# Warren County Light Industrial Site Assessment

Final Report

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Prepared for:



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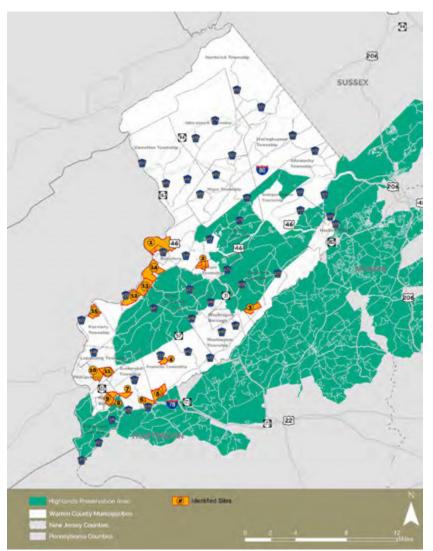
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## EXECUTIVE SUMMARY

Warren County's location in the Region and proximity to Interstates 78 and 80 position the County as a desirable center for warehouse development and freight/goods movement. The County is currently experiencing increased interest in warehousing and distribution development. This study was undertaken to understand the potential long-term impact of such development in the County.

Locations with large clusters of industrial zoning were identified for analysis. Locations within the Highlands Preservation area were not considered as developable. Fifteen sites with the potential for industrial development were identified for analysis in the study (Figure 1.) These 15 sites include over 4,000 acres and over 45 million square feet of gross floor area which could potentially be developed for industrial uses such as warehousing. If developed, these sites would generate a significant amount of traffic, both from trucks and automobiles, as increased employment and goods movement would be generated to and from these sites.





Warren County is comprised of a variety of community types, and County and local officials wish to be prepared for the challenges this potential development may bring throughout its communities. The purpose of the study was to identify areas of the greatest potential impact and the types of measures that would be necessary to mitigate the negative effects associated with traffic.

#### CONDITIONS ASSESSMENT

To understand the County's needs and concerns, and to establish a relevant set of existing and possible future conditions in the study area, various data sources were consulted with a focus on freight and heavy vehicles. The data analysis included information about current land use and zoning; demographics; traffic patterns; traffic counts; and crash data. An extensive trip generation, distribution and assignment process was undertaken for each of the 15 sites. All traffic volumes were projected to a "Build Year" of 2045 to understand traffic conditions if all sites under study were developed in the future.

These additional site generated trips were overlaid on typical expected traffic growth from existing year 2020 to build year 2045. A capacity analysis was performed at key intersections and mainline roadway sections near the potential development site. This comparison was done for Existing 2020 conditions, 2045 No Build conditions (background growth only), and 2045 Build conditions (background growth plus potential development site trips). This comparison between future No Build and Build shows the direct impact of the additional development. The resulting analysis found that conditions deteriorate at nearly every location analyzed. The results of this future analysis are depicted in Figure 2 through Figure 5 and discussed in more detail in the body of the report.

Roadway suitability was considered during trip assignment which included existing height and weight restrictions along County roadways. A detailed truck turning radii analysis was completed to identify possible pinch points in the network for the expected increase in truck traffic. These locations are depicted in Figure 6 and 7 and methodology is discussed in more detail in the body of the report.



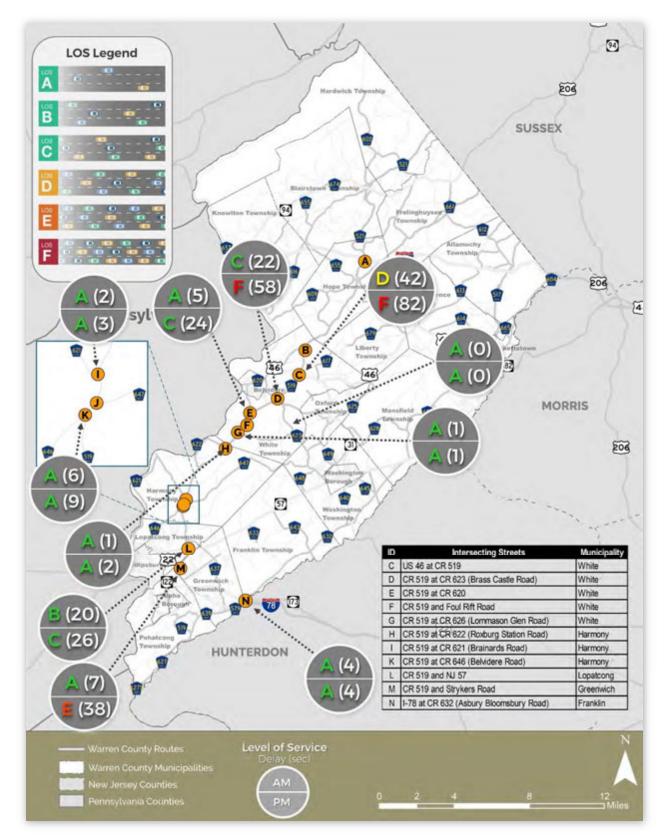
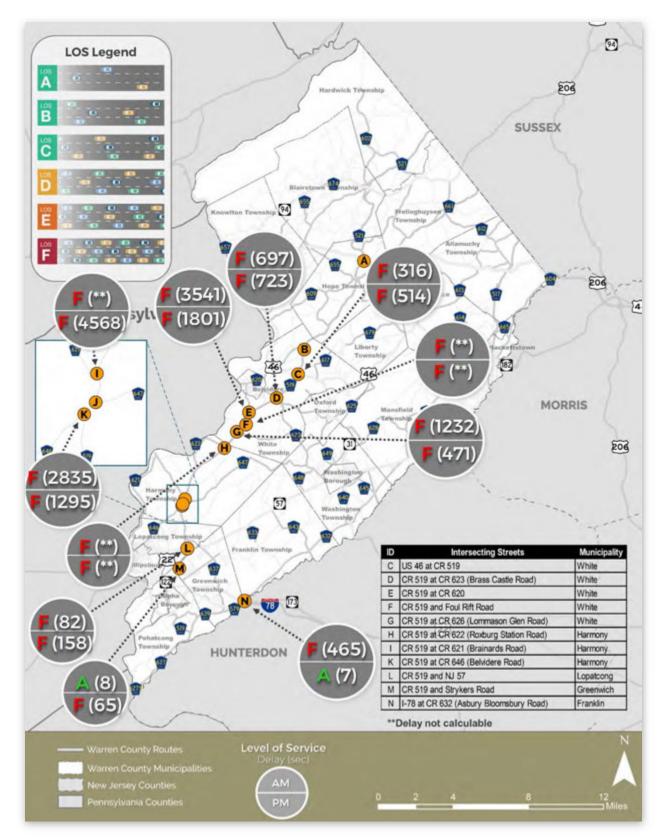


Figure 3 -Intersection Level of Service - Build 2045



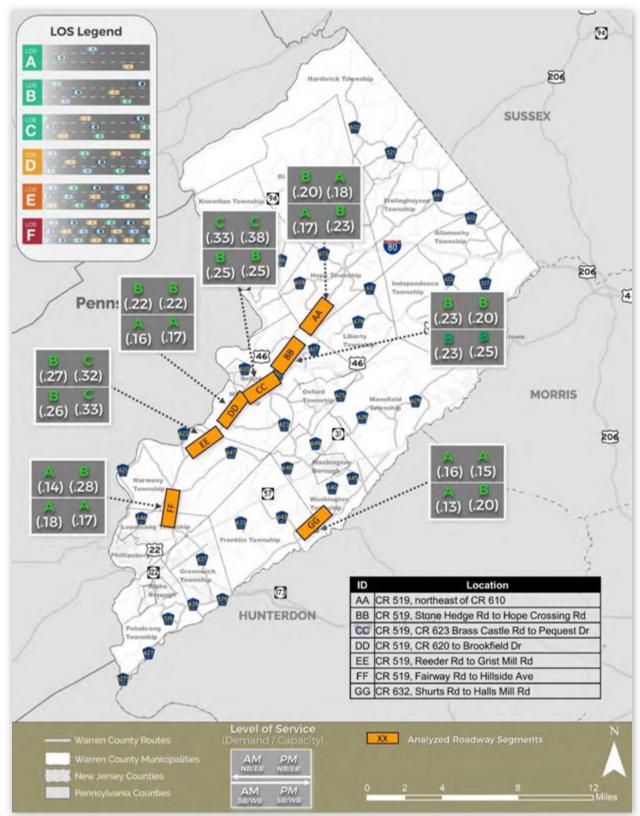
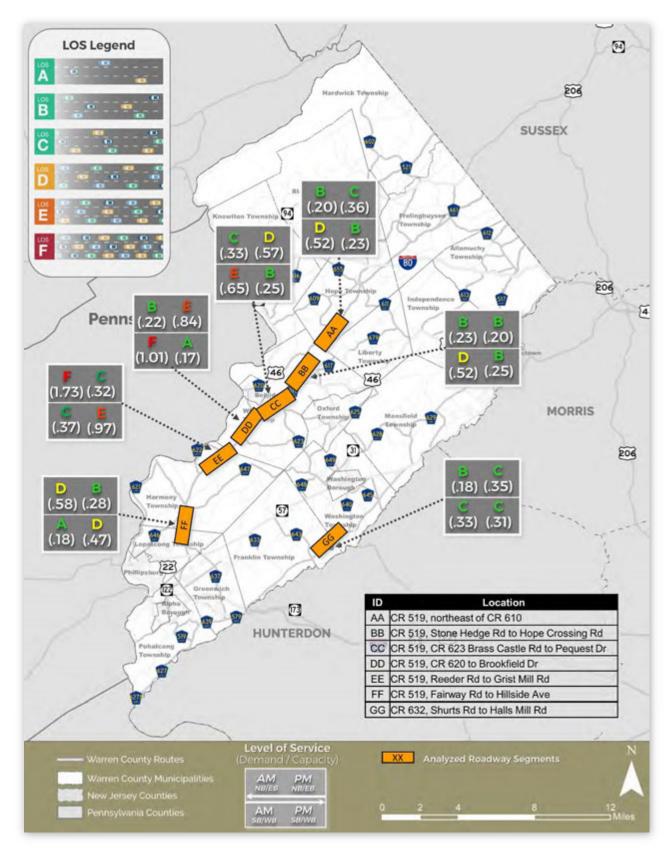
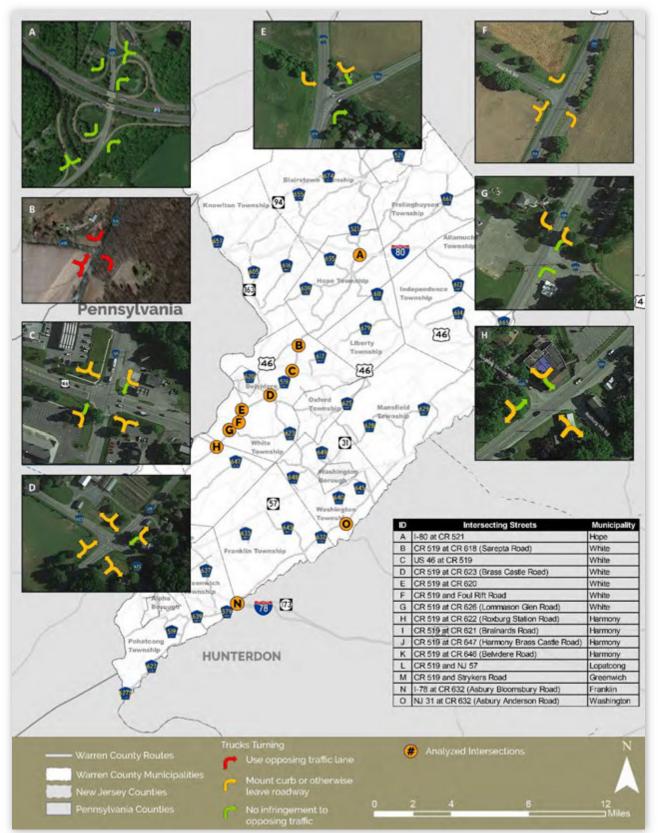


Figure 4 -Mid Block Level of Service and Demand to Capacity Ratio - No Build 2045

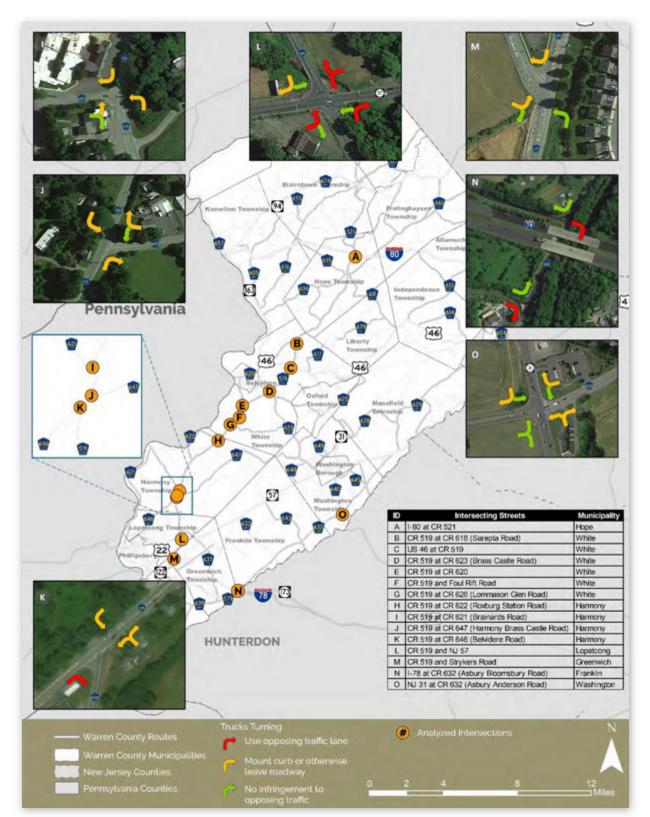


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#### Figure 6 - Turning Radii Assessment Intersections (Locations A to H)







#### MITIGATION MEASURES

Based on the detailed data analysis and County input key mitigations measures for the identified issues will be needed to maintain acceptable traffic operations if the sites are developed. The mitigation measures relate to issues including:

- Intersection and Mainline Congestion
- Safety
- Truck Movements at Intersections
- Transportation Demand Management

This analysis identified the roadway capacity that would be required to accommodate an acceptable level of service to meet potential traffic demand for the full-buildout of the industrial sites evaluated. An evaluation of existing road widths, available right of way, and required additional right of way necessary to construct the potential improvements would require further study. Extensive right-of-way acquisition may be required in many locations to accommodate needed roadway capacity. It is noted that road widening may be prohibited on roadways and intersections that are adjacent to the Highlands Preservation Area boundary and may affect how widening concepts are advanced.

Mitigation measures that would be needed to accommodate expected increases in traffic as a result of site development at key intersections were developed. The potential increase in cars and trucks could be better accommodated at intersections through a variety of potential improvements ranging from low cost solutions such as moving stop bars to higher cost investments such as roadway widening. These necessary improvements are explained in more detail in the body of the report.

At the locations nearest the highest areas of projected development along CR 519, the mainline traffic volume is expected to be in excess of 3,000 vehicles per direction in the peak hour. One lane in each direction will not be sufficient to handle the additional demand. CR 519 would need to be widened to two lanes in each direction from approximately CR 646/Uniontown Road in Harmony to Route 46 in White Township to accommodate the anticipated demand to bring CR 519 to at least a Level of Service (LOS) D. If a LOS C is desired along CR 519, the widening should be further extended south to NJ 57 and north to I-80. The widening from CR 646 to Route 46 is assumed in many of the intersection mitigations measures described in the next section. Additionally, the segment of CR 620 between Belvidere and CR 519 would need to be widened to two lanes in each direction to accommodate the anticipated car traffic expected to be generated due to site developments.

The following intersections and midblock segments were included in this report. Capacity analysis was completed where volume data and signal timings were available.

#### **Intersections**

- I-80 and CR 521 2-way stop controlled ramps
- CR 519 and CR 618 2-way stop controlled (T intersection)
- US 46 and CR 519 4-way signalized
- CR 519 and CR 623 4-way stop controlled by a blinker signal
- CR 519 and CR 620 2-way stop controlled (T intersection)
- CR 519 and Foul Rift Road 2-way stop controlled (T intersection)
- CR 519 and CR 626 2-way stop controlled (T intersection)
- CR 519 and CR 622 (Roxburg Station Road) 2-way stop controlled
- CR 519 and Brainards Road 2-way stop controlled (T intersection)

- CR 519 and CR 647-2-way stop controlled (T intersection
- CR 519 and CR 646 2-way stop controlled (T intersection)
- CR 519 and NJ 57 4-way signalized
- CR 519 and Strykers Road 2-way stop controlled (T intersection)
- I-78 EB off-ramp and CR 632 ramp stop controlled left turn to NB CR 632

#### Midblock Segments

- CR 519, northeast of CR 610
- CR 519, Stone Hedge to Hope Crossing Road N
- CR 519, CR 623 (Brass Castle Road) to Pequest Drive
- CR 519, CR 620 to Brookfield Drive
- CR 519, Reeder Road to Grist Mill Road
- CR 519, Fairway Road to Hillside Avenue
- CR 632, Shurts Road to Halls Mill Road

Typical improvements that are needed to accommodate the expected increase in traffic include signal installation or optimization, addition of turning lanes at intersections, or other geometric changes to improve safety or truck accessibility. More detail regarding capacity analysis and the necessary improvements are provided in the body of the report.

Transportation Demand Management (TDM) strategies specific to freight and warehousing developments have been utilized within New Jersey and throughout the region, particularly in locations with substantial growth in warehousing and distribution centers. A series of potential TDM strategies specific to freight are included below.

- Identify potential rail connections to reduce the reliance entirely on truck trips.
- Promote non-peak trips where possible.
- Stagger worker shifts to reduce congestion during peak times.
- Promote development adjacent to key regional highways.
- Promote requirements that developers fund their "fair share" of necessary infrastructure improvements
- Create a county-wide freight transportation advisory group
- Encourage facility operators to promote specific trip paths/routing
- Promote use of alternative transportation modes, including worker shuttles or microtransit

#### IMPLEMENTATION

Each mitigation measure would require additional study, engineering, funding and acceptance from various stakeholders and agencies. To explore these measures, coordination will be required between Warren County, NJ Highlands Council, the involved municipalities, developers, NJDOT, and the North Jersey Transportation Planning Authority. It is noted that road widening may be prohibited on roadways and intersections that are adjacent to the Highlands Preservation Area boundary and may affect how widening concepts are advanced.

#### CONCLUSION

Warren County's proximity to Interstates 78 and 80 position the County as a desirable center for warehouse development and freight/goods movement. As a result of its location in the region and availability of large parcels of land zoned for industrial use, there is an increased interest in warehousing and distribution development.

This study evaluated a build-out scenario of property zoned for industrial use at 15 sites in Warren County. The potential long-term impacts of such development in the County would be substantial. The

increase in automobile and truck traffic volumes that would be anticipated if all 15 light industrial sites studied were developed would have a major impact on the County roadway network. The traffic increase is largely driven by the increase in automobiles that are expected to result from increased employment at these sites. Roadway levels of service would deteriorate to unacceptable conditions at most analyzed intersection locations and mainline segments of CR 519, as well as other key intersections throughout the County. In addition, the existing physical configuration at some intersections is challenging for trucks to complete turns without lane or shoulder encroachments which would be further impacted with an increase in truck traffic in the future.

TDM strategies can be used to reduce the demand on the roadway network; however, TDM strategies alone would not be enough to maintain traffic operations at an acceptable level should all sites studied be developed for industrial use. Necessary improvements to County roadways and intersections to maintain traffic operations at an acceptable level of service would require further detailed study as development projects are proposed. Future studies will need to identify locations where there are roadway right-of-way constraints that will require property acquisition for roadway widening for capacity improvements and/or to alleviate lane encroachments by turning trucks. Acquisition costs and Highland Preservation Area restrictions may be a consideration for the implementation of any required widening improvements in Warren County, particularly along CR 519.

## INTRODUCTION

Warren County's location in the Region and proximity to Interstates 78 and 80 position the County as a desirable center for warehouse development and freight/goods movement. The County is currently experiencing increased interest in warehousing and distribution development. This study was undertaken to understand the potential long-term impact of such development in the County.

Locations with large clusters of industrial zoning were identified for analysis. Locations within the Highlands Preservation area were not considered as developable. Fifteen sites with the potential for industrial development were identified for analysis in the study for evaluation in the study, as shown in Figure . These 15 sites include over 4,000 acres and over 45 million square feet of gross floor area which could potentially be developed for industrial uses such as warehousing. These sites are located in Alpha Borough, Belvidere, Franklin Township, Greenwich Township, Harmony Township, Lopatcong Township, Mansfield Township, Oxford Township, Phillipsburg, Pohatcong Township, and White Township. Table 1 lists the sites, municipality, zoning, and total acreage for each site.

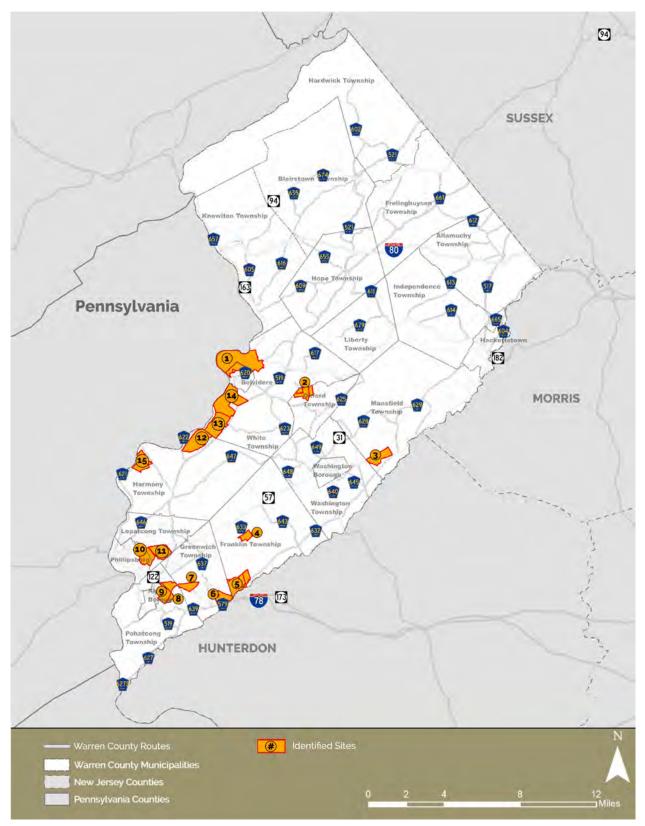
Site ID	Municipality	Zoning	Total Area
	[		(Acres)
1	Belvidere	LM - Light Manufacturing	283.2
	White	I - Industrial	1260.7
2	Oxford	I - Industrial	49.0
	Oxford	I - Industrial, O & LI - Office and Light Industrial	66.6
	Oxford	I - Industrial, LI - Light Industrial	186.2
3	Mansfield	I - Industrial	356.0
4	Franklin	I - Industrial	141.3
5	Franklin	I - Industrial, IP-A - Industrial Park	89.8
5	Franklin	I - Industrial, IP-A - Industrial Park	444.7
6	Greenwich	ROM - Research, Office & Manufacturing	246.9
7	Greenwich	RO - Research, Office	199.7
8	Alpha	I - Industrial	71.6
9	Pohatcong	I - Industrial	146.0
	Alpha	I - Industrial	239.0
10	Phillipsburg	I - Industrial, Phillipsburg Commerce Park Redevelopment Area	384.6
11	Lopatcong	ROM -Research, Office & Manufacturing	376.2
12	Harmony	I - Industrial	623.9
13	White	LDI -Low Density Industrial	622.8
14	White	I - Industrial	943.3
15	Harmony	I - Industrial	369.0

Table 1 - Identified Sites

The sites for analysis include warehouses under construction, known proposed/planned warehouse sites, and potential future sites. The list of potential future sites is based on building potential permitted by use as-of-right per current zoning in each municipality. The amount of potential development on sites was constrained based on site conditions limiting development such as wetlands, floodplains, steep slopes,

drainage/detention basins, internal roadways, and other identified factors. The 15 sites include one warehouse site already approved and under construction, and two warehouse sites currently in the site plan review process.

#### Figure 1- Light Industrial Sites



### SITE IDENTIFICATION AND ZONING ANALYSIS

To determine the impact of possible development of these 15 sites, corresponding parcels for each site were aggregated, determining total acreage using a geospatial geometrical computation. Sites within multiple municipalities or with different zoning regulation were separated for analysis. Areas of environmental constraint or impervious surfaces were considered not eligible for development.

Environmental constraints for each site that could limit developable area were identified and removed from the calculated developable areas. These included wetlands, waterways, Federal Emergency Management Agency (FEMA) flood zones, preserved open space, and preserved farmland. These are constraints that cannot be or would be difficult to overcome; therefore, they have been excluded from the total developable area. Impervious surfaces such as roads, buildings, and others were also removed from the developable area. The Highlands Preservation Area is depicted in Figure 2. GIS layers/data obtained from New Jersey Department of Environmental Protection (NJDEP), FEMA, and Warren County for the environmental screening include:

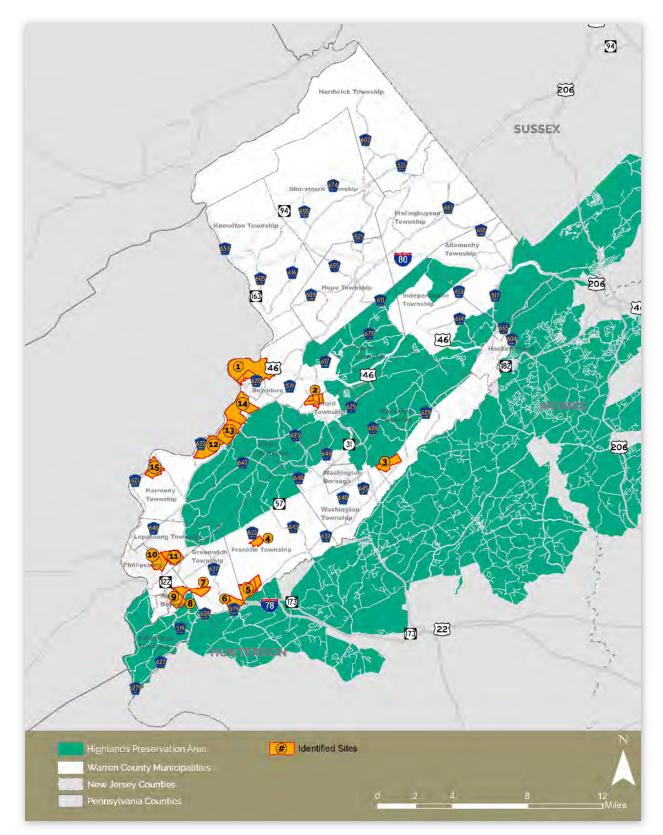
- i. Impervious Surfaces
- ii. Wetlands
- iii. Waterways
- iv. FEMA Flood Zones
- v. County Property
- vi. Federal Property
- vii. Municipal Property
- viii. Non-Profit Property
- ix. Preserved Farmland
- x. Semi Public Property
- xi. State Property

Impervious surfaces for each site include roads, buildings, and other structures. On-site buildings were confirmed by using available Impervious Surfaces of New Jersey Edition September 30<sup>th</sup>, 2018 to conduct a visual analysis comparing footprints of buildings within the 15 sites with Bing satellite imagery from November 2019. From this exercise, 64 buildings were identified as no longer existing within the sites. The area of these sites was subtracted from the combined environmental and impervious surface area, and therefore considered to be clear for new development.

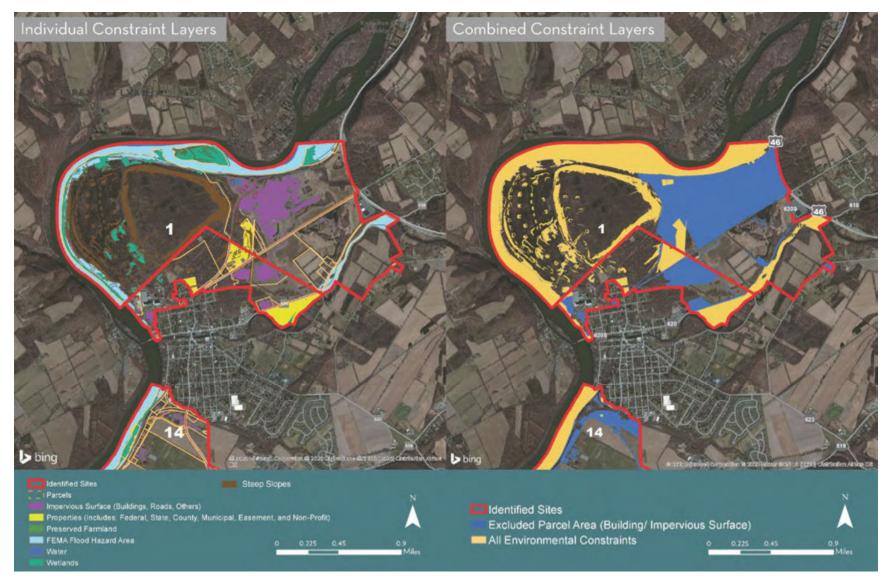
The end result was the available developable area that omitted environmental constraints, impervious surface, and proposed planned development areas. Those individual constraints and combined constraints are shown for each site in Figure 3 through Figure 17.

To estimate the total number of trips being generated by a site, the total allowable buildable area (Gross Floor Area) needed to be identified. The total allowable buildable area was calculated based on the zoning code of each municipality. The zoning code defines the limits for minimum and maximum lot size as well as setbacks, Floor Area Ratio (FAR), and maximum building coverage. Gross Floor Area (GFA) for each site was calculated by multiplying FAR, where available, by the available developable area. In cases where FAR is not provided, maximum building coverage was used.

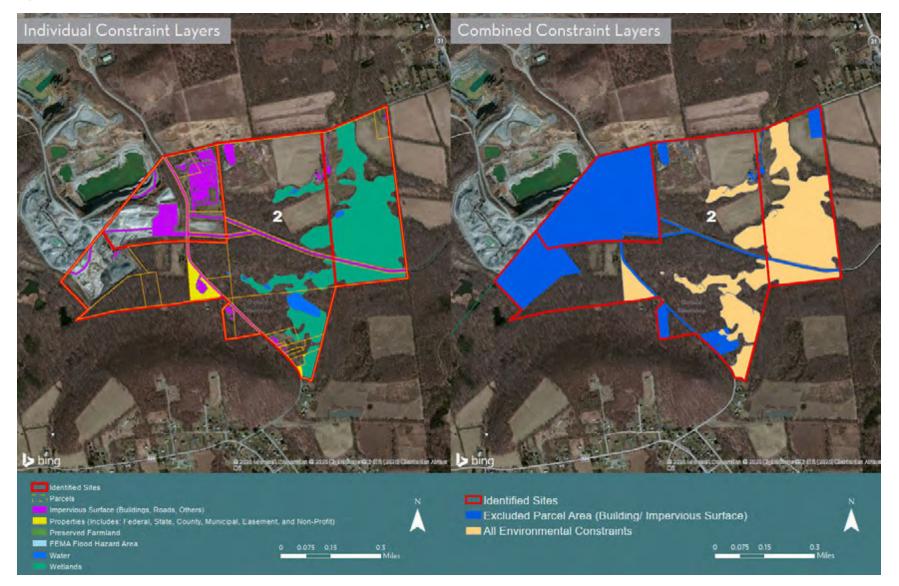
#### Figure 2 - Highlands Preservation Area



