	1	10	175
LT Vol	0	110	6	0	0	0	143
Through Vol	0	2	0	351	1	0	32
RT Vol	20	0	410	0	0	10	0
Lane Flow Rate	24	132	489	413	1	12	206
Geometry Grp	7	7	7	7	6	7	7
Degree of Util (X)	0.05	0.26	0.85	0.579	0.002	0.024	0.391
Departure Headway (Hd)	7.587	7.098	6.252	5.051	6.297	7.486	6.845
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	472	506	582	714	567	478	525
Service Time	5.334	4.845	3.984	2.782	4.354	5.232	4.591
HCM Lane V/C Ratio	0.051	0.261	0.84	0.578	0.002	0.025	0.392
HCM Control Delay	10.7	12.3	34.8	14.5	9.4	10.4	13.9
HCM Lane LOS	B	B	D	B	A	B	B
HCM 95th-tile Q	0.2	1	9.2	3.7	0	0.1	1.8

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY EP DATE 6/18/15
 CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
 11: Cherry Dr & Sand Hill Rd

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	297	6	174	0	1	2	84	104	0	4	146	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1784	0	0	1921	0	0	1735	0	0	1720	0
Flt Permitted		0.970						0.978			0.999	
Satd. Flow (perm)	0	1784	0	0	1921	0	0	1735	0	0	1720	0
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Confl. Peds (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	507	0	0	3	0	0	200	0	0	202	0
Sign Control		Stop			Stop			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 64.8% ICU Level of Service C
 Analysis Period (min) 15

DONE BY BDM DATE 6/18/15

CHECKED BY EAD DATE 6/18/15

Intersection

Intersection Delay, s/veh 14.9
 Intersection LOS B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	297	6	174	0	1	2	84	104	0	4	146	40
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles, %	0	0	0	0	0	0	2	1	0	0	0	0
Mvmt Flow	316	6	185	0	1	2	89	111	0	4	155	43
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	18	8.5	11.4	10.9
HCM LOS	C	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	45%	62%	0%	2%
Vol Thru, %	55%	1%	33%	77%
Vol Right, %	0%	36%	67%	21%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	188	477	3	190
LT Vol	104	6	1	146
Through Vol	0	174	2	40
RT Vol	84	297	0	4
Lane Flow Rate	200	507	3	202
Geometry Grp	1	1	1	1
Degree of Util (X)	0.317	0.683	0.005	0.307
Departure Headway (Hd)	5.712	4.966	5.435	5.474
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	632	731	659	659
Service Time	3.72	2.966	3.467	3.482
HCM Lane V/C Ratio	0.316	0.694	0.005	0.307
HCM Control Delay	11.4	18	8.5	10.9
HCM Lane LOS	B	C	A	B
HCM 95th-tile Q	1.4	5.4	0	1.3

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BDJ DATE 6/18/15
 CHECKED BY EPB DATE 6/18/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			↑	↓	
Volume (vph)	100	297	88	382	387	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	10	10	14	14
Grade (%)	0%			1%	-4%	
Satd. Flow (prot)	1511	0	0	1734	1975	0
Fit Permitted	0.988			0.991		
Satd. Flow (perm)	1511	0	0	1734	1975	0
Link Speed (mph)	35			35	35	
Link Distance (ft)	1171			1607	348	
Travel Time (s)	22.8			31.3	6.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	0%	0%	1%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	401	0	0	475	504	0
Sign Control	Stop			Free	Free	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 86.0% ICU Level of Service E
 Analysis Period (min) 15

DONE BY BOB DATE 6/18/15
 CHECKED BY EGS DATE 6/18/15

HCM 2010 TWSC
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015

Intersection

Intersection Delay, s/veh 16.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	100	297	88	382	387	112
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	-4	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	0	0	1	2	0
Mvmt Flow	101	300	89	386	391	113

Major/Minor	Minor2	Major1	Major2
Conflicting Flow All	1011	447	504
Stage 1	447	-	-
Stage 2	564	-	-
Follow-up Headway	3.518	3.3	2.2
Pot Capacity-1 Maneuver	265	616	1071
Stage 1	644	-	-
Stage 2	569	-	-
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	237	616	1071
Mov Capacity-2 Maneuver	237	-	-
Stage 1	644	-	-
Stage 2	509	-	-

Approach	EB	NB	SB
HCM Control Delay, s	55	1.6	0
HCM LOS	F		

Minor Lane / Major Mvmt	NBL	NBT	EBL	EBR	SBT	SBR
Capacity (veh/h)	1071	-	439	-	-	-
HCM Lane V/C Ratio	0.083	-	0.913	-	-	-
HCM Control Delay (s)	8.665	0	55	-	-	-
HCM Lane LOS	A	A	F	-	-	-
HCM 95th %tile Q(veh)	0.271	-	10.116	-	-	-

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds, Error : Computation Not Defined

DONE BY ADP DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	64	0	0	224	108	87	40	13	32	0	180
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1685	0	0	1842	1628	1661	1548	0	1652	1492	0
Flt Permitted		0.518					0.434			0.716		
Satd. Flow (perm)	0	901	0	0	1842	1592	759	1548	0	1245	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						129		15			729	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	2		3	3		2						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	0%	0%	4%	0%	4%	3%	46%	3%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	214	0	0	267	129	104	63	0	38	214	0
Turn Type	Perm	NA			NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4					8	2			6		
Detector Phase	4	4			8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	12.7	12.7			12.7	12.7	16.0	16.0		16.0	16.0	
Total Split (s)	36.0	36.0			36.0	36.0	35.7	35.7		35.7	35.7	
Total Split (%)	33.7%	33.7%			33.7%	33.7%	33.5%	33.5%		33.5%	33.5%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)		-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None			None	None	None	None		None	None	
Act Effect Green (s)		27.9			27.9	27.9	16.9	16.9		16.9	16.9	
Actuated g/C Ratio		0.31			0.31	0.31	0.19	0.19		0.19	0.19	
v/c Ratio		0.77			0.47	0.22	0.73	0.21		0.16	0.25	
Control Delay		49.2			29.1	5.8	64.1	26.4		32.3	0.7	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		49.2			29.1	5.8	64.1	26.4		32.3	0.7	
LOS		D			C	A	E	C		C	A	
Approach Delay		49.2			21.5			49.9			5.4	
Approach LOS		D			C			D			A	

Intersection Summary

Area Type: Other

DONE BY ADJ DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Lane Group	ø9
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9 •
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	33.0 •
Minimum Split (s)	35.0 •
Total Split (s)	35.0 •
Total Split (%)	33% •
Yellow Time (s)	2.0 •
All-Red Time (s)	0.0 •
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Min •
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

DONE BY BM DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Cycle Length: 106.7
 Actuated Cycle Length: 90.1
 Natural Cycle: 80
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.77
 Intersection Signal Delay: 27.9
 Intersection Capacity Utilization: 55.8%
 Analysis Period (min): 15

Intersection LOS: C
 ICU Level of Service: B

Splits and Phases: 13: Centerview Dr & Campus Dr

↑ p2	→ p4	↗ p9
↓ p6	← p8	

DONE BY ADP DATE 6/18/15

CHECKED BY eps DATE 6/18/15

Queues

13: Centerview Dr & Campus Dr

6/18/2015



Lane Group	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	214	267	129	104	63	38	214
v/c Ratio	0.77	0.47	0.22	0.73	0.21	0.16	0.25
Control Delay	49.2	29.1	5.8	64.1	26.4	32.3	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	29.1	5.8	64.1	26.4	32.3	0.7
Queue Length 50th (ft)	109	121	0	58	24	19	0
Queue Length 95th (ft)	#223	202	35	107	53	43	0
Internal Link Dist (ft)	425	194			328		1522
Turn Bay Length (ft)						315	
Base Capacity (vph)	314	641	638	264	549	433	995
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.42	0.20	0.39	0.11	0.09	0.22

Intersection Summary

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

DONE BY BOB DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖	↖	↖	↖↖	↖	↖	↑	↖	↖	↖	↖
Volume (vph)	28	1042	421	274	491	101	95	109	106	90	209	19
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		250	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	3336	1522	1719	3448	1479	1833	1791	1624	1702	1769	0
Flt Permitted	0.453			0.087			0.259			0.681		
Satd. Flow (perm)	811	3336	1501	157	3448	1459	499	1791	1589	1210	1769	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			241			134			140		4	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1985			974			881			833	
Travel Time (s)		38.7			19.0			24.0			22.7	
Confl. Peds. (#/hr)	1		2	2		1	2		8	8		2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	2%	0%	0%	3%	4%	0%	1%	1%	2%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	1133	458	298	534	110	103	118	115	98	248	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.7	42.7	42.7	12.4	32.4	32.4	15.0	15.0	
Total Split (s)	12.0	49.0	13.0	19.0	56.0	56.0	13.0	42.0	42.0	29.0	29.0	
Total Split (%)	10.9%	44.5%	11.8%	17.3%	50.9%	50.9%	11.8%	38.2%	38.2%	26.4%	26.4%	
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	51.8	44.7	53.6	67.3	60.0	60.0	33.6	33.6	33.6	20.6	20.6	
Actuated g/C Ratio	0.47	0.41	0.49	0.61	0.55	0.55	0.31	0.31	0.31	0.19	0.19	
v/c Ratio	0.07	0.84	0.54	0.85	0.28	0.13	0.40	0.22	0.20	0.43	0.74	
Control Delay	10.8	36.3	10.0	54.8	15.6	3.7	31.8	28.4	3.4	44.7	54.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	10.8	36.3	10.0	54.8	15.6	3.7	31.8	28.4	3.4	44.7	54.8	
LOS	B	D	B	D	B	A	C	C	A	D	D	
Approach Delay		28.4			26.6			20.9			51.9	
Approach LOS		C			C			C			D	

Intersection Summary

Area Type: Other

DONE BY ADB DATE 6/18/15
CHECKED BY EPS DATE 6/18/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 86 (78%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 29.6
Intersection Capacity Utilization: 81.0%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: D

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)



DONE BY BD DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Queues

1: University Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	30	1133	458	298	534	110	103	118	115	98	248
v/c Ratio	0.07	0.84	0.54	0.85	0.28	0.13	0.40	0.22	0.20	0.43	0.74
Control Delay	10.8	36.3	10.0	54.8	15.6	3.7	31.8	28.4	3.4	44.7	54.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	36.3	10.0	54.8	15.6	3.7	31.8	28.4	3.4	44.7	54.8
Queue Length 50th (ft)	8	374	86	178	78	1	53	61	0	61	163
Queue Length 95th (ft)	22	468	169	m#220	m102	m8	92	103	26	111	243
Internal Link Dist (ft)		1905			894			801			753
Turn Bay Length (ft)	180		250	220		220			165		
Base Capacity (vph)	443	1355	856	349	1880	856	256	612	635	270	398
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.84	0.54	0.85	0.28	0.13	0.40	0.19	0.18	0.36	0.62

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

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

DONE BY Bob DATE 6/18/15

CHECKED BY ep DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	6	659	492	324	815	52	90	24	98	45	223	11
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		250	300		0	225		0	100		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	3361	1624	1727	1745	0	3174	1529	0	1948	2036	0
Flt Permitted	0.133			0.138			0.950			0.658		
Satd. Flow (perm)	238	3361	1588	251	1745	0	3174	1529	0	1339	2036	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			557		4			114			2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	1		1	1		1			8	8		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86	0.86
Heavy Vehicles (%)	0%	8%	0%	0%	3%	5%	4%	6%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	7	766	572	377	1008	0	105	142	0	52	272	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6						4		
Detector Phase	2	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0		3.0	3.0	
Minimum Split (s)	15.1	15.1	15.1	12.1	15.1		11.9	11.9		11.9	11.9	
Total Split (s)	29.0	29.0	29.0	22.0	51.0		31.0	20.0		39.0	28.0	
Total Split (%)	26.4%	26.4%	26.4%	20.0%	46.4%		28.2%	18.2%		35.5%	25.5%	
Yellow Time (s)	3.8	3.8	3.8	3.8	3.8		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.3	1.3	1.3	1.3	1.3		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0		-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.1	4.1	5.1	4.1	4.1		4.4	4.4		4.4	4.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	
Act Effect Green (s)	33.1	33.1	32.1	67.0	67.0		9.7	24.0		28.5	20.3	
Actuated g/C Ratio	0.30	0.30	0.29	0.61	0.61		0.09	0.22		0.26	0.18	
v/c Ratio	0.10	0.76	0.67	0.68	0.95		0.38	0.34		0.13	0.72	
Control Delay	31.7	29.8	7.2	32.4	38.8		53.8	37.0		25.0	52.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	31.7	29.8	7.2	32.4	38.8		53.8	37.0		25.0	52.4	
LOS	C	C	A	C	D		D	D		C	D	
Approach Delay		20.2			37.1			44.1			48.0	
Approach LOS		C			D			D			D	

Intersection Summary

Area Type: Other

DONE BY ADP DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 108 (98%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 31.8
Intersection LOS: C
Intersection Capacity Utilization: 87.5%
ICU Level of Service: E
Analysis Period (min): 15

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY RCB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	7	766	572	377	1008	105	142	52	272
v/c Ratio	0.10	0.76	0.67	0.68	0.95	0.38	0.34	0.13	0.72
Control Delay	31.7	29.8	7.2	32.4	38.8	53.8	37.0	25.0	52.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	29.8	7.2	32.4	38.8	53.8	37.0	25.0	52.4
Queue Length 50th (ft)	2	106	12	206	534	40	65	26	181
Queue Length 95th (ft)	m4	#376	m112	m290	#968	m52	m87	46	240
Internal Link Dist (ft)		894			841		1522		786
Turn Bay Length (ft)	170		250	300		225		100	
Base Capacity (vph)	71	1011	858	552	1064	767	423	642	449
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.76	0.67	0.68	0.95	0.14	0.34	0.08	0.61

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY ADP DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↖	↑	↗		↙	↘
Volume (vph)	5	802	1221	1	2	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd Flow (prot)	1736	1724	1799	0	1702	0
Flt Permitted	0.950				0.993	
Satd Flow (perm)	1736	1724	1799	0	1702	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	2%	100%	0%	11%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	862	1314	0	14	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type	Other
Control Type:	Unsignalized
Intersection Capacity Utilization	74.3%
Analysis Period (min)	15
	ICU Level of Service D

DONE BY BJB DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	802	1221	1	2	11
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	93	93	93	93	93	93
Heavy Vehicles, %	0	6	2	100	0	11
Mvmt Flow	5	862	1313	1	2	12

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1314	0	2186
Stage 1	-	-	1313
Stage 2	-	-	873
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	533	-	73
Stage 1	-	-	316
Stage 2	-	-	476
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	533	-	72
Mov Capacity-2 Maneuver	-	-	72
Stage 1	-	-	316
Stage 2	-	-	472

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	29.6
HCM LOS			D

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	533	-	-	-	160
HCM Lane V/C Ratio	0.01	-	-	-	0.087
HCM Control Delay (s)	11.823	-	-	-	29.6
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.031	-	-	-	0.283

Notes

~ : Volume Exceeds Capacity, \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BTP DATE 6/18/15

CHECKED BY Egs DATE 6/18/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	801	2	0	1151	4	2	0	0	1	0	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%			1%	
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1762	1750	0	0	1771	0	0	1626	0	0	1820	0
Flt Permitted	0.950							0.950			0.999	
Satd. Flow (perm)	1762	1750	0	0	1771	0	0	1626	0	0	1820	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds. (#/hr)			10	10								
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Heavy Vehicles (%)	0%	6%	0%	0%	3%	67%	0%	0%	0%	0%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	5	863	0	0	1242	0	0	2	0	0	64	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 71.2% ICU Level of Service C
 Analysis Period (min) 15

DONE BY Bob DATE 6/18/15
 CHECKED BY EJP DATE 6/18/15

HCM 2010 TWSC
4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Intersection

Intersection Delay, s/veh 1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	5	801	2	0	1151	4	2	0	0	1	0	59
Conflicting Peds, #/hr	0	0	10	10	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	93	93	93	93	93	93	93	93	93	93	93	93
Heavy Vehicles, %	0	6	0	0	3	67	0	0	0	0	0	2
Mvmt Flow	5	861	2	0	1238	4	2	0	0	1	0	63

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	1242	0	0	863
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.2	-	-	2.2
Pot Capacity-1 Maneuver	568	-	-	788
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	564	-	-	782
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.1	0	\$ 445.4	34.3
HCM LOS			F	D

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	10	564	-	-	782	-	-	186
HCM Lane V/C Ratio	0.215	0.01	-	-	-	-	-	0.347
HCM Control Delay (s)	\$ 445.4	11 444	-	-	0	-	-	34.3
HCM Lane LOS	F	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.533	0.029	-	-	0	-	-	1.454

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY MDZ DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
5: Governor Rd (SR 0322) & Beech Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↑	↔	↕	↕	
Volume (vph)	4	808	1156	1	1	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	1754	1741	1783	0	1892	0
Flt Permitted	0.950				0.990	
Satd. Flow (perm)	1754	1741	1783	0	1892	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	0%	6%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	878	1258	0	5	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 70.9% ICU Level of Service C
 Analysis Period (min) 15

DONE BY BDM DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	4	808	1156	1	1	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	6	3	0	0	0
Mvmt Flow	4	878	1257	1	1	4

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1258	0	2144
Stage 1	-	-	1257
Stage 2	-	-	887
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	560	-	48
Stage 1	-	-	252
Stage 2	-	-	386
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	560	-	48
Mov Capacity-2 Maneuver	-	-	48
Stage 1	-	-	252
Stage 2	-	-	383

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	35.4
HCM LOS			E

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	560	-	-	-	124
HCM Lane V/C Ratio	0.008	-	-	-	0.044
HCM Control Delay (s)	11.479	-	-	-	35.4
HCM Lane LOS	B	-	-	-	E
HCM 95th %tile Q(veh)	0.023	-	-	-	0.136

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ADP DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↑	↑	↑		↓	↓
Volume (vph)	2	795	1140	0	0	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		2%	-2%		3%	
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	1727	1715	1819	0	1781	0
Flt Permitted	0.950					
Satd. Flow (perm)	1727	1715	1819	0	1781	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		379	1359		567	
Travel Time (s)		7.4	26.5		15.5	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	6%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	2	846	1213	0	5	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 70.0%
 Analysis Period (min) 15
 ICU Level of Service C

DONE BY BM DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	2	795	1140	0	0	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	0	6	2	0	0	0
Mvmt Flow	2	846	1213	0	0	5

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1213	0	2063
Stage 1	-	-	1213
Stage 2	-	-	850
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	582	-	43
Stage 1	-	-	232
Stage 2	-	-	367
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	582	-	43
Mov Capacity-2 Maneuver	-	-	43
Stage 1	-	-	232
Stage 2	-	-	366

Approach	EB	WB	SB
HCM Control Delay, s	0	0	23.3
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBL1
Capacity (veh/h)	582	-	-	-	202
HCM Lane V/C Ratio	0.004	-	-	-	0.026
HCM Control Delay (s)	11.208	-	-	-	23.3
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.011	-	-	-	0.081

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ABM DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	5	610	171	372	1000	8	144	27	66	44	65	4
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%			1%	
Storage Length (ft)	100		210	350		0	300		250	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	3244	1593	1580	1881	0	1565	1740	1500	1588	1775	0
Fit Permitted	0.098			0.296			0.483			0.738		
Satd. Flow (perm)	167	3244	1547	492	1881	0	794	1740	1478	1230	1775	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			190		1				87		2	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Conf. Peds. (#/hr)	1		3	3		1	1		2	2		1
Conf. Bikes (#/hr)			3	3								
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	0%	7%	4%	2%	3%	0%	2%	0%	2%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	6	678	190	413	1120	0	160	30	73	49	76	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	55.0	55.0	55.0	18.0	73.0		18.0	37.0	37.0	19.0	19.0	
Total Split (%)	50.0%	50.0%	50.0%	16.4%	66.4%		16.4%	33.6%	33.6%	17.3%	17.3%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effct Green (s)	53.4	53.4	53.4	74.8	74.8		26.3	26.3	26.3	11.2	11.2	
Actuated g/C Ratio	0.49	0.49	0.49	0.68	0.68		0.24	0.24	0.24	0.10	0.10	
v/c Ratio	0.07	0.43	0.22	0.83	0.88		0.57	0.07	0.17	0.39	0.42	
Control Delay	5.8	4.8	0.7	29.4	32.9		41.8	29.4	5.6	54.5	51.3	
Queue Delay	0.0	0.0	0.0	0.0	3.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	5.8	4.8	0.7	29.4	35.9		41.8	29.4	5.6	54.5	51.3	
LOS	A	A	A	C	D		D	C	A	D	D	
Approach Delay		3.9			34.2			30.3			52.5	
Approach LOS		A			C			C			D	

Intersection Summary

DONE BY Bob DATE 6/18/15

CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 62 (56%), Referenced to phase 2-EBTL and 6-WBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 25.2
Intersection Capacity Utilization: 91.3%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: F

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY EP DATE 6/18/15

CHECKED BY EP DATE 6/18/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	6	678	190	413	1120	160	30	73	49	76
v/c Ratio	0.07	0.43	0.22	0.83	0.88	0.57	0.07	0.17	0.39	0.42
Control Delay	5.8	4.8	0.7	29.4	32.9	41.8	29.4	5.6	54.5	51.3
Queue Delay	0.0	0.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	4.8	0.7	29.4	35.9	41.8	29.4	5.6	54.5	51.3
Queue Length 50th (ft)	0	26	0	236	834	93	16	0	33	50
Queue Length 95th (ft)	m1	38	m1	m#344	m#1027	148	38	26	70	94
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	350		300		250	100	
Base Capacity (vph)	81	1574	848	497	1278	292	522	504	167	243
Starvation Cap Reductn	0	0	0	0	87	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.07	0.43	0.22	0.83	0.94	0.55	0.06	0.14	0.29	0.31

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer

Queue shown is maximum after two cycles.