#### Figure 3 - Site 1 Constraints



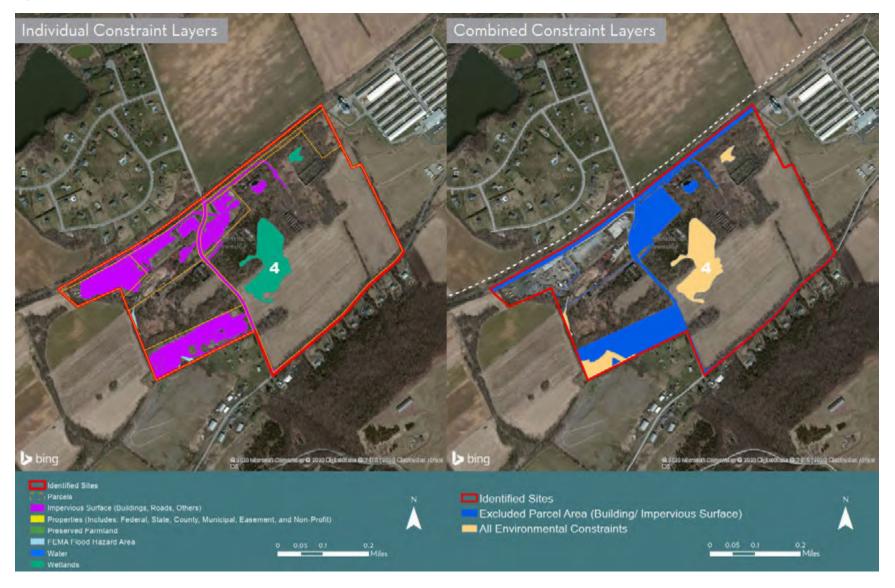
#### Figure 4 - Site 2 Constraints



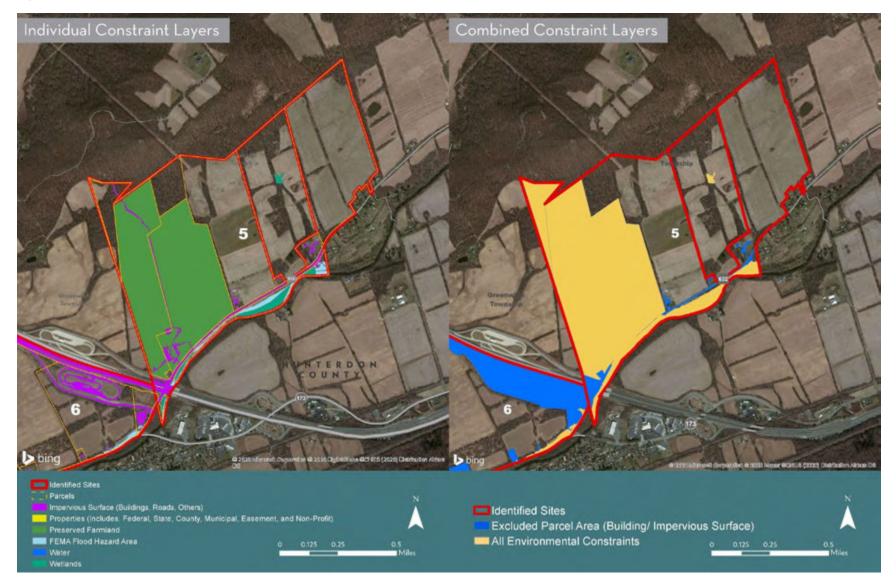
#### Figure 5 - Site 3 Constraints



#### Figure 6 - Site 4 Constraints

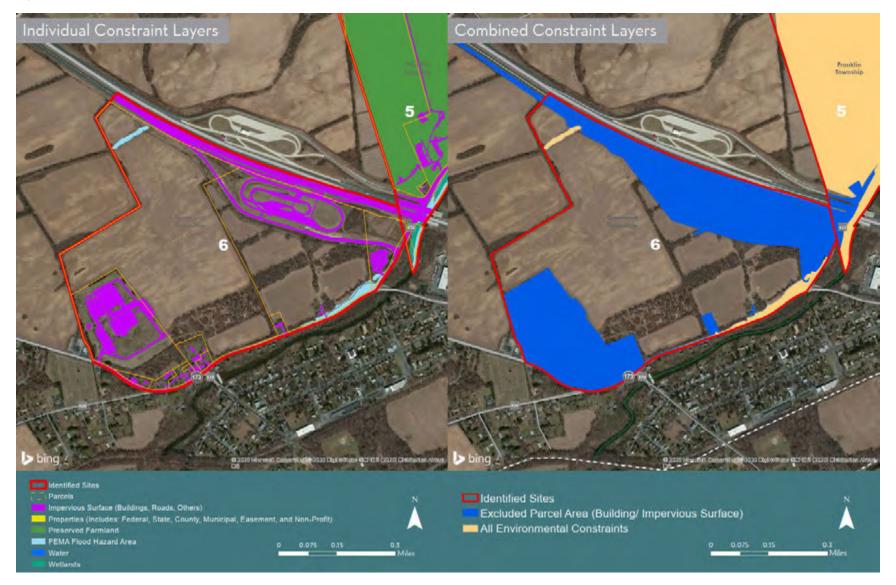


#### Figure 7 - Site 5 Constraints

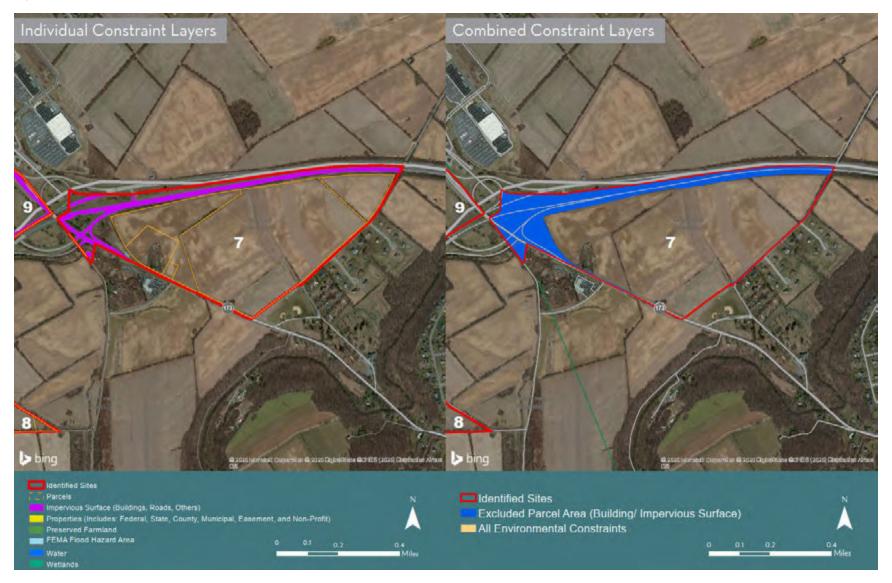


#### Warren County Light Industrial Site Assessment

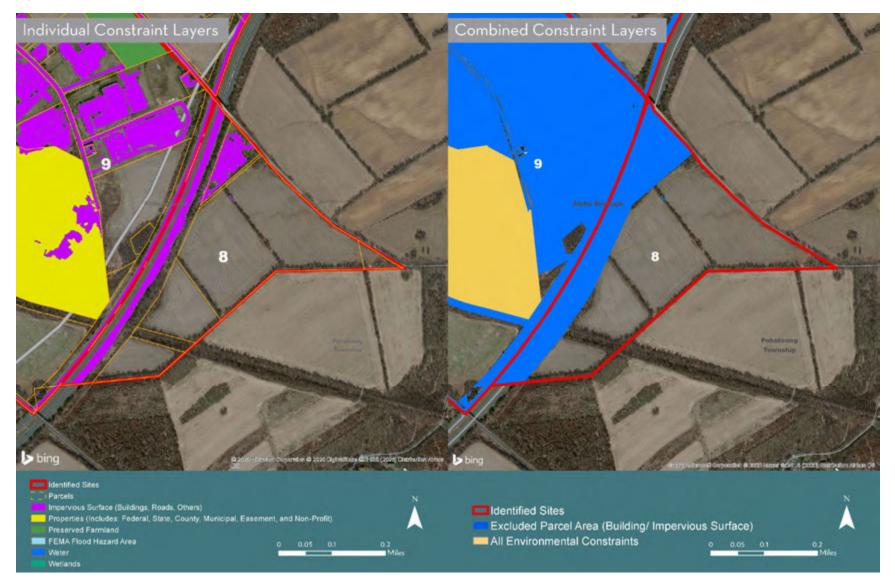
#### Figure 8 - Site 6 Constraints



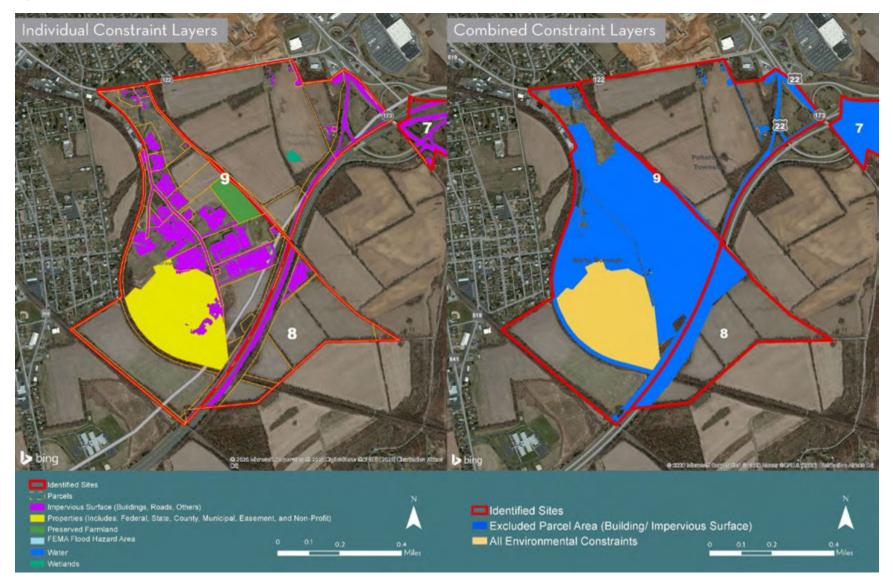
#### Figure 9 - Site 7 Constraints



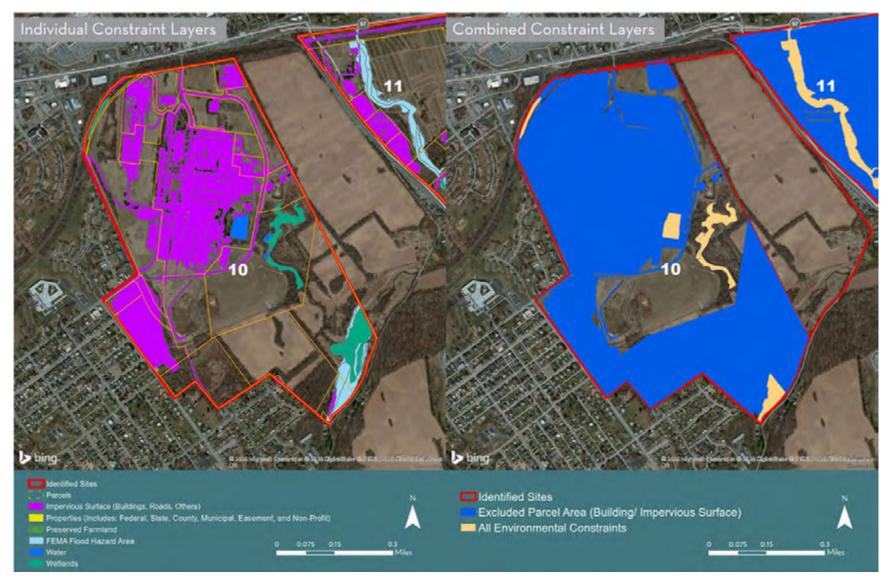
#### Figure 10 - Site 8 Constraints



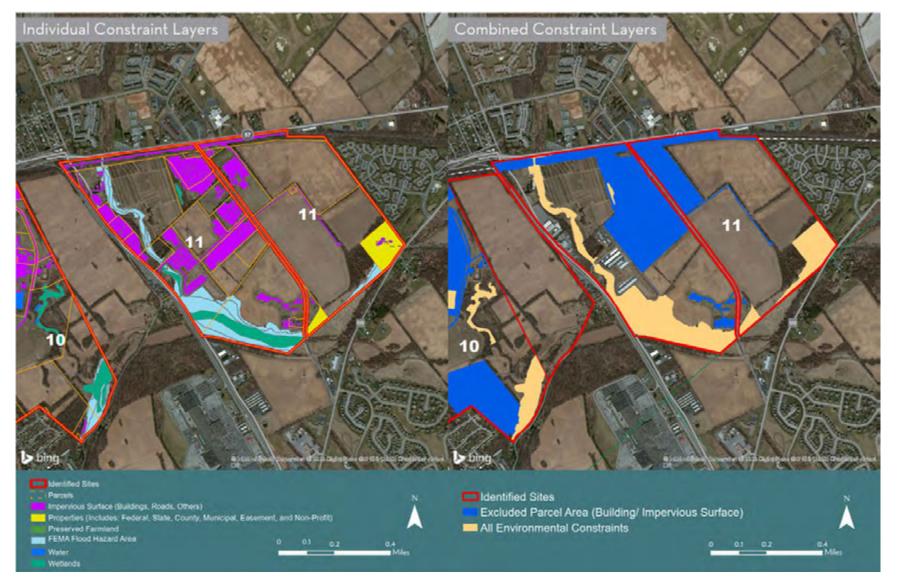
#### Figure 11 - Site 9 Constraints



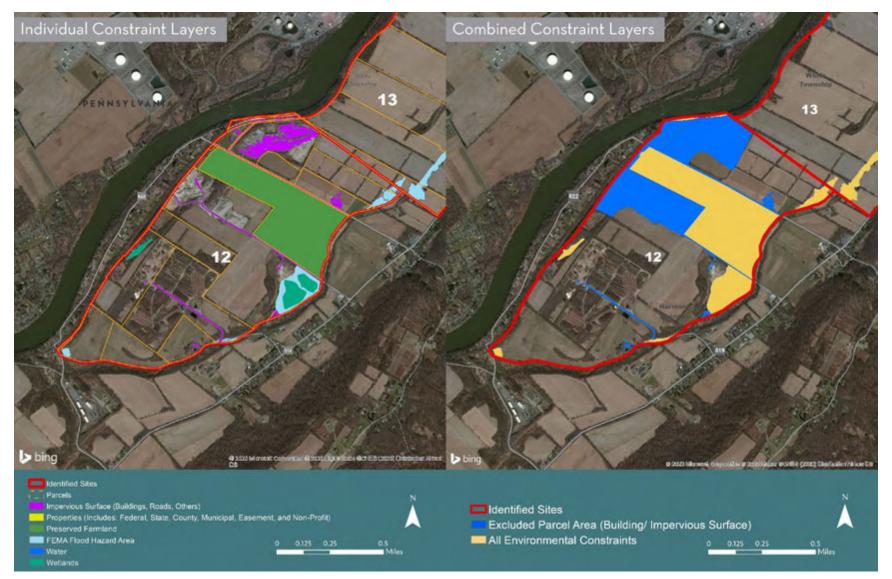
#### Figure 12 - Site 10 Constraints



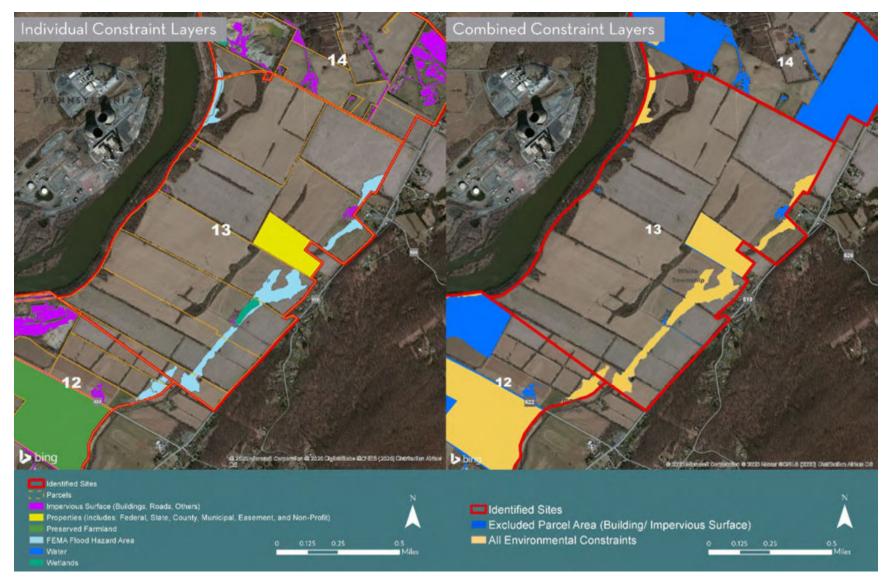
#### Figure 13 - Site 11 Constraints



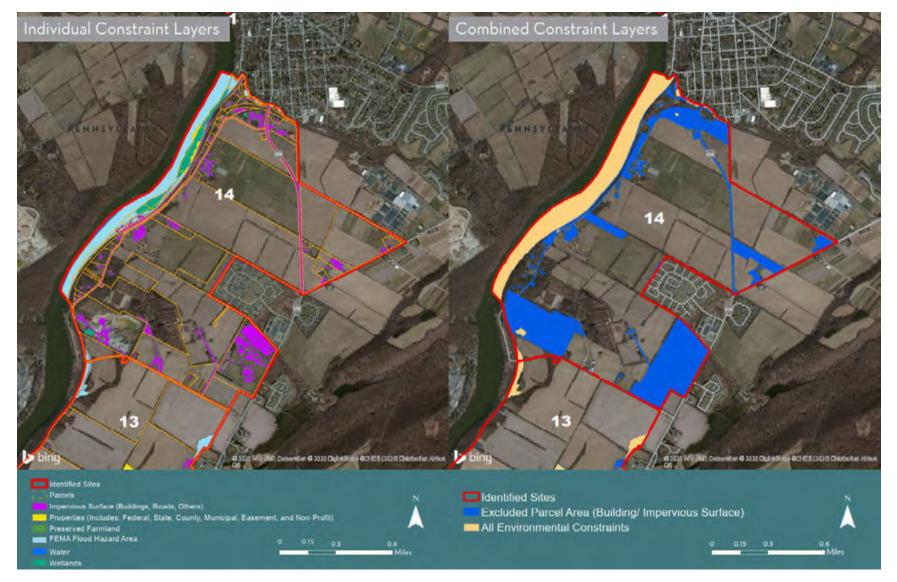
#### Figure 14 - Site 12 Constraints



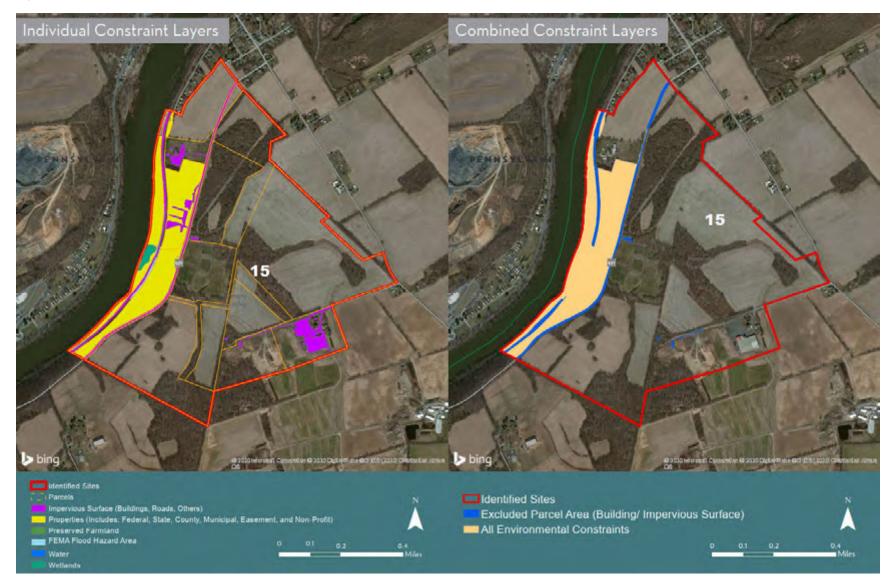
#### Figure 15 - Site 13 Constraints



#### Figure 16 - Site 14 Constraints



#### Figure 17 - Site 15 Constraints



## TRIP GENERATION

Using the 15 sites identified and their respective developable area assessment from the zoning analysis, trip generation was completed using the  $10^{th}$  Edition of the Institute of Transportation Engineers (ITE) Trip Generation Handbook. Corresponding land use codes from ITE  $10^{th}$  Edition handbook for each site was identified based on the zoning and permitted land use. It should be noted that for a majority of sites the allowed zoning and permitted land use varies; therefore, the Industrial Land Use codes 110 through 157 from the ITE Handbook were considered for screening. Also, since sites could potentially include multiple developments, each with different trip production rates, three land use codes were identified per site for low (R<sub>L</sub>), medium (R<sub>M</sub>) and high (R<sub>H</sub>) trip production rates. For the high trip production rate, land use code 110 (General Light Industrial) was used for all sites because the uses specified in the industrial zone districts generally fall within the light industrial definition. Table 2 illustrates the potential land use codes and the trip production rate for peak hours for each code.

ITE Land Use Code	Description	Combined AM and PM Peak Hour Trip Rate
110	General Light Industrial	1.33
130	Industrial Park	0.80
140	Manufacturing	1.29
150	Warehousing	0.36
151	Mini-Warehouse	0.27
154	High-Cube Transload and Short-term Storage Warehouse	0.18
155	High-Cube Fulfillment Center Warehouse	0.96
156	High-Cube Parcel Hub Warehouse	1.34
157	High-Cube Cold Storage Warehouse	0.23

Source: ITE 10<sup>th</sup> Edition Handbook

Based on the previously calculated GFA in square feet for each of the 15 identified sites, trips (auto and truck) were generated for the AM / PM peak hours, and Daily. Trip production was estimated as a Mixed-Use scenario. Mixed Use assumes a weighted trip production approach, where each development will include a mix of multiple developments with different trip production rates. Under this approach each identified trip production rate (low, medium and high) per site are weighted by weighting constant. GFA is multiplied by a user defined percentage for the low ( $R_L$ ), medium ( $R_M$ ) and high ( $R_H$ ) AM and PM trip production rates identified per Land Use per site. To best represent the most likely development scenario, in consultation with the County the weights were set as: low production trip rate ( $R_L$ ) at 50%, medium ( $R_M$ ) at 30%, and high ( $R_H$ ) at 20%. Detailed site data, zoning assignments, and trip generation information is presented in the table in Appendix A.

# TRIP ASSIGNMENT AND DISTRIBUTION

To conduct trip assignment and to identify the roadway segments that will see an increase in traffic flows originated from the proposed sites, the North Jersey Regional Transportation Model Enhanced (NJRTME) was used. This travel demand model was developed by the North Jersey Transportation Planning

Authority (NJTPA). It is a conventional four step transportation model that consists of trip generation, trip distribution, mode choice, and trip assignment. This model includes both highway and transit networks. It covers the NJTPA region, and the five surrounding Metropolitan Planning Organizations (MPO's) areas, as shown in Figure 18.



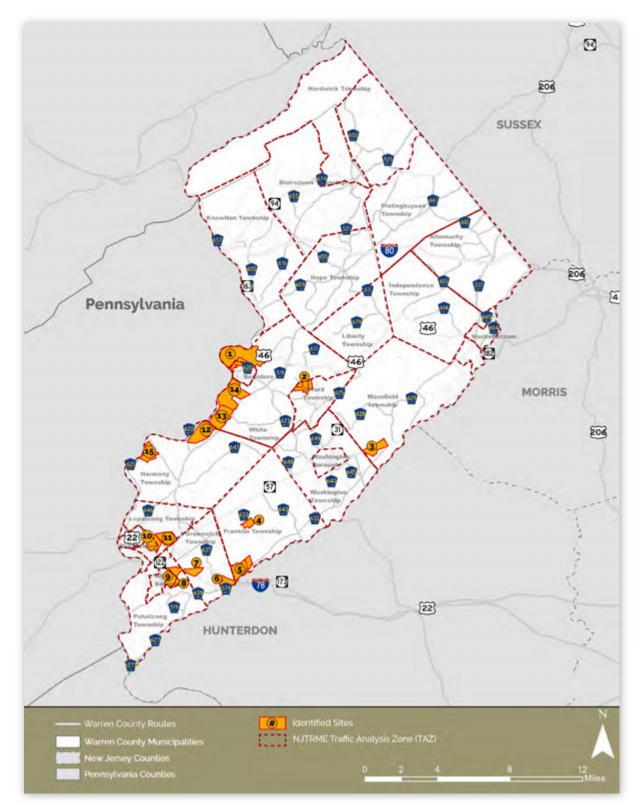


Source: NJTPA

## TRAFFIC ANALYSIS ZONES

The NJRTME is designed to support the forecasting of regional traffic flows, using socioeconomic information such as population and employment forecasts at five-year intervals. The underlying socioeconomic data is gathered, developed, and processed from the latest MPO-approved socioeconomic projections, as well as the U.S. Census, and other sources. This data is compiled into several categories by Traffic Analysis Zones (TAZs), which are established based on geographic definitions consistent with U.S. Census Tracts, but in some areas are disaggregated into Block Groups where finer levels of detail are required. For Warren County the TAZ zone system is comprised of twenty-seven zones, closely aligned to the municipal boundaries, although slightly different. The TAZ zone system within the County was enhanced to include fifteen additional zones replicating the size and location of each proposed site. Figure 19 below displays the added zones (outlined in red) overlaid on top of the twenty-seven TAZs within the County.





Source: WSP, NJTPA

## Socioeconomic Variables

TAZs contain the relevant socioeconomic information needed to develop traffic flow forecasts for the fourstep process. This information is divided into population, number of households, employment, and average household income as shown in Table 3. Employment is further subdivided into ten different sectors corresponding to the North American Industry Classification System (NAICS).

CODE	DESCRIPTION
POP	Number of Persons Living within TAZ
НН	Number of Households contained in TAZ
	EMPLOYMENT
AGMINE	Agriculture, Forestry, Fishing, and Mining
CONST	Construction
MFG	Manufacturing
TRANS	Transportation, Communications, Electric, Gas, and Sanitary
WHLSE	Wholesale Trade
RET	Retail Trade
FIRE	Finances, Insurance, and Real Estate
SER	Services
GOV	Government-Public Administration
MIL	Military
	INCOME
INCOME	Average Household Income

#### Table 3 – Socioeconomic Variables

For this project, the 2045 NJTPA socioeconomic forecasts were used and adjusted to include the information pertaining to each of the 15 sites. It was assumed the 2045 NJTPA socioeconomic projections do not include the proposed growth that would result from the inclusion of these sites. Therefore, employment estimates for each of these sites were added to the corresponding employment sector within each TAZ within the study area.

### **Employment Estimates**

To estimate the employment generated by each site, an average ratio of 2,000 square feet by employee was used. This metric was obtained from the National Association for Industrial and Office Parks (NAIOP), using the Commercial Buildings and Energy Consumption Survey (CBECS). This survey identifies the inventory, employment and square feet by employee for logistics buildings and their characteristics across a set of variables including region, building size, year built, and building type. This ratio was applied to the estimated GFA for each site. Logistics buildings included in this survey include refrigerated and non-refrigerated warehouses, distribution or shipping center, self-storage, and flex buildings<sup>1</sup>. This ratio varies according to the region, type of industry, and building type. Thus, applying this ratio to the 15 identified sites within the study area, socioeconomic estimates shown in Table 4 were used for the 2045 forecast year.

<sup>&</sup>lt;sup>1</sup> Logistics Trends and Specific Industries that Will Drive Warehouse and Distribution Growth and Demand for Space. National Association for Industrial and Office Parks, NAIOP, 2010.

Site ID	Total Area	Developable Area	Gross Floor Area	Employment
	(Acres)	(Acres)	(1,000 SQFT)	(# of jobs)
1	1,543.9	809.2	8,175	4,088
2	301.7	152.9	1,332	666
3	356.0	88.3	962	481
4	141.3	88.9	968	484
5	534.5	313.4	3,413	1,707
6	246.9	149.9	980	490
7	199.7	151.2	658	329
8	71.6	53.1	694	347
9	385.0	143.8	1,123	562
10	384.6	325.5	5,672	2,836
11	376.2	189.2	1,648	824
12	623.9	387.7	5,066	2,533
13	622.8	559.8	4,877	2,439
14	943.3	660.0	5,750	2,875
15	369.0	311.7	4,073	2,037

#### Table 4 – 2045 Employment Estimates Based on 2,000 Square Feet by Employee

## **TRIP GENERATION**

The NJRTM-E contains a Truck Specific procedure/module estimating trip distribution between destinations and/or origins, subdivided into External to External (pass-by-trips from zones outside the NJTPA Region to zones outside the NJTPA region), External to Internal (trips from zones outside the NJTPA Region to zones inside the NJTPA region), and Internal (trips within the NJTPA region) zones. Truck flows can be obtained for medium (2 axle, 6-tire vehicles) and heavy (3+ axle vehicles) size trucks. To perform truck trip generation, the employment data is grouped into five categories: retail, industrial (manufacturing), public (government and military), office (finance, insurance, real state) and other (Agriculture, Forestry, Fishing, Mining, Construction, Transportation, Communications, Electric, Gas, Sanitary, and Wholesale Trade). The trip rates in Table 5 are used for this purpose.

Table 5 - Truck Trip Generation Rates

Туре	Medium Truck	Heavy Truck	Commercial Trips Manhattan	Commercial Trips NY Other Counties	Commercial Trips Other Regions
by Population					
Households	0.0240	0.0202	0.0407	0.0234	0.0116
by Employment					
Retail Employment	0.1264	0.0590	0.1241	0.0709	0.0355
Industrial Employment	0.0522	0.0800	0.1470	0.0840	0.0420
Public Employment	0.0032	0.0384	0.1470	0.0840	0.0420
Office Employment	0.0202	0.0051	0.0630	0.0360	0.0180
Other Employment	0.0553	0.1207	0.1470	0.0840	0.0420

Intermodal facilities are also accounted for in the NJRTM-E. For Warren County, the model shows the municipalities of Phillipsburg, Harmony, Lopatcong, White, and Liberty Townships as having Truck Terminals. To account for the assumption that by 2045 each of the 15 sites will have a warehouse built, this database was augmented to include a warehouse at each of these zones. The model considers the truck size split for each facility type as shown in Table 6.

#### Table 6 - Percentage Truck Split by Facility Type

Intermodal Facility	Medium Truck Percentage	Heavy Truck Percentage
Truck Terminal	45%	55%
Warehouse	36%	64%
Pipeline Terminals	20%	80%
Other Special Generators		
(such as Ports and Airports)	100%	100%

## TRIP DISTRIBUTION

This procedure is designed to match (distribute) trips between population areas and employment centers. It considers the cost of travel between different destinations. Trips are classified on whether they are oriented toward home or work. The model includes multiple trip purposes: Home-Based Work Direct (from home to work), Home-Based Work Strategic (e.g. drop off kids, pick up coffee on the way to work), Home-Based Shopping, Home-Based Other (e.g. leisure), Home-Based University, Work-Based Other (e.g. to lunch, shopping), Non-Home Non-Work (all the rest, e.g. from a store to school), and Trucks.

## MODE CHOICE

No specific adjustments were made to mode choice components of the model. This procedure was performed using the base parameters and methodology included in the model.

## **TRIP ASSIGNMENT**

The model performs the assignment of trips to both highway and transit networks. For the highway assignment the roadway network includes multiple parameters that determine the capacity of each roadway segment, such as number of lanes, facility type, tolls, and speed. Other, physical and

operational roadway characteristics such as terrain type, presence of shoulders, right or left turn lanes, and traffic control devices are also included but these do not play a significant role on the determination of the capacity. Roadway characteristics such as truck weight or height restrictions are roadway attributes not included on the model highway network. Therefore, truck trips could be assigned to roadway segments with any of these restrictions in place. Such trips cannot be reassigned with the model; rather, those volumes were manually rerouted to other roadways from one link to another before the intersection or mainline capacity assessment was performed.

# MODELING SCENARIOS

Two scenarios were modeled for this project: 2045 No Build and 2045 Build (2045 No Build + Proposed Development). For the 2045 No Build scenario, no modifications were made to the socioeconomic variables within the TAZs in Warren County. Relevant Transportation Improvement Projects (TIP) projects were included on the roadway network. However, for the 2045 Build scenario, the employment data described previously was added. Other changes to this scenario include the addition of warehouse facilities and centroid connectors to the roadway network.

Daily traffic flows from each scenario were compared to estimate changes in traffic patterns due to the proposed developments. Changes in traffic volumes can be used as proxy to trace routes (roadway segments) where an increase in future traffic will occur. Figure 20 and Figure 21 show the changes in daily traffic flows (total vehicles and trucks only, respectively) between scenarios.

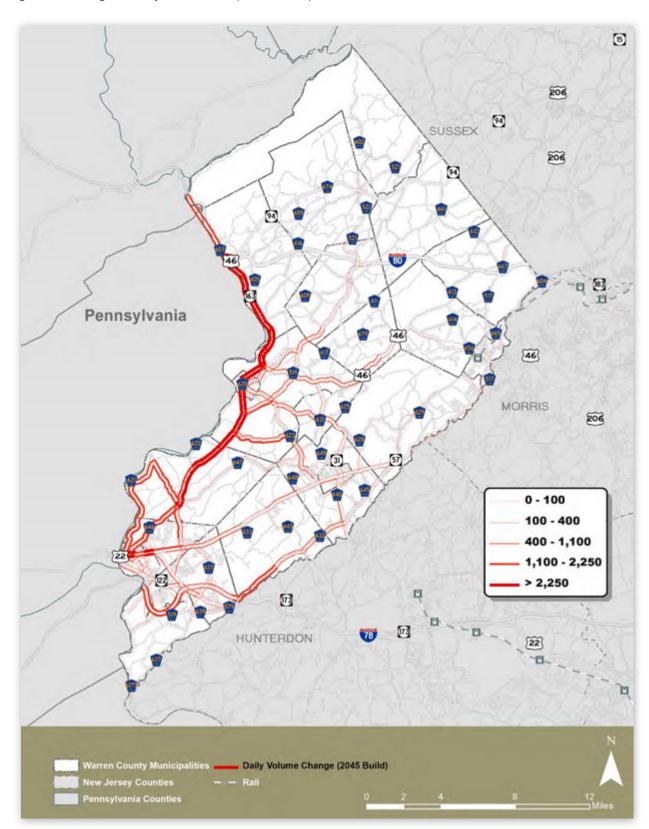


Figure 20 - Changes in Daily Traffic Flows (Auto & Truck) between 2045 No Build and 2045 Build Scenarios

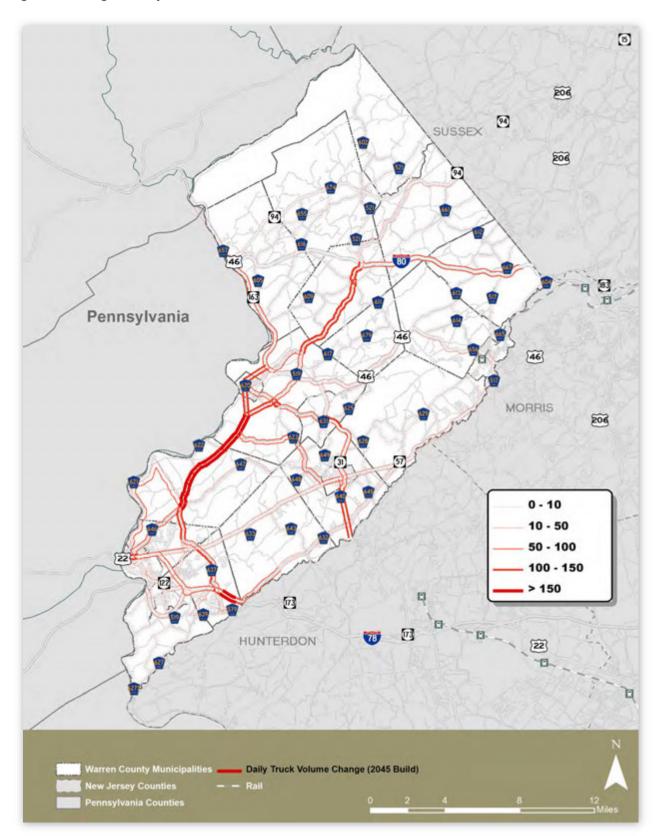


Figure 21 - Changes in Daily Truck Traffic Flows between 2045 No Build and 2045 Build Scenarios

The magnitude of the line width highlights those roadway segments where an increase of traffic would occur. The highest impact would occur along roadways connecting proposed sites in the western portion of the county, County Road (CR) 621 (River Road) and CR 519 (Belvidere Road) These roads provide connections to major roadways such as U.S. Routes 22 and 46, on the south and north respectively. U.S. Route 22 would carry north-south traffic flows destined to Interstate 78. U.S. Route 46 would carry traffic flows to Interstate 80. For those sites analyzed in the southern portion of the county, CR 632 (Asbury Bloomsbury Road) would provide the main connection to Interstate 78. Other routes being impacted include CR 626, CR 624, and CR 632.

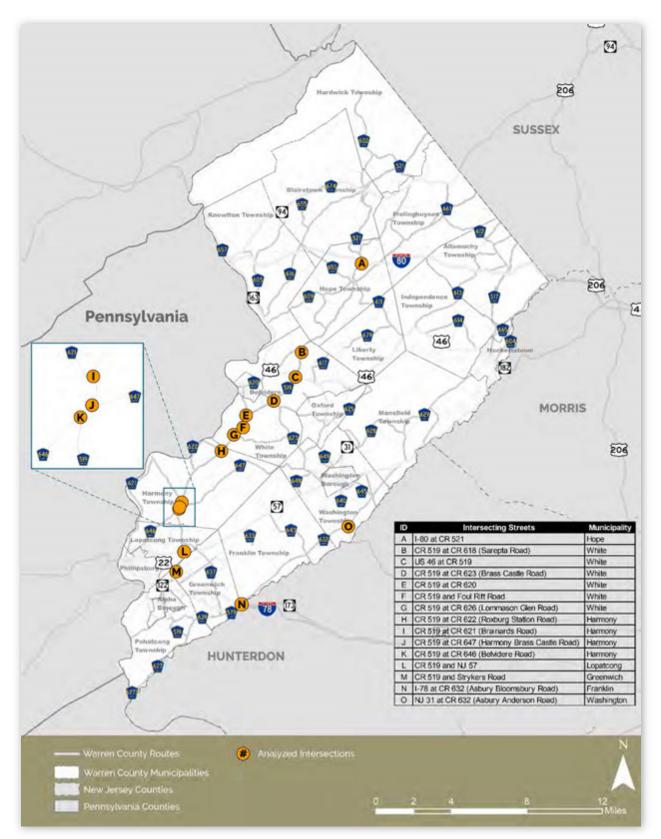
More specifically in AM and PM peak periods we see increased volumes that indicate commuter patterns. For example, in the AM we see an increase in southbound trips from Route 46 or I-80 towards CR 519 in Belvidere. In the PM the reverse is true, and there is an increase in trips heading north from CR 519 towards Route 46 and I-80. Projected model changes are displayed in more detail in Appendix B.

As explained previously, the NJRTME model is a demand-based model. These types of models are designed to assign trips to roadway segments despite its available capacity or physical constraints. Because of this, the model can result in roadway segments with excessive demand, or in other words, segments with Demand to Capacity Ratios (D/C) above one. For planning purposes, this characteristic is very important since it provides an indication of where the demand would want to go despite physical constraints. For example, the model assigns some of the site generated truck demand to CR 626 to connect CR 519 with CR 623 and NJ 57. However, CR 626 is a narrow, steep and windy roads that goes over a mountain making it a difficult path for trucks use. To account for such roadway characteristics (i.e. steepness, narrowness, weight and height restrictions), the highway assignment final volumes from this study were reviewed by county staff. Using the feedback from the County, truck trips that had been assigned to incompatible roadways by the model, i.e. weight or height restricted, were manually shifted to truck-compatible alternate paths that most closely replicated the trip assigned by the model. Those additional truck volumes were added to mid block and intersection Build volumes along the new path and subtracted from the original path. The adjusted volumes were used in the capacity analysis for both mid block and intersection locations.

Key intersections that would receive additional auto and truck traffic generated by future development of the industrial sites were identified. Those intersections were analyzed for truck turning radii compatibility, and where recent traffic counts were available, operation for the existing, 2045 No Build, and 2045 Build conditions. Mid-block locations between these intersections were also analyzed for traffic operations. The analyzed intersections are listed in Table 7 and shown in Figure 22.

Intersection	Intersecting Streets	Municipality
А	I-80 at CR 521	Hope Township
В	CR 519 at CR 618 (Sarepta Road)	White Township
С	US 46 at CR 519	White Township
D	CR 519 at CR 623 (Brass Castle Road)	White Township
E	CR 519 at CR 620	White Township
F	CR 519 at Foul Rift Road	White Township
G	CR 519 at CR 626 (Lommason Glen Road)	White Township
Н	CR 519 at CR 621 (Brainards Road)	White Township
I	CR 519 at CR 622 (Roxburg Station Road)	Harmony Township
J	CR 519 at CR 647 (Harmony Brass Castle Road)	Harmony Township
К	CR 519 at CR 646 (Belvidere Road)	Harmony Township
L	CR 519 at NJ 57	Lopatcong Township
М	CR 519 at Strykers Road	Greenwich Township
Ν	I-78 at CR 632 (Asbury Bloomsbury Road)	Franklin Township
0	NJ 31 at CR 632 (Asbury Anderson Road)	Washington Township

#### Figure 22 - Analyzed Intersections



# ROADWAY SUITABILITY

## **HEIGHT AND WEIGHT RESTRICTIONS**

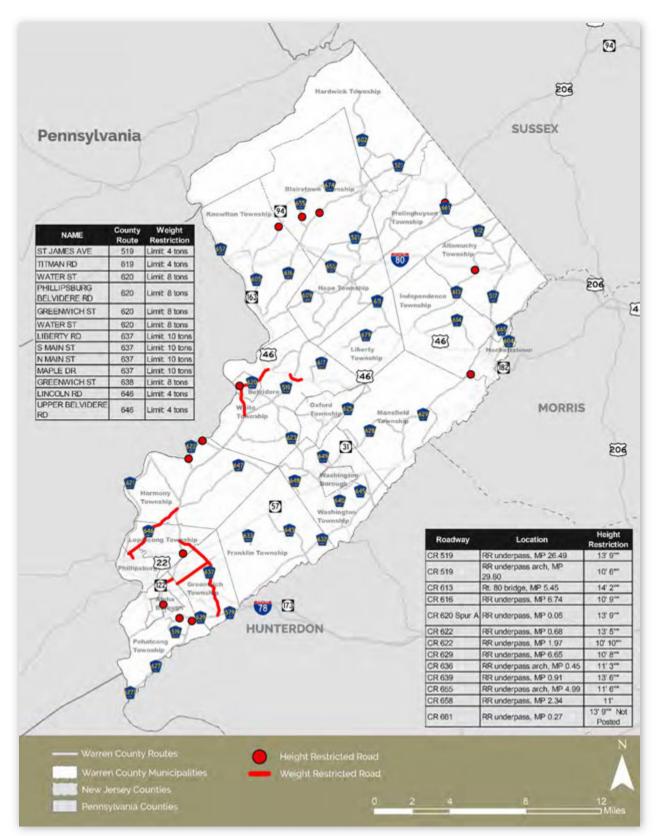
Numerous bridges and roadways in Warren County have weight or height restrictions that preclude the use of a roadway by trucks exceeding those limits. The design or condition of these bridges and roadways do not permit usage by certain vehicles. Height is measured from the roadbed to the highest point on the vehicle or load it is carrying. Weight includes the weight of the vehicle plus the weight of the load that is being carried.

While necessary for physical and safety reasons, height and weight restrictions can create secondary impacts. Restrictions can limit transportation accessibility for local businesses, impact local economic viability, increase vehicle miles traveled, and divert traffic through residential neighborhoods. Eleven County routes have height restrictions and five county routes have weight restrictions.

County roads with height and weight restrictions tend to be around the border of Warren County, with few restrictions in the County's interior. In Pohatcong, both CR 636 and CR 639 have height restrictions of 11'3", and 13'6", respectively. Additionally, CR 519 in Alpha has a 13'9" height restriction and a 10'6" height restriction in Lopatcong. These restrictions pose a mobility concern for trucks in the County as they restrict entrance into the County from the southeast. In the north, height restrictions are present along CR 658 in Knowlton, and CR 616 and CR 655 in Blairstown. Near the Delaware River, two height restrictions are present on CR 622 in Harmony, west of CR 519. To the north of this, CR 620 Spur A in Belvidere has a 13'9" height restriction.

Five county roads have weight restrictions, mostly in the southern portion of the County. CR 519 in Pohatcong has a four-ton limit and in Greenwich it has an eight-ton limit. CR 637 in Lopatcong and Greenwich has a 10-ton limit. CR 646 in Philipsburg, Lopatcong, and Harmony has a four-ton limit. CR 620 has an eight-ton limit White and Belvidere, and the short extent of CR 519 in Pohatcong has a fourton limit. The location of height and weight restricted County routes are presented in Figure 23.



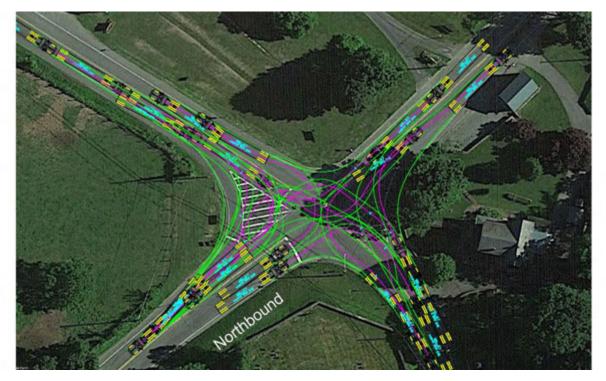


## **TURNING RADII ANALYSIS**

A turning radii analysis was conducted at the selected intersections. This analysis utilized AutoCAD's AutoTURN feature to simulate the ability of a WB-67 truck (defined as 73.5-foot-long total, including 53-foot trailer) make each of the turns at the key intersections. Roadway extents were gathered from recent Google Earth satellite images. Turning movements were tested in five mph increments, so if a vehicle was able to turn at five mph, they were also tested at ten mph, etc. until the vehicle was not able to make the turn.

An example of the AutoTURN analysis for a sample intersection (CR 519 & CR 623) from AutoCAD is presented in Figure 24. The process of testing turning movements at each intersection identified specific issues involving each turn. In the sample AutoTURN analysis below, green lines represent the outline of the vehicle body movement as it makes a turn. The magenta lines represent the path of the truck, defined as the center of the truck axles.





An existing condition turning radii assessment was performed that classified each turning movement into one of three categories, as defined below and presented in Figure 25 and Figure 26:

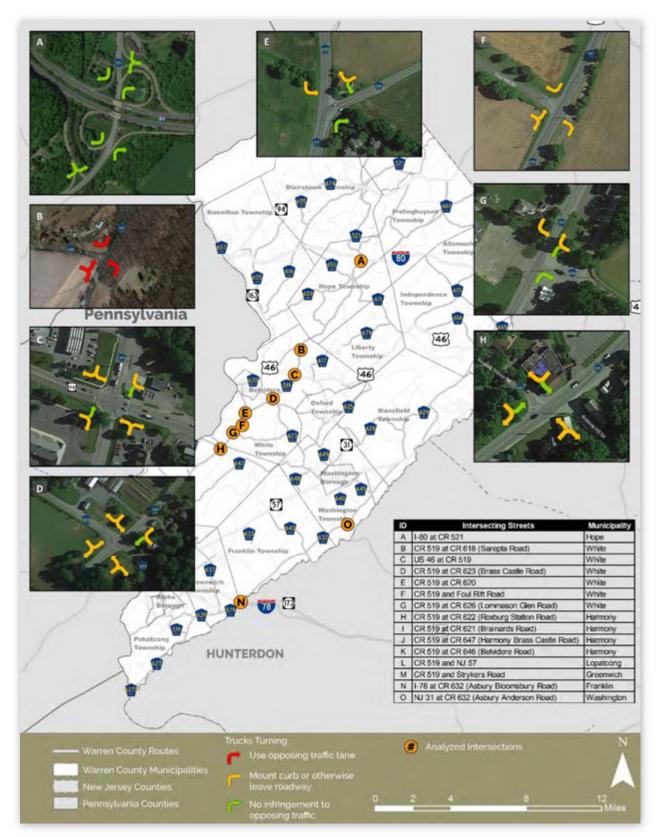
- Trucks can turn without infringing on opposing traffic (Green)
- Trucks must encroach upon the opposing travel lane (Orange)
- Trucks must mount the curb or otherwise leave the roadway (Red)

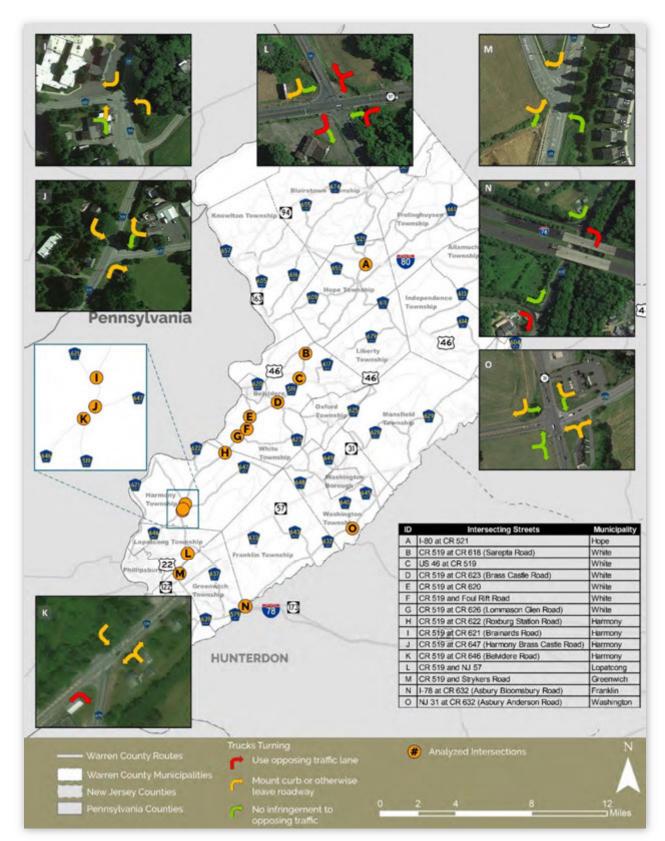
Most turns can be presently made but require encroaching into the opposing lane. The ease of safely maneuvering depends on the location, as trucks may be able to easily turn at a low-volume intersection but require more encroachment into opposing traffic at busier locations.

Locations where trucks are currently unable to turn tend to have narrow rights-of-way or slip lanes that make maneuvering difficult while locations where trucks can easily turn tend to have wider right of ways or are off-ramps to interstate highways with higher speeds and truck volumes (such as I-80 or I-78).

More detailed information by movement is available in Appendix C.









# CAPACITY ANALYSIS

The level of service (LOS) measure is an indication of the amount of delay, measured in seconds, experienced by motorists before they can proceed through an intersection during peak travel hours. LOS results for intersections are given a letter grade, 'A' through 'F', with 'A' indicating no delay and 'F' denoting highly congested conditions. Generally, LOS A through C are considered acceptable. For roadway mainline sections, LOS is based on the ratio of demand versus roadway capacity, or D/C ratio.

Count traffic data was collected from available resources and summarized to derive traffic volumes, peak hour adjustment factors, and the percentage of heavy vehicles for the morning and evening peak hours. Subsequently, intersections and roadway segments were analyzed with traffic simulation software. For this study LOS was calculated for the morning and evening peak hours to evaluate the differences in traffic patterns, and to better quantify the delay along the more congested roadway segments in the study area.

The following intersections and midblock segments were analyzed, where volume data and signal timings were available. The letter assignments provide a location key to the results figures provided later in this section.

#### **Intersections**

- C US 46 and CR 519 signalized
- D CR 519 and CR 623 4-way stop controlled by a blinked signal
- E CR 519 and CR 620 2-way stop controlled (T intersection)
- F CR 519 and Foul Rift Road 2-way stop controlled (T intersection)
- G CR 519 and CR 626 2-way stop controlled (T intersection)
- H CR 519 and CR 622 (Roxburg Station Road) 2-way stop controlled
- I CR 519 and Brainards Road 2-way stop controlled (T intersection)
- K CR 519 and CR 646 2-way stop controlled (T intersection)
- L CR 519 and NJ 57 Signalized
- M CR 519 and Strykers Road 2-way stop controlled (T intersection)
- N I-78 EB off-ramp and CR 632 ramp stop controlled left turn to NB CR 632

#### Midblock Segments

- AA CR 519, northeast of CR 610
- BB CR 519, Stone Hedge to Hope Crossing Road N
- CC CR 519, CR 623 (Brass Castle Road) to Pequest Drive
- DD CR 519, CR 620 to Brookfield Drive
- EE CR 519, Reeder Road to Grist Mill Road
- FF CR 519, Fairway Road to Hillside Avenue
- GG CR 632, Shurts Road to Halls Mill Road

Volume data was obtained from the NJDOT Traffic Monitoring website <u>https://www.njtms.org/map/</u> and from sources provided by Warren County. Trafficware LLC's Signal Timing and Analysis software, Synchro version 10.3.122.0 was used for all stop controlled and signalized intersection analysis. McTrans' Highway Capacity Software, version 7.8.5, Highways - Two Lane module was used for all mid-block analysis segments. Output files are presented in Appendix D.

## PEAK HOUR VOLUMES – 2020 EXISTING CONDITION

Available traffic data was obtained from various years, ranging from 2003 to 2019 and included intersection peak hour turning movement counts and AADT mainline counts. Morning and evening peak hour volumes were pulled directly from counts provided with hourly distribution. For locations where only mainline AADT was available a peak hour factor was applied to produce peak hour volumes. Peak hour volume growth was projected to the year 2020 using a Compound Annual Growth Rate (CAGR) derived by looking at historical data at five locations where multiple years were available. The growth factor obtained fluctuates widely between locations. In order to account for this variability an overall weighted CAGR was obtained using the latest traffic volumes to normalize the data. This resulted in a 1.15% overall CAGR and shown in Table 8. This factor was applied to each count grown to the Year 2020.

				CAGR				
Roadway Segment	Year1	Year2	AADT	АМ	PM			
CR 519, Reeder Road to Grist Mill Road	2015	2018	4.85%	-1.64%	2.26%			
CR 519, CR 623 (Brass Castle Road) to Pequest Road	2015	2018	5.95%	16.63%	12.04%			
NJ 57, Lincoln Avenue to N Wandling Avenue	2015	2018	0.74%	2.16%	0.12%			
NJ 31, Springtown Road to Clubhouse Drive	2014	2017	-2.24%	0.14%	-2.96%			
CR 519, northeast of CR 610	2011	2017	0.10%	3.97%	2.88%			
	0.93%	3.49%	1.50%					
Weighted Compour	1.15%							

#### Table 8 – CAGR Computation

Weighted Compound Annual Growth Rate 1.15%

## PEAK HOUR VOLUMES - 2045 NO BUILD CONDITION (BACKGROUND GROWTH)

To develop traffic volumes for the 2045 No Build condition a background growth rate was derived. This factor was developed using the latest sociodemographic projections from the NJTPA for the 2045 Year and the NJRTME Model. Traffic volumes for the AM, PM Peak, Daily time periods for all roadways within Warren County were used. The CAGR values obtained show little variability between facility type and time periods. However, in order to normalize this small difference a weight was derived using estimated model volumes (Table 9). Table 9 - CAGR Weighting

	CAGR					
Facility Type	AM	PM	DAILY			
Freeways	0.47%	0.60%	0.51%			
Principal Arterials Divided	0.63%	0.66%	0.67%			
Principal Arterials Undivided	0.58%	0.61%	0.59%			
Major Arterials Undivided	0.57%	0.64%	0.57%			
Minor Arterials	0.90%	0.98%	0.84%			
Collector /Locals	0.44%	0.51%	0.40%			
Overall Weighted Average	0.59%					

Overall Weighted Average 0.59%

# PEAK HOUR VOLUMES - 2045 BUILD (2045 NO BUILD PLUS PROPOSED DEVELOPMENT)

The 2045 Build scenario estimates traffic operations in the future if the potentially developable parcels are built-out. The changes in volumes that were predicted by the NJTRM-E model scenario were overlaid on top of the 2045 No Build volumes. This process consisted of determining the demand along the roadway segments that will carry the site generated traffic using the estimated trip distribution from the 2045 Build condition model run. 2045 Build site generated traffic volumes were derived for the morning and evening peak hours, by applying the percentage trip distribution from the model run to the ITE trip generation estimates described in previous sections.

## INTERSECTION CAPACITY ASSESSMENT

The traffic counts developed above were analyzed as part of the process to determine congestion and how traffic flows through select county roads. The overall result of the traffic volume analysis is that congestion is currently (2020) minimal throughout the study area, though there are some locations that may experience congestion in the future during peak hours.

In 2020 (Figure 27), all intersections operate well, with slight congestion at US 46 and CR 519 during the PM peak hour. By 2045 No Build (Figure 28), that intersection experiences much greater congestion, with a predicted LOS of D and F for AM and PM, respectively. The intersection of CR 519/CR 623 also experiences congestion in 2045 No Build, with LOS of C and F for AM and PM peak hour, respectively. The remaining three intersections are much lower in volume, and therefore operate well both presently and in the 2045 No Build peak periods.

However, if all 15 sites are developed to their full capacity as projected by the trip generation and assignment, the increase in traffic at these locations cause all analyzed intersections to fail in the 2045 Build scenario (Figure 29).

Table 10 summarizes the LOS and delay in seconds of the 2020 Existing, 2045 No Build and 2045 Build Scenarios of each location by peak hour.

Location		STING		STING PM	No	045 Build M	2045 No Build PM		2045 Build AM		2045 Build PM	
	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
C-US 46 at CR 519	С	21.7	D	38.2	D	42.4	F	82.3	F	315.9	F	514.4
D-CR 519 at CR 623 (Brass Castle Road)	В	14.8	С	24.1	С	21.3	F	56.8	F	697.4	F	722.6
E-CR 519 at CR 620	А	4.3	А	9.6	А	5.4	С	24.3	F	3541	F	1801
F-CR 519 and Foul Rift Road	А	0.1	А	0.1	А	0.1	А	0.1	F	**	F	4661
G-CR 519 at CR 626 (Lommason Glen Road)	A	0.4	A	0.7	A	0.5	A	0.9	F	1232	F	471.2
H-CR 519 at CR 622 (Roxburg Station Road)	A	1.1	A	1.4	A	1.3	A	1.8	F	**	F	**
I-CR 519 at CR 621 (Brainards Road)	А	1.5	А	2.3	А	1.6	А	2.7	F	**	F	4568
K-CR 519 at CR 646 (Belvidere Road)	А	5.0	А	6.9	А	5.5	A	8.9	F	2836	F	1295
L-CR 519 and NJ 57	В	17.8	С	22.9	В	19.4	С	25.5	F	81.5	F	157.5
M-CR 519 and Strykers Road	А	6.4	В	14.8	А	7.3	Е	38.0	А	7.9	F	64.6
N-I-78 at CR 632 (Asbury Bloomsbury Road)	A	4	A	4.1	A	4.1	A	4.1	F	465.4	A	7.2

#### Table 10 - Intersection LOS and Delay (seconds)

\*\*Delay not calculable – delay is outside the high boundary and cannot be computed.

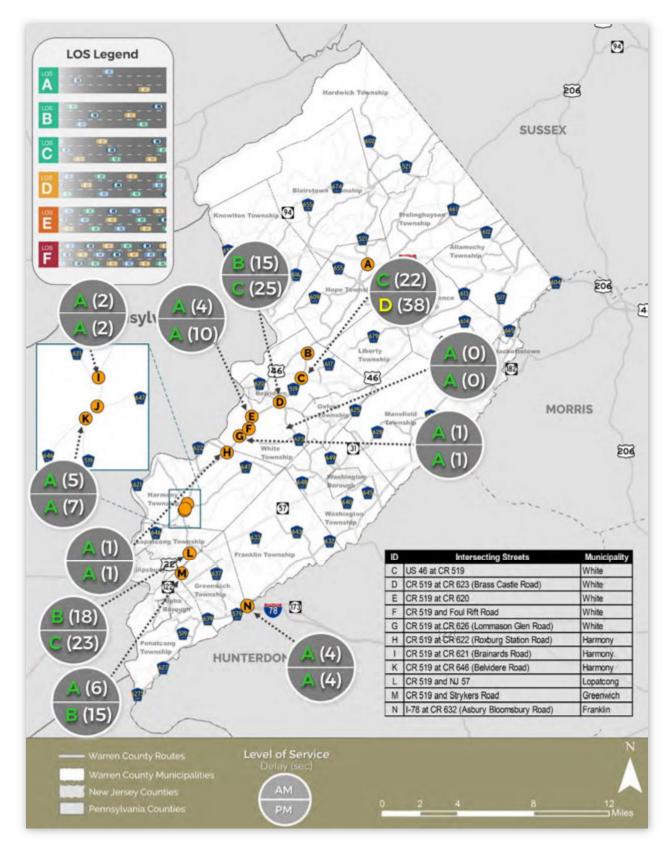
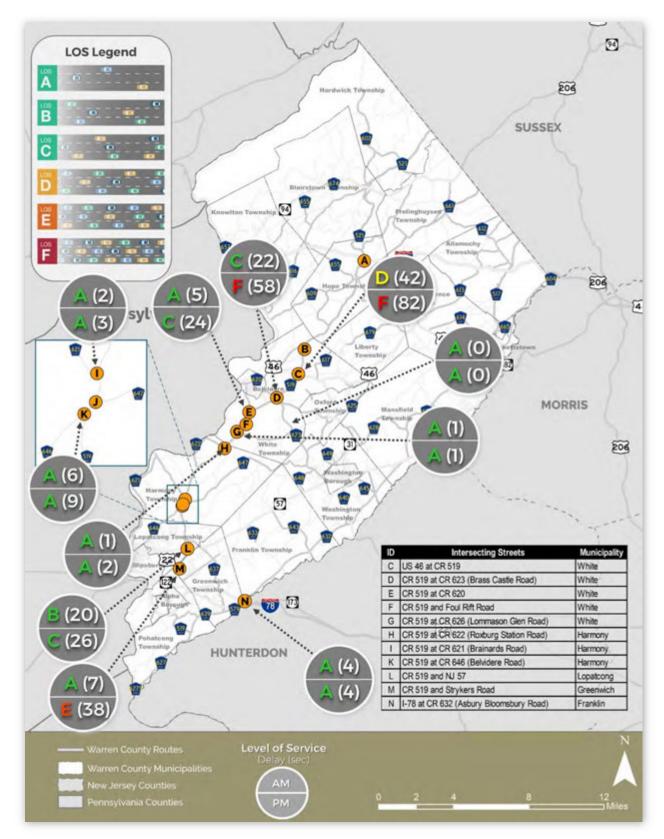
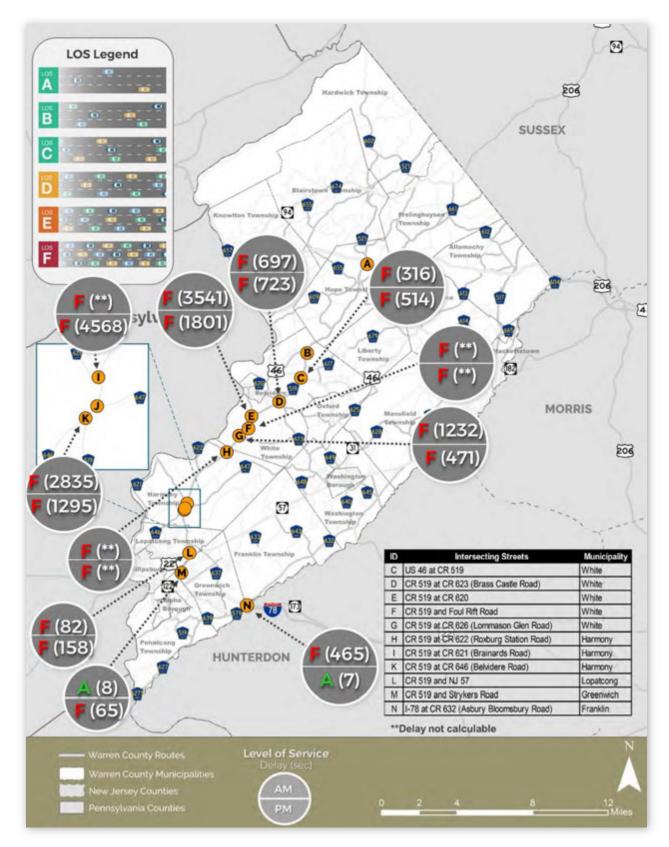


Figure 27 - Intersection Level of Service and Delay (seconds) - Existing









## MID-BLOCK CAPACITY ASSESSMENT

In 2020, all midblock sections on County Roads operate well (Figure 30), and continue to operate well in the 2045 No Build (Figure 31) condition. Once the additional trips generated by the 15 industrial sites are added to the roadway network, several segments of CR 519 deteriorating to LOS E or worse, specifically CR 519 between Grist Mill Road and CR 623 (Brass Castle Road) (Figure 32). The remaining segments of CR 519 deteriorate to LOS D in at least one peak hour. Below in Table 11 are the Demand/Capacity Ratios of the 2020 Existing, 2045 No Build and 2045 Build Scenarios of each location by peak hour and direction.

#### Table 11 - Mid-Block D/C Ratios and LOS

	EXIST	ING -			2045 No	Build	2045 No	Build			2045 E	Build -
	AN	N	EXISTING - PM		- AM		- PM		2045 Build -AM		PM	
	D/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS	D/C	LOS
Location	Ratio		Ratio	1	Ratio	ļ	Ratio		Ratio		Ratio	į
AA-CR 519, northeast of CR 610 - NB	0.18	Α	0.15	А	0.20	В	0.18	А	0.20	OB	0.36	C
AA-CR 519, northeast of CR 610 - SB	0.15	А	0.20	В	0.17	А	0.23	В	0.52	D	0.23	В
BB-CR 519, Stone Hedge to Hope Crossing Road - EB	0.20	В	0.17	А	0.23	В	0.20	В	0.23	В	0.20	В
BB-CR 519, Stone Hedge to Hope Crossing Road - WB	0.20	В	0.22	В	0.23	В	0.25	В	0.52	D	0.25	В
CC-CR 519, CR 623 Brass Castle Road to Pequest Drive – NB	0.29	В	0.33	С	0.33	С	0.38	С	0.33	С	0.57	D
CC-CR 519, CR 623 Brass Castle Road to Pequest Drive - SB	0.22	В	0.22	В	0.25	В	0.25	В	0.65	E	0.25	В
DD-CR 519, CR 620 to Brookfield Drive - NB	0.19	А	0.19	А	0.22	В	0.22	В	0.22	В	0.84	E
DD-CR 519, CR 620 to Brookfield Drive - SB	0.14	А	0.15	А	0.16	А	0.17	А	1.01	F	0.17	А
EE-CR 519, Reeder Rd to Grist Mill Road - NB	0.24	В	0.28	В	0.27	В	0.32	С	1.73	F	0.32	С
EE-CR 519, Reeder Rd to Grist Mill Road - SB	0.22	В	0.28	В	0.26	В	0.33	С	0.37	С	0.97	E
FF-CR 519, Fairway Rd to Hillside Ave	0.12	А	0.25	В	0.14	А	0.28	В	0.58	D	0.28	В
FF-CR 519, Fairway Rd to Hillside Ave	0.16	А	0.15	А	0.18	А	0.17	А	0.18	А	0.47	D
GG-CR 632, Shurts Road to Halls Mill Road - EB	0.14	Α	0.13	А	0.16	Α	0.15	А	0.18	В	0.35	C
GG-CR 632, Shurts Road to Halls Mill Road - EB	0.11	Α	0.17	А	0.13	Α	0.20	В	0.33	С	0.31	C

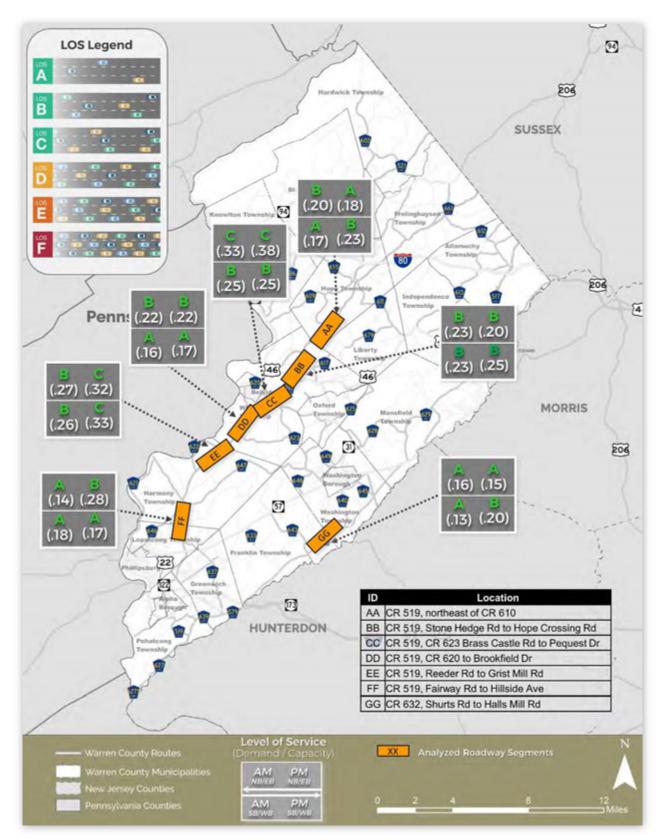


Figure 30 - Mid Block Level of Service and Demand to Capacity Ratio - Existing

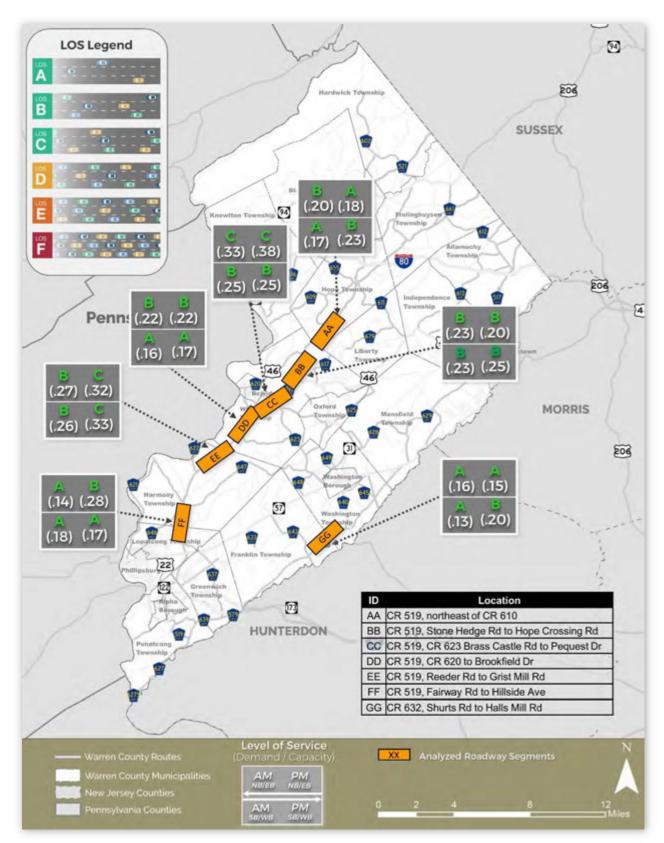


Figure 31 - Mid Block Level of Service and Demand to Capacity Ratio - No Build 2045

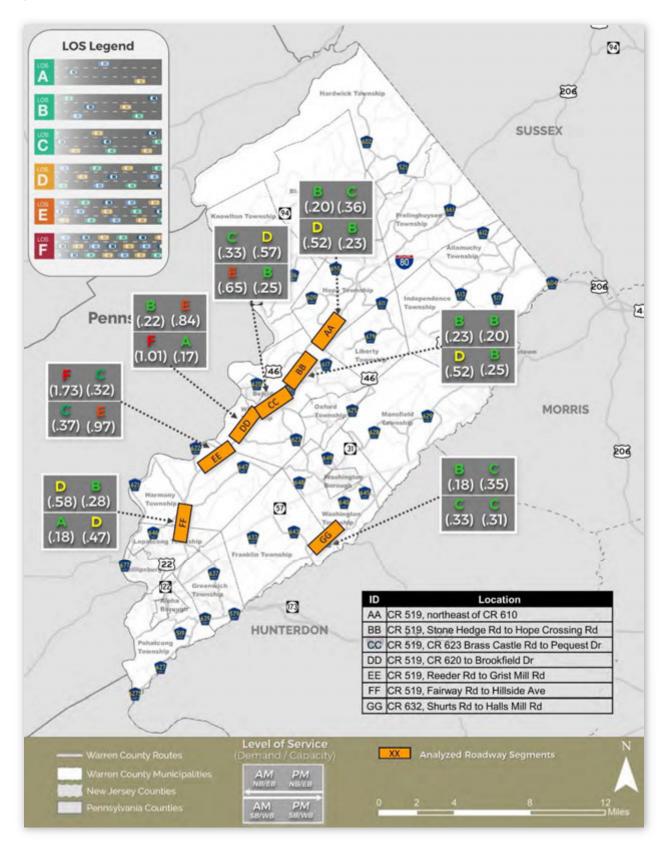
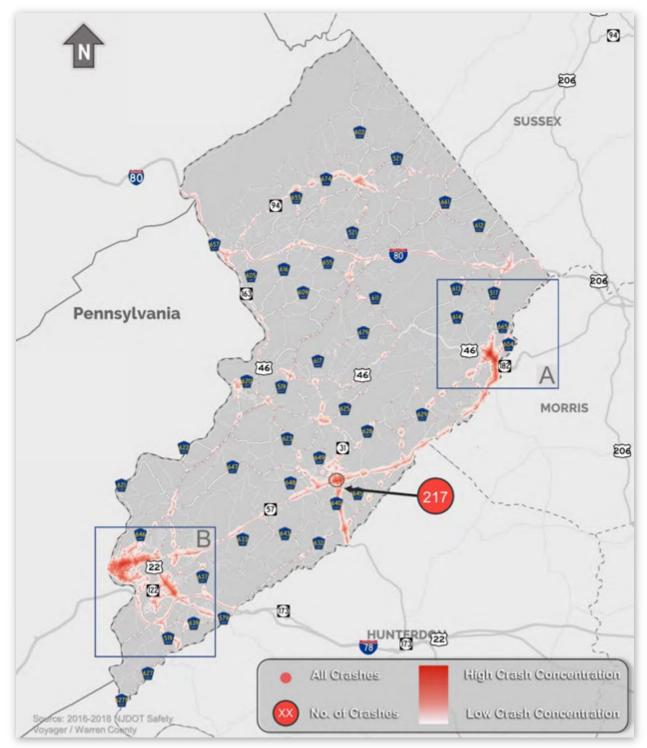


Figure 32 - Mid Block Level of Service and Demand to Capacity Ratio - Build 2045

# CRASH ANALYSIS

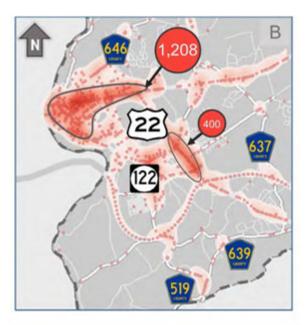
Crash records for the years 2016, 2017, & 2018 were collected and mapped for all roads in Warren County from the New Jersey Department of State's (NJDOT) Safety Voyager system (Figure 33). This





analysis was performed for two different crash subsets. The first subset included all crashes within the database (10,041 records). This analysis was aimed to identify the overarching crash clusters in the County (Figure 33). The second subset analyzed only crash incidents along County Roadways and within a 50-foot radius. The purpose of this second analysis was to identify crash clusters at the intersection/ corridor level along County Roadways.

Figure 34 - US 22/ Phillipsburg Crashes (2016-2018)



US 22, Phillips	burg	Statewide
Right Angle	17%	10%
Struck Parked Vehicle	16%	1%
Wet Surface	20%	18%
Daylight	74%	70%
Heavy Vehicles	9%	N/A
Crashes	1,208	
All Crashes	Citesh	Concentration
No. of Crashes		High
inter er ertesnes		Lew

Source: 2016-2018 NJDOT Safety Voyager / Warren County

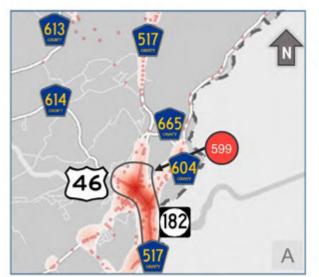
## OVERALL CRASH CLUSTERS (ALL ROADWAYS)

Two major hotspots identified are shown in detail in the insets (Figure 34 and Figure 35) near Routes 46/182 (599 total crashes, 8% involving trucks) and US 22/ Phillipsburg (1,208 total crashes, 9% involving trucks total), while another minor hotspot at the intersection of NJ 31 and NJ 57 (217 total crashes) was also identified. The hotspot containing 400 total crashes includes the top two Warren County crash intersections as reported in the 2017 and 2018 Warren County crash summary reports, US 22/CR 638 and US 22/CR 519.

A detailed summary of the crash analyses is presented in crash tables in Appendix E that provide the number of crashes at each identified hotspot location by Type of Crash, Road Surface Condition, Lighting Conditions, Severity, and Vehicle Type. Statewide averages (2016-2018) for each category are also presented in the table and the percentage of crash for any category that is higher than the Statewide average for similar road type is represented in bold font. Morning peak period for the crash analysis was 7 AM to 9 AM, while evening peak period was 4 PM to 6 PM.

For all roads in Warren County, the identified hotspots and their overrepresented crash types are:

• US 22/ Phillipsburg – Crashes occurring at rates significantly higher than the statewide average include right angle (17% hotspot vs 10% statewide), fixed object (12% vs 9%), stuck parked vehicle (16% vs 1%), and backing (4% vs 1%). Nine percent involved heavy vehicles. Figure 35 – US 46, NJ 182, CR 517 & CR 604 Crashes (2016-2018)



US 46, NJ 182, Cl & CR 604	R 517,	Statewide
Right Angle	24%	10%
Struck Parked Vehicle	11%	1%
Dry Surface	80%	80%
-O- Daylight	78%	72%
Heavy Vehicles	8%	N/A
Crashes	599	
<ul> <li>All Crashes</li> </ul>	Crash (	Concentration
		High
XX I.e. of Crashes		Low

Source: 2016-2018 NJDOT Safety Voyager / Warren County

 US 46/NJ 182/CR 517/CR 604 -Crashes occurring at rates significantly higher than the statewide average include right angle (24% hotspot vs 10% statewide), struck parked vehicle (11% vs 1%), and backing (3% vs 1%). Eight percent involved heavy vehicles.

## COUNTY ROAD CRASH CLUSTERS

The second hotspot analysis was completed to determine hotspots from crashes that occurred only on County Routes (Figure 36). Figure 37 and Figure 38 provide more detailed inset maps of the two major hotspot locations for crashes occurring on County Routes, accompanied by a brief summary table. The most prominent hotspots included 61 total crashes (7% involving trucks) near US 46/Route 182/CR 517, and 92 total crashes (3% involving trucks) at US 22/CR 519. Crashes involving trucks are indicated by grey dots. Three minor hotspot locations are shown in Figure 36 and tabulated in Appendix E.

The analysis determined that existing crash hot spots are in areas that are NOT expecting a significant increase in traffic as a result of the industrial site development; therefore, it is not expected that crashes in these hotspots will be made worse. It is possible that new hot spots emerge as light industrial development occurs

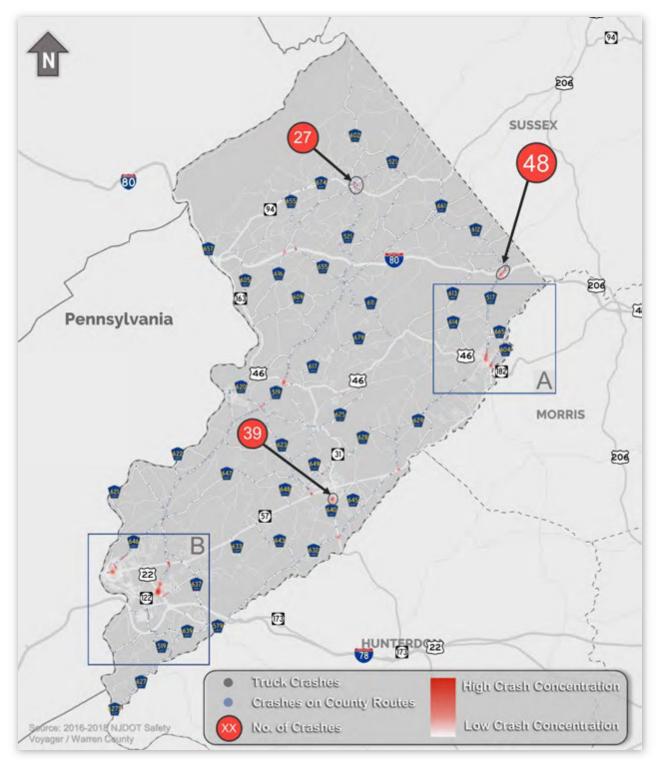
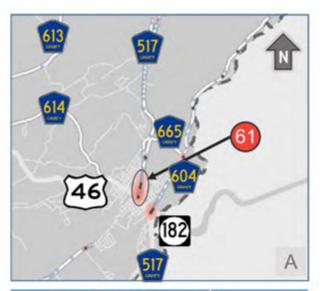


Figure 36 - Hotspots for County Route Crashes, Warren County (2016-2018)

For all County Roads in Warren County, the identified hotspots and their overrepresented crash types are:

US 22/CR 638/CR 519 - Crashes occurring at rates significantly higher than the statewide average include rear end (55% hotspot vs 48% statewide), backing (2% vs 1%), and other (6% vs 2%). Ten percent involved heavy vehicles. This intersection appears as a top crash location on

Figure 37 - US 46 at NJ 182 & CR 517 Crashes (2016-2018)



US 46 @ NJ 182 & CR 517		Statewide
Righ	t Angle 16%	10%
<b>*</b> Pec	lestrian 3%	0.9%
Wet :	Surface 22%	18%
	Dusk 5%	3%
Heavy V	ehicles 7%	N/A
Crashes	61	
Truck Cra	shes Crast	n Concentration
Crashes of County Ro		High
XX No. of Cit	shes	Lew

Source: 2016-2018 NJDOT Safety Voyager / Warren County

Warren County's annual crash summary.

- US 22/CR 519 Crashes occurring at rates significantly higher than the statewide average include right angle (14% hotspot vs 10% statewide), sideswipe (15% vs 9%), backing (3% vs 1%), and other (15% vs 2%). Three percent involved heavy vehicles. %). Ten percent involved heavy vehicles. This intersection appears as a top crash location on Warren County's annual crash summary.
  - US 46/CR 517 Crashes occurring at rates significantly higher than the statewide average include right angle (16% hotspot vs 10% statewide), fixed object (23% vs 19%), backing (4% vs 1%), pedestrian (3% vs 1%) and other (8% vs 2%). Seven percent involved heavy vehicles.
  - I-80/CR 517 Crashes occurring at rates significantly higher than the statewide average include left turn/Uturn (8% hotspot vs 2% statewide), head on (4% vs 2%), overturned (2% vs 1%), backing (6% vs 1%), animal (6% vs 4%), pedestrian (4% vs 1%) and other (4% vs 2%). Ten percent involved heavy vehicles.
  - US 22/Morris Street/CR 646 -Crashes occurring at rates significantly higher than the statewide average include rear end (59% hotspot vs 48% statewide), fixed object (13% vs 9%), parked vehicle (10% vs 1%), and backing (3% vs 1%). Five percent involved heavy vehicles.

• CR 630/CR 640 - Crashes occurring at rates significantly higher

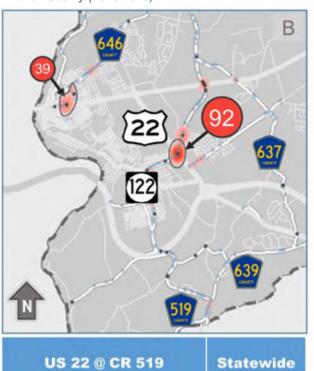


Figure 38 - Selected Hotspots for County Route Crashes, Warren County (2016-2018) than the statewide average include rear end (59% hotspot vs 48% statewide), fixed object (13% vs 9%), head on (5% vs 2%), and overturned (3% vs 1%). Three percent involved heavy vehicles.

• NJ 94/CR 521/CR 602/CR 616/CR 607 -Crashes occurring at rates significantly higher than the statewide average include fixed object (11% hotspot vs 9% statewide), struck parked vehicle (26% vs 1%), left turn/U-turn (4% vs 2%), head on (4% vs 2%), and backing (19% vs 1%). Seven percent involved heavy vehicles.

US 22 @ CR 519		Statewide
Right Ang	le 14%	10%
Same Directio Sideswip	23%	19%
Backin	ng 4%	0.8%
	nt <b>78%</b>	70%
Heavy Vehicle	es 3%	N/A
Crashes	92	
Truck Crashe	e Cresh (	Concentration
Crashes on     County Route	26	liigh
XX No. of Crashe	9E	Lew

Source: 2016-2018 NJDOT Safety Voyager / Warren County

# MITIGATION MEASURES

To accommodate the expected increase in traffic that would result from the development of the 15 industrial sites and provide an acceptable level of service, a combination of improvements including additional turning lanes or intersection alignments, traffic signal timing adjustments, and Travel Demand Management strategies were explored. The potential increase in cars and trucks could be better accommodated at intersections through a variety of potential improvements ranging from low cost solutions such as optimizing stop bars to higher cost investments such as roadway widening. Other physical improvement to mitigate roadway impacts, such as round-abouts, should be explored in the future as sites are developed.

An evaluation of existing road widths, available right of way, and required additional right of way necessary to construct these potential improvements would require further study. Extensive right-of-way acquisition may be required in many locations to accommodate needed roadway capacity. It is noted that road widening may be prohibited on roadways and intersections that are adjacent to the Preservation Area boundary and may affect how widening concepts are advanced.

## MIDBLOCK OPERATIONAL IMPROVEMENTS

At the locations nearest the highest areas of projected development along CR 519, the mainline traffic volume is expected to be in excess of 3,000 vehicles per direction in the peak hour. One lane in each direction will not be sufficient to handle the additional demand. CR 519 would need to be widened to two lanes in each direction from approximately CR 646/Uniontown Road in Harmony to Route 46 in White Township to accommodate the anticipated demand. This widening is assumed in many of the intersection mitigations measures described in the next section. Additionally, the segment of CR 620 between Belvidere and CR 519 would need to be widened to two lanes in each direction to accommodate the anticipated due to site developments. This widening should be carried through each intersection along the corridor and may require extensive right-of-way acquisition depending on the County's current right-of-way.

## **INTERSECTION MITIGATIONS**

#### US 46/CR 519

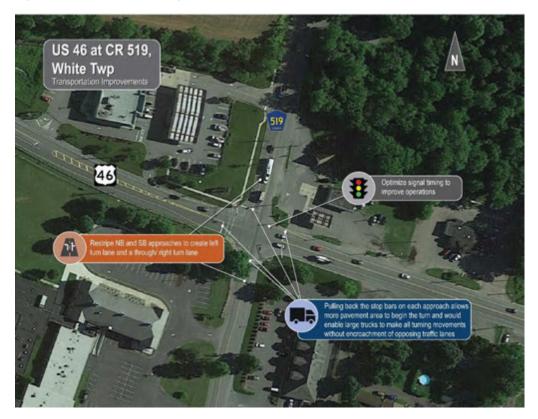
In the 2045 Build condition, this intersection is expected to deteriorate to LOS F in the AM and PM peak hours. With a low level of investment, the northbound and southbound approaches can be restriped to create a left turn lane and a through/right lane and the signal can be optimized to improve operations (Table 12). Currently, each approach is two lanes consisting of a though/left turn lane and a right turn lane. These changes would require coordination with NJDOT as this signal is NJDOT's jurisdiction.

Table 12 - US 46/CR 519 LOS and D	elay (seconds)
-----------------------------------	----------------

		Build - M		Build - M		Imp	2045 Build Improved AM		2045 Build Improved PM	
US 46 and CR 519	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay	
					Restripe NB and	E	63.0	D	46.6	
Current	F	315.9	F	514.4	SB as left,					
configuration					through/right					

At this intersection, the largest trucks need to cross the double yellow center line to make every turning move other than northbound and southbound left turns. Pulling back the stop bars on each approach allows more pavement area to begin the turn and would enable those moves. Mitigations are shown in Figure 39.

Figure 39 - US 46/CR 519 Mitigation



#### CR 519/CR 623

In the 2045 Build condition, this intersection is expected to deteriorate to LOS F in the AM and PM peak hours (Table 13). This intersection is currently stop controlled with a flashing traffic signal. Adding a signal and widening provides significant operational improvement though the addition of lanes in each direction resulting in eastbound left and through/right lanes, westbound left and through/right lane, northbound left/through and through/right lanes, and southbound left/through and through/right lane. The intersection would still operate at LOS F in the PM with geometric and signal optimization improvements, but with much lower delay as shown below. The County has a design prepared that widens the intersection to left and through/right lanes eastbound and southbound, left, through, and right turn lanes northbound, and left, though, and channelized right turn lane westbound. However, this design was prepared prior to this report and may need to be revisited to account for anticipated traffic increases.

CR 519 and CR		Build - M		Build - M		Imp	Build roved M		045 Build proved PM
623	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	697.4	F	722.6	Signalize and add EB and WB left turn lanes, and add one NB and SB lane	D	46.8	C	30.0

Mitigations are shown in Figure 40.

Figure 40 - CR 519/CR 623 Mitigation



#### CR 519/CR 620

This intersection would require significant widening to improve operations in the Build condition (Table 14). Signalizing and enlarging the intersection to include two through lanes and a left turn lane southbound (CR 620), two through lanes and a right turn lane northbound (CR 519), and two left lanes and a right turn lane westbound (CR 519) would improve operations to LOS E.

#### Table 14 - CR 519/CR 620 LOS and Delay (seconds)

CR 519 and CR	2045 Build - AM		2045 Build - PM				2045 Build Improved AM		2045 Build Improved PM	
620	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay	
Current configuration	F	3541.4	F	1801.4	Signalize and add two lanes at each approach	E	75.5	E	75.4	

#### Mitigations are shown in Figure 41.

Figure 41 - CR 519/CR 620 Mitigation



#### CR 519 at Foul Rift Road

At this intersection, it was assumed that approximately half of the vehicular traffic generated by site 12 would be routed through Foul Rift Road, causing the intersection to fail in Build condition. If full buildout were realized, this intersection would require signalization and significant investment, and still operate at LOS F with lower delays. The full mitigated configuration of this intersection would be an eastbound left turn lane and left/right turn lane, northbound double left and double through lanes, and southbound double through and double right lanes.

Mitigations are shown in Figure 42.

CR 519 at Foul	2045 Build - AM			Build - PM		Imp	5 Build proved AM		Build ved PM
Rift Road	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current	F	**	F	4661.1	Signalize and add	F	408	F	481
configuration	Г		Г	4001.1	a lane NB and SB				
					Signalize and add	F	305.3	F	127.2
					lane EB and three				
					lanes NB and SB				
					to allow double				
					turn lanes				

\*\*Delay not calculable - delay is outside the high boundary and cannot be computed.

Figure 42 - CR 519/Foul Rift Road Mitigation



#### CR 519/CR 626

Signalization alone offers a modest improvement in operations at this location in the PM (Table 16). This intersection would require significant widening to meaningfully improve operations in the Build condition. Widening the westbound approach to a left and right lane, northbound to though and through/right lanes, and southbound to a through/left and two additional through lanes would offer significant operational improvement.

Table 16 -	CR 519/CR	626 LOS an	d Delay	(seconds)
------------	-----------	------------	---------	-----------

2045 Build CR 519 and CR AM		2045 Build - 2045 Build - AM PM			2045 Build Improved AM		2045 Build Improved PM		
626	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	1232.1	F	471.2	Signalize	F	1279.8	F	334.5
					Signalize and add a lane WB and NB, add two lanes SB	D	38.9	A	5.9

#### Mitigations are shown in Figure 43.

Figure 43 - CR 519/CR 626 Mitigation



#### CR 519/CR 622 (Roxburg Station Road)

At this intersection, it was assumed that approximately half of the vehicular traffic generated by site 12 would be routed through Roxburg Station Road, causing the intersection to fail in Build condition. If full buildout were realized, this intersection would require signalization and significant investment, and still operate at LOS F with lower delays. The full mitigated configuration of this intersection would be eastbound left/through and right lane, westbound one lane for all movements, northbound left, through, and through/right lanes, and southbound left, double through, and right lanes. A slight realignment may be needed to remove the offset of Roxburg Station Road.

Mitigations are shown in Figure 44.

CR 519 at CR	2045 Build - AM		2045 Build - PM			2045 Build Improved AM		2045 Build Improved PM	
622	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	**	F	**	Signalize and add a lane NB and SB, add lane EB	F	422	F	608
					Signalize and add Iane EB, two Ianes NB three Ianes SB	F	294.7	F	565.3

\*\*Delay not calculable - delay is outside the high boundary and cannot be computed.

Figure 44 - CR 519/CR 622 Mitigation



#### CR 519/CR 621 (Brainards Road)

At this intersection the Build condition is LOS F in both peak hours with incalculable delay in the AM peak hour. Signalization and mainline widening offer some improvement in delay although the intersection will still operate at LOS F. Further widening at the intersection improves delay significantly, but still results in LOS F. The full mitigated configuration would be eastbound left and right turn lanes, northbound double left and double through lanes, and southbound through and through/right lanes.

#### Table 18 - CR 519/CR 621 LOS and Delay (seconds)

CR 519 at CR	2045 Build - AM			Build - M			5 Build oved AM		I5 Build oved PM
621	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	**	F	4558	Signalize and add two lanes NB and one lane SB	F	1057	F	400
					Signalize and add lane EB, three lanes NB, one lane SB	F	507	F	340

\*\*Delay not calculable - delay is outside the high boundary and cannot be computed.

At this intersection, the largest trucks currently cannot complete northbound left turns, southbound right turns, or eastbound left turns without crossing the double yellow centerline. Pulling back the stop bar at the eastbound approach would alleviate those encroachments.

Mitigations are shown in Figure 45.

Figure 45 - CR 519/CR 621 Mitigation

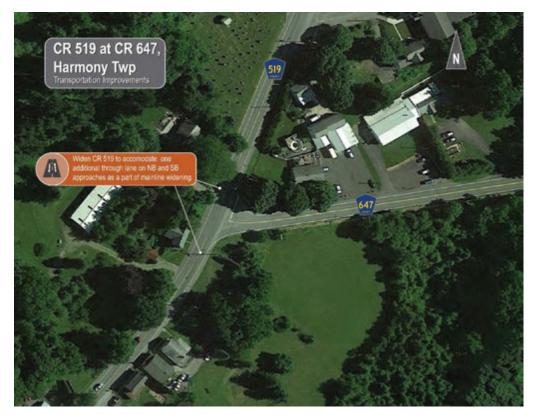


#### CR 519/CR 647

The proposed CR 519 mainline widening would add an additional northbound and southbound lane to this intersection.

#### Mitigations are shown in Figure 46.

Figure 46 - CR 519/CR 647 Mitigation



#### CR 519/CR 646

This intersection represents the southern limit of where mainline widening would be required to accommodate additional volume. Signalizing the intersection and adding one lane southbound to include a left turn lane would significantly improve delay, though still operate at LOS F. The resulting intersection would be one lane eastbound and northbound to accommodate all movements, and southbound left and through lanes.

CR 519 at CR		Build - M		Build - PM			Build ved AM		Build ved PM
646	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
					Signalize and	F	315	F	91
Current	F	2835	F	1295	add SB left turn				
configuration					lane				

Currently, large trucks cannot complete northbound right turns or southbound left turns without encroachment into opposing lanes or shoulders. Pulling the northbound and southbound stop bars back when designing the intersection widening would alleviate the current turning encroachments into opposing lanes.

Mitigations are shown in Figure 47.

Figure 47 - CR 519/CR 646 Mitigation



#### CR 519/NJ 57

This intersection is currently signalized and would deteriorate significantly in the Build condition. NJDOT is currently redesigning the intersection to include dedicated left turn lanes and shared through/right lanes in each direction. This mitigation, when complete, would improve LOS significantly in the AM and cut delays in the PM.

Mitigations are shown in Figure 48.

#### Table 20 - CR 519/NJ 57 LOS and Delay (seconds)

		Build - M		Build - PM			i Build ved AM		Build ved PM
CR 519 at NJ 57	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	81.5	F	157.5	NJDOT design: left turn lane and through/right all approaches	С	28.7	F	99.3

Figure 48 - CR 519/NJ 57 Mitigation



#### CR 519/Strykers Road

This intersection deteriorates slightly in the Build Condition. Signalizing the intersection improves operations.

Table 21 - CR 519/Strykers Road LOS and Delay (seconds)

CR 519 at		Build - M		Build - PM			Build ved AM	2045 Improv	
Strykers Road	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	А	7.9	F	64.6	Signalize	А	9.7	D	38.6

Mitigations are shown in Figure 49.

Figure 49 - CR 519/Strykers Road Mitigation



#### I-78/CR 632

The addition of a signal at the end of the ramp from I-78 eastbound to CR 632 improves operations significantly (Table 22). This would require coordination with NJDOT as this intersection is NJDOT jurisdiction.

Table 22 - I-78/CR 632 LOS and Delay (seconds)

I-78 ramp at		Build - M		Build - PM			Build ved AM	2045 Improv	
CR 632	LOS	Delay	LOS	Delay		LOS	Delay	LOS	Delay
Current configuration	F	465.4	А	7.2	Signalize	D	41.9	В	10.5

This ramp geometry currently prevents eastbound right turns and northbound left turns for the largest trucks. The signalization design should consider truck turning radii and widen that lane if advanced.

#### Mitigations are shown in Figure 50.

Figure 50 - I-78/CR 632 Mitigation



#### NJ 31/CR 632

Northbound left and right turns, southbound right turns, and westbound right turns cannot be completed by large trucks without encroachment into opposing lanes or shoulders. Pushing back stop bars would improve conditions and would require coordination with NJDOT, as this signal is under their jurisdiction.

Mitigations are shown in Figure 51.





## INTERSECTION SAFETY IMPROVEMENTS

In addition to capacity concerns, several intersections were identified as high crash locations that should be further explored to determine if improvements related to safety as outlined below are warranted.

#### US 22 Phillipsburg

US 22 near this area has three lanes in each direction with frequent driveways which may be causing the overrepresentation of right-angle crashes. Opportunities to consolidate driveways should be explored to improve safety.

#### US 46/NJ 182/CR 517/CR 604

This wide, skewed intersection has several movements that behave like through movements even though it is a turn. Overrepresentation of right-angle crashes may be mitigated by realigning the US 46 westbound approach closer to perpendicular and curbing the reclaimed area. This intersection is under NJDOT jurisdiction and would require further study and coordination between County and State officials.

#### US 22/CR 638/CR 519

This intersection has been the subject of many studies over the years. It experiences an overrepresentation of same direction sideswipes, and same direction rear-ends. Southbound to westbound slip lane enters the roadway very quickly and may be causing sideswipe crashes. Additional acceleration distance may reduce crashes. Rear ends may be caused by the short roadway distance available for vehicles to queue between the two directions of US 22. Any geometric or signal timings changes aimed at reducing crashes at this intersection would require further study.

#### US 22/CR 646

This unsignalized intersection is overrepresented in same direction rear ends, striking fixed object, and striking parked vehicle and is an area of transition from high speeds on US 22 into a residential neighborhood. This change to residential area is likely the reason for striking parked vehicles; and the change in speeds may be responsible for rear end crashes. Improving signage from US 22 to signify the change into a residential neighborhood may mitigate crashes. Tightening the curve from US 22 westbound on CR 646 northbound would slow speeds and improve safety.

## **TRANSPORTATION DEMAND MANAGEMENT (TDM) STRATEGIES**

Transportation Demand Management (TDM) provides solutions that focus on creating a more efficient transportation network through targeted policies and strategies focused on demand. These strategies are optimal in locations where existing constraints limit physical improvements or where funding for capital improvements is not available or feasible.

TDM strategies specific to freight and warehousing developments have been utilized within New Jersey and throughout the region, particularly in locations with substantial growth in warehousing and distribution centers. A series of potential TDM strategies specific to freight are included below.

#### • Identify potential rail connections to reduce the reliance entirely on truck trips.

For facilities where rail access exists, goods that are less time-sensitive may be able to be moved via rail. This solution can be utilized on longer distance trips where the cost of moving goods by rail may result in a cost savings.

#### • Promote non-peak trips where possible.

Shifting deliveries to off-peak periods will reduce the impact of trucks during peak congested period. This can also benefit the trucking industry by allowing drivers to achieve more consistent trip times. Moving operations to non-peak periods can also reduce the impact of traffic generated by facility employees as well.

• Stagger worker shifts to reduce congestion during peak times.

Staggering employee shifts for individual facilities can reduce congestion associated with a specific location and adjacent roadways/intersections.

• Promote development adjacent to key regional highways.

Encouraging large scale developments that generate truck trips to locate near or adjacent to major regional highways will substantially reduce impacts on local and county roadways.

• Promote requirements that developers fund their "fair share" of necessary infrastructure improvements

Where traffic impacts can be identified and quantified, developers can be held to a "fair share" standard that requires they fund necessary transportation improvements required due to traffic impacts from a

proposed facility. These requirements should be explicitly detailed within all applicable municipal, county, and state regulations and ordinances.

• Create a county-wide freight transportation advisory group

Freight uses often exist in clusters and given the amount of regionally significant traffic they generate, a county-wide freight advisory group would help support the common needs and concerns of the goods movement industry. This advisory group should, at a minimum, include key industry partners, county or municipal representatives, as well as citizen advocates. Collectively, such a group would report on these issues to county planning staff.

• Encourage facility operators to promote specific trip paths/routing

Facility operators should work with their drivers to identify and promote optimal routes between a facility and major highways. Providing consistent information to drivers will result in more consistent travel times, while also limiting impacts on local communities from trucks on routes whose design may limit circulation for larger vehicles.

• Promote use of alternative transportation modes, including worker shuttles or microtransit

To reduce impacts from employee traffic related to a facility, user shuttles or microtransit options, often working with county transportation authorities, may be a viable alternative. Further, such transportation options may provide improved mobility for employees that may not have access to a personal motor vehicle.

# IMPLEMENTATION

The results of this study provide information with which to mitigate the effects of freight and freight-related traffic. The mitigation measures represent the most appropriate remedies for the area. They consider the safety of all travelers and the needs of people and businesses to ship and receive goods. The application of the mitigation measures is projected to improve congestion and mitigate the negative effects of site-related traffic. However, it is not the end of the process.