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

DONE BY EPS DATE 6/18/15

CHECKED BY EPS DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	425	144	91	1032	147	303	251	139	198	171	138
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		250	250		250	225		90	300		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1422	2943	1382	1367	3074	1362	1493	1512	1298	1434	1571	1348
Flt Permitted	0.098			0.402			0.369			0.470		
Satd. Flow (perm)	147	2943	1382	579	3074	1362	580	1512	1298	709	1571	1348
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			195			195			138			194
Link Speed (mph)		35			35			35				35
Link Distance (ft)		950			214			348				1493
Travel Time (s)		18.5			4.2			6.8				29.1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	1%	7%	2%	3%	2%	6%	5%	1%	4%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	69	452	153	97	1098	156	322	267	148	211	182	147
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.6	15.6	15.6	12.6	15.6	15.6	12.7	15.7	15.7	12.7	15.7	15.7
Total Split (s)	13.0	39.0	39.0	13.0	39.0	39.0	28.0	36.0	36.0	22.0	30.0	30.0
Total Split (%)	11.8%	35.5%	35.5%	11.8%	35.5%	35.5%	25.5%	32.7%	32.7%	20.0%	27.3%	27.3%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0
Total Lost Time (s)	4.6	4.6	5.6	4.6	4.6	5.6	4.7	4.7	4.7	4.7	4.7	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effect Green (s)	49.5	40.8	39.8	51.5	43.7	42.7	46.0	25.3	25.3	35.3	19.3	18.3
Actuated g/C Ratio	0.45	0.37	0.36	0.47	0.40	0.39	0.42	0.23	0.23	0.32	0.18	0.17
v/c Ratio	0.42	0.41	0.25	0.29	0.90	0.24	0.76	0.77	0.37	0.64	0.66	0.38
Control Delay	16.4	23.9	10.0	19.6	45.0	2.8	34.9	54.0	9.1	30.5	53.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	19.1	0.9	0.0	0.0	0.0	0.6
Total Delay	16.4	23.9	10.0	19.6	45.0	2.8	54.0	54.9	9.1	30.5	53.3	5.4
LOS	B	C	A	B	D	A	D	D	A	C	D	A
Approach Delay		20.0			38.3			45.3			31.4	
Approach LOS		B			D			D			C	

Intersection Summary

Area Type: Other

Cycle Length: 110

DONE BY ERS DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2-EBTL and 6-WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 35.0

Intersection LOS: C

Intersection Capacity Utilization: 82.2%

ICU Level of Service: E

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

DONE BY rcor3 DATE 6/18/15

CHECKED BY EJ DATE 6/18/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	69	452	153	97	1098	156	322	267	148	211	182	147
v/c Ratio	0.42	0.41	0.25	0.29	0.90	0.24	0.76	0.77	0.37	0.64	0.66	0.38
Control Delay	16.4	23.9	10.0	19.6	45.0	2.8	34.9	54.0	9.1	30.5	53.3	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	19.1	0.9	0.0	0.0	0.0	0.6
Total Delay	16.4	23.9	10.0	19.6	45.0	2.8	54.0	54.9	9.1	30.5	53.3	5.4
Queue Length 50th (ft)	19	167	49	37	~413	0	161	176	6	97	121	0
Queue Length 95th (ft)	53	223	112	77	#611	27	221	255	54	141	185	23
Internal Link Dist (ft)		870			134			268			1413	
Turn Bay Length (ft)	150		250	250		250	225		90	300		150
Base Capacity (vph)	171	1091	624	338	1220	647	435	430	468	349	361	448
Starvation Cap Reductn	0	0	0	0	0	0	47	40	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	106	0	0	0	0	108
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.40	0.41	0.25	0.29	0.90	0.24	0.98	0.68	0.32	0.60	0.50	0.43

Intersection Summary

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

DONE BY *EPS* DATE 6/18/15
 CHECKED BY *EPS* DATE 6/18/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Volume (vph)	65	700	1106	0	0	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd Flow (prot)	0	1921	2039	0	1817	0
Flt Permitted		0.996				
Satd Flow (perm)	0	1921	2039	0	1817	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	6%	5%	3%	0%	0%	2%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	814	1177	0	149	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 106.1% ICU Level of Service G
 Analysis Period (min) 15

DONE BY Bob DATE 6/18/15
 CHECKED BY EJS DATE 6/19/15

HCM 2010 TWSC
9: Governor Rd (SR 0322) & Elm Ave

6/18/2015

Intersection

Intersection Delay, s/veh 3.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	65	700	1106	0	0	140
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	6	5	3	0	0	2
Mvmt Flow	69	745	1177	0	0	149

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	1177	0	2060
Stage 1	-	-	1177
Stage 2	-	-	883
Follow-up Headway	2.254	-	3.5
Pot Capacity-1 Maneuver	579	-	55
Stage 1	-	-	277
Stage 2	-	-	388
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	579	-	44
Mov Capacity-2 Maneuver	-	-	44
Stage 1	-	-	277
Stage 2	-	-	309

Approach	EB	WB	SB
HCM Control Delay, s	1	0	47.7
HCM LOS			E

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBL1
Capacity (veh/h)	579	-	-	-	225
HCM Lane V/C Ratio	0.119	-	-	-	0.662
HCM Control Delay (s)	12.059	0	-	-	47.7
HCM Lane LOS	B	A	-	-	E
HCM 95th %tile Q(veh)	0.404	-	-	-	4.103

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY SPS DATE 6/18/15
CHECKED BY SPS DATE 6/18/15

Lanes, Volumes, Timings
10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (vph)	39	0	43	1	1	4	465	151	14	27	46	498
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	300		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd Flow (prot)	0	1712	1639	0	1671	0	1823	1855	0	1805	1580	0
Flt Permitted		0.769			0.940		0.135			0.633		
Satd Flow (perm)	0	1386	1639	0	1582	0	259	1855	0	1186	1580	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd Flow (RTOR)			164		5			17			421	
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds. (#/hr)							6		13	13		6
Peak Hour Factor	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	7%	0%	0%	0%	0%	0%	0%	2%	0%	0%	13%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	47	52	0	7	0	560	199	0	33	655	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		13.0	16.0		16.0	16.0	
Total Split (s)	13.0	13.0	13.0	13.0	13.0		21.0	47.0		26.0	26.0	
Total Split (%)	21.7%	21.7%	21.7%	21.7%	21.7%		35.0%	78.3%		43.3%	43.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effect Green (s)		7.5	7.5		7.4		47.2	49.2		27.2	27.2	
Actuated g/C Ratio		0.12	0.12		0.12		0.79	0.82		0.45	0.45	
v/c Ratio		0.27	0.15		0.04		0.94	0.13		0.06	0.69	
Control Delay		27.8	0.9		17.3		36.9	5.0		13.3	11.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		27.8	0.9		17.3		36.9	5.0		13.3	11.3	
LOS		C	A		B		D	A		B	B	
Approach Delay		13.7			17.3			28.6			11.4	
Approach LOS		B			B			C			B	

Intersection Summary

Area Type: Other
Cycle Length: 60

DONE BY BM DATE 6/18/15

CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings

10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Actuated Cycle Length: 60

Offset 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.94

Intersection Signal Delay 20.0

Intersection LOS B

Intersection Capacity Utilization 80.9%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 10: Cherry Dr & Hope Dr/Kindercare Dwy



DONE BY CRB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Queues

10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015



Lane Group	EBT	EBR	WBT	WBL	NBT	SBL	SBT
Lane Group Flow (vph)	47	52	7	560	199	33	655
v/c Ratio	0.27	0.15	0.04	0.94	0.13	0.06	0.69
Control Delay	27.8	0.9	17.3	36.9	5.0	13.3	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	0.9	17.3	36.9	5.0	13.3	11.3
Queue Length 50th (ft)	16	0	1	163	35	8	63
Queue Length 95th (ft)	39	0	10	#277	m61	22	150
Internal Link Dist (ft)	936		1		460		683
Turn Bay Length (ft)		150		300		125	
Base Capacity (vph)	184	360	215	620	1524	538	946
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.26	0.14	0.03	0.90	0.13	0.06	0.69

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY BTB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Volume (vph)	36	4	50	0	0	1	240	159	1	7	75	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd Flow (prot)	0	1652	0	0	1826	0	0	1717	0	0	1570	0
Flt Permitted		0.869						0.559			0.993	
Satd Flow (perm)	0	1465	0	0	1826	0	0	988	0	0	1560	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd Flow (RTOR)		61			767						457	
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Peak Hour Factor	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82	0.82
Heavy Vehicles (%)	0%	0%	11%	0%	0%	0%	1%	3%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	110	0	0	1	0	0	488	0	0	557	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		16.0	16.0		16.0	16.0	
Total Split (s)	13.0	13.0		13.0	13.0		47.0	47.0		47.0	47.0	
Total Split (%)	21.7%	21.7%		21.7%	21.7%		78.3%	78.3%		78.3%	78.3%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effect Green (s)		7.4			7.4			45.9			45.9	
Actuated g/C Ratio		0.12			0.12			0.76			0.76	
v/c Ratio		0.47			0.00			0.65			0.43	
Control Delay		19.9			0.0			10.4			1.1	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		19.9			0.0			10.4			1.1	
LOS		B			A			B			A	
Approach Delay		19.9			0.0			10.4			1.1	
Approach LOS		B			A			B			A	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 60
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 60

DONE BY [Signature] DATE 6/18/15
 CHECKED BY [Signature] DATE 6/18/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

6/18/2015

Control Type: Actuated-Coordinated

Maximum v/c Ratio 0.65

Intersection Signal Delay: 6.8

Intersection Capacity Utilization 73.6%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service D