Each mitigation measure would require additional study, engineering, funding and acceptance from various stakeholders and agencies. An evaluation of existing road widths, available right of way, and required additional right of way necessary to construct the potential improvements would require further study. Extensive right-of-way acquisition may be required in many locations to accommodate needed roadway capacity.

It is noted that road widening may be prohibited on roadways and intersections that are adjacent to the Highlands Preservation Area boundary and may affect how widening concepts are advanced. Approval or waivers from the Highlands Council may be necessary to advance many of the improvements needed to maintain acceptable levels of service. To explore these measures, coordination will be required between Warren County, Highlands Council, the involved municipalities, developers, NJDOT, and the North Jersey Transportation Planning Authority.

# CONCLUSION

Warren County's proximity to Interstates 78 and 80 position the County as a desirable center for warehouse development and freight/goods movement. As a result of its location in the region and availability of large parcels of land zoned for industrial use, there is an increased interest in warehousing and distribution development.

This study evaluated a build-out scenario of property zoned for industrial use at 15 sites in Warren County. The potential long-term impacts of such development in the County would be substantial, particularly along the CR 519 corridor. The increase in automobile and truck traffic volumes that would be anticipated if all 15 light industrial sites studied were developed would have a major impact on the County roadway network. The traffic increase is largely driven by the increase in automobiles that are expected to result from increased employment at these sites. Roadway levels of service would deteriorate to unacceptable conditions at most analyzed intersection locations and mainline segments of CR 519, as well as other key intersections throughout the County. In addition, the existing physical configuration at some intersections is challenging for trucks to complete turns without lane or shoulder encroachments which would be further impacted with an increase in truck traffic in the future.

TDM strategies can be used to reduce the demand on the roadway network; however, TDM strategies alone would not be enough to maintain traffic operations at an acceptable level should all sites studied be developed for industrial use. Necessary improvements to County roadways and intersections to maintain traffic operations at an acceptable level of service would require further detailed study as development projects are proposed. Future studies will need to identify locations where there are roadway right-of-way constraints that will require property acquisition for roadway widening for capacity improvements and/or to alleviate lane encroachments by turning trucks. Acquisition costs and Highland Preservation Area restrictions may be a consideration for the implementation of any required widening improvements in Warren County, particularly along CR 519.

APPENDIX A - ZONING AND TRIP GENERATION

				Site	Information						Local Zoning an	nd Land Use Reg	ulations	
						Parcels and Impervious	Environmental Constraints	Proposed Development Block-Lot Area	Zone Description	Minimum Lot Size	Max Lot Building	Height	Floor Area Ratio	Comments
Unique ID						Surface (Acres)	Constraints (Acres)	Block-Lot Area (Acres)	Zone Description	(Acres)	Coverage (Acres)	Height (ft)	(FAR)	Comments
					TA	Ps	Ec	Pp					FAR	
				Office, light manufacturing, research/laboratory, storage building, and	.*	- 3								
151	1	Belvidere	LM - Light Manufacturing	utilities	283.2	59.1	52.0	0.0	Min. lot size 40,000 S.F.	0.93	35%	35'	a	
152	,	White	I - Industrial	Office, manufacturing, research/laboratory, wholesale business, warehouses, and utilities	1260.7	263.9	359.7	0.0	Industry, 4 Acre Lot, * FAR 0.20		60%	40' ^	0.20	
				Farms, manufacturing, research/laboratory, truck terminals, warehouse and distribution					Manufacturing 100,000 S.F.					FAR or Max Buildable Area value not
153	3	2 Oxford	I - Industrial	centers Farms, manufacturing, research/laboratory,	49.0	47.6	0.0	0.0	D Lot Office Buildings and Light	2.3	1		0.20	available
154	;	2 Oxford	I - Industrial, O & LI - Office and Light Industrial	truck terminals, warehouse and distribution centers	66.6	3.9	41.2	0.0	Manufacturing 100,000 S.F.	2.3			0.20	FAR or Max Buildable Area value not available
			I - Industrial, LI - Light	Farms, manufacturing, research/laboratory, truck terminals, warehouse and distribution										FAR or Max Buildable Area value not
155	;	2 Oxford	Industrial	centers Office. research/laboratory, warehousing.	186.2	29.6	26.5	0.0	D Light Industrial 3 Acre Lot	5 acres (industrial	1		0.20	available
156		3 Mansfield	I - Industrial	telecommunications, solar and photovoltaic energy facilities, small wind energy systems	356.0	254.8	12.9	0.0	Min. lot size 5 Acres, Bld Cov 2 20%- Industrial	park 15 acres min. 2.5 acre lots)	20%	35'	0.25	
				Storage & warehousing, wholesaling,										
				processing, light manufacturing & assembling, office, research and lab uses,										
157	4	Franklin	I - Industrial	computer & data process centers, agricultural uses, wireless telecom & antennas placed	141.3	43.3	9.1	0.0	0 Industrial 3 Acre Lot	1	40%	35'	0.25	
				Storage & warehousing, wholesaling,										
				processing, light manufacturing & assembling, office, research and lab uses,										
158	5	5 Franklin	I - Industrial, IP-A - Industrial Park	computer & data process centers, agricultural uses, wireless telecom & antennas placed	89.8	0.0	0.7	0.0	D Industrial Park Option	-	40%	35'	0.25	
				Storage & warehousing, wholesaling, processing, light manufacturing &										
			I - Industrial, IP-A -	processing, light manufacturing & assembling, office, research and lab uses, computer & data process centers, agricultural										
159	¢,	5 Franklin	Industrial Park	uses, wireless telecom & antennas placed	444.7	15.5	204.8	0.0	Industrial Park 3 Acre Lot	3	40%	35'	0.25	
				Office, research/laboratory, light										
				industrial/manufacturing, warehousing associated with research/manufacturing,					Research Office &					
160	e	5 Greenwich	ROM - Research, Office & Manufacturing	utilities, agriculture, day care, renewable energy facs	246.9	91.9	5.1	0.0	Manufacturing, 10 Acre Lot, D FAR 0.15	10	50%	45'	0.15	
				Office, research/laboratory, warehouse as										
				part of permitted use, utilities, farm/agriculture, banks, health clubs,					Research Office 5 Acre, FAR					
161		7 Greenwich	RO - Research, Office	schools/day care, renewable energy facs Office, research/laboratory, manufacturing, farms, public buildings, warehouses and	199.7	48.5	0.0	0.0	0.10	9	45%	45'	0.10	FAR value was not available, so, Max. Building coverage was used to calcula
162	8	8 Alpha	I - Industrial	wholesale distribution centers, commercial Office, research/laboratory, manufacturing.	71.6	18.5	0.0	0.0	0 Industrial	5	30%	35'	0.00	Gross Floor Area
				distribution centers, trucking terminals,						15 acres (industrial park external); 2.5				
163		9 Pohatcong	I - Industrial	lumberyards, industrial parks, wireless communications towers/antenna	146.0	29.3	1.0		D Industrial	acres (internal components)	50%	50'	0.15	
103		runationg	1- 110030101		140.0	23.3				componency)			0.13	
				Office, research/laboratory, manufacturing, farms, public buildings, warehouses and										
				wholesale distribution centers, commercial sales/service, utilities, adult uses, light										FAR value was not available, so, Max. Building coverage was used to calcula
164	9	9 Alpha	I - Industrial	manufacturing	239.0	139.7	56.9	14.3	3 Industrial	5	30%	35'	0.00	Gross Floor Area
				Office, manufac, warehouses, research/lab, computer proces centers, printing/publishing,										
			I - Industrial, PCPRA - Phillipsburg Commerce	food proces, wholesale business, lumber yards, health clubs, livery services, & small-										
165		Phillipsburg	Park Redevelopment Area ROM -Research, Office & Manufacturing		384.6	0.0	15.8	43.3	3 Industrial-Heavy Research Unice 9 Manufacturing Zone		2 70%		0.40	
166	11	copationig	manuracturing	centers, industry, office, computer	3/6.2	118.6	53.5	14.5	- manuracturing zone		65%		0.20	
				Industrial/light industrial/business, office, warehouse and distribution centers, retail										FAR value was not available, so. Max.
167	13	2 Harmony	I - Industrial	business, industrial parks, public buildings, services stations, farms/farmhouses	623.9	115.8	120.4		Light Industry, & Business O Office, 5 Acre Lot		i 30%	45'	0.00	Building coverage was used to calcula Gross Floor Area
						113.0	10.4							
				Office, manufacturing, research/laboratory,										
168	13	3 White	LDI -Low Density Industrial	wholesale business, warehouses, golf courses, and utilities	622.8	7.4	55.6	0.0	Low Density Industrial, 15 Acre Lot, * FAR 0.20	15	60%	40' *	0.20	
							55.0						510	
				Office, manufacturing, research/laboratory,					Industry, 4 Acre Lot, * FAR					
169	14	\$ White	I - Industrial	wholesale business, warehouses, and utilities Industrial/light industrial/business, office,	943.3	195.7	87.6	0.0	0.20	4	60%	40' ^	0.20	
				warehouse and distribution centers, retail business, industrial parks, public buildings,										FAR value was not available, so, Max. Building coverage was used to calcular
170	15	5 Harmony	I - Industrial	services stations, farms/farmhouses	369.0	9.9	47.4	0.0	D	9	30%	45'	0.00	Gross Floor Area

NOTES ^: Indicates sites where only Minimum Building Height value is available

							Trip Genera	tion				
Unique ID			Unique II		Developable Area (Acres)	Gross Floor Area (GFA) (K Square Feet)	Mixed Use Approach Total (Auto/Truck) Trips AM Peak	Mixed Use Approach Total (Auto/Truck) Trips PM Peak	Mixed Use Approach Total (Auto/Truck) Trips Daily	Number of Employees	Total Area (SqMi)	Developable Area (SqMi)
		R	R <sub>M</sub>	R <sub>H</sub>	D <sub>A</sub> =T <sub>A</sub> -P <sub>S</sub> -E <sub>C</sub> -P <sub>D</sub>	GFA=D <sub>A</sub> *43.560	GFA*(A%RL+B%RM+C%RH)	GFA*(A%RL+B%RM+C%RH)	GFA*(A%RL+B%RM+C%RH)	Sq Ft Required 2,000 per Employee	Acres*0.0015625	Acres*0.0015625
151	1	1 15:	140	110	172.1	2,624	987	1,082	7,678	1,312	0.4425	0.2689
152	,	1 150	130	110	637.1	5,551	1,916	1,893	15,949	2,776	1.9699	0.9955
153	7	2 150	130	110	14	12	5	5	35	6	0.0765	0.0021
154	-	2 150			21.5	187	65	64	538	94	0.1040	0.0336
155	-	2 150			130.1	1,133	391	387	3,256	567	0.2909	0.2032
156	-	3 150	130	110	88.3	962	332	329	2,764	481	0.5563	0.1380
150				110		202		323	2,704		0.000	0.1300
157		4 150	130	110	88.9	968	334	331	2,782	484	0.2207	0.1388
157		4 15	130	110	66.7	508	334	331	2,702	404	0.2207	0.1388
158	5	5 150	130	110	89.1	970	335	331	2,787	485	0.1403	0.1392
159	5	5 150	130	110	224.3	2,443	843	834	7,019	1,222	0.6948	0.3505
160	6	6 150	130	110	149.9	980	339	335	2,816	490	0.3858	0.2343
161	7	7 150	130	110	151.2	658	228	225	1,891	329	0.3120	0.2362
162		8 150		110	53.1	694	240	237	1,994	347	0.1119	0.0830
163	9	9 150	130	110	115.7	756	261	258	2,172	378	0.2281	0.1808
164	9	9 150	130	110	28.1	367	127	126	1,055	184	0.3734	0.0438
165	10	0 150 1 150			325.5	5,672	1,957	1,935 562	16,296	2,836	0.6009	0.5086
167	12	2 150	130	110	387.7	5,066	1,748	1,728	14,555	2,533	0.9748	0.6058
168	13	3 150	130	110	559.8	4,877	1,683	1,664	14,012	2,439	0.9732	0.8747
169	14	4 150	130	110	660.0	5,750	1,984	1,961	16,520	2,875	1.4739	1.0313
170 NOTES	15	5 150	130	110	311.7	4,073	1,406	1,389	11,702	2,037	0.5766	0.4870
A: Indicates sites	where only P	м			4,363	45,551	0.346985085		2.876253002			

# APPENDIX B - MODEL VOLUME CHANGES

Figure 1 - AM Peak Volume Change

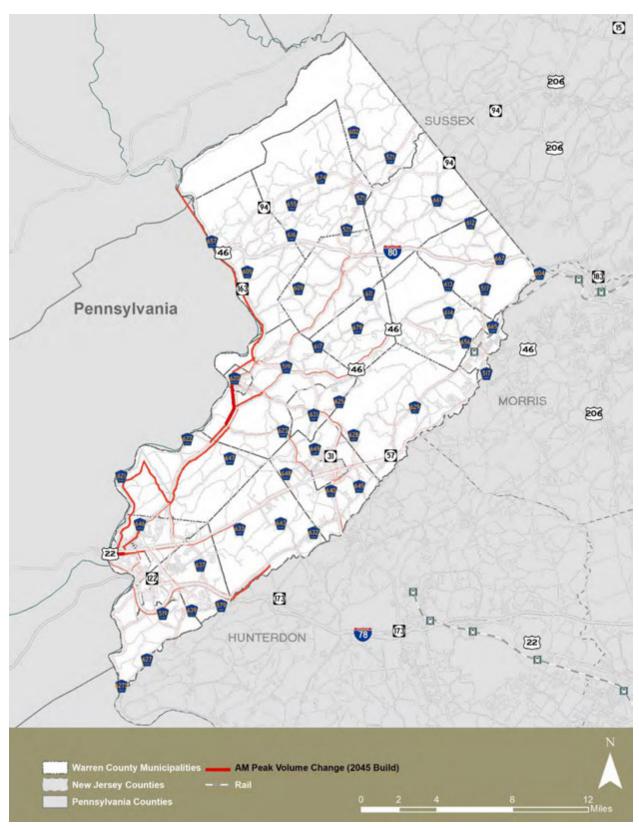
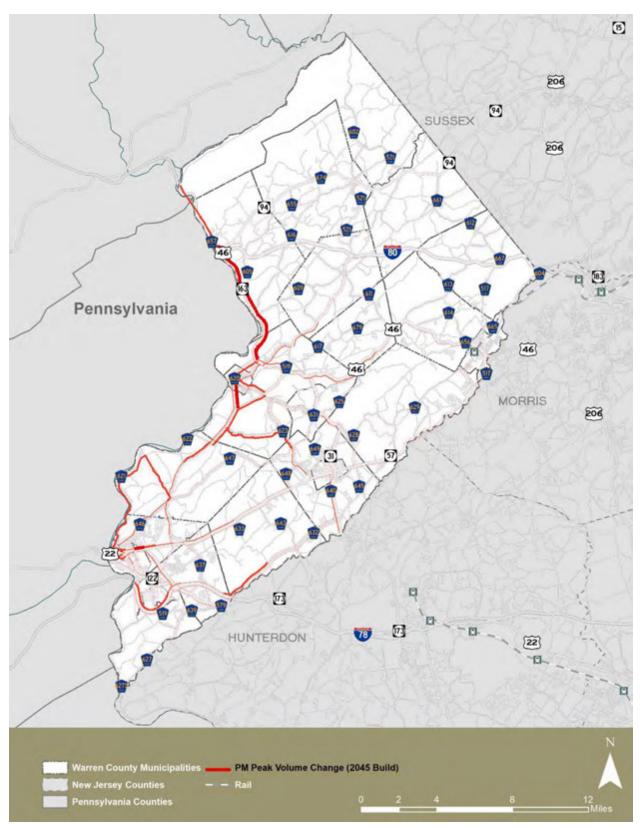


Figure 2 - PM Peak Volume Change



CR 519 Belvidere Rd & CR	620 Belvide	re Rd-Peak	Hour Volu	imes		
		Morning P	eak			
	CR 519 E	Belvidere	CR 620 E	Belvidere		
	R	d	R	d	CR	519
Scenario	NBT	NBR	SBL	SBT	WBL	WBR
2020 Existing	213	288	14	224	240	14
2045 No Build	247	334	16	260	278	16
2045 Build	937	333	16	1927	1668	94
CR 519 Belvidere Rd & CR	620 Belvide	re Rd-Peak	Hour Volu	imes		
		Evening P	eak			
	CR 519 E	Belvidere	CR 620 E	Belvidere		
	R	d	R	d	CR	519
Scenario	NBT	NBR	SBL	SBT	WBL	WBR
2020 Existing	322	364	10	269	349	14
2045 No Build	374	423	12	312	405	16
2045 Build	2484	1422	11	840	404	641
CR 519 Belvidere Rd & CR				imes		
	-1	Morning P	eak		1	
						Brainards
			lvidere Rd	1		d
Scenario	NBL	NBT	SBT	SBR	EBL	EBR
Existing	56	401	432	9	9	68
No Build	65	465	501	10	10	78
Build	1868	1577	501	269	1448	141
CR 519 Belvidere Rd & CR	621 Brainar			imes		
		Evening P	eak			
						Brainards
			lvidere Rd			d
Scenario	NBL	NBT	SBT	SBR	EBL	EBR
Existing	121	473	503	10	18	83
No Build	141	549	584	12	20	96
Build	236	549	1028	511	108	1846

					Morni	ng Peak						
			CR 519 Be	lvidere Rd	WORTH	ng r cux	Rox	kburg Stat	tion Rd	R	oxburg Hill	Rd
Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	10	498	4	1	466	14	20	1	8	9	1	13
No Build	12	577	4	1	540	16	23	1	9	10	1	15
Build	1319	1928	5	1	729	1856	236	1	21	10	64	15
CR 519 Belvide	ere Rd & CR 622 R	oxburg Stati	ion Rd/CR	622 Roxburg	Hill Rd-P	eak Hour Vo	lumes					
					Evenir	ng Peak						
			CR 519 Be	lvidere Rd			Rox	kburg Stat	tion Rd	R	oxburg Hill	Rd
Scenario	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Existing	15	562	4	5	432	23	25	1	29	5	1	
No Build	18	651	4	6	501	26	29	1	34	6	1	
Build	18	651	5	1430	500	589	713	538	1284	6	1	

CR 646 Belvidere Ro	d/CR 519 B	Belvidere Rd	& CR 519 Ur	niontown Rd	-Peak Hour \	/olumes
		Мо	rning Peak			
	CR 519 l	Uniontown				
		Rd	CR 646 Be	lvidere Rd	CR 519 Be	lvidere Rd
Scenario	NBL	NBR	NET	NER	SWL	SWT
Existing	3	168	307	9	289	286
No Build	3	195	356	10	335	331
Build	3	838	1307	10	336	478
CR 646 Belvidere Ro	d/CR 519 E	Belvidere Rd	& CR 519 Ur	niontown Rd	-Peak Hour \	/olumes
		Eve	ning Peak			
	CR 519 (	Uniontown				
		Rd	CR 646 Be	lvidere Rd	CR 519 Be	lvidere Rd
PM	NBL	NBR	NET	NER	SWL	SWT
Existing	13	326	317	5	241	320
No Build	15	378	367	6	280	371
Build	15	378	398	6	780	1482
CR 620 Belvidere Ro	d & Foul Li	ft Rd-Peak H	lour Volume	S		
		Мо	rning Peak			
		CR 620 B	elvidere Rd		Foul F	Rift Rd
Scenario	NBL	NBT	SBT	SBR	EBL	EBR
Existing	0	481	540	8	5	0
No Build	0	558	626	9	6	0
Build	938	1253	2042	2009	813	63
CR 620 Belvidere Ro	d & Foul Li	ft Rd-Peak H	lour Volume	S		
		Eve	ning Peak			
		CR 620 B	elvidere Rd		Foul F	Rift Rd
Scenario	NBL	NBT	SBT	SBR	EBL	EBR
Existing	3	554	588	9	4	1
No Build	3	643	682	10	4	1
Build	3	1254	1182	573	1379	1251

CR 519 Uniontown Rc	& NJ 57-P	eak Hour Vo	olumes					
			Morning	g Peak				
		٨	IJ 57			CR 519 Unic	ontown Rd	
Scenario	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Existing	29	307	24	250	31	79	3	101
No Build	29	307	24	250	31	79	3	101
Build	284	356	28	290	36	330	3	125
CR 519 Uniontown Ro	& NJ 57-P	eak Hour Vo	olumes					
			Evening	Peak	-			
		٨	IJ 57			CR 519 Unic	ntown Rd	
Scenario	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Existing	27	228	82	277	29	213	3	124
No Build	27	228	82	277	29	213	3	124
Build	31	264	145	571	34	295	3	294
CR 519 Uniontown Ro	& Strykers	Rd-Peak H	our Volumes	;				
	[	Morn	ing Peak		1			
		CR 519 U	niontown Rd	1	Stryk	ers Rd		
Scenario	NBL	NBT	SBT	SBR	EBL	EBR		
Existing	96	142	247	73	110	266		
No Build	112	165	286	84	128	309		
Build	111	483	362	84	128	282		
CR 519 Uniontown Ro	& Strykers			}				
			ng Peak		1			
			niontown Rd		,	ers Rd		
Scenario	NBL	NBT	SBT	SBR	EBL	EBR	ļ	
Existing	231	356	337	130	144	179		
No Build	268	412	391	151	167	207		
Build	239	527	618	151	166	223	]	

# APPENDIX C - TURNING RADII ANALYSIS

	WSP USA, Inc.	Warran County						Legend	at available			NOTES:	umo Dumptruck con alco mako	the turn	
		Warren County Intersection AutoTurn Analysis						no turning movemen acceptable, vehicle s				<ul> <li>(1) If WB-67 makes the turn, then ass</li> <li>(2) AutoTurn Note: Speed Range is 1-4</li> </ul>		the turn.	
	By:	C. Romanow						turn is possible with	out crossing curb but encroac	hes traffic		(3) 5 MPH - min speed used for turn n	novement		
	Date:	<u>6/15/2020</u>						turn not possible und	der current conditions			<ul> <li>(4) All other speeds listed are max speeds</li> <li>(5) DYCL = Double Yellow Centerline</li> </ul>	eed in 5 MPH increments		
												(5) DTCL = Double Tellow Centenine			
							Turning Movements					-	-		
Summary All 8 movements	Intersection	Streets	Location	North - Left	North - Center	North - Right	South - Left	South - Center	South - Right	East - Left	East - Center	East - Right	West - Left	West - Center	West - Right
good at 15 MPH	А	I-80 at CR 521	40.924230, -74.959621	15 MPH - OK	NA	20 MPH - OK	15 MPH - OK	NA	15 MPH - OK	15 MPH - OK	NA	15 MPH - OK	15 MPH - OK	NA	20 MPH - OK
				5 MPH - No Good					5 MPH - No Good	5 MPH - No Good		5 MPH - No Good			
All 4 movements	В	RT 519 at CR 618	40.856002, -75.019692	ROW not wide enough	NA	NA	NA	NA	ROW not wide enough	ROW not wide enough	NA	ROW not wide enough	NA	NA	NA
no good at 5 mph				No simple solution,					No simple solution,	No simple solution, requires		No simple solution, requires more			-
				requires more ROW		5 MPH - No Good			requires more ROW 5 MPH - No Good	more ROW 5 MPH - No Good		ROW 5 MPH - No Good	5 MPH - No Good		5 MPH - No Good
2 of 8 movements are ok, others cross DYCL	с	US 46 at RT 519	40.83686438 , -75.025947304	15 MPH - OK	NA	Crosses DYCL	5 MPH - OK	NA	Crosses DYCL	Crosses DYCL	NA	Crosses DYCL	Crosses DYCL	NA	Crosses DYCL
DICL				E such Ma Canad		Push back stop bar	Careb No Cood		Push back stop bar	Push back stop bar		Push back stop bar	Push back stop bar		Push back stop bar
				5 mph - No Good		5 mph - No Good	5 mph - No Good	<mark>-</mark>	5 MPH - No Good	5 MPH - No Good		5, 10 and 15 MPH - No Good	5 MPH - No Good		
										Requires either encroaching			If turn from appropriate lane, encroach into		
				Requires crossing into opposing channelization		Requires crossing into opposing channelization and	Crosses DYCL		Requires encroaching into	into opposing lane, or crossing		Requires turn from thru lane into	opposing channelization; if		
Most movements require encroaching	D	RT 519 at CR 623	40.818491, -75.047854	and stop bar	NA	stop bar		NA	opposing lane	into WB stop bar and	NA	channelization	turn from inappropriate	NA	15 MPH - OK
onto opposing traffic or markings										channelization			lane, encroach into westbound channelization		
						No simple solution; would		_	No simple solution; would	Solution is adjusting opposing			Requires remarking		
				Moving stop bar back allows 5 MPH		require moving stop bar back	Moving stop bar back allows ! MPH	5	require moving stop bar	channelization and moving		Requires remarking roadway to remove slip lane and channelization	roadway to remove		
						too much			back too much	back stop bar			channelization		
															5 MPH - No Good
							5 MPH - No Good								5 WIFTT - NO GOOD
Two movements are good, two require	E	RT 519 at CR 620	40.807193, -75.075531	NA	NA	20 MPH- OK	5 WPH - NO 6000	NA	NA	NA	NA	NA	15 MPH - OK	NA	Encroach into
encroachment							Crosses DYCL								opposing lane and
							Moving stop bar back allows	5							opposing shoulder No simple solution,
							МРН								not enough ROW
Narrow lanes and wider roadbed allow	F	CR 519 and Foul Rift Rd	40.797633, -75.081592	5 MPH - No Good Crosses DYCL	NA	NA	NA	NA	5 MPH - No Good Crosses DYCL	5 MPH - No Good Crosses DYCL	NA	5 MPH - No Good Crosses DYCL	NA	NA	NA
for turns when crossing DYCL			101/37/033, 73:001332	Too narrrow ROW					Too narrrow ROW	Too narrrow ROW		Too narrrow ROW			
						5 MPH - No Good	5 MPH - No Good								5 MPH - No Good
<b>T</b>								<u> </u>							Encroach into
Three of four movements are not good, require encroachment	G	RT 519 at CT 626	40.793780, -75.084243	NA	NA	Requires crossing DYCL	Requires crossing DYCL	NA	NA	NA	NA	NA	5 MPH - OK	NA	opposing lane and
						No simple solution, narrow	No simple solution, narrow	<u> </u>							opposing shoulder No simple solution,
						ROW and utility pole	ROW and utility pole								not enough ROW
Three of four movements are not good,				5 MPH - No Good Crosses DYCL					5 MPH - No Good Crosses DYCL	5 MPH - No Good Crosses DYCL					-
require encroachment	н	RT 519 at Brainards Rd	40.741976, -75.140139	Moving stop bar back	NA	NA	NA	NA	Moving stop bar back	No simple solution, no stop	NA	15 MPH - OK	NA	NA	NA
				allows 5 MPH				_	allows 5 MPH	bar to move back					
Most movements can't be made with		CR 519 at CR 622	10 700010 75 100114	5 MPH - No Good	NA	5 MPH - No Good	5 MPH - No Good	NA	5 MPH - No Good	15 MPH - OK	NA	5 MPH - No Good	– 10 MPH - OK	NA	5 MPH - No Good
current narrow ROW		CK 519 at CK 022	40.780049, -75.100144	Crosses DYCL	INA	Crosses DYCL	Crosses DYCL		Crosses DYCL	IS WIPH - OK	INA	Crosses DYCL		NA	Crosses DYCL
				Too narrrow ROW		Too narrow ROW	Too narrrow ROW	-	Too narrrow ROW			Too narrrow ROW			Too narrrow ROW
						5 mph - No Good	5 mph - No Good								5 MPH- No Good
Three of four movements are not good,		RT 519 at Harmony Brass Castle	40.736578, -75.140861	NA	NA	Crosses DYCL	Crosses DYCL	NA	NA	NA	NA	NA	15 MPH - OK	NA	Encroach into
require encroachment	-	Rd					crosses pree								opposing lane and opposing shoulder
						No simple solution, narrow ROW	No simple solution, narrow ROW								No simple solution, narrow ROW
						RUW	KUW						E MOUL NE Cool		
All four movements are not and are the				5 MPH - No Good		5 mph - No Good						5 MPH - No Good	5 MPH - No Good		
All four movements are not good, require encroachment	к	RT 519 at CO 646	40.734895, -75.142803	Need to turn prior to stop bar	NA	Crosses DYCL	NA	NA	NA	NA	NA	Too sharp of turn	Crosses DYCL	NA	NA
				Moving stop bar back		No simple solution, narrow						No simple solution, requires more			
				allows 5 MPH		ROW 5 MPH - No Good			5 MPH- No Good	5 MPH- No Good		ROW	allows 5 MPH 5 MPH- No Good		5 MPH- No Good
3 of 4 left turns are ok; one right turn requires pushing stop bar, rest require	L	CR 519 at NJ 57	40.702200, -75.137217	15 MPH - OK	NA	ROW not wide enough	15 MPH - OK	NA	Crosses DYCL	ROW not wide enough	NA	5 MPH - OK	ROW not wide enough	NA	ROW not wide enough
more ROW	-		40.702200, -75.157217	15 WITH OK	100	No simple solution, requires	13 With OK	ha	Maria atau has hash	No simple solution, requires	ing.	Similar OK	No simple solution,	na -	No simple solution,
						more ROW			Move stop bar back 5 MPH - No Good	more ROW 5 MPH- No Good			requires more ROW		requires more ROW
Two movements are good; two are not navigable because of sharp intersection	м	CR 519 at Strykers Rd	40.686643, -75.145323	15 MPH - OK	NA	NA	NA	NA	Crosses DYCL	Crosses opposing DYCL	NA	15 MPH - OK	NA	NA	NA
									Turn is too sharp	Expand roadbed on east					
Two of four movements are good; others				5 MPH - No Good								5 MPH - No Good			
requier enroachment onto curb	Ν	I-78 at CO 632	40.661992, -75.078944	Ramp too narrow; curb	NA	NA	NA	NA	5 MPH - OK	15 MPH - OK	NA	Ramp too narrow; curb prevents	NA	NA	NA
				prevents access Widening ramp								access Widening ramp			
				5 MPH - No Good					5 MPH - No Good						5 MPH - No Good
				Crosses DYCL		5 mph - No Good Crosses DYCL			Crosses DYCL						Crosses DYCL
Four of eight movements are ok, others	0	NJ 31 at CO 632	40.722329, -74.971568		NA	Pushing DYCL north would	5 MPH - OK	NA		5 MPH - OK	NA	5 MPH - OK	5 MPH - OK	NA	
	U U														
require encroachment	Ũ			Pushing back stop bar or		allow 5, 10 and 15 mph, pushing stop back back allows			Expanding shoulder allows 15 MPH						Expanding shoulder on NW corner

# APPENDIX D - CAPACITY ANALYSIS

## **2020 EXISTING CONDITIONS ANALYSIS**

INTERSECTION ANALYSIS MID-BLOCK ANALYSIS

## **2045 NO-BUILD ANALYSIS**

INTERSECTION ANALYSIS MID-BLOCK ANALYSIS

# **2045 BUILD ANALYSIS**

INTERSECTION ANALYSIS MID-BLOCK ANALYSIS

# 2045 BUILD MITIGATION ANALYSIS

INTERSECTION ANALYSIS

2020 EXISTING INTERSECTION ANALYSIS

# Lanes, Volumes, Timings 3: RT 519 & US 46

	≯	-	$\mathbf{i}$	1	-	•	1	1	1	1	Ļ	-
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBI
Lane Configurations		\$			\$			र्स	1		र्स	ĩ
Traffic Volume (vph)	20	241	22	48	161	39	31	206	58	84	158	19
Future Volume (vph)	20	241	22	48	161	39	31	206	58	84	158	19
Satd. Flow (prot)	0	1835	0	0	1800	0	0	1848	1583	0	1833	1583
Flt Permitted		0.958			0.870			0.883			0.654	
Satd. Flow (perm)	0	1765	0	0	1580	0	0	1645	1583	0	1218	1583
Satd. Flow (RTOR)		10			25				70			6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.71	0.76	0.69	0.80	0.77	0.65	0.78	0.94	0.85	0.91	0.84	0.53
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	(
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	389	0	0	339	0	0	267	70	0	289	37
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		ť
Total Split (s)	47.0	47.0		47.0	47.0		25.0	25.0	25.0	25.0	25.0	25.0
Total Lost Time (s)		7.0			7.0			5.0	5.0		5.0	5.0
Act Effct Green (s)		40.0			40.0			20.0	20.0		20.0	20.0
Actuated g/C Ratio		0.56			0.56			0.28	0.28		0.28	0.28
v/c Ratio		0.39			0.38			0.59	0.14		0.86	0.08
Control Delay		10.3			9.8			28.6	6.5		50.8	3.2
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.0
Total Delay		10.3			9.8			28.6	6.5		50.8	3.2
LOS		В			А			С	А		D	A
Approach Delay		10.3			9.8			24.0			45.4	
Approach LOS		В			А			С			D	
Intersection Summary												
Cycle Length: 72												
Actuated Cycle Length: 72												
Control Type: Semi Act-Uncoc	ord											
Maximum v/c Ratio: 0.86												
Intersection Signal Delay: 21.7	7			In	itersection	ו LOS: C						
Intersection Capacity Utilizatio		)		IC	CU Level	of Service	e D					
Analysis Period (min) 15												

#### Splits and Phases: 3: RT 519 & US 46

Ø2	<u>→</u> <sub>04</sub>
25 s	47 s
Ø6	<b>↓</b> Ø8
25 s	47 s

# Lanes, Volumes, Timings 3: RT 519 & US 46

	٦	-	$\rightarrow$	1	-	•	1	1	1	1	↓	~
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
ane Configurations		\$			\$			र्च	1		र्च	
Fraffic Volume (vph)	23	168	17	32	270	63	35	169	44	99	179	3
-uture Volume (vph)	23	168	17	32	270	63	35	169	44	99	179	3
Satd. Flow (prot)	0	1829	0	0	1801	0	0	1846	1583	0	1827	158
-It Permitted		0.933			0.955			0.701			0.622	
Satd. Flow (perm)	0	1715	0	0	1727	0	0	1306	1583	0	1159	158
Satd. Flow (RTOR)		12			31				61			e
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.80	0.65	0.88	0.91	0.69	0.73	0.83	0.75	0.76	0.85	0.6
Growth Factor	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103%	103
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)												
Vid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
ane Group Flow (vph)	0	271	0	0	437	0	0	259	60	0	351	Ę
Furn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Per
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Total Split (s)	47.0	47.0		47.0	47.0		25.0	25.0	25.0	25.0	25.0	25
Total Lost Time (s)		7.0			7.0			5.0	5.0		5.0	5
Act Effct Green (s)		40.0			40.0			20.0	20.0		20.0	20
Actuated g/C Ratio		0.56			0.56			0.28	0.28		0.28	0.2
//c Ratio		0.28			0.45			0.72	0.12		1.09	0.1
Control Delay		9.0			10.5			36.7	6.6		106.7	6
Queue Delay		0.0			0.0			0.0	0.0		0.0	0
Total Delay		9.0			10.5			36.7	6.6		106.7	6
LOS		А			В			D	А		F	
Approach Delay		9.0			10.5			31.1			93.1	
Approach LOS		А			В			С			F	
ntersection Summary												
Cycle Length: 72												
Actuated Cycle Length: 72												
Control Type: Semi Act-Unco	oord											
Maximum v/c Ratio: 1.09												
ntersection Signal Delay: 38	8.2			Ir	ntersection	n LOS: D						
ntersection Capacity Utilizat	ion 74.0%	)		IC	CU Level	of Service	e D					
Analysis Period (min) 15												

#### Splits and Phases: 3: RT 519 & US 46

₹ Ø2	<u></u> ø₄
25 s	47 s
<b>₽</b> Ø6	<b>₩</b> Ø8
25 s	47 s

Synchro 10 Report Page 1

# HCM 2010 AWSC 3: CR 519 & CR 623

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	48	149	8	36	90	32	5	169	44	30	109	30
Future Vol, veh/h	48	149	8	36	90	32	5	169	44	30	109	30
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	63	225	11	47	136	42	7	256	58	39	165	39
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	15.7			13.4			15.8			13.7		
HCM LOS	С			В			С			В		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	23%	23%	18%
Vol Thru, %	78%	73%	57%	64%
Vol Right, %	20%	4%	20%	18%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	218	205	158	169
LT Vol	5	48	36	30
Through Vol	169	149	90	109
RT Vol	44	8	32	30
Lane Flow Rate	320	299	226	244
Geometry Grp	1	1	1	1
Degree of Util (X)	0.534	0.515	0.393	0.421
Departure Headway (Hd)	6.008	6.202	6.275	6.212
Convergence, Y/N	Yes	Yes	Yes	Yes
Сар	599	580	573	578
Service Time	4.055	4.251	4.328	4.262
HCM Lane V/C Ratio	0.534	0.516	0.394	0.422
HCM Control Delay	15.8	15.7	13.4	13.7
HCM Lane LOS	С	С	В	В
HCM 95th-tile Q	3.2	2.9	1.9	2.1

Intersection		
Intersection Delay, s/veh	24.1	
Intersection LOS	С	

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	31	114	13	41	206	31	22	111	31	43	181	52
Future Vol, veh/h	31	114	13	41	206	31	22	111	31	43	181	52
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	41	172	17	54	312	41	29	168	41	57	274	68
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			29.1			16.8			27.7		
HCM LOS	С			D			С			D		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	13%	20%	15%	16%	
Vol Thru, %	68%	72%	74%	66%	
Vol Right, %	19%	8%	11%	19%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	164	158	278	276	
LT Vol	22	31	41	43	
Through Vol	111	114	206	181	
RT Vol	31	13	31	52	
Lane Flow Rate	238	230	406	399	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.478	0.469	0.768	0.752	
Departure Headway (Hd)	7.247	7.334	6.807	6.792	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	497	491	532	530	
Service Time	5.313	5.403	4.863	4.848	
HCM Lane V/C Ratio	0.479	0.468	0.763	0.753	
HCM Control Delay	16.8	16.8	29.1	27.7	
HCM Lane LOS	С	С	D	D	
HCM 95th-tile Q	2.5	2.5	6.8	6.5	

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	۲.	1	1	1		स्	
Traffic Volume (veh/h)	216	11	192	259	11	202	
Future Volume (Veh/h)	216	11	192	259	11	202	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90	
Hourly flow rate (vph)	240	14	213	288	14	224	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		2					
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	465	213			213		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	465	213			213		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	56	98			99		
cM capacity (veh/h)	550	827			1357		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1			
Volume Total	254	213	288	238			
Volume Left	240	0	0	14			
Volume Right	14	0	288	0			
cSH	582	1700	1700	1357			
Volume to Capacity	0.44	0.13	0.17	0.01			
Queue Length 95th (ft)	55	0	0	1			
Control Delay (s)	16.1	0.0	0.0	0.5			
Lane LOS	С			А			
Approach Delay (s)	16.1	0.0		0.5			
Approach LOS	С						
Intersection Summary							
Average Delay			4.3				
Intersection Capacity Utilizat	ion		38.2%	IC	U Level	of Service	
Analysis Period (min)			15				

	4	•	1	1	1	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	۲	1	<b>†</b>	1		स	
Traffic Volume (veh/h)	314	11	290	328	8	242	
Future Volume (Veh/h)	314	11	290	328	8	242	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90	
Hourly flow rate (vph)	349	14	322	364	10	269	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		2					
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	611	322			322		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	611	322			322		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	23	98			99		
cM capacity (veh/h)	453	719			1238		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1			
Volume Total	363	322	364	279			
Volume Left	349	0	0	10			
Volume Right	14	0	364	0			
cSH	466	1700	1700	1238			
Volume to Capacity	0.78	0.19	0.21	0.01			
Queue Length 95th (ft)	172	0	0	1			
Control Delay (s)	35.0	0.0	0.0	0.4			
Lane LOS	55.0 E	0.0	0.0	A			
Approach Delay (s)	35.0	0.0		0.4			
Approach LOS	55.0 E	0.0		т.т			
	_						
Intersection Summary							
Average Delay			9.6				
Intersection Capacity Utiliz	ation		43.3%	IC	U Level (	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्स	4Î	
Traffic Volume (veh/h)	4	0	0	433	486	6
Future Volume (Veh/h)	4	0	0	433	486	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	5	0	0	481	540	8
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				None	None	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1025	544	548			
vC1, stage 1 conf vol	1025	577	5-0			
vC2, stage 2 conf vol						
vCu, unblocked vol	1025	544	548			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	260	539	1032			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	481	548			
Volume Left	5	0	0			
Volume Right	0	0	8			
cSH	260	1032	1700			
Volume to Capacity	0.02	0.00	0.32			
Queue Length 95th (ft)	1	0	0			
Control Delay (s)	19.1	0.0	0.0			
Lane LOS	С					
Approach Delay (s)	19.1	0.0	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		35.9%	10	CU Level o	of Service
Analysis Period (min)			15			
			15			

	٦	$\mathbf{\hat{z}}$	•	t	ŧ	∢
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Υ			र्स	4Î	
Traffic Volume (veh/h)	3	1	2	499	529	7
Future Volume (Veh/h)	3	1	2	499	529	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	4	1	3	554	588	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				10110	110110	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1152	592	597			
vC1, stage 1 conf vol	1102	072	077			
vC2, stage 2 conf vol						
vCu, unblocked vol	1152	592	597			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	220	510	989			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	557	597			
Volume Left	4	3	0			
Volume Right	4	0	9			
cSH	248	989	1700			
Volume to Capacity	0.02	0.00	0.35			
Queue Length 95th (ft)	0.02	0.00	0.55			
	19.8	0.1	0.0			
Control Delay (s)			0.0			
Lane LOS	C	A	0.0			
Approach Delay (s)	19.8	0.1	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		38.3%	IC	CU Level o	of Service
Analysis Period (min)			15			

Intersection						
Int Delay, s/veh	0.4					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	۰¥		et 👘			्
Traffic Vol, veh/h	8	10	427	1	11	366
Future Vol, veh/h	8	10	427	1	11	366
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	, # 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	13	469	1	12	402

Minor1	Ν	1ajor1	Ν	lajor2	
896	470	0	0	470	0
470	-	-	-	-	-
426	-	-	-	-	-
6.42	6.22	-	-	4.12	-
5.42	-	-	-	-	-
5.42	-	-	-	-	-
3.518	3.318	-	-	2.218	-
311	594	-	-	1092	-
629	-	-	-	-	-
659	-	-	-	-	-
		-	-		-
307	594	-	-	1092	-
307	-	-	-	-	-
629	-	-	-	-	-
650	-	-	-	-	-
WB		NB		SB	
14.1		0		0.2	
	470 426 6.42 5.42 3.518 311 629 659 307 307 629 650 WB	896       470         470       -         426       -         6.42       6.22         5.42       -         3.518       3.318         311       594         629       -         307       594         307       -         629       -         650       -         WB       -	896       470       0         470       -       -         426       -       -         6.42       6.22       -         5.42       -       -         3.518       3.318       -         311       594       -         629       -       -         307       594       -         307       594       -         629       -       -         307       594       -         307       594       -         307       594       -         307       NB       NB	896       470       0       0         470       -       -         426       -       -         6.42       6.22       -         5.42       -       -         5.42       -       -         3.518       3.318       -         311       594       -         629       -       -         307       594       -         307       594       -         629       -       -         659       -       -         659       -       -         659       -       -         907       594       -         907       -       -         307       594       -         907       -       -         629       -       -         650       -       -         WB       NB       -	896       470       0       0       470         470       -       -       -       -         426       -       -       -       -         6.42       6.22       -       -       4.12         5.42       -       -       -       -         3.518       3.318       -       2.218         311       594       -       1092         629       -       -       -         307       594       -       1092         307       594       -       1092         307       594       -       -         629       -       -       -         307       594       -       1092         307       -       -       -         629       -       -       -         650       -       -       -         650       -       -       -         WB       NB       SB

HCM LOS B

Minor Lane/Major Mvmt	NBT	NBRW	BLn1	SBL	SBT
Capacity (veh/h)	-	-	420	1092	-
HCM Lane V/C Ratio	-	- (	0.054	0.011	-
HCM Control Delay (s)	-	-	14.1	8.3	0
HCM Lane LOS	-	-	В	Α	Α
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	0.7					
Marrana			NDT		CDI	CDT
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	- ¥		- <b>Þ</b>			- सी
Traffic Vol, veh/h	16	12	474	0	18	511
Future Vol, veh/h	16	12	474	0	18	511
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	e, # 0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mymt Flow	20	15	520	0	20	561

Major/Minor	Minor1	N	1ajor1	N	lajor2		
Conflicting Flow All	1121	520	0	0	520	0	
Stage 1	520	-	-	-	-	-	
Stage 2	601	-	-	-	-	-	
Critical Hdwy	6.42	6.22	-	-	4.12	-	
Critical Hdwy Stg 1	5.42	-	-	-	-	-	
Critical Hdwy Stg 2	5.42	-	-	-	-	-	
Follow-up Hdwy		3.318	-		2.218	-	
Pot Cap-1 Maneuver	228	556	-	-	1046	-	
Stage 1	597	-	-	-	-	-	
Stage 2	547	-	-	-	-	-	
Platoon blocked, %			-	-		-	
Mov Cap-1 Maneuver		556	-	-	1046	-	
Mov Cap-2 Maneuver		-	-	-	-	-	
Stage 1	597	-	-	-	-	-	
Stage 2	532	-	-	-	-	-	
Approach	WB		NB		SB		
HCM Control Delay, s	5 18.6		0		0.3		