Splits and Phases: 11: Cherry Dr & Sand Hill Rd

 p2 (R)	 p4
 p6 (R)	 p8

DONE BY BOB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Queues

11: Cherry Dr & Sand Hill Rd

6/18/2015



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	110	1	488	557
v/c Ratio	0.47	0.00	0.65	0.43
Control Delay	19.9	0.0	10.4	1.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.9	0.0	10.4	1.1
Queue Length 50th (ft)	18	0	81	1
Queue Length 95th (ft)	m45	0	146	0
Internal Link Dist (ft)	460	277	1330	1091
Turn Bay Length (ft)				
Base Capacity (vph)	248	908	755	1300
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.44	0.00	0.65	0.43

Intersection Summary

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

DONE BY BOB DATE 6/19/15

CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBR	NBL	NBI	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↗	
Volume (vph)	151	76	407	541	308	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	10	10	14	14
Grade (%)	0%			1%	-4%	
Storage Length (ft)	200	0	125			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1608	1454	1660	1730	1930	0
Flt Permitted	0.950		0.318			
Satd. Flow (perm)	1608	1454	556	1730	1930	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		84			18	
Link Speed (mph)	35			35	35	
Link Distance (ft)	1171			1607	348	
Travel Time (s)	22.8			31.3	6.8	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	0%	1%	2%	4%	8%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	166	84	447	595	406	0
Turn Type	NA	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	
Minimum Split (s)	13.0	13.0	13.0	16.0	16.0	
Total Split (s)	14.0	14.0	21.0	46.0	25.0	
Total Split (%)	23.3%	23.3%	35.0%	76.7%	41.7%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effect Green (s)	8.9	8.9	41.1	41.1	22.7	
Actuated g/C Ratio	0.15	0.15	0.68	0.68	0.38	
v/c Ratio	0.70	0.29	0.71	0.50	0.55	
Control Delay	41.0	10.9	11.9	6.4	18.2	
Queue Delay	0.0	0.0	0.0	0.0	0.4	
Total Delay	41.0	10.9	11.9	6.4	18.6	
LOS	D	B	B	A	B	
Approach Delay	30.9			8.7	18.6	
Approach LOS	C			A	B	

Intersection Summary

Area Type: Other
 Cycle Length: 60

DONE BY PTP DATE 6/18/15

CHECKED BY EXP DATE 6/18/15

Lanes, Volumes, Timings

12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015

Actuated Cycle Length: 60

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 14.3

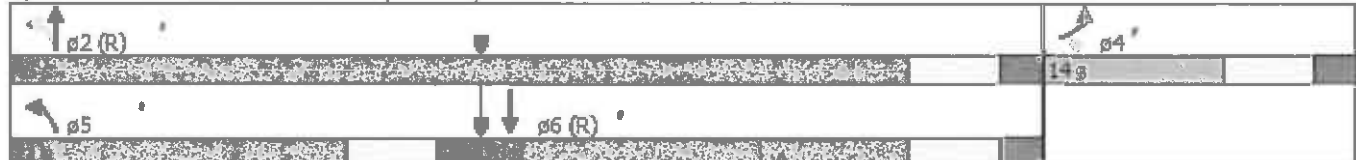
Intersection LOS: B

Intersection Capacity Utilization: 63.4%

ICU Level of Service: B

Analysis Period (min): 15

Splits and Phases: 12: Fishburn Rd (SR 2011) & Sand Hill Rd


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DONE BY RCM DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Queues

12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	166	84	447	595	406
v/c Ratio	0.70	0.29	0.71	0.50	0.55
Control Delay	41.0	10.9	11.9	6.4	18.2
Queue Delay	0.0	0.0	0.0	0.0	0.4
Total Delay	41.0	10.9	11.9	6.4	18.6
Queue Length 50th (ft)	48	0	55	82	107
Queue Length 95th (ft)	m#112	m16	120	140	197
Internal Link Dist (ft)	1091			1527	268
Turn Bay Length (ft)	200		125		
Base Capacity (vph)	241	289	675	1186	741
Starvation Cap Reductn	0	0	0	0	72
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.69	0.29	0.66	0.50	0.61

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY MP DATE 6/18/15
 CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↑	↖	↖	↑		↖	↖	
Volume (vph)	260	290	0	0	90	40	38	23	37	52	0	87
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1652	1773	0	0	1681	1628	1727	1421	0	1668	1478	0
Flt Permitted	0.431						0.504			0.708		
Satd. Flow (perm)	749	1773	0	0	1681	1583	916	1421	0	1243	1478	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						163		47			915	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	3		2	2		3						
Peak Hour Factor	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79	0.79
Heavy Vehicles (%)	3%	1%	0%	0%	14%	0%	0%	0%	26%	2%	0%	3%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	329	367	0	0	114	51	48	76	0	66	110	0
Turn Type	pm+pt	NA			NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4					8	2			6		
Detector Phase	7	4			8	8	5	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Minimum Split (s)	13.0	12.7			12.7	12.7	12.7	16.0		16.0	16.0	
Total Split (s)	23.0	43.0			20.0	20.0	13.0	32.0		19.0	19.0	
Total Split (%)	20.9%	39.1%			18.2%	18.2%	11.8%	29.1%		17.3%	17.3%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	-1.0	-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	5.0	5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag	Lead				Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None			None	None	None	C-Max		None	None	
Act Effct Green (s)	35.8	35.8			12.8	12.8	29.5	29.5		19.0	19.0	
Actuated g/C Ratio	0.33	0.33			0.12	0.12	0.27	0.27		0.17	0.17	
v/c Ratio	0.84	0.64			0.58	0.16	0.16	0.18		0.31	0.11	
Control Delay	51.5	36.9			57.9	1.0	33.1	16.4		44.5	0.2	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	51.5	36.9			57.9	1.0	33.1	16.4		44.5	0.2	
LOS	D	D			E	A	C	B		D	A	
Approach Delay		43.8			40.3			22.8			16.8	
Approach LOS		D			D			C			B	

Intersection Summary

Area Type: Other

DONE BY Bob DATE 6/18/15

CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Lane Group		#9
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Lane Width (ft)		
Grade (%)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Satd. Flow (prot)		
Flt Permitted		
Satd. Flow (perm)		
Right Turn on Red		
Satd. Flow (RTOR)		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	9	.
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	33.0	.
Minimum Split (s)	35.0	.
Total Split (s)	35.0	.
Total Split (%)	32%	.
Yellow Time (s)	2.0	.
All-Red Time (s)	0.0	.
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Min	.
Act Effect Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		

Intersection Summary

DONE BY ADP DATE 6/18/15
 CHECKED BY ep DATE 6/18/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

6/18/2015

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBTL, Start of Green
Natural Cycle 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 37.0
Intersection Capacity Utilization 39.7%
Analysis Period (min) 15

Intersection LOS: D
ICU Level of Service A

Splits and Phases: 13: Centerview Dr & Campus Dr

↑ p2 (R)	→ p4	⚠ p9
↙ p5	↘ p6	← p8
↗ p7		

DONE BY BTB DATE 6/18/15

CHECKED BY EP DATE 6/18/15

Queues

13: Centerview Dr & Campus Dr

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	329	367	114	51	48	76	66	110
v/c Ratio	0.84	0.64	0.58	0.16	0.16	0.18	0.31	0.11
Control Delay	51.5	36.9	57.9	1.0	33.1	16.4	44.5	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.5	36.9	57.9	1.0	33.1	16.4	44.5	0.2
Queue Length 50th (ft)	192	217	77	0	26	16	45	0
Queue Length 95th (ft)	238	262	116	0	50	44	m64	m0
Internal Link Dist (ft)		425	194			328		1522
Turn Bay Length (ft)							315	
Base Capacity (vph)	391	612	229	356	307	415	214	1012
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.60	0.50	0.14	0.16	0.18	0.31	0.11

Intersection Summary

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

DONE BY POB DATE 6/18/15

CHECKED BY ES DATE 6/18/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

	↖	→	↘	↙	←	↖	↙	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↖↖	↖	↖	↖↖	↖	↖	↖	↖	↖	↖	↖
Volume (vph)	90	630	142	81	1042	298	334	316	146	49	79	52
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	12	13	12	14	12	14	12	12	12
Grade (%)		1%			-1%			-1%			-3%	
Storage Length (ft)	180		250	220		220	0		165	0		0
Storage Lanes	1		1	1		1	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	3336	1507	1719	3517	1522	1833	1809	1640	1736	1677	0
Flt Permitted	0.165			0.343			0.370			0.563		
Satd. Flow (perm)	296	3336	1479	619	3517	1522	714	1809	1607	1023	1677	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			146			307			151		26	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		372			974			881			833	
Travel Time (s)		7.2			19.0			24.0			22.7	
Confl. Peds. (#/hr)			8	8					7	7		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	2%	1%	0%	1%	1%	0%	0%	0%	0%	4%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	649	146	84	1074	307	344	326	151	51	135	0
Turn Type	pm+pt	NA	pm+ov	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA	
Protected Phases	5	2	3	1	6		3	8			4	
Permitted Phases	2		2	6		6	8		8	4		
Detector Phase	5	2	3	1	6	6	3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	3.0	10.0	3.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.0	42.7	12.4	12.0	42.7	42.7	12.4	32.4	32.4	12.0	12.0	
Total Split (s)	12.0	55.0	22.0	12.0	55.0	55.0	22.0	43.0	43.0	21.0	21.0	
Total Split (%)	10.9%	50.0%	20.0%	10.9%	50.0%	50.0%	20.0%	39.1%	39.1%	19.1%	19.1%	
Yellow Time (s)	3.7	3.7	3.0	3.7	3.7	3.7	3.0	3.0	3.0	3.0	3.0	3.0
All-Red Time (s)	2.0	2.0	2.4	2.0	2.0	2.0	2.4	2.4	2.4	2.4	2.4	2.4
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
Total Lost Time (s)	4.7	4.7	4.4	4.7	4.7	4.7	4.4	4.4	4.4	4.4	4.4	4.4
Lead/Lag	Lead	Lag	Lead	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max	None	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	62.1	55.6	73.5	62.0	55.5	55.5	35.1	35.1	35.1	13.1	13.1	
Actuated g/C Ratio	0.56	0.51	0.67	0.56	0.50	0.50	0.32	0.32	0.32	0.12	0.12	
v/c Ratio	0.35	0.38	0.14	0.20	0.61	0.33	0.85	0.57	0.25	0.42	0.61	
Control Delay	14.0	18.8	1.5	15.0	26.9	6.2	51.4	34.9	5.1	54.4	48.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.0	18.8	1.5	15.0	26.9	6.2	51.4	34.9	5.1	54.4	48.1	
LOS	B	B	A	B	C	A	D	C	A	D	D	
Approach Delay		15.4			21.9			36.3			49.8	
Approach LOS		B			C			D			D	