HCM LOS C

Minor Lane/Major Mvmt	NBT	NBRWBL	n1 SBL	SBT
Capacity (veh/h)	-	- 2	99 1046	-
HCM Lane V/C Ratio	-	- 0.1	18 0.019	-
HCM Control Delay (s)	-	- 18	8.6 8.5	0
HCM Lane LOS	-	-	C A	Α
HCM 95th %tile Q(veh)	-	- (	.4 0.1	-

HCM Unsignalized Intersection Capacity Analysis 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd

3: CR 519 Belvide			•	•	•	Rd/CR	622 F	Roxbur	y Hill F	Rd	07/2	4/2020
	٦	-	$\mathbf{F}$	∢	←	•	1	Ť	1	5	ţ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	16	1	6	7	1	10	8	444	3	1	415	11
Future Volume (Veh/h)	16	1	6	7	1	10	8	444	3	1	415	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	20	1	8	9	1	13	10	498	4	1	466	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1008	997	473	1004	1002	500	480			502		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	1000	007	170	1001	1000	500	100			500		_
vCu, unblocked vol	1008	997	473	1004	1002	500	480			502		
tC, single (s)	7.2	6.5	6.5	7.2	6.5	6.3	4.2			4.1		_
tC, 2 stage (s)	0 (	4.0	0 (	0 (	4.0	0.4	0.0			0.0		
tF (s)	3.6	4.0	3.6	3.6	4.0	3.4	2.3			2.2		
p0 queue free %	90	100	99 520	96	100	98	99			100		
cM capacity (veh/h)	208	243	538	204	242	555	1042			1073		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	29	23	512	481								_
Volume Left	20	9	10	1								
Volume Right	8	13	4	14								
cSH Mahara ta Cana a'ta	252	321	1042	1073								
Volume to Capacity	0.12	0.07	0.01	0.00								
Queue Length 95th (ft)	10	6	1	0								
Control Delay (s)	21.2	17.1	0.3	0.0								
Lane LOS	C	C	A	A								
Approach Delay (s)	21.2 C	17.1	0.3	0.0								
Approach LOS	C	С										
Intersection Summary												
Average Delay			1.1									
Intersection Capacity Utilization	ation		39.8%	IC	U Level	of Service			А			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: CR 519 Belvide			•	•	•	Rd/CR	622 F	Roxbur	y Hill F	Rd	07/2	4/2020
	٦	-	$\mathbf{i}$	4	←	•	1	Ť	۲	1	ŧ	~
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Traffic Volume (veh/h)	20	1	23	4	1	1	12	501	3	4	385	18
Future Volume (Veh/h)	20	1	23	4	1	1	12	501	3	4	385	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	25	1	29	5	1	1	15	562	4	5	432	23
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	1010	4050		4077	4050	= / .	455			- / /		
vC, conflicting volume	1049	1050	444	1077	1059	564	455			566		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	1040	1050		1077	1050	<b>F</b> ( )	455			F//		
vCu, unblocked vol	1049	1050	444	1077	1059	564	455			566		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.6			4.1		
tC, 2 stage (s)	3.5	10	3.3	2 E	4.0	2.2	2.7			2.2		
tF (s) p0 queue free %	3.5 87	4.0 100	3.3 95	3.5 97	4.0 100	3.3 100	2.7 98			100		
cM capacity (veh/h)	198	224	95 610	185	221	529	90 894			1016		
					221	529	074			1010		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	55	7	581	460								
Volume Left	25	5	15	5								
Volume Right cSH	29 309	210	4	23								
	0.18	210 0.03	894 0.02	1016 0.00								
Volume to Capacity	0.18		0.02									
Queue Length 95th (ft)	19.2	3 22.8	0.5	0 0.1								
Control Delay (s) Lane LOS	19.2 C	22.8 C	0.5 A	0.1 A								
Approach Delay (s)	19.2	22.8	0.5	0.1								
Approach LOS	C	22.0 C	0.5	0.1								
Intersection Summary												
Average Delay			1.4									
Intersection Capacity Utiliz	ation		44.4%	IC	Ulevel	of Service			А			
Analysis Period (min)			15						~			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	¥		5	<b>↑</b>	4Î	-	
Traffic Volume (veh/h)	7	54	45	361	389	7	
Future Volume (Veh/h)	7	54	45	361	389	7	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80	
Hourly flow rate (vph)	9	68	56	401	432	9	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	950	436	441				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	950	436	441				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	97	89	95				
cM capacity (veh/h)	275	620	1130				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	77	56	401	441			
Volume Left	9	56	0	0			
Volume Right	68	0	0	9			
cSH	540	1130	1700	1700			
Volume to Capacity	0.14	0.05	0.24	0.26			
Queue Length 95th (ft)	12	4	0	0			
Control Delay (s)	12.8	8.4	0.0	0.0			
Lane LOS	В	А					
Approach Delay (s)	12.8	1.0		0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			1.5				
Intersection Capacity Utilizati	ion		38.0%	IC	CU Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٢	<b>≜</b>	4Î		
Traffic Volume (veh/h)	14	66	97	426	453	8	
Future Volume (Veh/h)	14	66	97	426	453	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80	
Hourly flow rate (vph)	18	83	121	473	503	10	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1223	508	513				
vC1, stage 1 conf vol	1220	000	010				
vC2, stage 2 conf vol							
vCu, unblocked vol	1223	508	513				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)		0.2					
tF (s)	3.5	3.3	2.2				
p0 queue free %	90	85	89				
cM capacity (veh/h)	176	565	1063				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	101	121	473	513			
Volume Left	18	121	475	0			
Volume Right	83	0	0	10			
cSH	405	1063	1700	1700			
Volume to Capacity	0.25	0.11	0.28	0.30			
Queue Length 95th (ft)	24	10	0.20	0.50			
Control Delay (s)	16.8	8.8	0.0	0.0			
Lane LOS	C	0.0 A	0.0	0.0			
Approach Delay (s)	16.8	1.8		0.0			
Approach LOS	10.0 C	1.0		0.0			
	U						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utiliz	zation		44.5%	IC	CU Level o	of Service	
Analysis Period (min)			15				

07/24/2020

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Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	Y		4Î			र्स
Traffic Volume (veh/h)	2	151	276	7	260	257
Future Volume (Veh/h)	2	151	276	7	260	257
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	3	168	307	9	289	286
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1176	312			316	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1176	312			316	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	77			76	
cM capacity (veh/h)	163	722			1227	
Direction, Lane #	NB 1	NE 1	SW 1			
Volume Total	171	316	575			
Volume Left	3	0	289			
Volume Right	168	9	209			
cSH	681	1700	1227			
Volume to Capacity	0.25	0.19	0.24			
Queue Length 95th (ft)	25	0.19	23			
Control Delay (s)	12.1	0.0	5.7			
Lane LOS	12.1 B	0.0	5.7 A			
Approach Delay (s)	в 12.1	0.0	А 5.7			
Approach LOS	12.1 B	0.0	J.7			
Appluatineus	D					
Intersection Summary						
Average Delay			5.0			
Intersection Capacity Utiliz	zation		62.3%	IC	CU Level	of Service
Analysis Period (min)			15			

07/24/2020

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Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	Υ		4			स्
Traffic Volume (veh/h)	10	293	285	4	217	288
Future Volume (Veh/h)	10	293	285	4	217	288
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	13	326	317	5	241	320
Pedestrians				-		
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)			NUTIC			NONC
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1122	320			322	
vC1, stage 1 conf vol	1122	J20			JZZ	
vC2, stage 2 conf vol						
vCu, unblocked vol	1122	320			322	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	0.4	0.2			4.1	
tF (s)	3.5	3.3			2.2	
p0 queue free %	93	5.5 54			2.2 80	
cM capacity (veh/h)	93 185	54 714			1221	
					1221	
Direction, Lane #	NB 1	NE 1	SW 1			
Volume Total	339	322	561			
Volume Left	13	0	241			
Volume Right	326	5	0			
cSH	644	1700	1221			
Volume to Capacity	0.53	0.19	0.20			
Queue Length 95th (ft)	77	0	18			
Control Delay (s)	16.7	0.0	4.9			
Lane LOS	С		А			
Approach Delay (s)	16.7	0.0	4.9			
Approach LOS	С					
Intersection Summary						
Average Delay			6.9			
Intersection Capacity Utiliz	ration		71.1%	IC	Ulevel	of Service
Analysis Period (min)			15			
			15			

#### Timings 3: CR 519 Uniontown Rd & NJ 57

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		\$	
Traffic Volume (vph)	29	307	24	250	31	79	3	101	
Future Volume (vph)	29	307	24	250	31	79	3	101	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		57.6		57.6		17.4		17.4	
Actuated g/C Ratio		0.64		0.64		0.19		0.19	
v/c Ratio		0.37		0.29		0.61		0.49	
Control Delay		9.2		8.5		37.5		33.3	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		9.2		8.5		37.5		33.3	
LOS		A		A		D		С	
Approach Delay		9.2		8.5		37.5		33.3	
Approach LOS		А		А		D		С	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Referen	ced to pha	se 4:EBT	L and 8:	NBTL, St	art of Yel	low			
Natural Cycle: 80				, .					
Control Type: Actuated-Coo	rdinated								
Maximum v/c Ratio: 0.61									
Intersection Signal Delay: 1	7.8			Ir	ntersectio	n LOS: B			
Intersection Capacity Utiliza		/ 0			CU Level				
Analysis Period (min) 15									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

M Ø2		1
33 s	57 s	
Ø6	₩ Ø8 (R)	
33 s	57 s	

#### Timings 3: CR 519 Uniontown Rd & NJ 57

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		\$	
Traffic Volume (vph)	27	228	82	277	29	213	3	124	
Future Volume (vph)	27	228	82	277	29	213	3	124	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		53.4		53.4		21.6		21.6	
Actuated g/C Ratio		0.59		0.59		0.24		0.24	
v/c Ratio		0.34		0.46		0.79		0.38	
Control Delay		10.7		13.1		44.9		28.9	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		10.7		13.1		44.9		28.9	
LOS		В		В		D		С	
Approach Delay		10.7		13.1		44.9		28.9	
Approach LOS		В		В		D		С	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Reference	ced to pha	se 4:EBT	L and 8:	WBTL, St	art of Yel	low			
Natural Cycle: 80				,					
Control Type: Actuated-Coo	rdinated								
Maximum v/c Ratio: 0.79									
Intersection Signal Delay: 22	2.9			Ir	ntersectio	n LOS: C			
Intersection Capacity Utiliza		6			CU Level				
Analysis Period (min) 15									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

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33 s	57 s	
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33 s	57 s	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	۲	1		र्स	eî.		
Traffic Volume (veh/h)	88	213	77	128	222	58	
Future Volume (Veh/h)	88	213	77	128	222	58	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80	
Hourly flow rate (vph)	110	266	96	142	247	73	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	618	284	320				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	618	284	320				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	74	65	92				
cM capacity (veh/h)	421	760	1251				
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			
Volume Total	110	266	238	320			
Volume Left	110	0	96	0			
Volume Right	0	266	0	73			
cSH	421	760	1251	1700			
Volume to Capacity	0.26	0.35	0.08	0.19			
Queue Length 95th (ft)	26	39	6	0			
Control Delay (s)	16.5	12.3	3.7	0.0			
Lane LOS	С	В	А				
Approach Delay (s)	13.5		3.7	0.0			
Approach LOS	В						
Intersection Summary							
Average Delay			6.4				
Intersection Capacity Utiliza	tion		41.1%	IC	CU Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	7	1		र्भ	4Î	
Traffic Volume (veh/h)	115	143	185	320	303	104
Future Volume (Veh/h)	115	143	185	320	303	104
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	144	179	231	356	337	130
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1220	402	467			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1220	402	467			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	9	73	79			
cM capacity (veh/h)	159	653	1105			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	144	179	587	467		
Volume Left	144	0	231	0		
Volume Right	0	179	0	130		
cSH	159	653	1105	1700		
Volume to Capacity	0.91	0.27	0.21	0.27		
Queue Length 95th (ft)	162	28	20	0		
Control Delay (s)	105.1	12.6	5.0	0.0		
Lane LOS	F	В	А			
Approach Delay (s)	53.8		5.0	0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			14.8			
Intersection Capacity Utili	zation		65.7%	IC	CU Level o	of Service
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	5	1		<b>↑</b>	1		
Traffic Volume (veh/h)	50	55	0	72	63	0	
Future Volume (Veh/h)	50	55	0	72	63	0	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	55	61	0	80	70	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		6					
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	150	70	70				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	150	70	70				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	93	94	100				
cM capacity (veh/h)	842	993	1531				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	116	80	70				
Volume Left	55	0	0				
Volume Right	61	0	0				
cSH	1776	1700	1700				
Volume to Capacity	0.07	0.05	0.04				
Queue Length 95th (ft)	5	0.00	0.01				
Control Delay (s)	9.2	0.0	0.0				
Lane LOS	A	0.0	0.0				
Approach Delay (s)	9.2	0.0	0.0				
Approach LOS	7.2 A	0.0	0.0				
Intersection Summary							
Average Delay			4.0				
	ation			10		of Convios	
Intersection Capacity Utiliz	allon		13.9%	IC	CU Level o	DI SELVICE	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	5	1		<b>≜</b>	1		
Traffic Volume (veh/h)	52	40	0	88	24	0	
Future Volume (Veh/h)	52	40	0	88	24	0	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	58	44	0	98	27	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		6					
Median type		U U		None	None		
Median storage veh)				110110			
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	125	27	27				
vC1, stage 1 conf vol	120	27	27				
vC2, stage 2 conf vol							
vCu, unblocked vol	125	27	27				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)	0.1	0.2					
tF (s)	3.5	3.3	2.2				
p0 queue free %	93	96	100				
cM capacity (veh/h)	870	1048	1587				
Direction, Lane #	EB 1 102	<u>NB 1</u> 98	<u>SB 1</u> 27				
Volume Left	58	98					
	28 44		0				
Volume Right	44 1530	0	0 1700				
cSH Valuma ta Canacitu		1700					
Volume to Capacity	0.07	0.06	0.02				
Queue Length 95th (ft)	5	0	0				
Control Delay (s)	9.1	0.0	0.0				
Lane LOS	A						
Approach Delay (s)	9.1	0.0	0.0				
Approach LOS	А						
Intersection Summary							
Average Delay			4.1				
Intersection Capacity Utilizati	on		14.7%	IC	CU Level o	of Service	
Analysis Period (min)			15				

2020 EXISTING MID-BLOCK ANALYSIS

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Projec	ct Information						
Analyst		MAA		Date		6/16/2020	
Agency		WSP		Analysis Year		2020	
Jurisdicti	ion			Time Period Analy	vzed	AM Peak Hour	
Project D	Description	CR 519, northeast of C 610	0	Unit		United States Customary	
		S	egn	nent 1			
Vehicl	le Inputs						
Segment Type Passing Zone				Length, ft		5280	
Lane Wi	dth, ft	12		Shoulder Width, f	t	3	
Speed Li	Speed Limit, mi/h 50				sity, pts/mi	9.0	
Dema	nd and Capacity						
Directior	nal Demand Flow Rate, veh/h	298		Opposing Deman	d Flow Rate, veh/h	253	
Peak Ho	our Factor	0.92		Total Trucks, %		2.00	
Segmen	t Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.18	
Intern	nediate Results						
Segmen	t Vertical Class	1		Free-Flow Speed,	mi/h	52.6	
Speed S	lope Coefficient	3.17369		Speed Power Coe	fficient	0.52554	
PF Slope	e Coefficient	-1.25142		PF Power Coefficie	ent	0.78453	
In Passin	ng Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	2.2	
%Improv	ved % Followers	0.0		% Improved Avg	Speed	0.0	
Subse	egment Data						
# Se	egment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h	
1 Tai	ngent	5280	-		-	51.2	
Vehicl	le Results						
Average	Speed, mi/h	51.2		Percent Followers	, %	38.4	
Segmen	t Travel Time, minutes	1.17		Followers Density	, followers/mi/ln	2.2	
Vehicle L	LOS	A					

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### **Project Information**

Pro	ject Information					
Analy	/st	MAA		Date		6/16/2020
Agen	су	WSP	WSP			2020
Juriso	diction			Time Period Analy	/zed	AM Peak Hour
Proje	ct Description	CR 519, northeast of C 610	0	Unit		United States Customary
		Se	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Der	nand and Capacity					
Directional Demand Flow Rate, veh/h 253		Opposing Demand Flow Rate, veh/h		298		
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segn	Segment Capacity, veh/h 1700			Demand/Capacity (D/C)		0.15
Inte	ermediate Results					
Segn	nent Vertical Class	1	Free-Flow Speed, mi/h		52.6	
Spee	d Slope Coefficient	3.18761		Speed Power Coe	fficient	0.51566
PF SI	ope Coefficient	-1.26085 P		PF Power Coefficient		0.78175
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		1.7
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data			-		
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	51.4
Veh	icle Results	-				
Avera	age Speed, mi/h	51.4		Percent Followers, %		35.0
Segn	nent Travel Time, minutes	1.17		Followers Density	, followers/mi/ln	1.7
-		A				

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Pro	ject Information					
Anal	nalyst MAA [		Date		6/16/2020	
Ager	псу	WSP		Analysis Year		2020
Juris	diction			Time Period Analy	/zed	PM Peak Hour
Proje	ect Description	CR 519, northeast of C 610	0	Unit		United States Customary
		S	egn	nent 1		
Veł	icle Inputs					
Segr	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	ť	3
Spee	ed Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Der	nand and Capacity					
Directional Demand Flow Rate, veh/h 263		Opposing Demand Flow Rate, veh/h		347		
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segr	Segment Capacity, veh/h 1700		Demand/Capacity (D/C)		0.15	
Inte	ermediate Results					
Segr	nent Vertical Class	1	1		mi/h	52.6
Spee	d Slope Coefficient	3.20174		Speed Power Coe	fficient	0.50607
PF SI	ope Coefficient	-1.27002		PF Power Coefficient		0.77898
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		1.9
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	51.3
Veł	icle Results	•	4		•	
Aver	age Speed, mi/h	51.3		Percent Followers, %		36.2
Segr	nent Travel Time, minutes	1.17		Followers Density	, followers/mi/ln	1.9
Vehi	cle LOS	A				
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Pro	ject Information				
Anal	yst	МАА	Date		6/16/2020
Ager	псу	WSP	Analysis Year		2020
Juris	diction		Time Period A	nalyzed	PM Peak Hour
Proje	ect Description	CR 519, northeast of CC 610	D Unit		United States Customary
		Se	egment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Widt	h, ft	3
Spee	ed Limit, mi/h	50	Access Point D	ensity, pts/mi	9.0
Der	mand and Capacity				
Dire	rectional Demand Flow Rate, veh/h 347		Opposing Den	nand Flow Rate, veh/h	263
Peak	Hour Factor	0.92			2.00
Segr	nent Capacity, veh/h	1700	Demand/Capa	city (D/C)	0.20
Inte	ermediate Results				
Segr	nent Vertical Class	1	Free-Flow Spe	ed, mi/h	52.6
Spee	ed Slope Coefficient	3.17684	Speed Power (	Coefficient	0.52326
PF SI	lope Coefficient	-1.25359	PF Power Coef	ficient	0.78389
In Pa	ssing Lane Effective Length?	No	Total Segment	Density, veh/mi/ln	2.9
%lm	proved % Followers	0.0	% Improved A	vg Speed	0.0
Suk	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	51.1
Veł	nicle Results				
Aver	age Speed, mi/h	51.1	Percent Follow	ers, %	42.1
Segr	nent Travel Time, minutes	1.18	Followers Den	sity, followers/mi/ln	2.9
Vehicle LOS		В			

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HCS7 Two-Lane	Highway Report
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Proj	ject Information					
Analyst MAA Da		Date		6/17/2020		
Agen	су	WSP /		Analysis Year		2020
Jurisc	liction			Time Period Analy	vzed	AM Peak Hour
Proje	ct Description	CR 519, Stone Hedge F to Hope Crossing Rd	Rd	Unit		United States Customary
		Se	egn	nent 1		
Veh	icle Inputs					
Segm	nent Type	Passing Constrained		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	6
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	0.0
Den	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	335		Opposing Deman	d Flow Rate, veh/h	-
Peak	Hour Factor	0.80		Total Trucks, %		3.00
Segm	nent Capacity, veh/h	1700		Demand/Capacity (D/C)		0.20
Inte	ermediate Results					
Segm	nent Vertical Class	1	Free-Flow Speed, mi/h		mi/h	56.9
Spee	d Slope Coefficient	3.64416	3.64416		fficient	0.41674
PF Slo	ope Coefficient	-1.32222		PF Power Coefficient		0.75266
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.7
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	54.9
Veh	icle Results	•	-		·	
Avera	age Speed, mi/h	54.9		Percent Followers, %		44.0
Segm	nent Travel Time, minutes	1.09		Followers Density,	, followers/mi/ln	2.7
Vehic	le LOS	В				

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HCS7 Two-Lane	Highway Report
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Analyst MAA Da		Date		6/17/2020
WSP	WSP			2020
		Time Period Analy	vzed	AM Peak Hour
		Unit		United States Customary
	Segn	nent 1		
Passing Constraine	d	Length, ft		5280
12		Shoulder Width, f	t	6
50		Access Point Dens	ity, pts/mi	0.0
eh/h 336		Opposing Demand Flow Rate, veh/h		-
0.84		Total Trucks, %		3.00
1700		Demand/Capacity (D/C)		0.20
1	Free-Flow Speed, mi/h		mi/h	56.9
3.64416	3.64416		fficient	0.41674
-1.32222	-1.32222		ent	0.75266
No	No		nsity, veh/mi/ln	2.7
0.0		% Improved Avg Speed		0.0
Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
5280	-		-	54.9
			·	
54.9		Percent Followers, %		44.1
1.09		Followers Density, followers/mi/ln		2.7
В		1		
	WSP         CR 519, Stone Hedge         CR 519, Stone Hedge         CR 519, Stone Hedge         CR 519, Stone Hedge         Passing Constrainee         Passing Constrainee         12         50         eh/h         336         0.84         1700         1         3.64416         -1.32222         No         0.0         Length, ft         5280         S4.9         1.09	WSP         QR 519, Stone Hedge Rd         CR 519, Stone Hedge Rd         to Hope Crossing Rd         Segn         Passing Constrained         12         50         sh/h         336         0.84         1700         1         3.64416         1.32222         No         0.0         Length, ft         Rac         5280         1.09	WSP       Analysis Year         Image: CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         Segment 1         Passing Constrained       Length, ft         12       Shoulder Width, f         50       Access Point Dens         eh/h       336       Opposing Deman         0.84       Total Trucks, %         1700       Demand/Capacity         11       Free-Flow Speed,         3.64416       Speed Power Coe         -1.32222       PF Power Coefficie         No       Total Segment De         0.0       % Improved Avg S         Sta9       -         Ength, ft       Radius, ft         5280       -         1.09       Followers Density	WSP       Analysis Year         Image: CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         Segment 1       Image: CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         Segment 1       Segment 1         Passing Constrained       Length, ft         12       Shoulder Width, ft         50       Access Point Density, pts/mi         Ph/h       336       Opposing Demand Flow Rate, veh/h         0.84       Total Trucks, %         1700       Demand/Capacity (D/C)         1       Free-Flow Speed, mi/h         3.64416       Speed Power Coefficient         1.32222       PF Power Coefficient         No       Total Segment Density, veh/mi/ln         0.0       % Improved Avg Speed         V       Sta90       -         5280       -       -         54.9       Percent Followers, %       -         1.09       Followers Density, followers/mi/ln

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HCS7 Two-Lane	Highway Report
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Projec	t Information					
Analyst	Analyst MAA Da		Date		6/17/2020	
Agency		WSP /		Analysis Year		2020
Jurisdicti	ion			Time Period Analy	vzed	PM Peak Hour
Project D	Description	CR 519, Stone Hedge R to Hope Crossing Rd	₹d	Unit		United States Customary
		Se	egn	nent 1		
Vehicl	e Inputs					
Segment	t Туре	Passing Constrained		Length, ft		5280
Lane Wic	dth, ft	12		Shoulder Width, f	t	6
Speed Li	mit, mi/h	50		Access Point Dens	sity, pts/mi	0.0
Dema	nd and Capacity					
Directior	nal Demand Flow Rate, veh/h	290		Opposing Demand Flow Rate, veh/h		-
Peak Hou	ur Factor	0.90		Total Trucks, %		3.00
Segment	t Capacity, veh/h	1700		Demand/Capacity (D/C)		0.17
Interm	nediate Results			2		
Segment	t Vertical Class	1	Free-Flow Speed, mi/h		56.9	
Speed SI	lope Coefficient	3.64416	3.64416 Speed		fficient	0.41674
PF Slope	Coefficient	-1.32222		PF Power Coefficient		0.75266
In Passin	g Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.1
%Improv	ved % Followers	0.0		% Improved Avg Speed		0.0
Subse	gment Data					
# Se	gment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1 Tar	ngent	5280	-		-	55.1
Vehicl	e Results		-		·	
Average	Speed, mi/h	55.1		Percent Followers, %		40.6
Segment	t Travel Time, minutes	1.09		Followers Density,	, followers/mi/ln	2.1
Vehicle L	_OS	A				

HCS M Two-Lane Version 7.8.5 HCS - midblock 11-09\_PM\_EB.xuf

HCS7 Two-Lane	Highway Report
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Anal	vst	МАА		Date		6/17/2020
Ager	•			Analysis Year		2020
_	diction			Time Period Anal	lvzed	PM Peak Hour
	ect Description	CR 519, Stone H to Hope Crossin		Unit		United States Customar
		<u> </u>	Segi	ment 1		1
Veł	nicle Inputs					
Segr	nent Type	Passing Constrai	ined	Length, ft		5280
Lane	Width, ft	12		Shoulder Width,	ft	6
Spee	ed Limit, mi/h	50		Access Point Der	nsity, pts/mi	0.0
Der	mand and Capacity					
Dire	Directional Demand Flow Rate, veh/h 371		Opposing Demand Flow Rate, veh/h		-	
Peak	Hour Factor	0.82		Total Trucks, %		3.00
Segr	nent Capacity, veh/h	1700		Demand/Capacity (D/C)		0.22
Inte	ermediate Results					
Segr	nent Vertical Class	1	1 Free-Flow Speed, mi/		l, mi/h	56.9
Spee	ed Slope Coefficient	3.64416		Speed Power Coefficient		0.41674
PF SI	lope Coefficient	-1.32222	-1.32222		lient	0.75266
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.2
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Suk	osegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	54.8
Veł	nicle Results					·
Aver	age Speed, mi/h	54.8		Percent Followers, %		46.6
Segr	nent Travel Time, minutes	1.10		Followers Density, followers/mi/ln		3.2
Vehicle LOS		В		1		

HCS TM Two-Lane Version 7.8.5 HCS - midblock 11-09\_PM\_WB.xuf

HCS7 Two-Lane	Highway Report
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Proje	ect Information					
Analyst MAA D		Date		6/16/2020		
Agenc	ÿ	WSP		Analysis Year		2020
Jurisdi	ction			Time Period Analy	vzed	AM Peak Hour
Projec	t Description	CR 519, CO 623 Brass Castle Rd to Pequest F	۶d	Unit		United States Customary
		S	egn	nent 1		
Vehi	cle Inputs					
Segme	ent Type	Passing Zone		Length, ft		5280
Lane V	Vidth, ft	12		Shoulder Width, f	t	6
Speed	Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Dem	and and Capacity					
Directi	ional Demand Flow Rate, veh/h	493	493		d Flow Rate, veh/h	388
Peak F	lour Factor	0.88		Total Trucks, %		0.00
Segment Capacity, veh/h 1700			Demand/Capacity (D/C)		0.29	
Inter	rmediate Results					
Segment Vertical Class		1	1		mi/h	55.7
Speed	Slope Coefficient	3.38169		Speed Power Coefficient		0.49890
PF Slo	pe Coefficient	-1.26598		PF Power Coefficient		0.78592
In Pass	sing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		4.8
%Impr	roved % Followers	0.0		% Improved Avg Speed		0.0
Subs	segment Data			-		
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.6
Vehi	cle Results				-	
Averaç	ge Speed, mi/h	53.6		Percent Followers, %		51.6
Segme	ent Travel Time, minutes	1.12		Followers Density	, followers/mi/ln	4.8
-		В				

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HCS7 Two-Lane	Highway Report
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						C (1 C (2020
Anal	•	MAA		Date		6/16/2020
Ager	псу	WSP		Analysis Year		2020
Juris	diction			Time Period Anal	yzed	AM Peak Hour
Proje	ect Description	CR 519, CO 623 Castle Rd to Peq		Unit		United States Customa
			Segr	ment 1		
Veh	nicle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width,	ft	6
Spee	ed Limit, mi/h	50		Access Point Den	sity, pts/mi	4.0
Der	mand and Capacity					
Direc	ctional Demand Flow Rate, veh/h	tional Demand Flow Rate, veh/h 371		Opposing Demand Flow Rate, veh/h		472
Peak	Hour Factor	0.92		Total Trucks, %		0.00
Segn	jment Capacity, veh/h 1700		Demand/Capacity (D/C)		0.22	
Inte	ermediate Results					
Segment Vertical Class		1	1		mi/h	55.7
Speed Slope Coefficient		3.40278		Speed Power Coe	efficient	0.48595
PF SI	ope Coefficient	-1.27764		PF Power Coefficient		0.78186
In Pa	ssing Lane Effective Length?	No	No		Total Segment Density, veh/mi/ln	
%lm	proved % Followers	0.0	0.0		% Improved Avg Speed	
Suk	osegment Data			-		
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	5280 -		-	53.9
Veh	nicle Results					
Aver	age Speed, mi/h	53.9		Percent Followers, %		44.5
Segn	nent Travel Time, minutes	1.11		Followers Density, followers/mi/ln		3.1
Vehicle LOS		В		1		

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HCS7 Two-Lane	Highway Report
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Pro	ject Information					
Analyst MAA [		Date		6/16/2020		
Ager	псу	WSP		Analysis Year		2020
Juris	diction			Time Period Analy	/zed	PM Peak Hour
Proje	ect Description	CR 519, CO 623 Brass Castle Rd to Pequest		Unit		United States Customary
		S	Segr	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	6
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Der	mand and Capacity					
Direc	tional Demand Flow Rate, veh/h	562	562		d Flow Rate, veh/h	418
Peak	Hour Factor	0.85	0.85 Tot			7.00
Segment Capacity, veh/h 1700		1700	1700 Demand/		r (D/C)	0.33
Inte	ermediate Results					
Segment Vertical Class		1	1		mi/h	55.5
Spee	d Slope Coefficient	3.37685		Speed Power Coefficient		0.49400
PF SI	ope Coefficient	-1.27056		PF Power Coefficient		0.78476
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		5.9
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	1-		-	53.2
Veh	icle Results					
Aver	age Speed, mi/h	53.2		Percent Followers, %		55.5
Segn	nent Travel Time, minutes	1.13		Followers Density, followers/mi/In		5.9
Vehio	cle LOS	С				
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Analyst MAA D		Date		6/16/2020
WSP		Analysis Year		2020
		Time Period Analy	vzed	PM Peak Hour
		Unit		United States Customary
	Segr	nent 1		
Passing Zone		Length, ft		5280
12		Shoulder Width, f	t	6
50		Access Point Dens	sity, pts/mi	4.0
veh/h 374	374		d Flow Rate, veh/h	503
0.95		Total Trucks, %		7.00
Segment Capacity, veh/h 1700		Demand/Capacity (D/C)		0.22
1	1		mi/h	55.5
3.39753	3.39753		fficient	0.48165
-1.28168	-1.28168		ent	0.78080
? No	No		nsity, veh/mi/ln	3.1
0.0	0.0		Speed	0.0
Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
5280	-		-	53.6
53.6		Percent Followers, %		44.8
1.12		Followers Density, followers/mi/ln		3.1
B	В			
	WSP         CR 519, CO 623 E         Castle Rd to Peque         Castle Rd to Peque         Passing Zone         12         50         veh/h         374         0.95         1700         1339753         -1.28168         ?         No         0.0         Length, ft         5280         1.12	WSP WSP CR 519, CO 623 Brass Castle Rd to Pequest Rd CR 519, CO 623 Brass Castle Rd to Pequest Rd CS C	WSPAnalysis YearImage: CR 519, CO 623 Brass Castle Rd to Pequest RdUnitSegment 1Segment 1Passing ZoneLength, ft12Shoulder Width, f50Access Point DenseVeh/h374Opposing Deman0.95Total Trucks, %100Demand/Capacity1100Demand/Capacity12Speed Power Coe1100Free-Flow Speed,3.39753Speed Power Coe-1.28168PF Power Coefficients1Total Segment De0.0% Improved Avg State2Sa2Sa12Sa3.39753Speed Power Coe1.12Followers Density	WSP       Analysis Year         Image: CR S19, CO 623 Brass Castle Rd to Pequest Rd       Unit         CR S19, CO 623 Brass Castle Rd to Pequest Rd       Unit         Segment 1         Segment 1         Passing Zone       Length, ft         12       Shoulder Width, ft         50       Access Point Density, pts/mi         veh/h       374       Opposing Demand Flow Rate, veh/h         0.95       Total Trucks, %         1700       Demand/Capacity (D/C)         1700       Demand/Capacity (U/C)         1       Speed Power Coefficient         1.128168       PF Power Coefficient         1.12       Total Segment Density, veh/mi/ln         0.0       % Improved Avg Speed         i       5280       -         5280       -       -         53.6       Percent Followers, %         53.6       Percent Followers, %

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Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Ager	ncy	WSP	Analysis Year		2020
Juris	diction		Time Period /	Analyzed	AM Peak Hour
Proje	ect Description	CR 519, CO 620 to Brookfield Dr	Unit		United States Customa
		5	Segment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	11	Shoulder Wic	lth, ft	5
Spee	ed Limit, mi/h	50	Access Point	Density, pts/mi	2.0
Der	mand and Capacity				
Dire	ctional Demand Flow Rate, veh/h	321	Opposing De	mand Flow Rate, veh/h	245
Peak	Hour Factor	0.85	Total Trucks,	%	2.00
Segr	Segment Capacity, veh/h 1700		Demand/Cap	acity (D/C)	0.19
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Sp	eed, mi/h	55.1
Spee	ed Slope Coefficient	3.30909	Speed Power	Coefficient	0.52759
PF SI	lope Coefficient	-1.24167	PF Power Coe	efficient	0.79289
In Pa	assing Lane Effective Length?	No	Total Segmer	nt Density, veh/mi/ln	2.4
%lm	proved % Followers	0.0	% Improved	Avg Speed	0.0
Suk	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.6
Veł	nicle Results				
Aver	age Speed, mi/h	53.6	Percent Follo	wers, %	39.6
Segr	nent Travel Time, minutes	1.12	Followers De	Followers Density, followers/mi/ln	
Vehicle LOS		A			

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HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Agei	псу	WSP	Analysis Year		2020
Juris	diction		Time Period A	Analyzed	AM Peak Hour
Proje	ect Description	CR 519, CO 620 to Brookfield Dr	Unit		United States Customar
		9	Segment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	e Width, ft	11	Shoulder Wic	lth, ft	5
Spee	ed Limit, mi/h	50	Access Point	Density, pts/mi	2.0
Dei	mand and Capacity				
Dire	ctional Demand Flow Rate, veh/h	239	Opposing De	mand Flow Rate, veh/h	314
Peak	Hour Factor	0.87	Total Trucks, S	%	2.00
Segr	Segment Capacity, veh/h 1700		Demand/Cap	acity (D/C)	0.14
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Sp	eed, mi/h	55.1
Spee	ed Slope Coefficient	3.33055	Speed Power	Coefficient	0.51240
PF S	lope Coefficient	-1.25564	PF Power Coe	efficient	0.78856
In Pa	assing Lane Effective Length?	No	Total Segmer	t Density, veh/mi/ln	1.5
%lm	proved % Followers	0.0	% Improved /	Avg Speed	0.0
Sub	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.9
Veł	nicle Results			•	
Average Speed, mi/h 53.9		53.9	Percent Follo	wers, %	33.4
Segr	nent Travel Time, minutes	1.11	Followers De	nsity, followers/mi/ln	1.5
Vehicle LOS		A			

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HCS7 Two-Lane	Highway Report
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Pro	ject Information					
Anal	yst	MAA		Date		6/16/2020
Ager	псу	WSP		Analysis Year		2020
Juris	diction			Time Period Analy	vzed	PM Peak Hour
Project Description		CR 519, CO 620 to Brookfield Dr		Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segment Type		Passing Zone	Passing Zone			5280
Lane	Width, ft	11		Shoulder Width, f	t	5
Spee	ed Limit, mi/h	50	50 Access Point Dens		sity, pts/mi	2.0
Der	mand and Capacity					
Dired	tional Demand Flow Rate, veh/h	325	325 C		d Flow Rate, veh/h	254
Peak Hour Factor		0.91		Total Trucks, %		2.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.19
Inte	ermediate Results					
Segment Vertical Class		1		Free-Flow Speed, mi/h		55.1
Speed Slope Coefficient		3.31209		Speed Power Coefficient		0.52540
PF Slope Coefficient		-1.24368		PF Power Coefficient		0.79228
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.4
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
# Segment Type		Length, ft Rad		lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.6
Veh	icle Results				-	
Average Speed, mi/h		53.6 Per		Percent Followers, %		40.0
Segment Travel Time, minutes		1.12		Followers Density, followers/mi/ln		2.4
Vehi	cle LOS	A				
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Pro	ject Information					
Anal	yst	MAA		Date		6/16/2020
Ager	псу	WSP		Analysis Year		2020
Juris	diction			Time Period Analy	PM Peak Hour	
Project Description		CR 519, CO 620 to Brookfield Dr		Unit		United States Customary
		S	egm	nent 1		
Veh	icle Inputs					
Segment Type		Passing Zone	Passing Zone			5280
Lane	Width, ft	11		Shoulder Width, f	t	5
Spee	d Limit, mi/h	50		Access Point Density, pts/mi		2.0
Der	mand and Capacity					
Directional Demand Flow Rate, veh/h		257	257		d Flow Rate, veh/h	329
Peak Hour Factor		0.90		Total Trucks, %		2.00
Segment Capacity, veh/h		1700		Demand/Capacity (D/C)		0.15
Inte	ermediate Results					
Segment Vertical Class		1		Free-Flow Speed, mi/h		55.1
Speed Slope Coefficient		3.33492		Speed Power Coefficient		0.50943
PF Slope Coefficient		-1.25836		PF Power Coefficient		0.78770
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		1.7
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
# Segment Type		Length, ft	Length, ft Radius, ft		Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.8
Veh	icle Results				•	
Average Speed, mi/h 53.		53.8	3.8 Percent Follower		, %	35.0
Segn	nent Travel Time, minutes	1.11		Followers Density, followers/mi/ln		1.7
Vehi	cle LOS	A				
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Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Ager	псу	WSP	Analysis Year		2020
Juris	diction		Time Period Anal	yzed	AM Peak Hour
Project Description		CR 519, Reeder Rd to G Mill Rd	rist Unit		United States Customary
		Se	gment 1		
Veł	icle Inputs				
Segment Type		Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Width,	ft	6
Spee	d Limit, mi/h	50	Access Point Den	sity, pts/mi	5.0
Der	mand and Capacity				
Directional Demand Flow Rate, veh/h		405	Opposing Demar	nd Flow Rate, veh/h	380
Peak Hour Factor		0.92	Total Trucks, %		7.00
Segment Capacity, veh/h		1700	Demand/Capacit	y (D/C)	0.24
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Speed,	mi/h	55.2
Speed Slope Coefficient		3.35364	Speed Power Coe	efficient	0.50009
PF Slope Coefficient		-1.26602	PF Power Coeffic	ient	0.78590
In Pa	ssing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	3.5
%lm	proved % Followers	0.0	% Improved Avg	Speed	0.0
Sub	osegment Data				
# Segment Type		Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.4
Veł	icle Results				
Average Speed, mi/h 5		53.4	Percent Followers	5, %	46.4
Segr	nent Travel Time, minutes	1.12	Followers Density	/, followers/mi/ln	3.5
Vehi	cle LOS	В			
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### Project Information

Pro	ject Information					
Analy	vst	MAA	Dat	te		6/16/2020
Agen	су	WSP	Ana	alysis Year		2020
Juriso	diction		Tim	Time Period Analyzed		AM Peak Hour
Project Description		CR 519, Reeder Rd to G Mill Rd	rist Uni	Unit		United States Customary
		Se	gmen	nt 1		
Veh	icle Inputs					
Segment Type		Passing Zone		Length, ft		5280
Lane	Width, ft	12	12 Shoulder Wid		t	6
Spee	d Limit, mi/h	50	Acc	cess Point Dens	ity, pts/mi	5.0
Der	nand and Capacity					
Directional Demand Flow Rate, veh/h		380	Ор	Opposing Demand Flow Rate, veh/h		405
Peak Hour Factor		0.92	Tot	Total Trucks, %		7.00
Segment Capacity, veh/h		1700	Dei	Demand/Capacity (D/C)		0.22
Inte	ermediate Results					
Segment Vertical Class		1	Fre	Free-Flow Speed, mi/h		55.2
Speed Slope Coefficient		3.36018	Spe	Speed Power Coefficient		0.49595
PF SI	ope Coefficient	-1.26981	PF	PF Power Coefficient		0.78463
In Pa	ssing Lane Effective Length?	No	Tot	Total Segment Density, veh/mi/ln		3.2
%lmp	proved % Followers	0.0	%	% Improved Avg Speed		0.0
Sub	segment Data	÷				
# Segment Type		Length, ft	Radius, t	ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.4
Veh	icle Results					
Average Speed, mi/h 53.4		53.4	Per	Percent Followers, %		44.8
Segn	nent Travel Time, minutes	1.12	Fol	Followers Density, followers/mi/ln		3.2
Vehio	cle LOS	В				

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## Project Information

Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Ager	псу	WSP	Analysis Year		2020
Juris	diction		Time Period Ana	lyzed	PM Peak Hour
Proje	ect Description	CR 519, Reeder Rd to G Mill Rd	rist Unit		United States Customary
		Se	gment 1		
Veł	icle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Width,	ft	6
Spee	d Limit, mi/h	50	Access Point Der	nsity, pts/mi	5.0
Der	mand and Capacity				
Dire	tional Demand Flow Rate, veh/h	475	Opposing Dema	nd Flow Rate, veh/h	484
Peak	Hour Factor	0.92	Total Trucks, %		3.00
Segr	nent Capacity, veh/h	1700	Demand/Capaci	ty (D/C)	0.28
Inte	ermediate Results				
Segr	nent Vertical Class	1	Free-Flow Speed	l, mi/h	55.4
Spee	d Slope Coefficient	3.38665	Speed Power Co	efficient	0.48428
PF S	ope Coefficient	-1.28029	PF Power Coeffic	cient	0.78074
In Pa	ssing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	4.6
%lm	proved % Followers	0.0	% Improved Avg	J Speed	0.0
Sub	osegment Data		-		
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.2
Veł	icle Results				1
Aver	age Speed, mi/h	53.2	Percent Follower	rs, %	51.1
Segr	nent Travel Time, minutes	1.13	Followers Densit	y, followers/mi/ln	4.6
Vehi	cle LOS	В			
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## Project Information

Pro	ject Information					
Anal	yst	MAA	Date		6/16/2020	
Ager	псу	WSP	Analysis Year		2020	
Juris	diction		Time Period Anal	yzed	PM Peak Hour	
Proje	ect Description	CR 519, Reeder Rd to G Mill Rd	rist Unit		United States Customary	
		Se	gment 1			
Veł	icle Inputs					
Segr	nent Type	Passing Zone	Length, ft		5280	
Lane	Width, ft	12	Shoulder Width,	ft	6	
Spee	d Limit, mi/h	50	Access Point Den	sity, pts/mi	5.0	
Der	nand and Capacity					
Dire	tional Demand Flow Rate, veh/h	484	Opposing Demar	nd Flow Rate, veh/h	475	
Peak	Hour Factor	0.92	Total Trucks, %		3.00	
Segr	nent Capacity, veh/h	1700	Demand/Capacit	y (D/C)	0.28	
Inte	ermediate Results					
Segr	nent Vertical Class	1	Free-Flow Speed,	mi/h	55.4	
Spee	d Slope Coefficient	3.38460	Speed Power Coe	efficient	0.48549	
PF SI	ope Coefficient	-1.27920	PF Power Coeffic	ent	0.78113	
In Pa	ssing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	4.7	
%lm	proved % Followers	0.0	% Improved Avg	Speed	0.0	
Sub	osegment Data		-			
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-	-	53.2	
Veł	icle Results					
Aver	age Speed, mi/h	53.2	Percent Followers	5, %	51.6	
Segr	nent Travel Time, minutes	1.13	Followers Density	ı, followers/mi/ln	4.7	
Vehi	cle LOS	В				
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HCS7 Two-Lane	Highway Report
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Proj	ect Information					
Analy	st	MAA		Date		6/17/2020
Ageno	су	WSP		Analysis Year		2020
Jurisd	liction			Time Period Analy	rzed	AM Peak Hour
Projec	ct Description	CR 519, Fairway Rd to Hillside Ave		Unit		United States Customary
		Se	egm	ent 1		
Vehi	icle Inputs					
Segm	ent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	5
Speec	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Den	nand and Capacity					
Direct	tional Demand Flow Rate, veh/h	210		Opposing Demand Flow Rate, veh/h		323
Peak I	Hour Factor	0.78		Total Trucks, %		3.00
Segm	ent Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.12
Inte	rmediate Results					
Segm	ent Vertical Class	1		Free-Flow Speed,	mi/h	54.9
Speec	d Slope Coefficient	3.32061		Speed Power Coe	fficient	0.51056
PF Slc	ope Coefficient	-1.25807		PF Power Coefficient		0.78748
In Pas	sing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		1.2
%lmp	roved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Radiu	us, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-		53.8
Vehi	icle Results	·	-		•	
Avera	ge Speed, mi/h	53.8		Percent Followers	, %	30.8
Segm	ent Travel Time, minutes	1.11		Followers Density, followers/mi/ln		1.2
Vehic	le LOS	A				

HCS 1 Two-Lane Version 7.8.5

HCS - midblock south of 01\_AM\_NB.xuf

HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Anal	yst	ΜΑΑ	Date		6/17/2020
Ager	су	WSP	Analysis Year		2020
Juris	diction		Time Period	Analyzed	AM Peak Hour
Proje	ect Description	CR 519, Fairway Rd Hillside Ave	to Unit		United States Customa
			Segment 1		
Veh	nicle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Wi	dth, ft	5
Spee	ed Limit, mi/h	50	Access Point	Density, pts/mi	4.0
Der	mand and Capacity				
Dired	ctional Demand Flow Rate, veh/h	271	Opposing De	emand Flow Rate, veh/h	176
Peak	Hour Factor	0.93	Total Trucks,	%	3.00
Segn	nent Capacity, veh/h	1700	Demand/Ca	pacity (D/C)	0.16
Inte	ermediate Results				
Segn	nent Vertical Class	1	Free-Flow Sp	peed, mi/h	54.9
Spee	ed Slope Coefficient	3.27194	Speed Powe	r Coefficient	0.54619
PF SI	ope Coefficient	-1.22523	PF Power Co	efficient	0.79744
In Pa	ssing Lane Effective Length?	No	Total Segme	nt Density, veh/mi/ln	1.8
%lm	proved % Followers	0.0	% Improved	Avg Speed	0.0
Suk	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.7
Veh	nicle Results				
Aver	age Speed, mi/h	53.7	Percent Follo	owers, %	35.1
Segn	nent Travel Time, minutes	1.12	Followers De	ensity, followers/mi/ln	1.8
Vehicle LOS		A			

HCS 1 Two-Lane Version 7.8.5 HCS - midblock south of 01\_AM\_SB.xuf

HCS7 Two-Lane	Highway Report
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Pro	ject Information					
Anal	yst	MAA		Date		6/17/2020
Ager	су	WSP		Analysis Year		2020
Juris	diction			Time Period Analy	vzed	PM Peak Hour
Proje	ect Description	CR 519, Fairway Rd to Hillside Ave		Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	5
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Der	mand and Capacity					
Direc	tional Demand Flow Rate, veh/h	418	418		d Flow Rate, veh/h	277
Peak	Hour Factor	0.78		Total Trucks, %		3.00
Segn	nent Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.25
Inte	ermediate Results					
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	54.9
Spee	d Slope Coefficient	3.30679		Speed Power Coe	fficient	0.52014
PF SI	ope Coefficient	-1.24924		PF Power Coefficient		0.79024
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/In		3.7
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-		53.1
Veh	icle Results	·			·	
Aver	age Speed, mi/h	53.1		Percent Followers	, %	46.6
Segn	nent Travel Time, minutes	1.13		Followers Density	, followers/mi/ln	3.7
Vehi	cle LOS	В				
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HCS7 Two-Lane	Highway Report
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Project Information	ו				
Analyst	MAA		Date		6/17/2020
Agency	WSP		Analysis Year		2020
Jurisdiction			Time Period Analy	/zed	PM Peak Hour
Project Description	CR 519, Fain Hillside Ave	way Rd to	Unit		United States Customary
		Seg	ment 1		
Vehicle Inputs					
Segment Type	Passing Zon	e	Length, ft		5280
Lane Width, ft	12		Shoulder Width, f	t	5
Speed Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Demand and Capac	ity				
Directional Demand Flow R	ate, veh/h 248	248		d Flow Rate, veh/h	375
Peak Hour Factor	0.87	0.87			3.00
Segment Capacity, veh/h	1700		Demand/Capacity	/ (D/C)	0.15
Intermediate Resul	ts				
Segment Vertical Class	1	1		mi/h	54.9
Speed Slope Coefficient	3.33494		Speed Power Coe	fficient	0.50108
PF Slope Coefficient	-1.26680	-1.26680		ent	0.78467
In Passing Lane Effective Le	ngth? No		Total Segment Density, veh/mi/ln		1.6
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	R	adius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	53.6
Vehicle Results					
Average Speed, mi/h	53.6		Percent Followers, %		34.6
Segment Travel Time, minu	tes 1.12		Followers Density	Followers Density, followers/mi/ln	
Vehicle LOS	A				

HCS M Two-Lane Version 7.8.5

HCS - midblock south of 01\_PM\_SB.xuf

## **Project Information**

Pro	ject Information				
Analy	vst	MAA	Date		6/16/2020
Agen	су	WSP	Analysis Year		2020
Juriso	diction		Time Period A	Analyzed	AM Peak Hour
Proje	ect Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary
		Se	gment 1		
Veh	icle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Wic	lth, ft	3
Spee	d Limit, mi/h	45	Access Point	Density, pts/mi	8.0
Der	nand and Capacity				
Direc	tional Demand Flow Rate, veh/h	238	Opposing De	mand Flow Rate, veh/h	188
Peak	Hour Factor	0.92	Total Trucks,	%	6.00
Segn	nent Capacity, veh/h	1700	Demand/Cap	acity (D/C)	0.14
Inte	ermediate Results				
Segn	nent Vertical Class	1	Free-Flow Sp	eed, mi/h	46.7
Spee	d Slope Coefficient	2.83200	Speed Power	Coefficient	0.54268
PF SI	ope Coefficient	-1.24283	PF Power Coe	efficient	0.77043
In Pa	ssing Lane Effective Length?	No	Total Segmer	nt Density, veh/mi/ln	1.8
%lmp	proved % Followers	0.0	% Improved /	Avg Speed	0.0
Sub	segment Data	·			
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.7
Veh	icle Results				
Avera	age Speed, mi/h	45.7	Percent Follo	wers, %	33.7
Segn	nent Travel Time, minutes	1.31	Followers Der	nsity, followers/mi/ln	1.8
Vehio	cle LOS	A			

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HCS TM Two-Lane Version 7.8.5 HCS - midblock 07-08\_AM\_EB.xuf

## Project Information

Pro	ject Information					
Analy	vst	MAA	Date	Date		6/16/2020
Agen	су	WSP	Ana	alysis Year		2020
Juriso	diction		Tim	e Period Analy	vzed	AM Peak Hour
Proje	ct Description	CR 632, Shurts Rd to Ha Mill Rd	alls Unit	t		United States Customary
		Se	gmen	t 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone	Len	gth, ft		5280
Lane	Width, ft	12	Sho	oulder Width, f	t	3
Spee	d Limit, mi/h	45	Acc	ess Point Dens	sity, pts/mi	8.0
Der	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	188	Орр	Opposing Demand Flow Rate, veh/h		238
Peak	Hour Factor	0.92	Tota	Total Trucks, %		6.00
Segn	nent Capacity, veh/h	1700	Den	Demand/Capacity (D/C)		0.11
Inte	ermediate Results					
Segn	nent Vertical Class	1	Free	e-Flow Speed,	mi/h	46.7
Spee	d Slope Coefficient	2.84978	Spe	ed Power Coe	fficient	0.52922
PF SI	ope Coefficient	-1.25634	PF F	PF Power Coefficient		0.76680
In Pa	ssing Lane Effective Length?	No	Tota	Total Segment Density, veh/mi/ln		1.2
%lmp	proved % Followers	0.0	% Ir	% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Radius, f	t	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	45.9
Veh	icle Results				·	
Avera	age Speed, mi/h	45.9	Perc	Percent Followers, %		29.4
Segn	nent Travel Time, minutes	1.31	Foll	Followers Density, followers/mi/ln		1.2
Vehic	le LOS	A				

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HCS 1 Two-Lane Version 7.8.5

HCS - midblock 07-08\_AM\_WB.xuf

## **Project Information**

Pro	ject Information				
Analy	vst	MAA	Date		6/16/2020
Agen	су	WSP	Analysis Year		2020
Jurisc	liction		Time Period Ana	alyzed	PM Peak Hour
Proje	ct Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary
		Se	gment 1		
Veh	icle Inputs				
Segm	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Width	, ft	3
Spee	d Limit, mi/h	45	Access Point De	nsity, pts/mi	8.0
Den	nand and Capacity				
Direc	tional Demand Flow Rate, veh/h	228	Opposing Dema	and Flow Rate, veh/h	290
Peak	Hour Factor	0.92	Total Trucks, %		4.00
Segn	nent Capacity, veh/h	1700	Demand/Capac	ity (D/C)	0.13
Inte	ermediate Results				
Segn	nent Vertical Class	1	Free-Flow Speed	d, mi/h	46.8
Spee	d Slope Coefficient	2.87005	Speed Power Co	pefficient	0.51726
PF Slo	ope Coefficient	-1.26875	PF Power Coeffi	cient	0.76342
In Pa	ssing Lane Effective Length?	No	Total Segment I	Density, veh/mi/ln	1.7
%lmp	proved % Followers	0.0	% Improved Ave	g Speed	0.0
Sub	segment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.8
Veh	icle Results				
Avera	age Speed, mi/h	45.8	Percent Followe	rs, %	33.7
Segm	nent Travel Time, minutes	1.31	Followers Densi	ty, followers/mi/ln	1.7
	le LOS	A			

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HCSTM Two-Lane Version 7.8.5 HCS - midblock 07-08\_PM\_EB.xuf

## Project Information

Pro	ject Information				
Analy	vst	MAA	Date		6/16/2020
Ager	су	WSP	Analysis Year		2020
Juriso	diction		Time Period An	alyzed	PM Peak Hour
Proje	ect Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary
		Se	gment 1		
Veh	icle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Width	n, ft	3
Spee	d Limit, mi/h	45	Access Point De	ensity, pts/mi	8.0
Der	nand and Capacity				
Direc	tional Demand Flow Rate, veh/h	290	Opposing Dem	and Flow Rate, veh/h	228
Peak	Hour Factor	0.92	Total Trucks, %		4.00
Segn	nent Capacity, veh/h	1700	Demand/Capac	ity (D/C)	0.17
Inte	ermediate Results				
Segn	nent Vertical Class	1	Free-Flow Spee	d, mi/h	46.8
Spee	d Slope Coefficient	2.85007	Speed Power C	oefficient	0.53168
PF SI	ope Coefficient	-1.25407	PF Power Coeff	icient	0.76740
In Pa	ssing Lane Effective Length?	No	Total Segment	Density, veh/mi/ln	2.4
%lm	proved % Followers	0.0	% Improved Av	g Speed	0.0
Sub	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	45.6
Veh	icle Results	· · · ·		·	·
Avera	age Speed, mi/h	45.6	Percent Followe	ers, %	38.4
Segn	nent Travel Time, minutes	1.32	Followers Dens	ity, followers/mi/ln	2.4
Vehio	cle LOS	A			

HCS 1 Two-Lane Version 7.8.5 HCS - midblock 07-08\_PM\_WB.xuf 2045 NO-BUILD INTERSECTION ANALYSIS

# Lanes, Volumes, Timings 3: RT 519 & US 46

	≯	-	$\mathbf{r}$	-	-	*	1	1	1	1	↓	-
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
ane Configurations		\$			\$			र्च	1		र्च	i
Traffic Volume (vph)	20	241	22	48	161	39	31	206	58	84	158	1
-uture Volume (vph)	20	241	22	48	161	39	31	206	58	84	158	1
Satd. Flow (prot)	0	1835	0	0	1800	0	0	1848	1583	0	1833	158
It Permitted		0.950			0.852			0.762			0.551	
Satd. Flow (perm)	0	1750	0	0	1547	0	0	1419	1583	0	1026	158
Satd. Flow (RTOR)		10			25				81			6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.71	0.76	0.69	0.80	0.77	0.65	0.78	0.94	0.85	0.91	0.84	0.5
Growth Factor	119%	119%	119%	119%	119%	119%	119%	119%	119%	119%	119%	1199
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	29
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)												
Vid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
ane Group Flow (vph)	0	449	0	0	391	0	0	308	81	0	334	4
Furn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perr
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Fotal Split (s)	47.0	47.0		47.0	47.0		25.0	25.0	25.0	25.0	25.0	25.
Fotal Lost Time (s)		7.0			7.0			5.0	5.0		5.0	5.
Act Effct Green (s)		40.0			40.0			20.0	20.0		20.0	20.
Actuated g/C Ratio		0.56			0.56			0.28	0.28		0.28	0.2
//c Ratio		0.46			0.45			0.78	0.16		1.17	0.0
Control Delay		11.2			10.8			40.3	6.3		136.6	4.
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.
Fotal Delay		11.2			10.8			40.3	6.3		136.6	4.
_OS		В			В			D	А		F	
Approach Delay		11.2			10.8			33.2			121.5	
pproach LOS		В			В			С			F	
ntersection Summary												
Cycle Length: 72												
Actuated Cycle Length: 72												
Control Type: Semi Act-Unco	oord											
Maximum v/c Ratio: 1.17												
ntersection Signal Delay: 42					tersectio							
ntersection Capacity Utilizat	ion 77.9%	)		IC	CU Level	of Service	e D					
Analysis Period (min) 15												

#### Splits and Phases: 3: RT 519 & US 46

₹ Ø2	<u></u> ø₄
25 s	47 s
<b>₽</b> Ø6	<b>₩</b> Ø8
25 s	47 s

Synchro 10 Report Page 1

# Lanes, Volumes, Timings 3: RT 519 & US 46

	≯	-	$\mathbf{r}$	4	+	•	1	1	1	1	Ŧ	~
ane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SB
ane Configurations		\$			\$			र्च	1		र्च	
Fraffic Volume (vph)	23	168	17	32	270	63	35	169	44	99	179	3
uture Volume (vph)	23	168	17	32	270	63	35	169	44	99	179	3
Satd. Flow (prot)	0	1829	0	0	1801	0	0	1846	1583	0	1827	158
It Permitted		0.920			0.948			0.551			0.548	
Satd. Flow (perm)	0	1691	0	0	1715	0	0	1026	1583	0	1021	158
Satd. Flow (RTOR)		12			31				70			6
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.80	0.65	0.88	0.91	0.69	0.73	0.83	0.75	0.76	0.85	0.6
Growth Factor	119%	119%	119%	119%	119%	119%	119%	119%	119%	119%	119%	1199
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	29
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	
Parking (#/hr)												
Vid-Block Traffic (%)		0%			0%			0%			0%	
Shared Lane Traffic (%)												
ane Group Flow (vph)	0	314	0	0	505	0	0	299	70	0	406	6
Furn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Peri
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Fotal Split (s)	47.0	47.0		47.0	47.0		25.0	25.0	25.0	25.0	25.0	25.
Total Lost Time (s)		7.0			7.0			5.0	5.0		5.0	5.
Act Effct Green (s)		40.0			40.0			20.0	20.0		20.0	20.
Actuated g/C Ratio		0.56			0.56			0.28	0.28		0.28	0.2
//c Ratio		0.33			0.52			1.05	0.14		1.43	0.1
Control Delay		9.6			11.8			96.6	6.5		240.5	6.
Queue Delay		0.0			0.0			0.0	0.0		0.0	0.
Total Delay		9.6			11.8			96.6	6.5		240.5	6.
_OS		А			В			F	А		F	
Approach Delay		9.6			11.8			79.5			209.1	
Approach LOS		А			В			Е			F	
ntersection Summary												
Cycle Length: 72												
Actuated Cycle Length: 72												
Control Type: Semi Act-Unco	oord											
Maximum v/c Ratio: 1.43												
ntersection Signal Delay: 82	.3			Ir	ntersection	n LOS: F						
ntersection Capacity Utilizat	ion 78.1%	, D		IC	CU Level	of Service	e D					
Analysis Period (min) 15												

#### Splits and Phases: 3: RT 519 & US 46

₹ Ø2	<u></u> ø₄
25 s	47 s
<b>₽</b> Ø6	<b>₩</b> Ø8
25 s	47 s

Synchro 10 Report Page 1

#### HCM 2010 AWSC 3: CR 519 & CR 623

Intersection	
Intersection Delay, s/veh	21.3
Intersection LOS	С

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	48	149	8	36	90	32	5	169	44	30	109	30
Future Vol, veh/h	48	149	8	36	90	32	5	169	44	30	109	30
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	73	261	12	55	158	49	8	296	67	46	191	46
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	23.3			17.7			24.1			18.6		
HCM LOS	С			С			С			С		

Lane	NBLn1	EBLn1	WBLn1	SBLn1	
Vol Left, %	2%	23%	23%	18%	
Vol Thru, %	78%	73%	57%	64%	
Vol Right, %	20%	4%	20%	18%	
Sign Control	Stop	Stop	Stop	Stop	
Traffic Vol by Lane	218	205	158	169	
LT Vol	5	48	36	30	
Through Vol	169	149	90	109	
RT Vol	44	8	32	30	
Lane Flow Rate	370	346	261	282	
Geometry Grp	1	1	1	1	
Degree of Util (X)	0.698	0.672	0.518	0.554	
Departure Headway (Hd)	6.782	6.991	7.151	7.065	
Convergence, Y/N	Yes	Yes	Yes	Yes	
Сар	533	515	504	511	
Service Time	4.841	5.052	5.219	5.13	
HCM Lane V/C Ratio	0.694	0.672	0.518	0.552	
HCM Control Delay	24.1	23.3	17.7	18.6	
HCM Lane LOS	С	С	С	С	
HCM 95th-tile Q	5.4	5	2.9	3.3	

Intersection	
Intersection Delay, s/veh	58.8
Intersection LOS	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Traffic Vol, veh/h	31	114	13	41	206	31	22	111	31	43	181	52
Future Vol, veh/h	31	114	13	41	206	31	22	111	31	43	181	52
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	200	20	62	361	47	33	194	47	65	317	79
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	26.6			82.5			27.1			72.1		
HCM LOS	D			F			D			F		

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	13%	20%	15%	16%
Vol Thru, %	68%	72%	74%	66%
Vol Right, %	19%	8%	11%	19%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	164	158	278	276
LT Vol	22	31	41	43
Through Vol	111	114	206	181
RT Vol	31	13	31	52
Lane Flow Rate	275	266	470	461
Geometry Grp	1	1	1	1
Degree of Util (X)	0.652	0.64	1.041	1.002
Departure Headway (Hd)	8.888	8.985	8.082	8.122
Convergence, Y/N	Yes	Yes	Yes	Yes
Сар	410	405	451	452
Service Time	6.888	6.985	6.082	6.122
HCM Lane V/C Ratio	0.671	0.657	1.042	1.02
HCM Control Delay	27.1	26.6	82.5	72.1
HCM Lane LOS	D	D	F	F
HCM 95th-tile Q	4.5	4.3	14.4	13

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Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	1	<b>†</b>	1		र्स	
Traffic Volume (veh/h)	216	11	192	259	11	202	
Future Volume (Veh/h)	216	11	192	259	11	202	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90	
Hourly flow rate (vph)	278	16	247	334	16	260	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		2					
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	539	247			247		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	539	247			247		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	44	98			99		
cM capacity (veh/h)	497	792			1319		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1			
Volume Total	294	247	334	276			
Volume Left	278	0	0	16			
Volume Right	16	0	334	0			
cSH	520	1700	1700	1319			
Volume to Capacity	0.57	0.15	0.20	0.01			
Queue Length 95th (ft)	87	0.15	0.20	1			
Control Delay (s)	20.6	0.0	0.0	0.6			
Lane LOS	20.0 C	0.0	0.0	A O.O			
	20.6	0.0		0.6			
Approach Delay (s) Approach LOS	20.0 C	0.0		0.0			
Appidacii LOS	C						
Intersection Summary							
Average Delay			5.4				
Intersection Capacity Utiliz	ation		43.3%	IC	U Level (	of Service	
Analysis Period (min)			15				

	4	•	1	1	1	Ļ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	ሻ	1	1	1		र्स	
Traffic Volume (veh/h)	314	11	290	328	8	242	
Future Volume (Veh/h)	314	11	290	328	8	242	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90	
Hourly flow rate (vph)	405	16	374	423	12	312	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		2					
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	710	374			374		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	710	374			374		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	98			99		
cM capacity (veh/h)	396	672			1184		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1			
Volume Total	421	374	423	324			
Volume Left	405	0	0	12			
Volume Right	16	0	423	0			
cSH	404	1700	1700	1184			
Volume to Capacity	1.04	0.22	0.25	0.01			
Queue Length 95th (ft)	342	0.22	0	1			
Control Delay (s)	88.6	0.0	0.0	0.4			
Lane LOS	60.0	0.0	0.0	0.4 A			
Approach Delay (s)	88.6	0.0		0.4			
Approach LOS	60.0 F	0.0		0.4			
Intersection Summary							
Average Delay			24.3				
Intersection Capacity Utiliz	ation		49.1%	IC	U Level (	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲			र्स	4Î	
Traffic Volume (veh/h)	4	0	0	433	486	6
Future Volume (Veh/h)	4	0	0	433	486	6
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	6	0	0	558	626	9
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				NOTIC	NONC	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1188	630	635			
vC1, stage 1 conf vol	1100	030	035			
vC2, stage 2 conf vol						
vCu, unblocked vol	1188	630	635			
	6.4	6.2	035 4.1			
tC, single (s)	0.4	0.2	4.1			
tC, 2 stage (s)	2 5	2.2	2.2			
tF (s)	3.5	3.3	2.2			
p0 queue free %	97	100	100			
cM capacity (veh/h)	208	481	958			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	6	558	635			
Volume Left	6	0	0			
Volume Right	0	0	9			
cSH	208	958	1700			
Volume to Capacity	0.03	0.00	0.37			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	22.8	0.0	0.0			
Lane LOS	С					
Approach Delay (s)	22.8	0.0	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	ation		40.1%	IC	CU Level o	of Service
	allUII			IC		
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	ef 🗧	
Traffic Volume (veh/h)	3	1	2	499	529	7
Future Volume (Veh/h)	3	1	2	499	529	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	4	1	3	643	682	10
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1336	687	692			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1336	687	692			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	98	100	100			
cM capacity (veh/h)	170	450	912			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	5	646	692			
Volume Left	4	3	0			
Volume Right	1	0	10			
cSH	195	912	1700			
Volume to Capacity	0.03	0.00	0.41			
Queue Length 95th (ft)	2	0	0			
Control Delay (s)	24.0	0.1	0.0			
Lane LOS	C	A	0.0			
Approach Delay (s)	24.0	0.1	0.0			
Approach LOS	C	5.1	0.0			
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utiliz	zation		42.8%	10	CULevelo	of Service
Analysis Period (min)			42.070			
			IJ			

06/23/2020
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Interception						
Intersection						
Int Delay, s/veh	0.5					
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	۰¥		ef 👘			र्भ
Traffic Vol, veh/h	8	10	427	1	11	366
Future Vol, veh/h	8	10	427	1	11	366
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage	,# 0	-	0	-	-	0
Grade, %	. 0	-	0	-	-	0
Peak Hour Factor	80	80	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	12	15	538	1	14	461

Major/Minor	Minor1	N	lajor1	N	lajor2	
Conflicting Flow All	1028	539	0	0	539	0
Stage 1	539	-	-	-	-	-
Stage 2	489	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	259	542	-	-	1029	-
Stage 1	585	-	-	-	-	-
Stage 2	616	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	254	542	-	-	1029	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	605	-	-	-	-	-
Approach	WB		NB		SB	

Approach	WB	NB	SB
HCM Control Delay, s	15.8	0	0.2
HCM LOS	С		

Vinor Lane/Major Mvmt	NBT	NBRW	/BLn1	SBL	SBT
Capacity (veh/h)	-	-	360	1029	-
HCM Lane V/C Ratio	-	-	0.073	0.013	-
HCM Control Delay (s)	-	-	15.8	8.5	0
HCM Lane LOS	-	-	С	Α	Α
HCM 95th %tile Q(veh)	-	-	0.2	0	-

Intersection						
Int Delay, s/veh	0.9					
Movement	WBL		NDT		CDI	CDT
wovernent		WBR	NBT	NBR	SBL	SBT
Lane Configurations	- Y		ef 👘			- सी
Traffic Vol, veh/h	16	12	474	0	18	511
Future Vol, veh/h	16	12	474	0	18	511
Conflicting Peds, #/h	r 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 Storag	je,#0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	80	80	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	17	598	0	23	644

Major/Minor	Minor1	Μ	lajor1	Ν	/lajor2	
Conflicting Flow All	1288	598	0	0	598	0
Stage 1	598	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Critical Hdwy	6.42	6.22	-	-	4.12	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	-	-	2.218	-
Pot Cap-1 Maneuver	181	502	-	-	979	-
Stage 1	549	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	174	502	-	-	979	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	549	-	-	-	-	-
Stage 2	480	-	-	-	-	-
Approach	WB		NB		SB	

Approach	WB	NB	SB
HCM Control Delay, s	22.9	0	0.3
HCM LOS	С		

Vinor Lane/Major Mvmt	NBT	NBRWB	SLn1	SBL	SBT
Capacity (veh/h)	-	-	242	979	-
HCM Lane V/C Ratio	-	- 0.	.168	0.023	-
HCM Control Delay (s)	-	- 2	22.9	8.8	0
HCM Lane LOS	-	-	С	Α	Α
HCM 95th %tile Q(veh)	-	-	0.6	0.1	-

HCM Unsignalized Intersection Capacity Analysis 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd

3: CR 519 Belvide			•			Rd/CR	622 F	loxbur	y Hill F	Rd	07/2	4/2020
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			4			4	
Traffic Volume (veh/h)	16	1	6	7	1	10	8	444	3	1	415	11
Future Volume (Veh/h)	16	1	6	7	1	10	8	444	3	1	415	11
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	23	1	9	10	1	15	12	577	4	1	540	16
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												_
Right turn flare (veh)								<b>.</b> .				
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked	44/0	4455	E 40	11/0	44/4	530	FF (			504		
vC, conflicting volume	1168	1155	548	1162	1161	579	556			581		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol	11/0	1155	F 40	11/0	11/1	570				F01		
vCu, unblocked vol	1168	1155	548	1162	1161	579	556			581		
tC, single (s)	7.2	6.5	6.5	7.2	6.5	6.3	4.2			4.1		
tC, 2 stage (s)	27	4.0	27	27	4.0	2.4	2.2			2.2		
tF (s)	3.6 86	4.0	3.6 98	3.6 94	4.0 99	3.4 97	2.3 99			2.2		
p0 queue free %		99 104								100		
cM capacity (veh/h)	160	196	486	157	194	500	976			1003		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	33	26	593	557								
Volume Left	23	10	12	1								
Volume Right	9	15	4	16								_
cSH	197	264	976	1003								
Volume to Capacity	0.17	0.10	0.01	0.00								
Queue Length 95th (ft)	15	8	1	0								
Control Delay (s)	26.9	20.2	0.3	0.0								
Lane LOS	D	C	A	A								
Approach Delay (s)	26.9	20.2	0.3	0.0								
Approach LOS	D	С										
Intersection Summary												
Average Delay			1.3									
Intersection Capacity Utiliz	ation		44.6%	IC	U Level	of Service			А			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: CR 519 Belvider	e Rd &	CR 62	2 Rox	bury S	tation	Rd/CR	622 F	Roxbur	y Hill F	Rd	07/2	4/2020
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			\$			\$			4	
Traffic Volume (veh/h)	20	1	23	4	1	1	12	501	3	4	385	18
Future Volume (Veh/h)	20	1	23	4	1	1	12	501	3	4	385	18
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	29	1	34	6	1	1	18	651	4	6	501	26
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	1216	1217	514	1250	1228	653	527			655		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1216	1217	514	1250	1228	653	527			655		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.6			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.7			2.2		
p0 queue free %	81	99	94	96	99	100	98			99		
cM capacity (veh/h)	151	177	557	138	175	471	836			942		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	64	8	673	533								
Volume Left	29	6	18	6								
Volume Right	34	1	4	26								
cSH	248	156	836	942								
Volume to Capacity	0.26	0.05	0.02	0.01								
Queue Length 95th (ft)	25	4	2	0								
Control Delay (s)	24.5	29.3	0.6	0.2								
Lane LOS	С	D	А	А								
Approach Delay (s)	24.5	29.3	0.6	0.2								
Approach LOS	С	D										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utiliza	tion		49.8%	IC	U Level	of Service			А			
Analysis Period (min)			15									

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٢	<b>≜</b>	4Î		
Traffic Volume (veh/h)	7	54	45	361	389	7	
Future Volume (Veh/h)	7	54	45	361	389	7	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80	
Hourly flow rate (vph)	10	78	65	465	501	10	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1101	506	511				
vC1, stage 1 conf vol			011				
vC2, stage 2 conf vol							
vCu, unblocked vol	1101	506	511				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	95	86	94				
cM capacity (veh/h)	220	566	1065				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	88	65	465	511			
Volume Left	10	65	0	0			
Volume Right	78	0	0	10			
cSH	481	1065	1700	1700			
Volume to Capacity	0.18	0.06	0.27	0.30			
Queue Length 95th (ft)	17	5	0.27	0.50			
Control Delay (s)	14.2	8.6	0.0	0.0			
Lane LOS	B	A	0.0	0.0			
Approach Delay (s)	14.2	1.1		0.0			
Approach LOS	B	1.1		0.0			
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utiliz	ation		41.9%	IC	CU Level o	of Sorvice	
	.อ.เบท			IC	O Level (	JI SEI VILE	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	Y		٢	<b>≜</b>	4Î		
Traffic Volume (veh/h)	14	66	97	426	453	8	
Future Volume (Veh/h)	14	66	97	426	453	8	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80	
Hourly flow rate (vph)	20	96	141	549	584	12	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1421	590	596				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1421	590	596				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	84	81	86				
cM capacity (veh/h)	129	508	990				
Direction, Lane #	EB 1	NB 1	NB 2	SB 1			
Volume Total	116	141	549	596			
Volume Left	20	141	0	0			
Volume Right	96	0	0	12			
cSH	337	990	1700	1700			
Volume to Capacity	0.34	0.14	0.32	0.35			
Queue Length 95th (ft)	37	12	0	0			
Control Delay (s)	21.2	9.2	0.0	0.0			
Lane LOS	С	A	010	010			
Approach Delay (s)	21.2	1.9		0.0			
Approach LOS	С	,		010			
Intersection Summary							
Average Delay			2.7				
Intersection Capacity Utiliz	ation		2.7 50.1%	IC	CU Level o	of Sorvico	
	allUH			IC	O Level (	J SEIVILE	
Analysis Period (min)			15				

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Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	Y		4Î			र्भ
Traffic Volume (veh/h)	2	151	276	7	260	257
Future Volume (Veh/h)	2	151	276	7	260	257
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	3	195	356	10	335	331
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1362	361			366	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1362	361			366	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	71			72	
cM capacity (veh/h)	118	677			1176	
Direction, Lane #	NB 1	NE 1	SW 1		-	
Volume Total	198	366	666			
Volume Left	3	0	335			
Volume Right	195	10	0			
cSH	632	1700	1176			
	0.31	0.22	0.28			
Volume to Capacity	33	0.22	0.28 30			
Queue Length 95th (ft)						
Control Delay (s)	13.3	0.0	6.3			
Lane LOS	B	0.0	A			
Approach Delay (s)	13.3	0.0	6.3			
Approach LOS	В					
Intersection Summary						
Average Delay			5.5			
Intersection Capacity Utilization	ation		70.7%	IC	CU Level	of Service
Analysis Period (min)			15			

07/24/2020

	*1	۲	×	4	¥	¥
Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	¥		4Î			र्भ
Traffic Volume (veh/h)	10	293	285	4	217	288
Future Volume (Veh/h)	10	293	285	4	217	288
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	15	378	367	6	280	371
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1301	370			373	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1301	370			373	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	89	44			76	
cM capacity (veh/h)	136	669			1169	
Direction, Lane #	NB 1	NE 1	SW 1			
Volume Total	393	373	651			
Volume Left	15	0	280			
Volume Right	378	6	0			
cSH	582	1700	1169			
Volume to Capacity	0.67	0.22	0.24			
Queue Length 95th (ft)	128	0	23			
Control Delay (s)	23.1	0.0	5.5			
Lane LOS	C	0.0	A			
Approach Delay (s)	23.1	0.0	5.5			
Approach LOS	C	0.0	0.0			
Intersection Summary						
Average Delay			8.9			
Intersection Capacity Utiliz	vation		80.9%	IC	`    <u>ovo</u> l i	of Service
Analysis Period (min)					O LEVEL	
Andiysis Penou (IIIII)			15			

#### Timings 3: CR 519 Uniontown Rd & NJ 57

	۶	-	4	-	1	1	1	ţ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		\$		\$		\$		\$	
Traffic Volume (vph)	29	307	24	250	31	79	3	101	
Future Volume (vph)	29	307	24	250	31	79	3	101	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		56.5		56.5		18.5		18.5	
Actuated g/C Ratio		0.63		0.63		0.21		0.21	
v/c Ratio		0.45		0.35		0.69		0.53	
Control Delay		10.9		9.8		40.4		33.6	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		10.9		9.8		40.4		33.6	
LOS		В		А		D		С	
Approach Delay		10.9		9.8		40.4		33.6	
Approach LOS		В		А		D		С	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Referenc	ed to pha	ise 4 FBT	T and 8.	NBTL St	art of Yel	low			
Natural Cycle: 80			L and on						
Control Type: Actuated-Coor	dinated								
Maximum v/c Ratio: 0.69									
Intersection Signal Delay: 19	.4			Ir	ntersectio	n LOS: B			
Intersection Capacity Utilizat		, 0			CU Level				
Analysis Period (min) 15									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

M Ø2		1
33 s	57 s	
Ø6	₩ Ø8 (R)	
33 s	57 s	

#### Timings 3: CR 519 Uniontown Rd & NJ 57

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		4	
Traffic Volume (vph)	27	228	82	277	29	213	3	124	
Future Volume (vph)	27	228	82	277	29	213	3	124	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?	C Max	C Mari	C Mari	C Mari	N //:	N //:	Min	N //:	
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		51.7 0.57		51.7 0.57		23.3 0.26		23.3 0.26	
Actuated g/C Ratio v/c Ratio		0.57		0.57		0.26		0.26	
Control Delay		12.2		15.7		0.85 50.0		28.7	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		12.2		15.7		50.0		28.7	
LOS		IZ.Z		15.7 B		50.0 D		20.7 C	
Approach Delay		12.2		15.7		50.0		28.7	
Approach LOS		IZ.Z		15.7 B		50.0 D		20.7 C	
		0		0		U		U	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Reference	ced to pha	ISE 4:EBI	L and 8:	NBIL, St	art of Yel	IOW			
Natural Cycle: 80	ام م ام م								
Control Type: Actuated-Coor Maximum v/c Ratio: 0.85	unated								
				1.	atorecatio	n LOS: C			
Intersection Signal Delay: 25 Intersection Capacity Utilizat		/				of Servic			
Analysis Period (min) 15	UUI 09.0%	0		I	JU Level	UI SEIVIC	τC		
Analysis renou (IIIII) 15									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

M Ø2		1
33 s	57 s	
Ø6	₩ Ø8 (R)	
33 s	57 s	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	7	1		र्स	eî.	
Traffic Volume (veh/h)	88	213	77	128	222	58
Future Volume (Veh/h)	88	213	77	128	222	58
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	128	309	112	165	286	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	717	328	370			
vC1, stage 1 conf vol	, . ,	020	010			
vC2, stage 2 conf vol						
vCu, unblocked vol	717	328	370			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	65	57	91			
cM capacity (veh/h)	362	718	1200			
Direction, Lane #	EB 1	EB 2		SB 1		
Volume Total	128		<u>NB 1</u> 277	370		
		309	112			
Volume Left	128	0		0		
Volume Right	0	309	0	84		
cSH Valuma ta Canacitu	362	718	1200	1700		
Volume to Capacity	0.35	0.43	0.09	0.22		
Queue Length 95th (ft)	39	54	8	0		
Control Delay (s)	20.3	13.7	3.9	0.0		
Lane LOS	C	В	A	0.0		
Approach Delay (s)	15.7		3.9	0.0		
Approach LOS	С					
Intersection Summary						
Average Delay			7.3			
Intersection Capacity Utiliza	ation		46.1%	IC	CU Level c	of Service
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲	1		र्स	4Î	
Traffic Volume (veh/h)	115	143	185	320	303	104
Future Volume (Veh/h)	115	143	185	320	303	104
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	167	207	268	412	391	151
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1414	466	542			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1414	466	542			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	66	74			
cM capacity (veh/h)	114	600	1037			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	167	207	680	542		
Volume Left	167	0	268	0		
Volume Right	0	207	0	151		
cSH	114	600	1037	1700		
Volume to Capacity	1.47	0.34	0.26	0.32		
Queue Length 95th (ft)	298	38	26	0		
Control Delay (s)	322.1	14.1	5.8	0.0		
Lane LOS	F	В	А			
Approach Delay (s)	151.6		5.8	0.0		
Approach LOS	F					
Intersection Summary						
			38.0			
Intersection Capacity Utiliz	zation		74.6%	IC	CU Level o	of Service
Analysis Period (min)			15			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	ሻ	1		<b>†</b>	1		
Traffic Volume (veh/h)	50	55	0	72	63	0	
Future Volume (Veh/h)	50	55	0	72	63	0	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	64	71	0	92	81	0	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		6					
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	173	81	81				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	173	81	81				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	92	93	100				
cM capacity (veh/h)	817	979	1517				
Direction, Lane #	EB 1	NB 1	SB 1				
Volume Total	135	92	81				
Volume Left	64	0	0				
Volume Right	71	0	0				
cSH	1723	1700	1700				
Volume to Capacity	0.08	0.05	0.05				
Queue Length 95th (ft)	6	0	0				
Control Delay (s)	9.4	0.0	0.0				
Lane LOS	А						
Approach Delay (s)	9.4	0.0	0.0				
Approach LOS	А						
Intersection Summary							
Average Delay			4.1				
Intersection Capacity Utiliz	ation		14.6%	IC	CU Level o	of Service	
Analysis Period (min)			15				
J							

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	٦	1		1	<b>†</b>	
Traffic Volume (veh/h)	52	40	0	88	24	0
Future Volume (Veh/h)	52	40	0	88	24	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	67	51	0	113	31	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	144	31	31			
vC1, stage 1 conf vol		01	01			
vC2, stage 2 conf vol						
vCu, unblocked vol	144	31	31			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)		0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	92	95	100			
cM capacity (veh/h)	849	1043	1582			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	118	113	31			
Volume Left	67	0	0			
Volume Right	51	0	0			
cSH	1494	1700	1700			
Volume to Capacity	0.08	0.07	0.02			
Queue Length 95th (ft)	6	0	0			
Control Delay (s)	9.2	0.0	0.0			
Lane LOS	А					
Approach Delay (s)	9.2	0.0	0.0			
Approach LOS	А					
Intersection Summary						
Average Delay			4.1			
Intersection Capacity Utiliz	zation		15.5%	IC	CU Level o	of Service
Analysis Period (min)			15			
			IC	CU Level (	of Service	

2045 NO-BUILD MID-BLOCK ANALYSIS

## sight Informatio

Pro	ject Information					
Anal	yst	MAA		Date		6/16/2020
Ager	igency WSP			Analysis Year	2020	
Jurisdiction				Time Period Analy	AM Peak Hour	
Project Description		CR 519, northeast of C 610	0	Unit		United States Customary
		Se	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Der	mand and Capacity					
Dired	tional Demand Flow Rate, veh/h	343		Opposing Deman	d Flow Rate, veh/h	291
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segn	nent Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.20
Inte	ermediate Results					
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	52.6
Speed Slope Coefficient		3.18564		Speed Power Coe	fficient	0.51703
PF Slope Coefficient		-1.25954		PF Power Coefficie	ent	0.78214
In Passing Lane Effective Length?		No		Total Segment De	nsity, veh/mi/ln	2.8
%Improved % Followers		0.0		% Improved Avg S	Speed	0.0
Sub	osegment Data					
# Segment Type		Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent 5280 -		-	-		51.0
Veh	icle Results					
Average Speed, mi/h		51.0		Percent Followers, %		42.1
Segn	nent Travel Time, minutes	1.18		Followers Density, followers/mi/ln		2.8
Vehi	cle LOS	В				
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HCS T Two-Lane Version 7.8.5 HCS - midblock 09-10\_AM\_NB.xuf

## sight Informatio

Pro	ject Information					
Analy	vst	MAA		Date		6/16/2020
Agen	су	WSP		Analysis Year		2020
Juriso	diction			Time Period Analy	/zed	AM Peak Hour
Project Description		CR 519, northeast of 610	СО	Unit		United States Customary
		S	Segr	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Der	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	291		Opposing Deman	d Flow Rate, veh/h	343
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segn	nent Capacity, veh/h	1700		Demand/Capacity	r (D/C)	0.17
Inte	ermediate Results					
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	52.6
Speed Slope Coefficient		3.20083		Speed Power Coe	fficient	0.50667
PF Slope Coefficient		-1.26944		PF Power Coefficie	ent	0.77916
In Passing Lane Effective Length?		No		Total Segment De	nsity, veh/mi/ln	2.2
%Improved % Followers		0.0		% Improved Avg	Speed	0.0
Sub	segment Data					
# Segment Type		Length, ft R		dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280 -		-		51.2
Veh	icle Results					
Avera	age Speed, mi/h	51.2		Percent Followers	, %	38.5
Segment Travel Time, minutes		1.17	1.17		, followers/mi/ln	2.2
Vehio	cle LOS	A				

HCS T Two-Lane Version 7.8.5 HCS - midblock 09-10\_AM\_SB.xuf

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Pro	ject Information					
Analy	vst	MAA		Date		6/16/2020
Agen	су	WSP	WSP			2020
Jurisc	diction			Time Period Analy	vzed	PM Peak Hour
Proje	ct Description	CR 519, northeast of C 610	0	Unit		United States Customary
		Se	egm	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Den	nand and Capacity					
Directional Demand Flow Rate, veh/h 303		Opposing Demand Flow Rate, veh/h		399		
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segment Capacity, veh/h 1700			Demand/Capacity (D/C)		0.18	
Inte	ermediate Results					
Segment Vertical Class		1		Free-Flow Speed,	mi/h	52.6
Spee	d Slope Coefficient	3.21576		Speed Power Coe	fficient	0.49701
PF SI	ope Coefficient	-1.27872		PF Power Coefficient		0.77628
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.4
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Rad	ius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	51.1
Veh	icle Results				• 	
Avera	age Speed, mi/h	51.1		Percent Followers, %		39.7
Segm	nent Travel Time, minutes	1.17		Followers Density,	, followers/mi/ln	2.4
Vehic	le LOS	A				

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HCS 1 Two-Lane Version 7.8.5 HCS - midblock 09-10\_PM\_NB.xuf

### sight Informatio

Pro	ject Information					
Analy	vst	MAA		Date		6/16/2020
Agen	су	WSP	WSP			2020
Jurisc	diction			Time Period Analy	/zed	PM Peak Hour
Proje	ct Description	CR 519, northeast of C 610	0	Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Den	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	399		Opposing Demand Flow Rate, veh/h		303
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segment Capacity, veh/h 1700		Demand/Capacity (D/C)		0.23		
Inte	ermediate Results					
Segment Vertical Class		1	1		mi/h	52.6
Spee	d Slope Coefficient	3.18924		Speed Power Coe	fficient	0.51453
PF SI	ope Coefficient	-1.26192 PF P		PF Power Coeffici	ent	0.78143
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.6
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data			-		
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	50.9
Veh	icle Results	•			•	
Avera	age Speed, mi/h	50.9		Percent Followers	, %	46.0
Segm	nent Travel Time, minutes	1.18		Followers Density	, followers/mi/ln	3.6
Vehic	le LOS	В				
	ght © 2020 University of Florida. All Rights		Two-La	ane Version 7.8.5		Generated: 06/22/2020 1