Intersection Summary

Area Type: Other

DESIGNED BY BJJ DATE 6/18/15
CHECKED BY ESP DATE 6/18/15

Lanes, Volumes, Timings
1: University Dr & Governor Rd (SR 0322)

6/18/2015

Cycle Length: 110
Actuated Cycle Length: 110
Offset: 24 (22%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 25.2
Intersection Capacity Utilization: 78.1%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: D

Splits and Phases: 1: University Dr & Governor Rd (SR 0322)

 p1	 p2 (R)	 p3	 p4
 p5	 p6 (R)	 p8	












DONE BY [Signature] DATE 6/18/15

CHECKED BY [Signature] DATE 6/18/15

Queues

1: University Dr & Governor Rd (SR 0322)

6/18/2015

											
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	93	649	146	84	1074	307	344	326	151	51	135
v/c Ratio	0.35	0.38	0.14	0.20	0.61	0.33	0.85	0.57	0.25	0.42	0.61
Control Delay	14.0	18.8	1.5	15.0	26.9	6.2	51.4	34.9	5.1	54.4	48.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	18.8	1.5	15.0	26.9	6.2	51.4	34.9	5.1	54.4	48.1
Queue Length 50th (ft)	26	154	0	24	329	36	201	189	0	34	73
Queue Length 95th (ft)	53	206	20	m37	m381	m49	#320	269	43	72	134
Internal Link Dist (ft)		292			894			801			753
Turn Bay Length (ft)	180		250	220		220			165		
Base Capacity (vph)	269	1686	1040	428	1775	920	406	634	661	154	275
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.38	0.14	0.20	0.61	0.33	0.85	0.51	0.23	0.33	0.49

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY ADP DATE 6/18/15
 CHECKED BY ep DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	17	671	79	71	798	88	483	114	269	45	26	36
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	14	14	12	12	12	12	12	14	16	16	16
Grade (%)		1%			-2%			1%			-1%	
Storage Length (ft)	170		250	300		0	225		0	100		0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1701	3490	1547	1693	1739	0	3268	1573	0	1891	1856	0
Flt Permitted	0.116			0.286			0.950			0.529		
Satd. Flow (perm)	208	3490	1472	506	1739	0	3254	1573	0	1047	1856	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167		9			90			37	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		974			921			1602			866	
Travel Time (s)		19.0			17.9			43.7			23.6	
Confl. Peds. (#/hr)	3		11	11		3	2		8	8		2
Confl. Bikes (#/hr)			4	4								
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	5%	2%	3%	0%	1%	1%	0%	3%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	18	692	81	73	914	0	498	395	0	46	64	0
Turn Type	Perm	NA	Perm	pm+pt	NA		Prot	NA		pm+pt	NA	
Protected Phases		2		1	6		3	8		7	4	
Permitted Phases	2		2	6						4		
Detector Phase	2	2	2	1	6		3	8		7	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		4.0	3.0		4.0	3.0	
Minimum Split (s)	15.1	15.1	15.1	12.1	15.1		11.9	11.9		11.9	11.9	
Total Split (s)	55.0	55.0	55.0	13.0	68.0		30.0	20.0		22.0	12.0	
Total Split (%)	50.0%	50.0%	50.0%	11.8%	61.8%		27.3%	18.2%		20.0%	10.9%	
Yellow Time (s)	3.8	3.8	3.8	3.8	3.8		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.3	1.3	1.3	1.3	1.3		1.9	1.9		1.9	1.9	
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0		-0.5	-0.5		-0.5	-0.5	
Total Lost Time (s)	4.1	4.1	5.1	4.1	4.1		4.4	4.4		4.4	4.4	
Lead/Lag	Lag	Lag	Lag	Lead			Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None		None	None	
Act Effect Green (s)	53.8	53.8	52.8	63.9	63.9		26.3	27.3		15.8	9.0	
Actuated g/C Ratio	0.49	0.49	0.48	0.58	0.58		0.24	0.25		0.14	0.08	
v/c Ratio	0.18	0.41	0.10	0.19	0.90		0.64	0.86		0.22	0.35	
Control Delay	32.8	25.1	5.0	9.5	29.1		42.7	51.7		29.0	30.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	32.8	25.1	5.0	9.5	29.1		42.7	51.7		29.0	30.5	
LOS	C	C	A	A	C		D	D		C	C	
Approach Delay		23.2			27.6			46.7			29.9	
Approach LOS		C			C			D			C	

Intersection Summary

DONE BY Bob DATE 6/18/15

CHECKED BY CP DATE 6/18/15

Lanes, Volumes, Timings
2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 32.6
Intersection Capacity Utilization: 100.2%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: G

Splits and Phases: 2: Centerview Dr & Governor Rd (SR 0322)



DONE BY MDM DATE 6/18/15

CHECKED BY EFJ DATE 6/18/15

Queues

2: Centerview Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	18	692	81	73	914	498	395	46	64
v/c Ratio	0.18	0.41	0.10	0.19	0.90	0.64	0.86	0.22	0.35
Control Delay	32.8	25.1	5.0	9.5	29.1	42.7	51.7	29.0	30.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.8	25.1	5.0	9.5	29.1	42.7	51.7	29.0	30.5
Queue Length 50th (ft)	7	148	0	13	516	171	218	22	18
Queue Length 95th (ft)	m25	233	19	m34	#831	222	#424	48	62
Internal Link Dist (ft)		894			841		1522		786
Turn Bay Length (ft)	170		250	300		225		100	
Base Capacity (vph)	101	1706	793	389	1013	831	457	376	190
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.41	0.10	0.19	0.90	0.60	0.86	0.12	0.34

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY BDM DATE 6/18/15

CHECKED BY EPB DATE 6/18/15

Lanes, Volumes, Timings
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↕	↑	↔	↕	↕	
Volume (vph)	13	998	959	5	4	9
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		1%	0%		-3%	
Satd. Flow (prot)	1736	1757	1799	0	1739	0
Flt Permitted	0.950				0.985	
Satd. Flow (perm)	1736	1757	1799	0	1739	0
Link Speed (mph)		35	30		25	
Link Distance (ft)		921	400		1058	
Travel Time (s)		17.9	9.1		28.9	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	4%	2%	0%	0%	13%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	1008	974	0	13	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 62.5% ICU Level of Service B
 Analysis Period (min) 15

DONE BY COB DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

HCM 2010 TWSC
 3: Governor Rd (SR 0322) & Hillview Ln

6/18/2015

Intersection

Intersection Delay, s/veh 0.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	13	998	959	5	4	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	1	0	-	-3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	4	2	0	0	13
Mvmt Flow	13	1008	969	5	4	9

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	974	0	971
Stage 1	-	-	971
Stage 2	-	-	1034
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	716	-	317
Stage 1	-	-	435
Stage 2	-	-	411
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	716	-	317
Mov Capacity-2 Maneuver	-	-	90
Stage 1	-	-	435
Stage 2	-	-	404

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	26.8
HCM LOS			D

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	716	-	-	-	178
HCM Lane V/C Ratio	0.018	-	-	-	0.074
HCM Control Delay (s)	10.122	-	-	-	26.8
HCM Lane LOS	B	-	-	-	D
HCM 95th %tile Q(veh)	0.056	-	-	-	0.236

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY BOB DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
 4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	51	921	0	0	958	14	2	0	0	1	0	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	11	11	10	10	10	16	16	16
Grade (%)		-2%			1%			7%				1%
Storage Length (ft)	75		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1728	1801	0	0	1784	0	0	1626	0	0	1737	0
Flt Permitted	0.950							0.950			0.997	
Satd. Flow (perm)	1728	1801	0	0	1784	0	0	1626	0	0	1737	0
Link Speed (mph)		35			35			30			25	
Link Distance (ft)		400			375			85			1017	
Travel Time (s)		7.8			7.3			1.9			27.7	
Confl. Peds. (#/hr)	1		7	7		1						
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	2%	3%	0%	0%	2%	17%	0%	0%	0%	0%	0%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	52	940	0	0	992	0	0	2	0	0	15	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 61.3%
 Analysis Period (min) 15
 ICU Level of Service B

DONE BY BJM DATE 6/18/15

CHECKED BY ESP DATE 6/18/15

HCM 2010 TWSC
4: Governor Rd (SR 0322) & Areba Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	51	921	0	0	958	14	2	0	0	1	0	14
Conflicting Peds, #/hr	1	0	7	7	0	1	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	75	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	-2	-	-	1	-	-	7	-	-	1	-
Peak Hour Factor	98	98	98	98	98	98	98	98	98	98	98	98
Heavy Vehicles, %	2	3	0	0	2	17	0	0	0	0	0	8
Mvmt Flow	52	940	0	0	978	14	2	0	0	1	0	14

Major/Minor	Major1	Major2	Minor1	Minor2
Conflicting Flow All	992	0	0	940
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Follow-up Headway	2.218	-	-	2.2
Pot Capacity-1 Maneuver	697	-	-	737
Stage 1	-	-	-	-
Stage 2	-	-	-	-
Time blocked-Platoon, %	-	-	-	-
Mov Capacity-1 Maneuver	693	-	-	733
Mov Capacity-2 Maneuver	-	-	-	-
Stage 1	-	-	-	-
Stage 2	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0.6	0	243.8	25
HCM LOS			F	D

Minor Lane / Major Mvmt	NBLn1	EBL	EBT	EBR	WBL	WBT	WBR	SBLn1
Capacity (veh/h)	17	693	-	-	733	-	-	195
HCM Lane V/C Ratio	0.12	0.075	-	-	-	-	-	0.078
HCM Control Delay (s)	243.8	10.616	-	-	0	-	-	25
HCM Lane LOS	F	B	-	-	A	-	-	D
HCM 95th %tile Q(veh)	0.345	0.243	-	-	0	-	-	0.253

Notes

- : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY CSJ DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
 5: Governor Rd (SR 0322) & Beech Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↑	↷		↶	↷
Volume (vph)	5	949	962	4	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	16	16
Grade (%)		-1%	0%		1%	
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	1754	1775	1799	0	2143	0
Flt Permitted	0.950					
Satd. Flow (perm)	1754	1775	1799	0	2143	0
Link Speed (mph)		30	30		25	
Link Distance (ft)		375	379		801	
Travel Time (s)		8.5	8.6		21.8	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Heavy Vehicles (%)	0%	4%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	978	996	0	0	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 54.2% ICU Level of Service A
 Analysis Period (min) 15