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HCS7 Two-Lane	Highway Report
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Proj	ect Information	- 1			
Analy	st	MAA	Date		6/17/2020
Ageno	Cy	WSP	Analysis Year		2020
Jurisd	iction		Time Period A	nalyzed	AM Peak Hour
Projec	t Description	CR 519, Stone Hedge R to Hope Crossing Rd	Rd Unit		United States Customa
		Se	egment 1		
Vehi	icle Inputs				
Segm	ent Type	Passing Constrained	Length, ft		5280
Lane \	Width, ft	12	Shoulder Widt	h, ft	6
Speed	l Limit, mi/h	50	Access Point D	ensity, pts/mi	0.0
Dem	nand and Capacity				
Direct	ional Demand Flow Rate, veh/h	385	Opposing Den	nand Flow Rate, veh/h	-
Peak I	Hour Factor	0.80	Total Trucks, %	Total Trucks, %	
Segm	ent Capacity, veh/h	1700	Demand/Capa	city (D/C)	0.23
Inte	rmediate Results				
Segment Vertical Class		1	Free-Flow Spe	ed, mi/h	56.9
Speed	I Slope Coefficient	3.64416	Speed Power (	Coefficient	0.41674
PF Slo	pe Coefficient	-1.32222	PF Power Coef	ficient	0.75266
In Pas	sing Lane Effective Length?	No	Total Segment	Density, veh/mi/ln	3.3
%lmp	roved % Followers	0.0	% Improved A	vg Speed	0.0
Sub	segment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	54.7
Vehi	icle Results			•	
Avera	ge Speed, mi/h	54.7	Percent Follow	vers, %	47.5
Segm	ent Travel Time, minutes	1.10	Followers Den	sity, followers/mi/ln	3.3
		В			

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HCS7 Two-Lane	Highway Report
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Proj	ject Information					
Analy	vst	MAA		Date		6/17/2020
Agen	су	WSP		Analysis Year		2020
Jurisc	liction			Time Period Analy	vzed	AM Peak Hour
Proje	ct Description	CR 519, Stone Hedge R to Hope Crossing Rd	₹d	Unit		United States Customary
		Se	egm	nent 1		
Veh	icle Inputs					
Segm	nent Type	Passing Constrained		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	6
Speed	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	0.0
Den	nand and Capacity					
Direc	rectional Demand Flow Rate, veh/h 386 Oppo		Opposing Demand Flow Rate, veh/h		-	
Peak Hour Factor 0.84 T		Total Trucks, %		3.00		
Segment Capacity, veh/h 1700		1700		Demand/Capacity (D/C)		0.23
Inte	ermediate Results	·				
Segment Vertical Class 1		1	1		mi/h	56.9
Speed	d Slope Coefficient	3.64416		Speed Power Coe	fficient	0.41674
PF Slo	ope Coefficient	-1.32222		PF Power Coefficient		0.75266
In Pas	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.4
%Imp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Rad	ius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	54.7
Veh	icle Results				·	
Avera	age Speed, mi/h	54.7		Percent Followers	, %	47.6
Segm	nent Travel Time, minutes	1.10		Followers Density,	, followers/mi/ln	3.4
	le LOS	В				

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HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Analy	vst	MAA	Date		6/17/2020
Agen	су	WSP	Analysis Year		2020
Juriso	diction		Time Period Ar	nalyzed	PM Peak Hour
Proje	ct Description	CR 519, Stone Hedge F to Hope Crossing Rd	Rd Unit		United States Customary
		Se	egment 1		
Veh	icle Inputs				
Segn	nent Type	Passing Constrained	Length, ft		5280
Lane	Width, ft	12	Shoulder Widt	h, ft	6
Spee	d Limit, mi/h	50	Access Point D	ensity, pts/mi	0.0
Der	nand and Capacity				
Direc	tional Demand Flow Rate, veh/h	334	Opposing Dem	nand Flow Rate, veh/h	-
Peak	Hour Factor	0.90	Total Trucks, %		3.00
Segn	nent Capacity, veh/h	1700	Demand/Capa	city (D/C)	0.20
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Spe	ed, mi/h	56.9
Spee	d Slope Coefficient	3.64416	Speed Power C	Coefficient	0.41674
PF SI	ope Coefficient	-1.32222	PF Power Coef	ficient	0.75266
In Pa	ssing Lane Effective Length?	No	Total Segment	Density, veh/mi/ln	2.7
%lmp	proved % Followers	0.0	% Improved Av	vg Speed	0.0
Sub	segment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	54.9
Veh	icle Results	·			·
Avera	age Speed, mi/h	54.9	Percent Follow	ers, %	44.0
Segn	nent Travel Time, minutes	1.09	Followers Dens	sity, followers/mi/ln	2.7
Vehicle LOS B		В			

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HCS7 Two-Lane	Highway Report
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Anal	vst	МАА		Date		6/17/2020	
Ager	•	WSP		Analysis Year		2020	
-	diction		VV3F		lvzed	PM Peak Hour	
	ect Description	CR 519, Stone H to Hope Crossin		Time Period Anal		United States Customar	
		1	Segi	ment 1		1	
Veł	nicle Inputs						
Segr	nent Type	Passing Constrai	ined	Length, ft		5280	
Lane	Width, ft	12		Shoulder Width,	ft	6	
Spee	ed Limit, mi/h	50		Access Point Der	nsity, pts/mi	0.0	
Der	nand and Capacity						
Dire	ctional Demand Flow Rate, veh/h	427		Opposing Demand Flow Rate, veh/h		-	
Peak	Hour Factor	0.82		Total Trucks, %		3.00	
Segr	nent Capacity, veh/h	1700		Demand/Capacity (D/C)		0.25	
Inte	ermediate Results	÷				·	
Segment Vertical Class 1			Free-Flow Speed	, mi/h	56.9		
Spee	ed Slope Coefficient	3.64416		Speed Power Coefficient		0.41674	
PF SI	ope Coefficient	-1.32222	PF Power Coeffic		ient	0.75266	
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.9	
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0	
Suk	osegment Data						
#	Segment Type	Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	54.6	
Veł	nicle Results	-				·	
Aver	age Speed, mi/h	54.6		Percent Follower	s, %	50.2	
Segr	nent Travel Time, minutes	1.10		Followers Density, followers/mi/ln		3.9	
Vehicle LOS B		D					

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HCS7 Two-Lane	Highway Report
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MAA				
		Date		6/16/2020
WSP		Analysis Year		2020
		Time Period Analy	yzed	AM Peak Hour
		Unit		United States Customary
	Segr	nent 1		
Passing Zone		Length, ft		5280
12		Shoulder Width, f	ť	6
50		Access Point Den	sity, pts/mi	4.0
ı/h 567		Opposing Demand Flow Rate, veh/h		445
ak Hour Factor 0.88		Total Trucks, %		0.00
1700		Demand/Capacity	/ (D/C)	0.33
1	1		mi/h	55.7
3.39642	3.39642		fficient	0.48975
-1.27423	-1.27423		ent	0.78308
No	No		ensity, veh/mi/ln	5.9
0.0		% Improved Avg Speed		0.0
Length, ft	Ra	dius, ft	Superelevation, %	Average Speed, mi/h
5280	-		-	53.4
•			•	
53.4		Percent Followers, %		55.8
1.12		Followers Density	, followers/mi/ln	5.9
С				
	Image: CR 519, CO 623 E Castle Rd to Peque Castle Rd to Pe	Image: CR 519, CO 623 Brass Castle Rd to Pequest Rd         Castle Rd to Pequest Rd         Segr         Passing Zone         12         50         n/h         567         0.88         1700         1700         13.39642         -1.27423         No         0.0         Length, ft         Ra         5280         1.12         C	Image: Second state and the probability of the probabilit	Image: CR S19, CO 623 Brass Castle Rd to Pequest Rd       Unit         Segment 1         Segment 1         Passing Zone       Length, ft         12       Shoulder Width, ft         50       Access Point Density, pts/mi         n/h       567       Opposing Demand Flow Rate, veh/h         0.88       Total Trucks, %         1700       Demand/Capacity (D/C)         1       Free-Flow Speed, mi/h         3.39642       Speed Power Coefficient         1.27423       PF Power Coefficient         No       Total Segment Density, veh/mi/ln         0.0       % Improved Avg Speed         Length, ft       Radius, ft       Superelevation, %         5280       -       -         53.4       Percent Followers, %         1.12       Followers Density, followers/mi/ln

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HCS7 Two-Lane	Highway Report
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Analysit     MAA     Date     Interpret     6/6/2020       Agen     WSP     Analysis Year     2020       Jurisdiction     Immed Period Analyzer     AM Peak Hou       Project Description     CR 519, CO 623 Brass Castle Rd to Pequest Rd     Unit     Interpret     AM Peak Hou       Project Description     CR 519, CO 623 Brass Castle Rd to Pequest Rd     Unit     Unit     Interpret       Segment Syse     Castle Rd to Pequest Rd     Unit     Unit     Segment       Segment Type     Pasing Zone     Length, ft     5200       Shoulder Width, ft     12     Soulder Width, ft     600       Shoulder Width, ft     12     Soulder Width, ft     6200       Shoulder Width, ft     12     Soulder Width, ft     610       Shoulder Width, ft     12     Soulder Width, ft     6200       Shoulder Width, ft     6200 <td c<="" th=""><th></th></td>	<th></th>	
Jurisdiction     Imme Period Analyzed     AM Peak Hou       Project Description     CR 519, CO 623 Brass Castle Rd to Pequest Rd     Unit     United States       Segment 1       Vehicle Inputs       Segment Type     Passing Zone     Length, ft     5280       Lane Width, ft     12     Shoulder Width, ft     6       Speed Limit, mi/h     50     Access Point Density, pts/mi     4.0       Directional Demand Flow Rate, veh/h     5260       Directional Demand Flow Rate, veh/h     426     Opposing Demand Flow Rate, veh/h     542       Directional Demand Flow Rate, veh/h     1700     Demand/Capacity (D/C)     0.25       Intermediate Results       Segment Vertical Class     1     Free-Flow Speed, mi/h     55.7       Speed Sope Coefficient     0.47664       PF Sover Coefficient     0.47664       PF Sover Coefficient     0.77876       Intal Segment Data       Segment Type     0.0       Speed Flow Type     0.0       Opeosing Coefficient     0.47664       PF Over Coefficient     0.47664       PF Sover Coefficient     0.47664       Prov		
Project Description       CR 519, CO 623 Brass Castle Rd to Pequest Rd       Unit       United States         Segment 1         Vehicle Inputs         Segment Type       Passing Zone       Length, ft       5280         Lane Width, ft       12       Shoulder Width, ft       6         Speed Limit, mi/h       50       Access Point Density, pts/mi       4.0         Dertor         Directional Demand Flow Rate, veh/h       426       Opposing Demand Flow Rate, veh/h       542         Peak Hour Factor       0.92       Total Trucks, %       0.00         Segment Capacity, veh/h       1700       Demand/Capacity (D/C)       0.25         Itermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       3.41906       Speed Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved & Followers       0.0       %Improved Avg Speed       0.0         Segment Type       Length, ft       Radus, ft       Superelevation, %       Average Sp		
Castle Rd to Pequest Rd       Castle Rd to Pequest Rd         Segment 1         Vehicle Inputs       Segment Type       Passing Zone       Length, ft       5280         Lane Width, ft       12       Shoulder Width, ft       6         Speed Limit, mi/h       50       Access Point Density, pts/mi       4.0         Deretional Demand Gapacity         Directional Demand Flow Rate, veh/h       426       Opposing Demand Flow Rate, veh/h       542         Peak Hour Factor       0.92       Total Trucks, %       0.00         Segment Capacity, veh/h       1700       Demand/Capacity (D/C)       0.25         Intermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Superlevation % Kollowers       0.0       % Improved Avg Speed       0.0         Superlevation %       Segment Type       Length, ft	our	
Verifies a constraint of the second of the	s Customary	
Segment TypePassing ZoneLength, ft5280Lane Width, ft12Shoulder Width, ft6Speed Limit, mi/h50Access Point Density, pts/mi4.0Demand CapacityDirectional Demand Flow Rate, veh/h426Opposing Demand Flow Rate, veh/h542Peak Hour Factor0.92Total Trucks, %0.00Segment Capacity, veh/h1700Demand/Capacity (D/C)0.25Intermediate ResultsSegment Vertical Class1Free-Flow Speed, mi/h55.7Speed Slope Coefficient3.41906Speed Power Coefficient0.47664PF Slope Coefficient-1.28592PF Power Coefficient0.77876In Passing Lane Effective Length?NoTotal Segment Density, veh/mi/ln3.8%Improved % Followers0.0% Improved Avg Speed0.0Segment TypeLength, ftRadius, ftSuperelevation, %Average Speed1Tangent528053.7Segment TypeLength, ftRadius, ftSuperelevation, %Average Speed1Tangent528053.7		
Lane Width, ft12Shoulder Width, ft6Speed Limit, mi/h50Access Point Density, pts/mi4.0Demand and CapacityDirectional Demand Flow Rate, veh/h426Opposing Demand Flow Rate, veh/h542Peak Hour Factor0.92Total Trucks, %0.00Segment Capacity, veh/h1700Demand/Capacity (D/C)0.25Intermediate ResultsSegment Vertical Class1Free-Flow Speed, mi/h55.7Speed Slope Coefficient3.41906Speed Power Coefficient0.47664PF Slope Coefficient-1.28592PF Power Coefficient0.77876In Passing Lane Effective Length?NoTotal Segment Density, veh/mi/ln3.8%Improved % Followers0.0% Improved Avg Speed0.0Superelevation, % Average Speet1Tangent528053.7Vehicle Results		
Speed Limit, mi/h       50       Access Point Density, pts/mi       4.0         Access Point Density, pts/mi       4.0         Directional Demand Flow Rate, veh/h       426         Peak       Opposing Demand Flow Rate, veh/h       542         Peak       0.92       Total Trucks, %       0.00         Segment Capacity, veh/h       1700       Demand/Capacity (D/C)       0.25         Intermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       Speed Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Demaity, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7         Segment Type         1       Tangent       5280       -       -       53.7         %Improved Kersults       5280       -       -		
Demand and Capacity       426       Opposing Demand Flow Rate, veh/h       542         Peak Hour Factor       0.92       Total Trucks, %       0.00         Segment Capacity, veh/h       1700       Demand/Capacity (D/C)       0.25         Intermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7		
Directional Demand Flow Rate, veh/h426Opposing Demand Flow Rate, veh/h542Peak Hour Factor0.92Total Trucks, %0.00Segment Capacity, veh/h1700Demand/Capacity (D/C)0.25Intermediate ResultsSegment Vertical Class1Free-Flow Speed, mi/h55.7Speed Slope Coefficient3.41906Speed Power Coefficient0.47664PF Slope Coefficient-1.28592PF Power Coefficient0.77876In Passing Lane Effective Length?NoTotal Segment Density, veh/mi/ln3.8%Improved % Followers0.0% Improved Avg Speed0.0Segment TypeLength, ftRadius, ftSuperelevation, %Average Speed1Tangent528053.7Verticel Results		
Peak Hour Factor0.92Total Trucks, %0.00Segment Capacity, veh/h1700Demand/Capacity (D/C)0.25Intermediate ResultsSegment Vertical Class1 $Free-Flow Speed, mi/h$ 55.7Speed Slope Coefficient3.41906Speed Power Coefficient0.47664PF Slope Coefficient-1.28592PF Power Coefficient0.77876In Passing Lane Effective Length?NoTotal Segment Det3.8%Improved % Followers0.0% Improved Avg Speed0.0Segment TypeLength, ftRadius, ftSuperlevation, %Average Speed1Tangent528053.7Verkicle Results		
Segment Capacity, veh/h       1700       Demand/Capacity (D/C)       0.25         Intermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Super Egment Data         #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7		
Intermediate Results         Segment Vertical Class       1       Free-Flow Speed, mi/h       55.7         Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Segment Data         #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7         Vehicle Results		
Segment Vertical Class1Free-Flow Speed, mi/h55.7Speed Slope Coefficient $3.41906$ Speed Power Coefficient $0.47664$ PF Slope Coefficient $-1.28592$ PF Power Coefficient $0.77876$ In Passing Lane Effective Length?NoTotal Segment Detains, veh/mi/ln $3.8$ %Improved % Followers $0.0$ % Improved Avg Speed $0.0$ Segment Data#Segment TypeLength, ftRadius, ftSuperelevation, %1Tangent528053.7Vertice Results		
Speed Slope Coefficient       3.41906       Speed Power Coefficient       0.47664         PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Density, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Segment Data         #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       53.7		
PF Slope Coefficient       -1.28592       PF Power Coefficient       0.77876         In Passing Lane Effective Length?       No       Total Segment Desity, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Segment Data         #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7		
In Passing Lane Effective Length?       No       Total Segment Demisty, veh/mi/ln       3.8         %Improved % Followers       0.0       % Improved Avg Speed       0.0         Subsegment Data       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7		
%Improved % Followers       0.0       % Improved Avg Speed       0.0         Subsegment Data       #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speed         1       Tangent       5280       -       -       53.7         Vehicle Results		
Subsegment Data         #       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Speet         1       Tangent       5280       -       -       53.7         Vehicle Results       Venice Results       Venice Results       Venice Results		
#       Segment Type       Length, ft       Radius, ft       Superelevation, %       Average Spectrum         1       Tangent       5280       -       -       53.7         Vehicle Results       Venice       Venice       Venice       Venice		
1       Tangent       5280       -       -       53.7         Vehicle Results		
Vehicle Results	eed, mi/h	
Average Speed, mi/h     53.7     Percent Followers, %     48.4		
Segment Travel Time, minutes         1.12         Followers Density, followers/mi/ln         3.8		
Vehicle LOS B		

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Pro	ject Information					
Analy	vst	MAA		Date		6/16/2020
Agen	су	WSP		Analysis Year		2020
Jurisc	liction			Time Period Analy	/zed	PM Peak Hour
Proje	ct Description	CR 519, CO 623 Brass Castle Rd to Pequest I		Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segm	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	6
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Den	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	647		Opposing Deman	d Flow Rate, veh/h	481
Peak	Hour Factor	0.85		Total Trucks, %		7.00
Segment Capacity, veh/h 1700		Demand/Capacity (D/C)		0.38		
Inte	ermediate Results					
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	55.5
Spee	d Slope Coefficient	3.39239		Speed Power Coefficient		0.48463
PF Slo	ope Coefficient	-1.27901		PF Power Coefficient		0.78178
In Pa	ssing Lane Effective Length?	No	No		ensity, veh/mi/ln	7.3
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	segment Data					
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	52.9
Veh	icle Results					
Avera	age Speed, mi/h	52.9	Percent Followers		, %	59.8
Segn	nent Travel Time, minutes	1.13		Followers Density	, followers/mi/ln	7.3
	le LOS	С				

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HCS7 Two-Lane	Highway Report
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Pro	ject Information						
Analy	vst	MAA		Date		6/16/2020	
Agen	су	WSP		Analysis Year		2020	
Jurisc	liction			Time Period Analy	vzed	PM Peak Hour	
Proje	ct Description	CR 519, CO 623 Brass Castle Rd to Pequest R	Rd	Unit		United States Customary	
		S	egn	nent 1			
Veh	icle Inputs						
Segm	nent Type	Passing Zone		Length, ft		5280	
Lane	Width, ft	12		Shoulder Width, f	t	6	
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0	
Den	nand and Capacity						
Direc	tional Demand Flow Rate, veh/h	431		Opposing Deman	d Flow Rate, veh/h	579	
Peak	Hour Factor	0.95		Total Trucks, %		7.00	
Segm	nent Capacity, veh/h	1700		Demand/Capacity (D/C)		0.25	
Inte	ermediate Results			2			
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	55.5	
Spee	d Slope Coefficient	3.41442		Speed Power Coefficient		0.47228	
PF Slo	ope Coefficient	-1.29002		PF Power Coefficient		0.77761	
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.9	
%lmp	proved % Followers	0.0		% Improved Avg Speed		0.0	
Sub	segment Data			-			
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	53.4	
Veh	icle Results						
Avera	age Speed, mi/h	53.4	Percent Followers		, %	48.8	
Segm	nent Travel Time, minutes	1.12	1.12 Followers		, followers/mi/ln	3.9	
	le LOS	В					

HCS 1 Two-Lane Version 7.8.5 HCS - midblock 04-11\_PM\_SB.xuf

HCS7 Two-Lane	Highway Report
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Pro	ject Information						
Anal	vst	MAA		Date		6/16/2020	
Ager	су	WSP		Analysis Year		2020	
Juris	diction			Time Period Analy	vzed	AM Peak Hour	
Proje	ect Description	CR 519, CO 620 to Brookfield Dr		Unit		United States Customary	
		S	egn	nent 1			
Veh	icle Inputs						
Segn	nent Type	Passing Zone		Length, ft		5280	
Lane	Width, ft	11		Shoulder Width, f	t	5	
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	2.0	
Der	nand and Capacity						
Direc	tional Demand Flow Rate, veh/h	369		Opposing Deman	d Flow Rate, veh/h	281	
Peak	Hour Factor	0.85		Total Trucks, %		2.00	
Segn	nent Capacity, veh/h	1700		Demand/Capacity (D/C)		0.22	
Inte	ermediate Results						
Segn	nent Vertical Class	1		Free-Flow Speed,	mi/h	55.1	
Spee	d Slope Coefficient	3.32075		Speed Power Coefficient		0.51921	
PF SI	ope Coefficient	-1.24938		PF Power Coefficient		0.79052	
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.0	
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0	
Sub	osegment Data						
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	53.5	
Veh	icle Results				•	•	
Aver	age Speed, mi/h	53.5		Percent Followers, %		43.4	
Segn	nent Travel Time, minutes	1.12		Followers Density,	, followers/mi/ln	3.0	
Vehio	cle LOS	В					
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HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Ager	псу	WSP	Analysis Year		2020
Juris	diction		Time Period /	Analyzed	AM Peak Hour
Proje	ect Description	CR 519, CO 620 to Brookfield Dr	Unit		United States Customar
		S	Segment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	e Width, ft	11	Shoulder Wic	lth, ft	5
Spee	ed Limit, mi/h	50	Access Point	Density, pts/mi	2.0
Dei	mand and Capacity				
Dire	ctional Demand Flow Rate, veh/h	275	Opposing De	mand Flow Rate, veh/h	361
Peak	Hour Factor	0.87	Total Trucks,	%	2.00
Segr	nent Capacity, veh/h	1700	Demand/Cap	acity (D/C)	0.16
Inte	ermediate Results				
Segr	nent Vertical Class	1	Free-Flow Sp	eed, mi/h	55.1
Spee	ed Slope Coefficient	3.34386	Speed Power Coefficient		0.50350
PF S	lope Coefficient	-1.26381	PF Power Coe	efficient	0.78594
In Pa	assing Lane Effective Length?	No	Total Segmer	nt Density, veh/mi/ln	1.9
%lm	proved % Followers	0.0	% Improved A	Avg Speed	0.0
Sub	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.7
Veł	nicle Results				
Aver	age Speed, mi/h	53.7	Percent Follo	wers, %	36.7
Segr	nent Travel Time, minutes	1.12	Followers De	nsity, followers/mi/ln	1.9
Vahi	cle LOS	A			

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HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Anal	yst	MAA	Date		6/16/2020
Ager	псу	WSP	Analysis Year		2020
Juris	diction		Time Period A	Analyzed	PM Peak Hour
Proje	ect Description	CR 519, CO 620 to Brookfield Dr	Unit		United States Customa
			Segment 1		
Veh	nicle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	11	Shoulder Wic	lth, ft	5
Spee	ed Limit, mi/h	50	Access Point	Density, pts/mi	2.0
Der	mand and Capacity				
Direc	ctional Demand Flow Rate, veh/h	374	Opposing De	mand Flow Rate, veh/h	292
Peak	Hour Factor	0.91	Total Trucks,	%	2.00
Segn	nent Capacity, veh/h	1700	Demand/Cap	acity (D/C)	0.22
Inte	ermediate Results				
Segn	nent Vertical Class	1	Free-Flow Sp	eed, mi/h	55.1
Spee	ed Slope Coefficient	3.32416	Speed Power	Coefficient	0.51681
PF SI	lope Coefficient	-1.25158	PF Power Coe	efficient	0.78984
In Pa	ssing Lane Effective Length?	No	Total Segmer	ıt Density, veh/mi/ln	3.1
%lm	proved % Followers	0.0	% Improved /	Avg Speed	0.0
Sub	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.4
Veh	nicle Results	-		•	
Aver	age Speed, mi/h	53.4	Percent Follo	wers, %	43.7
Segn	nent Travel Time, minutes	1.12	Followers De	nsity, followers/mi/ln	3.1
	cle LOS	В			

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HCS7 Two-Lane	Highway Report
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Pro	ject Information					
Anal	vst	MAA		Date		6/16/2020
Ager	су	WSP	WSP /			2020
Juris	diction			Time Period Analy	zed	PM Peak Hour
Project Description		CR 519, CO 620 to Brookfield Dr		Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone	ssing Zone Lengt			5280
Lane	Width, ft	11		Shoulder Width, f	t	5
Speed Limit, mi/h 50		Access Point Dens	ity, pts/mi	2.0		
Der	nand and Capacity					
Directional Demand Flow Rate, veh/h 296		Opposing Demand Flow Rate, veh/h		378		
Peak Hour Factor 0.90		Total Trucks, %		2.00		
Segment Capacity, veh/h 170		1700		Demand/Capacity (D/C)		0.17
Inte	ermediate Results					
Segment Vertical Class 1		1	1 Free-Flow S		mi/h	55.1
Spee	d Slope Coefficient	3.34841	Speed Power Coefficient		0.50055	
PF SI	ope Coefficient	-1.26651	-1.26651 PF Power Coe		ent	0.78505
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.1
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.7
Veh	icle Results				<u>.</u>	
Aver	age Speed, mi/h	53.7		Percent Followers,	%	38.5
Segn	nent Travel Time, minutes	1.12		Followers Density,	followers/mi/ln	2.1
Vehio	cle LOS	A				
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### Project Information

Pro	ject Information				
Analy	/st	MAA	Date		6/16/2020
Agen	су	WSP	Analysis Year		2020
Juriso	diction		Time Period Ana	lyzed	AM Peak Hour
Project Description		CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
		Se	gment 1		
Veh	icle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder Width,	ft	6
Speed Limit, mi/h 50		Access Point Der	nsity, pts/mi	5.0	
Der	mand and Capacity				
Directional Demand Flow Rate, veh/h 467		Opposing Dema	nd Flow Rate, veh/h	438	
Peak	Hour Factor	0.92	Total Trucks, %		7.00
Segment Capacity, veh/h 1700		1700	1700 Demand/Capacity (D/C)		0.27
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Speed	l, mi/h	55.2
Spee	d Slope Coefficient	3.36841	Speed Power Co	efficient	0.49086
PF SI	ope Coefficient	-1.27444	PF Power Coefficient		0.78305
In Pa	ssing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	4.4
%lmp	proved % Followers	0.0	% Improved Avg	Speed	0.0
Sub	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.2
Veh	icle Results	· · ·		-	
Avera	age Speed, mi/h	53.2	Percent Follower	s, %	50.5
Segn	nent Travel Time, minutes	1.13	Followers Densit	y, followers/mi/ln	4.4
Vehicle LOS		В			

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Pro	ject Information				
Analy	vst	MAA	Date		6/16/2020
Agen	су	WSP	Analysis Year		2020
Juriso	diction		Time Period Ana	lyzed	AM Peak Hour
Project Description		CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
		Se	gment 1		
Veh	icle Inputs				
Segn	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	12 Shoulder Width, t		6
Speed Limit, mi/h 50		Access Point Der	nsity, pts/mi	5.0	
Der	nand and Capacity				
Directional Demand Flow Rate, veh/h 438		Opposing Dema	nd Flow Rate, veh/h	467	
Peak	Hour Factor	r 0.92			7.00
Segment Capacity, veh/h		1700	Demand/Capacit	ty (D/C)	0.26
Inte	ermediate Results				
Segment Vertical Class		1	Free-Flow Speed	, mi/h	55.2
Spee	d Slope Coefficient	3.37556	Speed Power Coefficient		0.48656
PF SI	ope Coefficient	-1.27833	PF Power Coeffic	ient	0.78168
In Pa	ssing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	4.0
%lmp	proved % Followers	0.0	% Improved Avg	Speed	0.0
Sub	segment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.2
Veh	icle Results				
Avera	age Speed, mi/h	53.2	Percent Follower	s, %	48.9
Segn	nent Travel Time, minutes	1.13	Followers Densit	y, followers/mi/ln	4.0
Vehic	le LOS	В			

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### Project Information

MAA		Date		6/16/2020
WSP	WSP			2020
		Time Period Analy	vzed	PM Peak Hour
CR 519, Reeder Rd Mill Rd	to Grist	Unit		United States Customary
	Segn	nent 1		
Passing Zone L		Length, ft		5280
12	12		t	6
Speed Limit, mi/h 50		Access Point Dens	sity, pts/mi	5.0
Directional Demand Flow Rate, veh/h 547		Opposing Demand Flow Rate, veh/h		557
Peak Hour Factor 0.92		Total Trucks, %		3.00
1700	1700		r (D/C)	0.32
1	1		mi/h	55.4
3.40322	3.40322		fficient	0.47492
-1.28868	-1.28868		ent	0.77760
No	No		nsity, veh/mi/ln	5.7
0.0		% Improved Avg Speed		0.0
Length, ft	Rad	ius, ft	Superelevation, %	Average Speed, mi/h
5280	-		-	53.0
			·	
53.0		Percent Followers	, %	55.3
1.13		Followers Density,	, followers/mi/ln	5.7
С				
	WSP         WSP         CR 519, Reeder Rd         Mill Rd         Passing Zone         12         50         h/h         547         0.92         1700         13.40322         -1.28868         No         0.0         Length, ft         5280         53.0         1.13	WSP         CR 519, Reeder Rd to Grist Mill Rd         Segn         Segn         Passing Zone         12         50         h/h         547         0.92         1700         1700         1         3.40322         -1.28868         No         0.0         Length, ft         Rad         5280         1.13	WSP       Analysis Year         Image: CR 519, Reeder Rd to Grist Mill Rd       Unit         CR 519, Reeder Rd to Grist Mill Rd       Unit         Segment 1         Passing Zone       Length, ft         12       Shoulder Width, ft         50       Access Point Dens         h/h       547       Opposing Deman         0.92       Total Trucks, %         1700       Demand/Capacity         3.40322       Speed Power Coe         1.13       Free-Flow Speed, Speed Power Coe         0.0       % Improved Arg 5         Salo       -         Total Segment De       0.0         1.13       Percent Followers	WSPAnalysis YearImage: CR 519, Reeder Rd to Grist Mill RdUnitSegment 1Segment 1Passing ZoneLength, ft12Shoulder Width, ft50Access Point Density, pts/mib/h547Opposing Demand Flow Rate, veh/h0.92Total Trucks, %1700Demand/Capacity (D/C)1Speed Power Coefficient1.28868PF Power Coefficient1.28868PF Power CoefficientNoTotal Segment Density, veh/mi/ln0.0% Improved Avg SpeedLength, ftRadius, ftS280-53.0Percent Followers, %1.13Followers Density, followers/mi/ln

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Demand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	Analyzed	6/16/2020 2020 PM Peak Hour United States Customary 5280 6 5.0 547
JurisdictionTime PeriodProject DescriptionCR 519, Reeder Rd to Grist Mill RdUnitSegment 1Vehicle InputsSegment TypePassing ZoneLength, ftLane Width, ft12Shoulder WSpeed Limit, mi/h50Access PoirDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IdPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Free-Flow SSeged Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segmen	Analyzed	PM Peak Hour United States Customary 5280 6 5.0
Project DescriptionCR 519, Reeder Rd to Grist Mill RdUnitSegment RegultsSegment TypePassing ZoneLength, ftLane Width, ft12Shoulder WSpeed Limit, mi/h50Access PoirDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate Results1Free-Flow SSpeed Slope Coefficient3.40106Speed PowP Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	idth, ft : Density, pts/mi emand Flow Rate, veh/h	United States Customary 5280 6 5.0
Mill RdSegment 1Vehicle InputsSegment TypePassing ZoneLength, ftLane Width, ft12Shoulder WSpeed Limit, mi/h50Access PoirDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate Results1Free-Flow SSegment Vertical Class1Free-Flow SSpeed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	: Density, pts/mi emand Flow Rate, veh/h	5280 6 5.0
Vehicle InputsSegment TypePassing ZoneLength, ftLane Width, ft12Shoulder WSpeed Limit, mi/h50Access PoirDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing DPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate Results1Free-Flow SSegment Vertical Class1Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	: Density, pts/mi emand Flow Rate, veh/h	6 5.0
Segment TypePassing ZoneLength, ftLane Width, ft12Shoulder WSpeed Limit, mi/h50Access PoirDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate Results1Free-Flow SSegment Vertical Class1Free-Flow SSpeed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	: Density, pts/mi emand Flow Rate, veh/h	6 5.0
Lane Width, ft12Shoulder WSpeed Limit, mi/h50Access PointDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing RPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	: Density, pts/mi emand Flow Rate, veh/h	6 5.0
Speed Limit, mi/h50Access PoinDemand and CapacityDirectional Demand Flow Rate, veh/h557Opposing RPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Free-Flow SSpeed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	: Density, pts/mi emand Flow Rate, veh/h	5.0
Demand and CapacityDirectional Demand Flow Rate, veh/h557Opposing IPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	emand Flow Rate, veh/h	
Directional Demand Flow Rate, veh/h557Opposing RPeak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment		547
Peak Hour Factor0.92Total TrucksSegment Capacity, veh/h1700Demand/CIntermediate ResultsSegment Vertical Class1Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment		547
Segment Capacity, veh/h1700Demand/CaIntermediate ResultsSegment Vertical Class1Free-Flow SSpeed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment		
Intermediate Results         Segment Vertical Class       1       Free-Flow S         Speed Slope Coefficient       3.40106       Speed Pow         PF Slope Coefficient       -1.28762       PF Power C         In Passing Lane Effective Length?       No       Total Segment	%	3.00
Segment Vertical Class1Free-Flow SSpeed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment	pacity (D/C)	0.33
Speed Slope Coefficient3.40106Speed PowPF Slope Coefficient-1.28762PF Power CIn Passing Lane Effective Length?NoTotal Segment		
PF Slope Coefficient     -1.28762     PF Power C       In Passing Lane Effective Length?     No     Total Segment	peed, mi/h	55.4
In Passing Lane Effective Length? No Total Segm	r Coefficient	0.47611
	pefficient	0.77801
%Improved % Followers 0.0 % Improved	nt Density, veh/mi/ln	5.9
	Avg Speed	0.0
Subsegment Data		
# Segment Type Length, ft Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent 5280 -	-	53.0
Vehicle Results		
Average Speed, mi/h 53.0 Percent Fol	owers, %	55.8
Segment Travel Time, minutes 1.13 Followers D	ensity, followers/mi/ln	5.9
Vehicle LOS C	chistey, tonowers, hin, in	

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HCS7 Two-Lane	Highway Report
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Anal	Net .	МАА		Date		6/17/2020	
Anal	-			Date Analysis Year		6/17/2020	
Agei	-	WSP				2020	
	diction			Time Period Anal	yzed	AM Peak Hour	
Project Description		CR 519, Fairway R Hillside Ave	d to	Unit		United States Customar	
			Seg	ment 1			
Veł	nicle Inputs						
Segr	nent Type	Passing Zone		Length, ft		5280	
Lane	Width, ft	12		Shoulder Width,	ft	5	
Spee	ed Limit, mi/h	50		Access Point Den	sity, pts/mi	4.0	
De	mand and Capacity						
Dire	ctional Demand Flow Rate, veh/h	242	Opposing Demand Fl		nd Flow Rate, veh/h	372	
Peak	Hour Factor	0.78	Total Trucks, %			3.00	
Segment Capacity, veh/h 1700			Demand/Capacity (D/C)		0.14		
Inte	ermediate Results						
Segment Vertical Class		1		Free-Flow Speed,	mi/h	54.9	
Spee	ed Slope Coefficient	3.33416		Speed Power Coefficient		0.50158	
PF S	lope Coefficient	-1.26634		PF Power Coefficient		0.78482	
In Pa	assing Lane Effective Length?	No	No		Total Segment Density, veh/mi/ln		
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0	
Sub	osegment Data						
#	Segment Type	Length, ft	Ra	adius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	53.6	
Veł	nicle Results						
Aver	age Speed, mi/h	53.6		Percent Followers	5, %	34.1	
Segr	nent Travel Time, minutes	1.12		Followers Density	ı, followers/mi/ln	1.5	
Vehicle LOS		A					

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HCS7 Two-Lane	Highway Report
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Anal	yst	MAA		Date		6/17/2020
Ager	-	WSP				2020
	diction			Analysis Year Time Period Analy	/zed	AM Peak Hour
Project Description CR 519, Fairway Rd to Hillside Ave		Rd to	Unit		United States Customar	
		-1	Segi	ment 1		- 1
Veł	nicle Inputs					
Segr	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	5
Spee	ed Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Der	mand and Capacity					
Dire	ctional Demand Flow Rate, veh/h	312	312 0		d Flow Rate, veh/h	203
Peak	Hour Factor	0.93	0.93		Total Trucks, %	
Segment Capacity, veh/h 1700		Demand/Capacity	/ (D/C)	0.18		
Inte	ermediate Results					
Segment Vertical Class 1		Free-Flow Speed,	mi/h	54.9		
Spee	ed Slope Coefficient	3.28206		Speed Power Coefficient		0.53834
PF S	lope Coefficient	-1.23245		PF Power Coefficient		0.79531
In Pa	ssing Lane Effective Length?	No	No Total S		nsity, veh/mi/ln	2.3
%lm	proved % Followers	0.0		% Improved Avg Speed		0.0
Sub	osegment Data					
#	Segment Type	Length, ft	Ra	idius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-		-	53.5
Veł	nicle Results				•	
Aver	age Speed, mi/h	53.5		Percent Followers	, %	38.6
Segr	nent Travel Time, minutes	1.12		Followers Density	, followers/mi/ln	2.3
Vehicle LOS		A				

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HCS7 Two-Lane	Highway Report
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Pro	ject Information				
Anal	yst	МАА	Date		6/17/2020
Ager	псу	WSP	Analysis Yea	ar	2020
Juris	diction		Time Perioc	d Analyzed	PM Peak Hour
Project Description CR 519, Fairway Rd to Hillside Ave		to Unit		United States Customa	
			Segment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	Width, ft	12	Shoulder W	/idth, ft	5
Spee	ed Limit, mi/h	50	) Access Point Density, pts/mi		4.0
Der	mand and Capacity				
Dire	ctional Demand Flow Rate, veh/h	481	Opposing D	Demand Flow Rate, veh/h	319
Peak	Hour Factor	0.78	Total Trucks	s, %	3.00
Segment Capacity, veh/h 1700		Demand/Ca	apacity (D/C)	0.28	
Inte	ermediate Results				
Segment Vertical Class 1		1	Free-Flow S	peed, mi/h	54.9
Spee	ed Slope Coefficient	3.31949	Speed Powe	er Coefficient	0.51132
PF SI	lope Coefficient	-1.25738	PF Power C	oefficient	0.78770
In Pa	ssing Lane Effective Length?	No	Total Segme	ent Density, veh/mi/ln	4.6
%lm	proved % Followers	0.0	% Improved	d Avg Speed	0.0
Suk	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.9
Veł	nicle Results				
Aver	age Speed, mi/h	52.9	Percent Foll	lowers, %	50.6
Segr	nent Travel Time, minutes	1.13	Followers D	ensity, followers/mi/ln	4.6
Vehicle LOS		В			

HCS 1 Two-Lane Version 7.8.5 HCS - midblock south of 01\_PM\_NB.xuf

HCS7 Two-Lane	Highway Report
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Pro	ject Information						
Anal	yst	MAA	Date		6/17/2020		
Ager	су	WSP	Analysis Yea	ar	2020		
Juris	diction		Time Period	l Analyzed	PM Peak Hour		
Proje	ect Description	CR 519, Fairway Rd Hillside Ave	l to Unit		United States Customa		
			Segment 1				
Veh	nicle Inputs						
Segn	nent Type	Passing Zone	Length, ft		5280		
Lane	Width, ft	12	Shoulder W	/idth, ft	5		
Spee	ed Limit, mi/h	50	Access Poin	t Density, pts/mi	4.0		
Der	mand and Capacity						
Dired	ctional Demand Flow Rate, veh/h	286	Opposing D	Demand Flow Rate, veh/h	431		
Peak	Hour Factor	0.87	Total Trucks	i, %	3.00		
Segn	nent Capacity, veh/h	1700	Demand/Ca	apacity (D/C)	0.17		
Inte	ermediate Results						
Segn	nent Vertical Class	1	Free-Flow S	peed, mi/h	54.9		
Spee	ed Slope Coefficient	3.34950	Speed Powe	er Coefficient	0.49192		
PF SI	ope Coefficient	-1.27520	PF Power Co	oefficient	0.78186		
In Pa	ssing Lane Effective Length?	No	Total Segme	ent Density, veh/mi/ln	2.0		
%lm	proved % Followers	0.0	% Improved	d Avg Speed	0.0		
Suk	osegment Data						
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h		
1	Tangent	5280	-	-	53.4		
Veh	nicle Results		•				
Aver	age Speed, mi/h	53.4	Percent Foll	owers, %	38.1		
Segn	nent Travel Time, minutes	1.12	Followers D	ensity, followers/mi/ln	2.0		
Vohi	cle LOS	A					

HCS 1 Two-Lane Version 7.8.5 HCS - midblock south of 01\_PM\_SB.xuf

### Project Information

Pro	ject Information					
Anal	/st	MAA	Date		6/16/2020	
Ager	су	WSP	Analysis Year		2020	
Juris	diction		Time Period Ana	lyzed	AM Peak Hour	
Proje	ct Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary	
		Se	gment 1			
Veh	icle Inputs					
Segment Type Passing Zone			Length, ft		5280	
Lane	Width, ft	12	Shoulder Width,	ft	3	
Spee	d Limit, mi/h	45	Access Point Der	nsity, pts/mi	8.0	
Der	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	275	Opposing Dema	nd Flow Rate, veh/h	216	
Peak	Hour Factor	0.92	Total Trucks, %		6.00	
Segn	nent Capacity, veh/h	1700	Demand/Capaci	ty (D/C)	0.16	
Inte	ermediate Results					
Segn	nent Vertical Class	1	Free-Flow Speed	l, mi/h	46.7	
Spee	d Slope Coefficient	2.84231	Speed Power Co	efficient	0.53479	
PF SI	ope Coefficient	-1.25072	PF Power Coeffic	cient	0.76831	
In Pa	ssing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	2.2	
%lm	proved % Followers	0.0	% Improved Avg	Speed	0.0	
Sub	segment Data		-			
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-	-	45.6	
Veh	icle Results					
Aver	age Speed, mi/h	45.6	Percent Follower	rs, %	37.1	
Segn	nent Travel Time, minutes	1.32	Followers Densit	y, followers/mi/ln	2.2	
Vehi	le LOS	A				

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HCS 1 Two-Lane Version 7.8.5 HCS - midblock 07-08\_AM\_EB.xuf

### Project Information

Pro	ject Information						
Anal	yst	MAA	Date			6/16/2020	
Ager	псу	WSP	Analys	is Year		2020	
Juris	diction		Time F	Period Analy	/zed	AM Peak Hour	
Proje	ect Description	CR 632, Shurts Rd to Ha Mill Rd	alls Unit			United States Customary	
		Se	gment	1			
Veł	icle Inputs						
Segr	nent Type	Passing Zone	Length	n, ft		5280	
Lane	Width, ft	12	Should	der Width, f	ť	3	
Spee	d Limit, mi/h	45	Access	Point Dens	sity, pts/mi	8.0	
Der	nand and Capacity						
Dire	tional Demand Flow Rate, veh/h	216	Орроз	ing Deman	d Flow Rate, veh/h	275	
Peak Hour Factor 0.92			Total T	rucks, %		6.00	
Segr	nent Capacity, veh/h	1700	Demai	nd/Capacity	/ (D/C)	0.13	
Inte	ermediate Results						
Segr	nent Vertical Class	1	Free-F	low Speed,	mi/h	46.7	
Spee	d Slope Coefficient	2.86175	Speed	Power Coe	fficient	0.52056	
PF SI	ope Coefficient	-1.26516	PF Pov	ver Coeffici	ent	0.76441	
In Pa	ssing Lane Effective Length?	No	Total S	egment De	ensity, veh/mi/ln	1.5	
%lm	proved % Followers	0.0	% Imp	roved Avg	Speed	0.0	
Sub	segment Data						
#	Segment Type	Length, ft	Radius, ft		Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	45.8	
Veł	icle Results	· · ·					
Aver	age Speed, mi/h	45.8	Percer	nt Followers	, %	32.5	
Segr	nent Travel Time, minutes	1.31	Follow	ers Density	, followers/mi/ln	1.5	
Vehi	cle LOS	A					
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HCS - midblock 07-08\_AM\_WB.xuf