DONE BY CSM DATE 6/18/15
 CHECKED BY Ejs DATE 6/18/15

HCM 2010 TWSC
5: Governor Rd (SR 0322) & Beech Ave

6/18/2015

Intersection

Intersection Delay, s/veh 0

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	949	962	4	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	-1	0	-	1	-
Peak Hour Factor	97	97	97	97	97	97
Heavy Vehicles, %	0	4	2	0	0	0
Mvmt Flow	5	978	992	4	0	0

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	996	0	1983
Stage 1	-	-	994
Stage 2	-	-	989
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	703	-	61
Stage 1	-	-	342
Stage 2	-	-	344
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	703	-	61
Mov Capacity-2 Maneuver	-	-	61
Stage 1	-	-	342
Stage 2	-	-	342

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	0
HCM LOS			A

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	703	-	-	-	0
HCM Lane V/C Ratio	0.007	-	-	-	+
HCM Control Delay (s)	10.159	-	-	-	0
HCM Lane LOS	B	-	-	-	A
HCM 95th %tile Q(veh)	0.022	-	-	-	+

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY RM DATE 6/18/15
CHECKED BY egs DATE 6/18/15

Lanes, Volumes, Timings
 6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↶	↷	↷		↶	↷
Volume (vph)	5	947	962	6	0	2
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	11	11	11	11	15	15
Grade (%)		2%	-2%		3%	
Storage Length (ft)	75			0	0	0
Storage Lanes	1			0	1	0
Taper Length (ft)	25				25	
Satd. Flow (prot)	1727	1765	1817	0	1781	0
Flt Permitted	0.950					
Satd. Flow (perm)	1727	1765	1817	0	1781	0
Link Speed (mph)		35	35		25	
Link Distance (ft)		379	1359		567	
Travel Time (s)		7.4	26.5		15.5	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	0%	3%	2%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	5	957	978	0	2	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization: 61.0%
 Analysis Period (min): 15
 ICU Level of Service: B

DONE BY ROM DATE 6/18/15
 CHECKED BY EPB DATE 6/18/15

HCM 2010 TWSC
6: Governor Rd (SR 0322) & Greenlea Rd

6/18/2015

Intersection

Intersection Delay, s/veh 0.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	5	947	962	6	0	2
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	75	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	2	-2	-	3	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	0	3	2	0	0	0
Mvmt Flow	5	957	972	6	0	2

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	978	0	1942
Stage 1	-	-	975
Stage 2	-	-	967
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	714	-	52
Stage 1	-	-	313
Stage 2	-	-	317
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	714	-	52
Mov Capacity-2 Maneuver	-	-	52
Stage 1	-	-	313
Stage 2	-	-	315

Approach	EB	WB	SB
HCM Control Delay, s	0.1	0	17.8
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	714	-	-	-	284
HCM Lane V/C Ratio	0.007	-	-	-	0.007
HCM Control Delay (s)	10.078	-	-	-	17.8
HCM Lane LOS	B	-	-	-	C
HCM 95th %tile Q(veh)	0.021	-	-	-	0.021

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY ASB DATE 6/18/15

CHECKED BY egs DATE 6/18/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	13	755	160	124	650	43	259	65	391	36	47	15
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	10	12	14	10	14	14	10	11	12	10	12	12
Grade (%)		-3%			-2%			0%				1%
Storage Length (ft)	100		210	350		0	300		250	100		0
Storage Lanes	1		1	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1620	3370	1640	1565	1866	0	1580	1740	1530	1588	1642	0
Flt Permitted	0.340			0.265			0.495			0.713		
Satd. Flow (perm)	580	3370	1603	436	1866	0	820	1740	1530	1192	1642	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			167		6				245		12	
Link Speed (mph)		35			35			25			25	
Link Distance (ft)		1359			950			763			556	
Travel Time (s)		26.5			18.5			20.8			15.2	
Confl. Peds. (#/hr)			1	1			2					2
Confl. Bikes (#/hr)			1	1			2					2
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Heavy Vehicles (%)	0%	3%	1%	3%	3%	3%	1%	0%	0%	0%	3%	8%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	14	786	167	129	722	0	270	68	407	38	65	0
Turn Type	Perm	NA	Perm	pm+pt	NA		pm+pt	NA	Perm	Perm	NA	
Protected Phases		2		1	6		3	8			4	
Permitted Phases	2		2	6			8		8	4		
Detector Phase	2	2	2	1	6		3	8	8	4	4	
Switch Phase												
Minimum Initial (s)	10.0	10.0	10.0	3.0	10.0		3.0	3.0	3.0	3.0	3.0	
Minimum Split (s)	15.9	15.9	15.9	12.9	15.9		12.0	12.0	12.0	12.0	12.0	
Total Split (s)	59.0	59.0	59.0	13.0	72.0		21.0	38.0	38.0	17.0	17.0	
Total Split (%)	53.6%	53.6%	53.6%	11.8%	65.5%		19.1%	34.5%	34.5%	15.5%	15.5%	
Yellow Time (s)	3.9	3.9	3.9	3.9	3.9		3.0	3.0	3.0	3.0	3.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	4.9	4.9	4.9	4.9	4.9		4.0	4.0	4.0	4.0	4.0	
Lead/Lag	Lag	Lag	Lag	Lead			Lead			Lag	Lag	
Lead-Lag Optimize?												
Recall Mode	C-Max	C-Max	C-Max	None	C-Max		None	None	None	None	None	
Act Effect Green (s)	58.5	58.5	58.5	72.2	72.2		28.9	28.9	28.9	10.1	10.1	
Actuated g/C Ratio	0.53	0.53	0.53	0.66	0.66		0.26	0.26	0.26	0.09	0.09	
v/c Ratio	0.05	0.44	0.18	0.34	0.59		0.81	0.15	0.70	0.35	0.40	
Control Delay	16.5	18.3	6.0	12.5	16.2		55.0	29.8	20.1	54.8	45.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	16.5	18.3	6.0	12.5	16.2		55.0	29.8	20.1	54.8	45.9	
LOS	B	B	A	B	B		D	C	C	D	D	
Approach Delay		16.1			15.6			33.6			49.2	
Approach LOS		B			B			C			D	

Intersection Summary

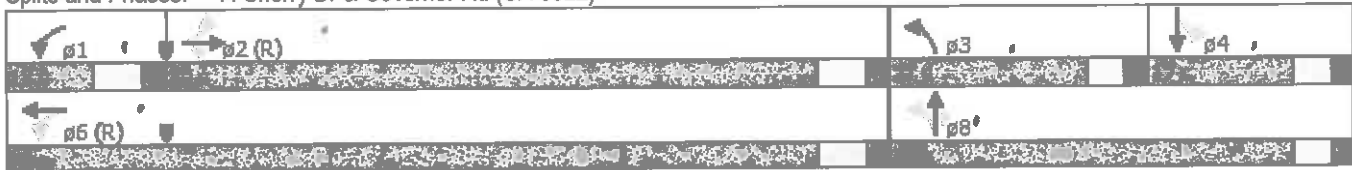
DONE BY DM DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Lanes, Volumes, Timings
7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 94 (85%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 22.1
Intersection Capacity Utilization: 80.5%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: D

Splits and Phases: 7: Cherry Dr & Governor Rd (SR 0322)



DONE BY WJ DATE 6/18/15
CHECKED BY EJS DATE 6/18/15

Queues

7: Cherry Dr & Governor Rd (SR 0322)

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	14	786	167	129	722	270	68	407	38	65
v/c Ratio	0.05	0.44	0.18	0.34	0.59	0.81	0.15	0.70	0.35	0.40
Control Delay	16.5	18.3	6.0	12.5	16.2	55.0	29.8	20.1	54.8	45.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	18.3	6.0	12.5	16.2	55.0	29.8	20.1	54.8	45.9
Queue Length 50th (ft)	6	182	34	27	204	165	36	98	26	36
Queue Length 95th (ft)	m16	m259	m69	m70	342	#257	69	203	59	78
Internal Link Dist (ft)		1279			870		683			476
Turn Bay Length (ft)	100		210	350		300		250	100	
Base Capacity (vph)	308	1790	930	378	1226	333	537	642	140	204
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.44	0.18	0.34	0.59	0.81	0.13	0.63	0.27	0.32

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal

DONE BY BM DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SEB	SEB	SEB
Lane Configurations												
Volume (vph)	162	888	187	182	541	170	223	267	206	329	335	89
Ideal Flow (vphpl)	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Lane Width (ft)	11	12	12	10	12	12	11	11	11	10	12	12
Grade (%)		1%			0%			-1%			2%	
Storage Length (ft)	150		250	250		250	225		90	300		150
Storage Lanes	1		1	1		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1508	3088	1382	1463	3014	1389	1508	1587	1363	1448	1601	1388
Flt Permitted	0.365			0.109			0.324			0.295		
Satd. Flow (perm)	579	3088	1382	168	3014	1389	514	1587	1363	450	1601	1388
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			191			173			158			138
Link Speed (mph)		35			35			35			35	
Link Distance (ft)		950			214			348			1493	
Travel Time (s)		18.5			4.2			6.8			29.1	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Heavy Vehicles (%)	0%	1%	1%	0%	4%	1%	1%	1%	0%	0%	2%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	906	191	186	552	173	228	272	210	336	342	91
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Detector Phase	5	2	2	1	6	6	3	8	8	7	4	4
Switch Phase												
Minimum Initial (s)	3.0	10.0	10.0	3.0	10.0	10.0	3.0	3.0	3.0	3.0	3.0	3.0
Minimum Split (s)	12.6	15.6	15.6	12.6	15.6	15.6	12.7	15.7	15.7	12.7	15.7	15.7
Total Split (s)	13.0	34.0	34.0	17.0	38.0	38.0	22.0	34.0	34.0	25.0	37.0	37.0
Total Split (%)	11.8%	30.9%	30.9%	15.5%	34.5%	34.5%	20.0%	30.9%	30.9%	22.7%	33.6%	33.6%
Yellow Time (s)	3.6	3.6	3.6	3.6	3.6	3.6	3.7	3.7	3.7	3.7	3.7	3.7
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-1.0	-1.0	0.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0
Total Lost Time (s)	4.6	4.6	5.6	4.6	4.6	5.6	4.7	4.7	4.7	4.7	4.7	5.7
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Max	C-Max	None	C-Max	C-Max	None	None	None	None	None	None
Act Effct Green (s)	43.0	33.3	32.3	50.0	36.8	35.8	40.8	24.8	24.8	48.6	28.8	27.8
Actuated g/C Ratio	0.39	0.30	0.29	0.45	0.33	0.33	0.37	0.23	0.23	0.44	0.26	0.25
v/c Ratio	0.54	0.97	0.35	0.81	0.55	0.30	0.68	0.76	0.49	0.88	0.82	0.20
Control Delay	18.5	49.6	2.5	51.4	33.3	6.0	30.1	53.6	13.9	47.1	54.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.1	0.0	0.0	0.0
Total Delay	18.5	49.6	2.5	51.4	33.3	6.0	30.1	55.4	14.0	47.1	54.0	2.4
LOS	B	D	A	D	C	A	C	E	B	D	D	A
Approach Delay		38.4			31.8			35.0			44.9	
Approach LOS		D			C			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 110

DONE BY MBM DATE 6/18/15

CHECKED BY EPJ DATE 6/18/15

Lanes, Volumes, Timings

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Actuated Cycle Length: 110

Offset: 0 (0%), Referenced to phase 2 EBTL and 6 WBTL, Start of Green, Master Intersection

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 37.5

Intersection LOS: D

Intersection Capacity Utilization: 92.5%

ICU Level of Service: F

Analysis Period (min): 15

Splits and Phases: 8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)



DONE BY PM DATE 6/18/15
CHECKED BY EP DATE 6/18/15

Queues

8: Fishburn Rd (SR 2011)/Hockersville Rd (SR 2011) & Governor Rd (SR 0322)

6/18/2015

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	165	906	191	186	552	173	228	272	210	336	342	91
v/c Ratio	0.54	0.97	0.35	0.81	0.55	0.30	0.68	0.76	0.49	0.88	0.82	0.20
Control Delay	18.5	49.6	2.5	51.4	33.3	6.0	30.1	53.6	13.9	47.1	54.0	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.8	0.1	0.0	0.0	0.0
Total Delay	18.5	49.6	2.5	51.4	33.3	6.0	30.1	55.4	14.0	47.1	54.0	2.4
Queue Length 50th (ft)	48	~381	2	87	174	0	98	176	29	159	225	0
Queue Length 95th (ft)	83	#492	14	#221	233	50	147	263	94	#281	326	13
Internal Link Dist (ft)		870			134			268			1413	
Turn Bay Length (ft)	150		250	250		250	225		90	300		150
Base Capacity (vph)	308	934	540	234	1008	569	353	422	478	382	470	493
Starvation Cap Reductn	0	0	0	0	0	0	0	56	11	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.54	0.97	0.35	0.79	0.55	0.30	0.65	0.74	0.45	0.88	0.73	0.18

Intersection Summary

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

DONE BY ESB DATE 6/18/15
 CHECKED BY ESB DATE 6/18/15

Lanes, Volumes, Timings
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	↕
Volume (vph)	135	1180	777	1	0	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	14	14	15	15	16	16
Grade (%)		0%	-1%		1%	
Satd. Flow (prot)	0	1999	2039	0	1853	0
Flt Permitted		0.995				
Satd. Flow (perm)	0	1999	2039	0	1853	0
Link Speed (mph)		35	35		35	
Link Distance (ft)		214	1855		620	
Travel Time (s)		4.2	36.1		12.1	
Confl. Peds. (#/hr)	2			2		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	0%	1%	3%	0%	0%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1384	819	0	123	0
Sign Control		Free	Free		Stop	

Intersection Summary

Area Type: Other
 Control Type: Unsignalized
 Intersection Capacity Utilization 127.8% ICU Level of Service H
 Analysis Period (min) 15

DONE BY BM DATE 6/18/15
 CHECKED BY EP DATE 6/18/15

HCM 2010 TWSC
 9: Governor Rd (SR 0322) & Elm Ave

6/18/2015

Intersection

Intersection Delay, s/veh 1.7

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Vol, veh/h	135	1180	777	1	0	117
Conflicting Peds, #/hr	2	0	0	2	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	-1	-	1	-
Peak Hour Factor	95	95	95	95	95	95
Heavy Vehicles, %	0	1	3	0	0	0
Mvmt Flow	142	1242	818	1	0	123

Major/Minor	Major1	Major2	Minor2
Conflicting Flow All	819	0	2344
Stage 1	-	-	818
Stage 2	-	-	1526
Follow-up Headway	2.2	-	3.5
Pot Capacity-1 Maneuver	818	-	36
Stage 1	-	-	418
Stage 2	-	-	184
Time blocked-Platoon, %	-	-	-
Mov Capacity-1 Maneuver	816	-	16
Mov Capacity-2 Maneuver	-	-	16
Stage 1	-	-	418
Stage 2	-	-	81

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	19.6
HCM LOS			C

Minor Lane / Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	816	-	-	-	369
HCM Lane V/C Ratio	0.174	-	-	-	0.334
HCM Control Delay (s)	10.34	0	-	-	19.6
HCM Lane LOS	B	A	-	-	C
HCM 95th %tile Q(veh)	0.628	-	-	-	1.436

Notes

~ : Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error : Computation Not Defined

DONE BY DMB DATE 6/18/15
 CHECKED BY EPJ DATE 6/18/15

Lanes, Volumes, Timings
10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↖	↗		↔		↖	↗		↖	↗	
Volume (vph)	562	7	483	0	0	1	45	134	2	12	163	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			4%			-2%			0%	
Storage Length (ft)	0		150	0		0	300		0	125		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1838	1639	0	1611	0	1823	1878	0	1805	1806	0
Flt Permitted		0.953					0.367			0.656		
Satd. Flow (perm)	0	1838	1639	0	1611	0	702	1878	0	1246	1806	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			437		297			1			20	
Link Speed (mph)		25			15			25			25	
Link Distance (ft)		1016			81			540			763	
Travel Time (s)		27.7			3.7			14.7			20.8	
Confl. Peds. (#/hr)							4					4
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	2%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	669	568	0	1	0	53	160	0	14	265	0
Turn Type	Split	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases	4	4			8		5	2			6	
Permitted Phases			4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	3.0	3.0	3.0	3.0	3.0		3.0	10.0		10.0	10.0	
Minimum Split (s)	13.0	13.0	13.0	13.0	13.0		13.0	16.0		16.0	16.0	
Total Split (s)	36.0	36.0	36.0	13.0	13.0		13.0	31.0		18.0	18.0	
Total Split (%)	45.0%	45.0%	45.0%	16.3%	16.3%		16.3%	38.8%		22.5%	22.5%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0	-1.0		-1.0		-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None	None	None	None	None		None	C-Max		C-Max	C-Max	
Act Effect Green (s)		31.0	31.0		6.5		36.7	36.7		28.6	28.6	
Actuated g/C Ratio		0.39	0.39		0.08		0.46	0.46		0.36	0.36	
v/c Ratio		0.94	0.63		0.00		0.12	0.19		0.03	0.40	
Control Delay		47.4	8.2		0.0		16.4	15.3		24.2	24.9	
Queue Delay		0.0	0.3		0.0		0.0	0.0		0.0	0.0	
Total Delay		47.4	8.5		0.0		16.4	15.3		24.2	24.9	
LOS		D	A		A		B	B		C	C	
Approach Delay		29.6			0.0			15.6			24.9	
Approach LOS		C			A			B			C	

Intersection Summary

Area Type: Other

Cycle Length: 80

DONE BY BJB DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

Actuated Cycle Length: 80
Offset: 13 (16%), Referenced to phase 2 NBTL and 6 SBTL, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 27.1
Intersection Capacity Utilization: 67.3%
Analysis Period (min): 15
Intersection LOS: C
ICU Level of Service: C

Splits and Phases: 10: Cherry Dr & Hope Dr/Kindercare Dwy



DONE BY BJM DATE 6/18/15

CHECKED BY egj DATE 6/18/15

Queues

10: Cherry Dr & Hope Dr/Kindercare Dwy

6/18/2015

	→	↘	←	↙	↑	↗	↓
Lane Group	EBT	EBR	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	669	568	1	53	160	14	265
v/c Ratio	0.94	0.63	0.00	0.12	0.19	0.03	0.40
Control Delay	47.4	8.2	0.0	16.4	15.3	24.2	24.9
Queue Delay	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Total Delay	47.4	8.5	0.0	16.4	15.3	24.2	24.9
Queue Length 50th (ft)	314	43	0	8	25	5	94
Queue Length 95th (ft)	#480	109	0	m30	73	21	#228
Internal Link Dist (ft)	936		1		460		683
Turn Bay Length (ft)		150		300		125	
Base Capacity (vph)	712	902	428	439	862	445	658
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	54	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.67	0.00	0.12	0.19	0.03	0.40

Intersection Summary

- # 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
- m Volume for 95th percentile queue is metered by upstream signal.

DONE BY BM DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

6/18/2015

	↖	→	↘	↙	←	↖	↖	↑	↘	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↕			↕			↕			↕		
Volume (vph)	398	7	222	0	1	2	102	138	0	5	185	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	13	13	13	15	15	15	10	10	10	10	10	10
Grade (%)		3%			-2%			-3%			0%	
Satd. Flow (prot)	0	1769	0	0	1921	0	0	1737	0	0	1698	0
Fit Permitted		0.806						0.719			0.994	
Satd. Flow (perm)	0	1472	0	0	1921	0	0	1275	0	0	1689	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		55			2						24	
Link Speed (mph)		25			25			35			30	
Link Distance (ft)		540			357			1410			1171	
Travel Time (s)		14.7			9.7			27.5			26.6	
Confl. Peds. (#/hr)			4	4			1					1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	2%	1%	0%	0%	0%	0%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	666	0	0	3	0	0	256	0	0	276	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	13.0	13.0		13.0	13.0		16.0	16.0		16.0	16.0	
Total Split (s)	49.0	49.0		49.0	49.0		31.0	31.0		31.0	31.0	
Total Split (%)	61.3%	61.3%		61.3%	61.3%		38.8%	38.8%		38.8%	38.8%	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.0			-1.0			-1.0			-1.0	
Total Lost Time (s)		5.0			5.0			5.0			5.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		C-Max	C-Max		C-Max	C-Max	
Act Effct Green (s)		40.2			40.2			29.8			29.8	
Actuated g/C Ratio		0.50			0.50			0.37			0.37	
v/c Ratio		0.87			0.00			0.54			0.43	
Control Delay		25.9			6.7			26.5			26.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.9			6.7			26.5			26.8	
LOS		C			A			C			C	
Approach Delay		25.9			6.7			26.5			26.8	
Approach LOS		C			A			C			C	

Intersection Summary

Area Type: Other
 Cycle Length: 80
 Actuated Cycle Length: 80
 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

DONE BY BTD DATE 6/18/15

CHECKED BY CS DATE 6/18/15

Lanes, Volumes, Timings
11: Cherry Dr & Sand Hill Rd

6/18/2015

Natural Cycle: 50

Control Type Actuated-Coordinated

Maximum v/c Ratio: 0.87

Intersection Signal Delay 26.2

Intersection LOS C

Intersection Capacity Utilization 82.5%

ICU Level of Service E

Analysis Period (min) 15

Splits and Phases: 11: Cherry Dr & Sand Hill Rd



DONE BY MSB DATE 6/18/15
CHECKED BY eps DATE 6/18/15

Queues

11: Cherry Dr & Sand Hill Rd

6/18/2015

	→	←	↑	↓
Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	666	3	256	276
v/c Ratio	0.87	0.00	0.54	0.43
Control Delay	25.9	6.7	26.5	26.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.9	6.7	26.5	26.8
Queue Length 50th (ft)	279	0	105	98
Queue Length 95th (ft)	#457	4	187	154
Internal Link Dist (ft)	460	277	1330	1091
Turn Bay Length (ft)				
Base Capacity (vph)	834	1057	475	644
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.80	0.00	0.54	0.43

Intersection Summary

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

DONE BY BJB DATE 6/18/15

CHECKED BY epj DATE 6/18/15

Lanes, Volumes, Timings
 12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↖	↗	↖	↑	↓	↘
Volume (vph)	252	405	151	434	476	131
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	9	9	10	10	14	14
Grade (%)	0%			1%	-4%	
Storage Length (ft)	200	0	125			0
Storage Lanes	1	1	1			0
Taper Length (ft)	25		25			
Satd. Flow (prot)	1593	1454	1676	1747	1976	0
Fit Permitted	0.950		0.219			
Satd. Flow (perm)	1593	1454	386	1747	1976	0
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		402			22	
Link Speed (mph)	35			35	35	
Link Distance (ft)	1171			1607	348	
Travel Time (s)	22.8			31.3	6.8	
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	2%	0%	0%	1%	2%	0%
Shared Lane Traffic (%)						
Lane Group Flow (vph)	255	409	153	438	613	0
Turn Type	NA	Perm	pm+pt	NA	NA	
Protected Phases	4		5	2	6	
Permitted Phases		4	2			
Detector Phase	4	4	5	2	6	
Switch Phase						
Minimum Initial (s)	3.0	3.0	3.0	10.0	10.0	
Minimum Split (s)	13.0	13.0	13.0	16.0	16.0	
Total Split (s)	27.0	27.0	13.0	53.0	40.0	
Total Split (%)	33.8%	33.8%	16.3%	66.3%	50.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lost Time Adjust (s)	-1.0	0.0	-1.0	-1.0	-1.0	
Total Lost Time (s)	5.0	6.0	5.0	5.0	5.0	
Lead/Lag			Lead		Lag	
Lead-Lag Optimize?			Yes		Yes	
Recall Mode	None	None	None	C-Max	C-Max	
Act Effct Green (s)	18.3	17.3	51.7	51.7	38.6	
Actuated g/C Ratio	0.23	0.22	0.65	0.65	0.48	
v/c Ratio	0.70	0.65	0.40	0.39	0.64	
Control Delay	42.9	12.1	9.6	8.6	19.6	
Queue Delay	0.0	0.0	0.0	0.0	5.9	
Total Delay	42.9	12.1	9.6	8.6	25.6	
LOS	D	B	A	A	C	
Approach Delay	23.9			8.9	25.6	
Approach LOS	C			A	C	

Intersection Summary

Area Type: Other
 Cycle Length: 80

DONE BY CSB DATE 6/18/15
 CHECKED BY eps DATE 6/18/15

Lanes, Volumes, Timings
12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015

Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2 NBTL and 6: SBT, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.70
Intersection Signal Delay: 19.7
Intersection LOS: B
Intersection Capacity Utilization: 67.8%
ICU Level of Service: C
Analysis Period (min): 15

Splits and Phases: 12: Fishburn Rd (SR 2011) & Sand Hill Rd


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DONE BY BTM DATE 6/18/15
CHECKED BY ES DATE 6/18/15

Queues

12: Fishburn Rd (SR 2011) & Sand Hill Rd

6/18/2015



Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Group Flow (vph)	255	409	153	438	613
v/c Ratio	0.70	0.65	0.40	0.39	0.64
Control Delay	42.9	12.1	9.6	8.6	19.6
Queue Delay	0.0	0.0	0.0	0.0	5.9
Total Delay	42.9	12.1	9.6	8.6	25.6
Queue Length 50th (ft)	123	39	27	93	221
Queue Length 95th (ft)	m164	m72	56	166	350
Internal Link Dist (ft)	1091			1527	268
Turn Bay Length (ft)	200		125		
Base Capacity (vph)	438	678	384	1129	964
Starvation Cap Reductn	0	0	0	0	290
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	0.60	0.40	0.39	0.91

Intersection Summary

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

DONE BY DBS DATE 6/18/15

CHECKED BY EJS DATE 6/18/15

Lanes, Volumes, Timings
13: Centerview Dr & Campus Dr

6/18/2015

	↖	→	↘	↙	←	↗	↖	↑	↗	↘	↓	↙
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑			↑	↗	↖	↑		↖	↑	
Volume (vph)	144	89	0	0	315	152	100	46	15	37	0	247
Ideal Flow (vphpl)	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800	1800
Lane Width (ft)	12	12	12	13	13	13	12	12	12	12	12	12
Grade (%)		1%			-6%			-2%			1%	
Storage Length (ft)	0		0	0		0	0		0	315		0
Storage Lanes	1		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	1652	1739	0	0	1842	1628	1661	1541	0	1652	1492	0
Flt Permitted	0.165						0.258			0.709		
Satd. Flow (perm)	287	1739	0	0	1842	1592	451	1541	0	1233	1492	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						181		12			637	
Link Speed (mph)		25			25			25			25	
Link Distance (ft)		505			274			408			1602	
Travel Time (s)		13.8			7.5			11.1			43.7	
Confl. Bikes (#/hr)	2		3	3		2						
Peak Hour Factor	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84	0.84
Heavy Vehicles (%)	3%	3%	0%	0%	4%	0%	4%	3%	46%	3%	0%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	171	106	0	0	375	181	119	73	0	44	294	0
Turn Type	pm+pt	NA			NA	Perm	pm+pt	NA		Perm	NA	
Protected Phases	7	4			8		5	2			6	
Permitted Phases	4					8	2			6		
Detector Phase	7	4			8	8	5	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	3.0			3.0	3.0	4.0	3.0		3.0	3.0	
Minimum Split (s)	13.0	12.7			12.7	12.7	12.7	16.0		16.0	16.0	
Total Split (s)	15.0	58.0			43.0	43.0	15.0	37.0		22.0	22.0	
Total Split (%)	11.5%	44.6%			33.1%	33.1%	11.5%	28.5%		16.9%	16.9%	
Yellow Time (s)	3.3	3.3			3.3	3.3	3.0	3.0		3.0	3.0	
All-Red Time (s)	2.7	2.7			2.7	2.7	2.7	2.7		2.7	2.7	
Lost Time Adjust (s)	0.0	-1.0			-1.0	-1.0	-1.0	-1.0		-1.0	-1.0	
Total Lost Time (s)	6.0	5.0			5.0	5.0	4.7	4.7		4.7	4.7	
Lead/Lag	Lead				Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes				Yes	Yes	Yes			Yes	Yes	
Recall Mode	None	None			None	None	None	None		None	None	
Act Effct Green (s)	43.1	44.1			28.9	28.9	25.7	25.7		10.8	10.8	
Actuated g/C Ratio	0.38	0.38			0.25	0.25	0.22	0.22		0.09	0.09	
v/c Ratio	0.80	0.16			0.81	0.34	0.57	0.21		0.38	0.41	
Control Delay	53.4	24.0			54.7	6.6	50.2	33.6		60.6	1.7	
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	53.4	24.0			54.7	6.6	50.2	33.6		60.6	1.7	
LOS	D	C			D	A	D	C		E	A	
Approach Delay		42.1			39.0			43.9			9.4	
Approach LOS		D			D			D			A	

Intersection Summary

Area Type: Other

DONE BY [Signature] DATE 6/18/15
CHECKED BY [Signature] DATE 6/19/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Lane Group	09
Lane Configurations	
Volume (vph)	
Ideal Flow (vphpl)	
Lane Width (ft)	
Grade (%)	
Storage Length (ft)	
Storage Lanes	
Taper Length (ft)	
Satd. Flow (prot)	
Flt Permitted	
Satd. Flow (perm)	
Right Turn on Red	
Satd. Flow (RTOR)	
Link Speed (mph)	
Link Distance (ft)	
Travel Time (s)	
Confl. Bikes (#/hr)	
Peak Hour Factor	
Heavy Vehicles (%)	
Shared Lane Traffic (%)	
Lane Group Flow (vph)	
Turn Type	
Protected Phases	9
Permitted Phases	
Detector Phase	
Switch Phase	
Minimum Initial (s)	33.0
Minimum Split (s)	35.0
Total Split (s)	35.0
Total Split (%)	27%
Yellow Time (s)	2.0
All-Red Time (s)	0.0
Lost Time Adjust (s)	
Total Lost Time (s)	
Lead/Lag	
Lead-Lag Optimize?	
Recall Mode	Min
Act Effct Green (s)	
Actuated g/C Ratio	
v/c Ratio	
Control Delay	
Queue Delay	
Total Delay	
LOS	
Approach Delay	
Approach LOS	

Intersection Summary

DONE BY MDJ DATE 6/18/15
 CHECKED BY EPS DATE 6/18/15

Lanes, Volumes, Timings
 13: Centerview Dr & Campus Dr

6/18/2015

Cycle Length: 130
 Actuated Cycle Length: 114.8
 Natural Cycle: 100
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.81
 Intersection Signal Delay: 33.0
 Intersection Capacity Utilization: 64.1%
 Analysis Period (min): 15

Intersection LOS: C
 ICU Level of Service: C

Splits and Phases: 13: Centerview Dr & Campus Dr

DONE BY CSB DATE 6/18/15
 CHECKED BY efj DATE 6/18/15

Queues

13: Centerview Dr & Campus Dr

6/18/2015



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	171	106	375	181	119	73	44	294
v/c Ratio	0.80	0.16	0.81	0.34	0.57	0.21	0.38	0.41
Control Delay	53.4	24.0	54.7	6.6	50.2	33.6	60.6	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.4	24.0	54.7	6.6	50.2	33.6	60.6	1.7
Queue Length 50th (ft)	87	50	260	0	74	37	31	0
Queue Length 95th (ft)	#163	88	356	42	129	76	69	0
Internal Link Dist (ft)		425	194			328		1522
Turn Bay Length (ft)							315	
Base Capacity (vph)	215	809	614	651	210	445	187	766
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.80	0.13	0.61	0.28	0.57	0.16	0.24	0.38

Intersection Summary

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

DONE BY BSB DATE 6/18/15
 CHECKED BY EJS DATE 6/18/15