### sight Informatio

Pro	ject Information					
Analy	vst	MAA	Date		6/16/2020	
Agen	су	WSP	Analysis Year		2020	
Juriso	diction		Time Period Ana	alyzed	PM Peak Hour	
Proje	ct Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary	
		Se	gment 1			
Veh	icle Inputs					
Segn	nent Type	Passing Zone	Length, ft		5280	
Lane	Width, ft	12	Shoulder Width,	, ft	3	
Spee	d Limit, mi/h	45	Access Point De	nsity, pts/mi	8.0	
Der	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	263	Opposing Dema	and Flow Rate, veh/h	334	
Peak Hour Factor 0.92			Total Trucks, %		4.00	
Segn	nent Capacity, veh/h	1700	Demand/Capaci	ty (D/C)	0.15	
Inte	ermediate Results					
Segn	nent Vertical Class	1	Free-Flow Speed	d, mi/h	46.8	
Spee	d Slope Coefficient	2.88282	Speed Power Co	pefficient	0.50851	
PF SI	ope Coefficient	-1.27779	PF Power Coeffi	cient	0.76093	
In Pa	ssing Lane Effective Length?	No	Total Segment D	Density, veh/mi/ln	2.1	
%lmp	proved % Followers	0.0	% Improved Ave	g Speed	0.0	
Sub	segment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-	-	45.6	
Veh	icle Results					
Avera	age Speed, mi/h	45.6	Percent Followe	rs, %	37.0	
Segn	nent Travel Time, minutes	1.32	Followers Densi	ty, followers/mi/ln	2.1	
Vehic	le LOS	A				

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HCS 1 Two-Lane Version 7.8.5 HCS - midblock 07-08\_PM\_EB.xuf

### Project Information

Pro	ject Information					
Anal	/st	MAA	Date		6/16/2020	
Ager	су	WSP	Analysis Year		2020	
Juris	diction		Time Period Anal	yzed	PM Peak Hour	
Proje	ct Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary	
		Se	gment 1			
Veł	icle Inputs					
Segr	nent Type	Passing Zone	Length, ft		5280	
Lane	Width, ft	12	Shoulder Width,	ft	3	
Spee	d Limit, mi/h	45	Access Point Den	sity, pts/mi	8.0	
Der	nand and Capacity					
Directional Demand Flow Rate, veh/h 334			Opposing Demar	nd Flow Rate, veh/h	263	
Peak	Hour Factor	0.92	Total Trucks, %		4.00	
Segr	nent Capacity, veh/h	1700	Demand/Capacit	y (D/C)	0.20	
Inte	ermediate Results					
Segr	nent Vertical Class	1	Free-Flow Speed,	mi/h	46.8	
Spee	d Slope Coefficient	2.86158	Speed Power Coe	efficient	0.52326	
PF SI	ope Coefficient	-1.26260	PF Power Coeffic	ient	0.76509	
In Pa	ssing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	3.1	
%lm	proved % Followers	0.0	% Improved Avg	Speed	0.0	
Sub	segment Data					
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-	-	45.4	
Veł	icle Results	· · ·		-		
Aver	age Speed, mi/h	45.4	Percent Followers	5, %	42.0	
Segr	nent Travel Time, minutes	1.32	Followers Density	ı, followers/mi/ln	3.1	
Vehi	le LOS	В				
Copvri	ght © 2020 University of Florida. All Rights	Reserved. HCSTM Tw	o-Lane Version 7.8.5		Generated: 06/22/2020 19:05:5	

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HCS T Two-Lane Version 7.8.5 HCS - midblock 07-08\_PM\_WB.xuf **2045 BUILD INTERSECTION ANALYSIS** 

#### Timings 3: RT 519 & US 46

	۶	-	4	-	1	1	۲	1	ţ	~	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4		4		र्स	1		र्स	1	
Traffic Volume (vph)	24	287	132	450	37	206	58	235	441	56	
Future Volume (vph)	24	287	132	450	37	206	58	235	441	56	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		4		8		2			6		
Permitted Phases	4		8		2		2	6		6	
Detector Phase	4	4	8	8	2	2	2	6	6	6	
Switch Phase											
Vinimum Initial (s)	40.0	40.0	40.0	40.0	7.0	7.0	7.0	7.0	7.0	7.0	
Vinimum Split (s)	47.0	47.0	47.0	47.0	12.0	12.0	12.0	12.0	12.0	12.0	
Total Split (s)	47.0	47.0	47.0	47.0	25.0	25.0	25.0	25.0	25.0	25.0	
Total Split (%)	65.3%	65.3%	65.3%	65.3%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	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	
ost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0	0.0	
Fotal Lost Time (s)		7.0		7.0		5.0	5.0		5.0	5.0	
_ead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	Max	Max	Max	Max	Мах	Мах	
Act Effct Green (s)		40.0		40.0		20.0	20.0		20.0	20.0	
Actuated g/C Ratio		0.56		0.56		0.28	0.28		0.28	0.28	
//c Ratio		0.46		1.06		2.68	0.14		2.40	0.14	
Control Delay		11.3		65.8		800.2	6.6		659.2	8.0	
Queue Delay		0.0		0.0		0.0	0.0		0.0	0.0	
Fotal Delay		11.3		65.8		800.2	6.6		659.2	8.0	
_OS		В		E		F	А		F	А	
Approach Delay		11.3		65.8		638.1			605.8		
Approach LOS		В		E		F			F		
ntersection Summary											
Cycle Length: 72											
Actuated Cycle Length: 72											
Vatural Cycle: 150											
Control Type: Semi Act-Unco	ord										
Maximum v/c Ratio: 2.68											
ntersection Signal Delay: 31	5.9			I	ntersectio	n LOS: F					
ntersection Capacity Utilizati		%				of Servic	еН				
1 2											
Analysis Period (min) 15	011130.3	/0			SO LEVEL	U Servic	еп				

Splits and Phases: 3: RT 519 & US 46

¶ø₂	<u>⊿</u> <sub>Ø4</sub>
25 s	47 s
	₩ Ø8
25 s	47 s

#### Timings <u>3: RT 519 & US 46</u>

	٦	-	4	-	•	1	1	1	Ļ	~	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		4		4		्र	1		र्भ	1	
Traffic Volume (vph)	51	380	59	498	80	388	102	118	213	43	
Future Volume (vph)	51	380	59	498	80	388	102	118	213	43	
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	Perm	NA	Perm	
Protected Phases		4		8		2			6		
Permitted Phases	4		8		2		2	6		6	
Detector Phase	4	4	8	8	2	2	2	6	6	6	
Switch Phase											
Minimum Initial (s)	40.0	40.0	40.0	40.0	7.0	7.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	47.0	47.0	47.0	47.0	12.0	12.0	12.0	12.0	12.0	12.0	
Total Split (s)	47.0	47.0	47.0	47.0	25.0	25.0	25.0	25.0	25.0	25.0	
Total Split (%)	65.3%	65.3%	65.3%	65.3%	34.7%	34.7%	34.7%	34.7%	34.7%	34.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	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	
Lost Time Adjust (s)		0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		7.0		7.0		5.0	5.0		5.0	5.0	
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	Мах	Max	Max	Мах	Max	Мах	
Act Effct Green (s)		40.0		40.0		20.0	20.0		20.0	20.0	
Actuated g/C Ratio		0.56		0.56		0.28	0.28		0.28	0.28	
v/c Ratio		0.65		0.82		2.48	0.24		5.70	0.11	
Control Delay		15.3		22.3		695.8	5.6		2155.2	6.0	
Queue Delay		0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		15.3		22.3		695.8	5.6		2155.2	6.0	
LOS		В		С		F	А		F	А	
Approach Delay		15.3		22.3		568.7			1899.0		
Approach LOS		В		С		F			F		
Intersection Summary											
Cycle Length: 72											
Actuated Cycle Length: 72											
Natural Cycle: 100											
Control Type: Semi Act-Unco	oord										
Maximum v/c Ratio: 5.70											
Intersection Signal Delay: 514.4 Intersection LOS: F											
Intersection Capacity Utilizati		%				of Servic	e G				
Analysis Period (min) 15											
, , , , , , , , , , , , , , , , , , ,											

Splits and Phases: 3: RT 519 & US 46

<b>™</b> ø2	 Ø4
25 s	47 s
	₩ Ø8
25 s	47 s

#### HCM Unsignalized Intersection Capacity Analysis 3: CR 519 & CR 623

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			4			4	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	74	315	44	227	598	199	7	237	62	152	561	152
Future Volume (vph)	74	315	44	227	598	199	7	237	62	152	561	152
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Hourly flow rate (vph)	80	394	48	247	748	216	8	296	67	165	701	165
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	522	1211	371	1031								
Volume Left (vph)	80	247	8	165								
Volume Right (vph)	48	216	67	165								
Hadj (s)	0.01	-0.03	-0.07	-0.03								
Departure Headway (s)	9.5	9.5	9.5	9.5								
Degree Utilization, x	1.38	3.19	0.98	2.72								
Capacity (veh/h)	387	393	371	390								
Control Delay (s)	213.2	1011.0	72.5	799.1								
Approach Delay (s)	213.2	1011.0	72.5	799.1								
Approach LOS	F	F	F	F								
Intersection Summary												
Delay			697.4									
Level of Service			F									
Intersection Capacity Utiliza	ation		156.5%	IC	U Level	of Service	;		Н			
Analysis Period (min)			15									

#### HCM Unsignalized Intersection Capacity Analysis 3: CR 519 & CR 623

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			\$			\$			\$	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	105	397	48	57	288	43	155	802	224	60	253	73
Future Volume (vph)	105	397	48	57	288	43	155	802	224	60	253	73
Peak Hour Factor	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92	0.92	0.80	0.92
Hourly flow rate (vph)	114	496	52	62	360	47	168	1003	243	65	316	79
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	662	469	1414	460								
Volume Left (vph)	114	62	168	65								
Volume Right (vph)	52	47	243	79								
Hadj (s)	0.02	0.00	-0.05	-0.04								
Departure Headway (s)	9.6	9.6	9.5	9.5								
Degree Utilization, x	1.76	1.25	3.74	1.22								
Capacity (veh/h)	380	382	382	383								
Control Delay (s)	376.7	159.7	1257.9	148.5								
Approach Delay (s)	376.7	159.7	1257.9	148.5								
Approach LOS	F	F	F	F								
Intersection Summary												
Delay			722.6									
Level of Service			F									
Intersection Capacity Utiliz	ation		132.3%	IC	U Level	of Service			Н			
Analysis Period (min)			15									

	<	•	1	1	1	ŧ	
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations	5	1	1	1		ર્શ	
Traffic Volume (veh/h)	1501	75	843	300	13	1734	
Future Volume (Veh/h)	1501	75	843	300	13	1734	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90	
Hourly flow rate (vph)	1668	94	937	333	16	1927	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)		2					
Median type			None			None	
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	2896	937			937		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2896	937			937		
tC, single (s)	6.4	6.2			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	0	71			98		
cM capacity (veh/h)	17	321			731		
Direction, Lane #	WB 1	NB 1	NB 2	SB 1			
Volume Total	1762	937	333	1943			
Volume Left	1668	0	0	1745			
Volume Right	94	0	333	0			
cSH	18	1700	1700	731			
Volume to Capacity	97.24	0.55	0.20	0.02			
Queue Length 95th (ft)	97.24 Err	0.55	0.20	0.02			
Control Delay (s)	En	0.0	0.0	0.1			
		0.0	0.0				
Lane LOS	F	0.0		A			
Approach Delay (s)	Err F	0.0		0.1			
Approach LOS	F						
Intersection Summary							
Average Delay			3541.4				
Intersection Capacity Utiliz	ation		191.4%	IC	U Level o	of Service	Э
Analysis Period (min)			15				

	<	•	1	1	1	Ŧ		
Movement	WBL	WBR	NBT	NBR	SBL	SBT		
Lane Configurations	۲	1	<b>†</b>	1		स		
Traffic Volume (veh/h)	364	513	2236	1280	9	756		
Future Volume (Veh/h)	364	513	2236	1280	9	756		
Sign Control	Stop		Free			Free		
Grade	0%		0%			0%		
Peak Hour Factor	0.90	0.80	0.90	0.90	0.80	0.90		
Hourly flow rate (vph)	404	641	2484	1422	11	840		
Pedestrians								
Lane Width (ft)								
Walking Speed (ft/s)								
Percent Blockage								
Right turn flare (veh)		2						
Median type			None			None		
Median storage veh)								
Upstream signal (ft)								
pX, platoon unblocked								
vC, conflicting volume	3346	2484			2484			
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	3346	2484			2484			
tC, single (s)	6.4	6.2			4.1			
tC, 2 stage (s)								
tF (s)	3.5	3.3			2.2			
p0 queue free %	0	0			94			
cM capacity (veh/h)	8	38			185			
Direction, Lane #	WB 1	NB 1	NB 2	SB 1				
Volume Total	1045	2484	1422	851				
Volume Left	404	0	0	11				
Volume Right	641	0	1422	0				
cSH	16	1700	1700	185				
Volume to Capacity	65.12	1.46	0.84	0.06				
Queue Length 95th (ft)	Err	0	0	5				
Control Delay (s)	Err	0.0	0.0	3.3				
Lane LOS	F	0.0	0.0	A				
Approach Delay (s)	Err	0.0		3.3				
Approach LOS	F	0.0		0.0				
Intersection Summary								
Average Delay			1801.4					
Intersection Capacity Utiliz	zation		156.1%	IC	Ulevel	of Service		
Analysis Period (min)			150.170					
			15					

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	Y			र्भ	4	
Traffic Volume (veh/h)	650	50	750	1128	1838	1607
Future Volume (Veh/h)	650	50	750	1128	1838	1607
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	813	63	938	1253	2042	2009
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	6176	3046	4051			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	6176	3046	4051			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	0	0			
cM capacity (veh/h)	0	17	44			
	EB 1	NB 1	SB 1			
Direction, Lane #						
Volume Total	876	2191	4051			
Volume Left	813	938	0			
Volume Right	63	0	2009			
cSH Valume te Conceitu	0	44	1700			
Volume to Capacity	Err	21.39	2.38			
Queue Length 95th (ft)	Err	Err	0			
Control Delay (s)	Err	9346.8	0.0			
Lane LOS	F	F				
Approach Delay (s)	Err	9346.8	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			Err			
Intersection Capacity Utiliz	ation		344.9%	IC	CU Level o	of Service
Analysis Period (min)			15			
			10			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	¥			र्स	4Î	
Traffic Volume (veh/h)	1103	1001	2	1129	1064	458
Future Volume (Veh/h)	1103	1001	2	1129	1064	458
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.90	0.80
Hourly flow rate (vph)	1379	1251	3	1254	1182	573
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)				10110	110110	
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2728	1468	1755			
vC1, stage 1 conf vol	2720	1400	1755			
vC2, stage 2 conf vol						
vCu, unblocked vol	2728	1468	1755			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	0.0	0.0	99			
cM capacity (veh/h)	23	158	361			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	2630	1257	1755			
Volume Left	1379	3	0			
Volume Right	1251	0	573			
cSH	38	361	1700			
Volume to Capacity	68.46	0.01	1.03			
Queue Length 95th (ft)	Err	1	0			
Control Delay (s)	Err	0.5	0.0			
Lane LOS	F	А				
Approach Delay (s)	Err	0.5	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			4661.1			
Intersection Capacity Utili	zation		213.0%	IC	CU Level o	of Service
Analysis Period (min)			15			
			10			

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	¥		4Î			र्स
Traffic Volume (veh/h)	188	250	427	1	100	3060
Future Volume (Veh/h)	188	250	427	1	100	3060
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	235	313	464	1	109	3326
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	4008	464			465	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	4008	464			465	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	48			90	
cM capacity (veh/h)	3	598			1096	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	548	465	3435			
Volume Left	235	0	109			
Volume Right	313	1	0			
cSH	7	1700	1096			
Volume to Capacity	81.69	0.27	0.10			
Queue Length 95th (ft)	Err	0	8			
Control Delay (s)	Err	0.0	0.3			
Lane LOS	F		А			
Approach Delay (s)	Err	0.0	0.3			
Approach LOS	F					
Intersection Summary						
Average Delay			1232.1			
Intersection Capacity Utiliza	ation		224.9%	IC	U Level o	of Service
Analysis Period (min)			15			

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Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	Y		eî.			र्भ
Traffic Volume (veh/h)	65	50	1654	12	32	992
Future Volume (Veh/h)	65	50	1654	12	32	992
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.80	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	81	63	1798	13	35	1078
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2952	1804			1811	
vC1, stage 1 conf vol	2702	1001			1011	
vC2, stage 2 conf vol						
vCu, unblocked vol	2952	1804			1811	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	0.11	0.2				
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	36			90	
cM capacity (veh/h)	14	99			339	
Direction, Lane #	WB 1	NB 1	SB 1			
Volume Total	144	1811	1113			
Volume Left	81	0	35			
Volume Right	63	13	0			
cSH	23	1700	339			
Volume to Capacity	6.23	1.07	0.10			
Queue Length 95th (ft)	Err	0	9			
Control Delay (s)	Err	0.0	5.1			
Lane LOS	F		А			
Approach Delay (s)	Err	0.0	5.1			
Approach LOS	F					
Intersection Summary						
Average Delay			471.2			
Intersection Capacity Utiliz	zation		101.1%	IC	U Level	of Service
Analysis Period (min)	201011		15		0 20101	
			10			

HCM Unsignalized Intersection Capacity Analysis 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd

3: CR 519 Belvide			•	•	•	Rd/CR	622 F	Roxbur	y Hill F	Rd	07/2	4/2020
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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		\$			÷			\$			\$	
Traffic Volume (veh/h)	189	1	17	8	51	12	1055	1735	4	1	656	1485
Future Volume (Veh/h)	189	1	17	8	51	12	1055	1735	4	1	656	1485
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	236	1	21	10	64	15	1319	1928	5	1	729	1856
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)								None			Nono	
Median type Median storage veh)								None			None	
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	6274	6230	1657	6249	7156	1930	2585			1933		
vC1, stage 1 conf vol	0274	0230	1037	0247	7150	1750	2303			1755		
vC2, stage 2 conf vol												
vCu, unblocked vol	6274	6230	1657	6249	7156	1930	2585			1933		
tC, single (s)	7.2	6.5	6.5	7.2	6.5	6.3	4.2			4.1		
tC, 2 stage (s)												
tF (s)	3.6	4.0	3.6	3.6	4.0	3.4	2.3			2.2		
p0 queue free %	0	0	80	0	0	81	0			100		
cM capacity (veh/h)	0	0	103	0	0	79	157			309		
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	258	89	3252	2586								
Volume Left	236	10	1319	1								
Volume Right	21	15	5	1856								
cSH	0	0	157	309								
Volume to Capacity	Err	Err	8.40	0.00								
Queue Length 95th (ft)	Err	Err	Err	0								
Control Delay (s)	Err	Err	1372.7	0.0								
Lane LOS	F	F	F	А								
Approach Delay (s)	Err	Err	1372.7	0.0								_
Approach LOS	F	F										
Intersection Summary												
Average Delay			Err									
Intersection Capacity Utiliz	ation		304.0%	IC	U Level	of Service			Н			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd 07/24/2020 ٠ 4 ŧ ٩ t ↘ ۴ £ `` SBL Movement EBT EBR WBL WBT WBR NBL NBT NBR EBL SBT SBR Lane Configurations 4 4 4 4 Traffic Volume (veh/h) 570 1 430 1027 14 586 1144 450 471 5 4 1 Future Volume (Veh/h) 570 1027 14 586 1144 450 430 5 1 1 4 471 Sign Control Stop Stop Free Free Grade 0% 0% 0% 0% Peak Hour Factor 0.80 0.80 0.80 0.80 0.80 0.80 0.90 0.80 0.80 0.90 0.80 0.80 Hourly flow rate (vph) 713 538 1284 1 1 18 651 5 1430 500 589 6 Pedestrians Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (ft) pX, platoon unblocked 4346 4346 794 5897 654 1089 656 vC, conflicting volume 4638 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 4346 4346 794 5897 4638 654 1089 656 tC, single (s) 7.1 6.5 6.2 7.1 6.5 6.2 4.6 4.1 tC, 2 stage (s) 3.5 2.2 tF (s) 4.0 3.3 3.5 4.0 3.3 2.7 p0 queue free % 0 96 0 0 0 0 0 100 cM capacity (veh/h) 0 0 385 0 0 471 491 941 Direction, Lane # EB 1 WB 1 NB 1 SB 1 Volume Total 2535 8 674 2519 Volume Left 18 1430 713 6 Volume Right 1284 1 5 589 cSH 0 0 491 941 Volume to Capacity Err Err 0.04 1.52 Queue Length 95th (ft) Err 3 1723 Err Control Delay (s) 253.4 Err Err 1.1 Lane LOS F F А F Approach Delay (s) Err Err 1.1 253.4 Approach LOS F F Intersection Summary Err Average Delay Intersection Capacity Utilization 272.3% ICU Level of Service Н Analysis Period (min) 15

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EBL	EBR	NBL	NBT	SBT	SBR
Y		٦	<b>†</b>		
1158	113	1494	1419	451	215
1158	113	1494	1419	451	215
Stop			Free	Free	
0%			0%	0%	
0.80	0.80	0.80	0.90	0.90	0.80
1448	141	1868	1577	501	269
			None	None	
5948	636	770			
5948	636	770			
6.4	6.2	4.1			
3.5	3.3	2.2			
0	71	0			
0	478	854			
EB 1	NB 1	NB 2	SB 1		
1589	1868	1577	770		
1448	1868	0	0		
141	0	0	269		
0	854	1700	1700		
Err	2.19	0.93	0.45		
Err	3303	0	0		
Err	551.8	0.0	0.0		
F	F				
Err	299.2		0.0		
F					
		Err			
tion			IC	: ]]] evel c	of Service
		_00.070			
	EBL Y 1158 1158 Stop 0% 0.80 1448 5948 6.4 3.5 0 0 EB 1 1589 1448 141 0 ER 1589 1448 141 0 Err Err F Err F Err F	EBL       EBR         11158       113         1158       113         1158       113         Stop       0%         0%       0.80         0%       0.80         1448       141         1448       141         5948       636         5948       636         6.4       6.2         3.5       3.3         0       71         0       478         EB 1       NB 1         1589       1868         1448       1868         141       0         0       854         Err       2.19         Err       303         Err       2.19         Err       2.99.2         F       F         Err       299.2         F       299.2         F       299.2	EBL       EBR       NBL         1158       113       1494         1158       113       1494         1158       113       1494         Stop       0%       0.80         0%       0.80       0.80         0%       0.80       0.80         1448       141       1868         1448       141       1868         5948       636       770         5948       636       770         6.4       6.2       4.1         3.5       3.3       2.2         0       71       0         0       478       854         EB1       NB1       NB2         1589       1868       1577         1448       1868       0         141       0       0         0       854       1700         EB1       NB1       NB2         1589       1868       1577         1448       1868       0         141       0       0         0       854       1700         Err       303       0         Err       2199.2	EBL       EBR       NBL       NBT         1158       113       1494       1419         1158       113       1494       1419         1158       113       1494       1419         158       113       1494       1419         Stop       Free       0%       0%         0.80       0.80       0.80       0.90         1448       141       1868       1577         5948       636       770       None         1589       1868       1577       770         1448       1868       0       0 <td>EBL         EBR         NBL         NBT         SBT           1158         113         1494         1419         451           1158         113         1494         1419         451           Stop         -         -         -         -           0%         0.80         0.80         0.90         0.90           1448         141         1868         1577         501           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           3.5         3.3         2.2         -         -           0         71         0         -         -           1589         1868         1577         770<!--</td--></td>	EBL         EBR         NBL         NBT         SBT           1158         113         1494         1419         451           1158         113         1494         1419         451           Stop         -         -         -         -           0%         0.80         0.80         0.90         0.90           1448         141         1868         1577         501           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           5948         636         770         -         -           3.5         3.3         2.2         -         -           0         71         0         -         -           1589         1868         1577         770 </td

Movement         EBL         EBR         NBL         NBT         SBT         SBR           Lane Configurations         1         1         1         1         1         1           Traffic Volume (veh/h)         86         1477         189         494         925         409           Future Volume (Veh/h)         86         1477         189         494         925         409           Sign Control         Stop         Free         Free         Free         Free         Grade         0%         0%         0%         Peedestians         0.80         0.80         0.80         0.90         0.90         0.80           Hourly flow rate (vph)         108         1846         236         549         1028         511           Pedestrians         Lane Width (ft)         Walking Speed (ft/s)         Percent Blockage         Right turn flare (veh)         More         None         None         More         None         More         None         More         VC, conflicting volume         2304         1284         1539         VC1, stage 1 conf vol         VC2, stage 2 conf vol         VC2         438         UPicting 108		≯	$\mathbf{i}$	1	1	Ļ	∢	
Lane Configurations       Y <thy< th="">       Y       <thy< th=""></thy<></thy<>	Movement	EBL	EBR	NBL	NBT	SBT	SBR	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $								1
Future Volume (Veh/h)       86       1477       189       494       925       409         Sign Control       Stop       Free       Free       Free       Free         Grade       0%       0.80       0.80       0.90       0.90       0.80         Hourly flow rate (vph)       108       1846       236       549       1028       511         Pedestrians       Lane Width (ft)       Walking Speed (ft/s)       Free       None       None         Percent Blockage       Right turn flare (veh)       Median storage veh)       Upstream signal (ft)       None       None         pX, platoon unblocked       vC, conflicting volume       2304       1284       1539       1539         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC4.       1539       1539       1539         vC2, stage 2 conf vol       vC4.       1539       1539       1539       1539       1539         vC4, unblocked vol       2304       1284       1539       1539       1539       1539         vC4, single (s)       6.4       6.2       4.1       1539       1539       1539       1539         vOlume Total       1954       236       549       1539       1539<			1477		-		409	
Sign Control         Stop         Free         Free           Grade         0%         0%         0%         0%           Peak Hour Factor         0.80         0.80         0.90         0.90         0.80           Hourly flow rate (vph)         108         1846         236         549         1028         511           Pedestrians         Lane Width (ft)         Values         511         511         511           Walking Speed (ft/s)         Percent Blockage         None         None         None           Median type         None         None         None         None           Median storage veh)         Upstream signal (ft)         pX, platoon unblocked         vC, conflicting volume         2304         1284         1539         VC1, stage 1 conf vol         vC2, stage 2 conf vol         vC2, stage 2 conf vol         vC2, stage 2 conf vol         VC2, stage (s)         Tfr (s)         3.3         2.2         p0 queue free %         0         0         46         CM capacity (veh/h)         19         201         438         Volume Total         1954         236         549         1539         Volume Total         1954         236         549         1539         Volume Left         108         236         0								
Grade       0%       0%       0%       0%         Peak Hour Factor       0.80       0.80       0.80       0.90       0.90       0.80         Hourly flow rate (vph)       108       1846       236       549       1028       511         Pedestrians          1028       511         Pedestrians           511         Pedestrians           511         Pedestrians          549       1028       511         Pedestrians            511         Percent Blockage                Right turn flare (veh) <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>								
Peak Hour Factor         0.80         0.80         0.80         0.90         0.90         0.80           Hourly flow rate (vph)         108         1846         236         549         1028         511           Pedestrians         Lane Width (ft)         Walking Speed (ft/s)         Fercent Blockage         511           Percent Blockage         Right turn flare (veh)         None         None         None           Median storage veh)         Upstream signal (ft)         FX, platoon unblocked         VC, conflicting volume         2304         1284         1539           VC1, stage 1 conf vol         VC2, stage 2 conf vol         VC2, stage 2 conf vol         VC2, stage 2 conf vol         VC2, stage (s)         VC1, stage (s)         6.4         6.2         4.1         VC1, stage (s)								
Hourly flow rate (vph)       108       1846       236       549       1028       511         Pedestrians       Lane Width (ft)       Walking Speed (ft/s)       Percent Blockage       Right turn flare (veh)         Median type       None       None       None         Median type       None       None       None         Median storage veh)       Upstream signal (ft)       pX, platoon unblocked       vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC4, at 1539       vC4, at 1539       vC4, at 1539         vC2, stage 2 conf vol       vC4, unblocked vol       2304       1284       1539       vC4, at 1539         vC4, unblocked vol       2304       1284       1539       vC4, at 1539       vC4, at 1539         vC4, unblocked vol       2304       1284       1539       vC4, at 1539       vC4, at 1539         vC5, stage (s)       tF (s)       3.5       3.3       2.2       p0 queue free %       0       0       46         CM capacity (veh/h)       19       201       438       volume 164       volume 236       549       1539         Volume Total       1954       236       549       1539       volume 164<			0.80	0.80			0.80	
Pedestrians         Lane Width (ft)         Walking Speed (ft/s)         Percent Blockage         Right turn flare (veh)         Median type       None         Median storage veh)         Upstream signal (ft)         pX, platoon unblocked         vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol         vC2, stage 2 conf vol         vC4, unblocked vol       2304       1284       1539         tC, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       tF (s)       3.5       3.3       2.2         p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Kight       1846       0       511       csH         CSH       133       438       1700       1700         Volume to Capacity								
Lane Width (ft) Walking Speed (ft/s) Percent Blockage Right turn flare (veh) Median type None None Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 2304 1284 1539 vC1, stage 1 conf vol vC2, stage 2 conf vol vC4, unblocked vol 2304 1284 1539 tC, single (s) 6.4 6.2 4.1 tC, 2 stage (s) tF (s) 3.5 3.3 2.2 p0 queue free % 0 0 46 cM capacity (veh/h) 19 201 438 Direction, Lane # EB 1 NB 1 NB 2 SB 1 Volume Total 1954 236 549 1539 Volume Total 1954 236 549 1539 Volume Left 108 236 0 0 Volume Right 1846 0 0 511 cSH 133 438 1700 1700 Volume Right 1846 0 0 511 cSH 133 438 1700 1700 Volume to Capacity 14.71 0.54 0.32 0.91 Queue Length 95th (ft) Err 78 0 0 Control Delay (s) Err 22.5 0.0 0.0 Lane LOS F C Approach Delay (s) Err 6.8 0.0 Approach LOS F Intersection Summary								
Walking Speed (ft/s)         Percent Blockage         Right turn flare (veh)         Median type       None         Median storage veh)         Upstream signal (ft)         pX, platoon unblocked         vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol         vC2, stage 2 conf vol       vCu, unblocked vol       2304       1284       1539         vC1, stage 1 conf vol       vCu, unblocked vol       2304       1284       1539         vC2, stage 2 conf vol       vCu, unblocked vol       2304       1284       1539         vC1, stage 1 conf vol       vCu, unblocked vol       2304       1284       1539         vCu, unblocked vol       2304       1284       1539       100         vG, apacity (veh/h)       19       201       438       100         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700     <								
Percent Blockage         Right turn flare (veh)         Median type       None       None         Median storage veh)       Upstream signal (ft)       None       None         My particular signal (ft)       X       Particular signal (ft)       None       None         VC, conflicting volume       2304       1284       1539       State       State         VC1, stage 1 conf vol       VC2, stage 2 conf vol       VC2, stage 3       State								
Right turn flare (veh)NoneNoneNoneMedian storage veh)Upstream signal (ft)NoneNoneVX, platoon unblocked230412841539vC1, stage 1 conf volvC2, stage 2 conf volVC2, stage 2 conf volvC2, stage 2 conf volVC4, unblocked vol230412841539VC1, single (s)6.46.24.1tC, 2 stage (s)trtrtrtF (s)3.53.32.2p0 queue free %0046cM capacity (veh/h)19201438Direction, Lane #EB 1NB 1NB 2SB 1Volume Total19542365491539Volume Left10823600Volume Right184600511cSH13343817001700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err7800Control Delay (s)Err2.50.00.0Lane LOSFCApproach Delay (s)ErrApproach LOSF </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
Median typeNoneNoneMedian storage veh)Upstream signal (ft)pX, platoon unblocked2304vC, conflicting volume2304vC1, stage 1 conf volvC2, stage 2 conf volvC2, stage 2 conf volvCu, unblocked volvC3, stage 2 conf vol2304vC4, unblocked vol2304vC5, single (s)6.46.46.24.14.1tC, 2 stage (s)tF (s)3.53.53.32.2p0 queue free %00044cM capacity (veh/h)19201438Direction, Lane #EB 1NB 1NB 2SB 1Volume Total1954195423600Volume Left10810823600Volume Right18461334381700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err780Control Delay (s)Err6.80.0Approach LoSFIntersection Summary								
Median storage veh)       Upstream signal (ft)         pX, platoon unblocked       vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC2, stage 2 conf vol       vC2, stage 2 conf vol         vCu, unblocked vol       2304       1284       1539         tC, single (s)       6.4       6.2       4.1         tC, stage (s)       tr       tr       tr         tF (s)       3.5       3.3       2.2         p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       6.8       0.0       Approach D					None	None		
Upstream signal (ft)         pX, platoon unblocked         vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol         vC2, stage 2 conf vol         vCu, unblocked vol       2304       1284       1539         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       tr       tr       tr         tF (s)       3.5       3.3       2.2         p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>								
pX, platoon unblocked         vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol         vC2, stage 2 conf vol         vCu, unblocked vol       2304       1284       1539         vCu, unblocked vol       2304       1284       1539         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       t       t       t         tF (s)       3.5       3.3       2.2       p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438       438       46       6.4       6.2       58 1         Volume Total       1954       236       549       1539       511       511         volume Left       108       236       0       0       0       511         cSH       133       438       1700       1700       700	5,							
vC, conflicting volume       2304       1284       1539         vC1, stage 1 conf vol       vC2, stage 2 conf vol       vC4, unblocked vol       2304       1284       1539         vCu, unblocked vol       2304       1284       1539       tc, single (s)       6.4       6.2       4.1         tC, single (s)       6.4       6.2       4.1       tc, single (s)       ten to the second seco								
vC1, stage 1 conf volvC2, stage 2 conf volvCu, unblocked vol230412841539tC, single (s)6.46.24.1tC, 2 stage (s)tF (s) $3.5$ $3.3$ $2.2$ p0 queue free %0046cM capacity (veh/h)19201438Direction, Lane #EB 1NB 1NB 2SB 1Volume Total19542365491539Volume Right184600511cSH13343817001700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err7800Control Delay (s)Err22.50.00.0Lane LOSFCApproach LOSFIntersection SummaryF6.80.0		2304	1284	1539				
vC2, stage 2 conf vol         vCu, unblocked vol       2304       1284       1539         tC, single (s)       6.4       6.2       4.1         tC, 2 stage (s)       t       t       t         tF (s)       3.5       3.3       2.2         p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C       C       Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary       Intersection Summary       Intersection Summary		2001	1201	1007				
vCu, unblocked vol230412841539tC, single (s) $6.4$ $6.2$ $4.1$ tC, 2 stage (s) $1539$ tF (s) $3.5$ $3.3$ $2.2$ p0 queue free %0046cM capacity (veh/h)19201438Direction, Lane #EB 1NB 1NB 2SB 1Volume Total19542365491539Volume Left10823600Volume Right184600511cSH13343817001700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err7800Control Delay (s)Err22.50.00.0Lane LOSFCApproach Delay (s)ErrApproach LOSFIntersection SummaryIntersection Summary								
tC, single (s) $6.4$ $6.2$ $4.1$ tC, 2 stage (s) $3.5$ $3.3$ $2.2$ p0 queue free %00 $46$ cM capacity (veh/h)19201 $438$ Direction, Lane #EB 1NB 1NB 2SB 1Volume Total19542365491539Volume Left10823600Volume Right184600511cSH13343817001700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err7800Control Delay (s)Err22.50.00.0Lane LOSFCApproach Delay (s)Err6.80.0Approach LOSFIntersection SummaryIntersection SummaryIntersection Summary		2304	1284	1539				
tC, 2 stage (s)         tF (s)       3.5       3.3       2.2         p0 queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C       Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary       Intersection Summary       Intersection Summary								
tF (s) $3.5$ $3.3$ $2.2$ p0 queue free %0046cM capacity (veh/h)19201438Direction, Lane #EB 1NB 1NB 2SB 1Volume Total19542365491539Volume Left10823600Volume Right184600511cSH13343817001700Volume to Capacity14.710.540.320.91Queue Length 95th (ft)Err7800Control Delay (s)Err22.50.00.0Lane LOSFCApproach Delay (s)Err6.80.0Approach LOSFIntersection Summary		0.1	0.2					
p0       queue free %       0       0       46         cM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C       C         Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary       F		35	33	22				
CM capacity (veh/h)       19       201       438         Direction, Lane #       EB 1       NB 1       NB 2       SB 1         Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         CSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C       C         Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary								
Direction, Lane #         EB 1         NB 1         NB 2         SB 1           Volume Total         1954         236         549         1539           Volume Left         108         236         0         0           Volume Right         1846         0         0         511           cSH         133         438         1700         1700           Volume to Capacity         14.71         0.54         0.32         0.91           Queue Length 95th (ft)         Err         78         0         0           Control Delay (s)         Err         22.5         0.0         0.0           Lane LOS         F         C         C         Approach Delay (s)         Err         6.8         0.0           Approach LOS         F         Intersection Summary         F         C         C         C								
Volume Total       1954       236       549       1539         Volume Left       108       236       0       0         Volume Right       1846       0       0       511         cSH       133       438       1700       1700         Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C       C         Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary								
Volume Left         108         236         0         0           Volume Right         1846         0         0         511           cSH         133         438         1700         1700           Volume to Capacity         14.71         0.54         0.32         0.91           Queue Length 95th (ft)         Err         78         0         0           Control Delay (s)         Err         22.5         0.0         0.0           Lane LOS         F         C         C           Approach Delay (s)         Err         6.8         0.0           Approach LOS         F         Intersection Summary         F								
Volume Right         1846         0         0         511           cSH         133         438         1700         1700           Volume to Capacity         14.71         0.54         0.32         0.91           Queue Length 95th (ft)         Err         78         0         0           Control Delay (s)         Err         22.5         0.0         0.0           Lane LOS         F         C         C           Approach Delay (s)         Err         6.8         0.0           Approach LOS         F         Intersection Summary         F								
cSH     133     438     1700     1700       Volume to Capacity     14.71     0.54     0.32     0.91       Queue Length 95th (ft)     Err     78     0     0       Control Delay (s)     Err     22.5     0.0     0.0       Lane LOS     F     C       Approach Delay (s)     Err     6.8     0.0       Approach LOS     F     Intersection Summary								
Volume to Capacity       14.71       0.54       0.32       0.91         Queue Length 95th (ft)       Err       78       0       0         Control Delay (s)       Err       22.5       0.0       0.0         Lane LOS       F       C         Approach Delay (s)       Err       6.8       0.0         Approach LOS       F       Intersection Summary								
Queue Length 95th (ft)Err7800Control Delay (s)Err22.50.00.0Lane LOSFCApproach Delay (s)Err6.80.0Approach LOSFIntersection Summary								
Control Delay (s)Err22.50.00.0Lane LOSFCApproach Delay (s)Err6.80.0Approach LOSFIntersection Summary								
Lane LOSFCApproach Delay (s)Err6.80.0Approach LOSFIntersection Summary								
Approach Delay (s)     Err     6.8     0.0       Approach LOS     F       Intersection Summary		_	-	0.0	0.0			
Approach LOS F Intersection Summary								
Intersection Summary			6.8		0.0			
	Approach LOS	F						
	Intersection Summary							
Average Delay 4568.3	Average Delay			4568.3				
Intersection Capacity Utilization 190.2% ICU Level of Service		zation		190.2%	IC	CU Level o	of Service	
Analysis Period (min) 15				15				

07/23/2020

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Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	- M		eî.			र्भ
Traffic Volume (veh/h)	2	754	1176	8	302	430
Future Volume (Veh/h)	2	754	1176	8	302	430
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	3	838	1307	10	336	478
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	2462	1312			1317	
vC1, stage 1 conf vol	2.02					
vC2, stage 2 conf vol						
vCu, unblocked vol	2462	1312			1317	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3			2.2	
p0 queue free %	75	0			35	
cM capacity (veh/h)	12	191			515	
			CW 1		010	
Direction, Lane #	NB 1	NE 1	SW 1			
Volume Left	841 3	1317 0	814 336			
	3 838	10				
Volume Right cSH	181	1700	0 515			
Volume to Capacity	4.64	0.77	0.65			
Queue Length 95th (ft)	Err	0	116			
Control Delay (s)	Err	0.0	22.8 C			
Lane LOS	F	0.0				
Approach Delay (s)	Err	0.0	22.8			
Approach LOS	F					
Intersection Summary						
Average Delay			2835.7			
Intersection Capacity Utiliza	tion		158.5%	IC	U Level	of Service
Analysis Period (min)			15			

07/23/2020

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Movement	NBL	NBR	NET	NER	SWL	SWT
Lane Configurations	Y		4Î			र्भ
Traffic Volume (veh/h)	12	340	358	5	702	1334
Future Volume (Veh/h)	12	340	358	5	702	1334
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.80	0.90	0.90	0.80	0.90	0.90
Hourly flow rate (vph)	15	378	398	6	780	1482
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	3443	401			404	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	3443	401			404	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	0	41			31	
cM capacity (veh/h)	2	643			1139	
Direction, Lane #	NB 1	NE 1	SW 1			
Volume Total	393	404	2262			
Volume Left	15	0	780			
Volume Right	378	6	0			
cSH	59	1700	1139			
Volume to Capacity	6.66	0.24	0.69			
Queue Length 95th (ft)	Err	0	144			
Control Delay (s)	Err	0.0	14.7			
Lane LOS	F		В			
Approach Delay (s)	Err	0.0	14.7			
Approach LOS	F					
Intersection Summary						
Average Delay			1295.5			
Intersection Capacity Utiliz	zation		159.9%	IC	CU Level	of Service
Analysis Period (min)			15			
			15			

#### Timings 3: CR 519 Uniontown Rd & NJ 57

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		\$		\$		\$		4	
Traffic Volume (vph)	284	356	28	290	36	330	3	125	
Future Volume (vph)	284	356	28	290	36	330	3	125	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		50.0		50.0		25.0		25.0	
Actuated g/C Ratio		0.56		0.56		0.28		0.28	
v/c Ratio		1.18		0.47		1.09		0.42	
Control Delay		120.2		13.7		100.2		27.4	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		120.2		13.7		100.2		27.4	
LOS		F		В		F		С	
Approach Delay		120.2		13.7		100.2		27.4	
Approach LOS		F		В		F		С	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Referen	ced to pha	se 4:EBT	L and 8:	NBTL, St	art of Yel	low			
Natural Cycle: 140									
Control Type: Actuated-Coo	rdinated								
Maximum v/c Ratio: 1.18									
Intersection Signal Delay: 8	1.5			Ir	ntersectio	n LOS: F			
Intersection Capacity Utiliza		%			CU Level		e H		
Analysis Period (min) 15									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

M Ø2		1
33 s	57 s	
Ø6	₩ Ø8 (R)	
33 s	57 s	

#### Timings 3: CR 519 Uniontown Rd & NJ 57

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		4		4		4		4	
Traffic Volume (vph)	31	264	145	571	34	295	3	294	
Future Volume (vph)	31	264	145	571	34	295	3	294	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)		0.0		0.0		0.0		0.0	
Total Lost Time (s)		7.0		7.0		8.0		8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)		50.0		50.0		25.0		25.0	
Actuated g/C Ratio		0.56		0.56		0.28		0.28	
v/c Ratio		0.45		1.00		1.57		1.50	
Control Delay		13.3		52.8		298.6		259.2	
Queue Delay		0.0		0.0		0.0		0.0	
Total Delay		13.3		52.8		298.6		259.2	
LOS		В		D		F		F	
Approach Delay		13.3		52.8		298.6		259.2	
Approach LOS		В		D		F		F	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Referen	ced to pha	se 4:EBT	L and 8:	NBTL. St	art of Yel	low			
Natural Cycle: 140									
Control Type: Actuated-Coo	rdinated								
Maximum v/c Ratio: 1.57									
Intersection Signal Delay: 1	57.5			Ir	ntersectio	n LOS: F			
Intersection Capacity Utiliza		%				of Servic	еH		
Analysis Period (min) 15									
J									

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

M Ø2		1
33 s	57 s	
Ø6	₩ Ø8 (R)	
33 s	57 s	

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	5	1		र्भ	4Î	
Traffic Volume (veh/h)	102	254	89	386	326	67
Future Volume (Veh/h)	102	254	89	386	326	67
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.80	0.90	0.80	0.80	0.90	0.80
Hourly flow rate (vph)	128	282	111	483	362	84
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	1109	404	446			
vC1, stage 1 conf vol	1107	FOF	011			
vC2, stage 2 conf vol						
vCu, unblocked vol	1109	404	446			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.4	0.2	7.1			
tF (s)	3.5	3.3	2.2			
p0 queue free %	39	57	90			
cM capacity (veh/h)	211	651	1125			
Direction, Lane #	EB 1	EB 2	NB 1	SB 1		
Volume Total	128	282	594	446		
Volume Left	128	0	111	0		
Volume Right	0	282	0	84		
cSH	211	651	1125	1700		
Volume to Capacity	0.61	0.43	0.10	0.26		
Queue Length 95th (ft)	87	55	8	0		
Control Delay (s)	45.3	14.7	2.6	0.0		
Lane LOS	E	В	А			
Approach Delay (s)	24.3		2.6	0.0		
Approach LOS	С					
Intersection Summary						
Average Delay			7.9			
Intersection Capacity Utiliz	zation		62.1%	10	CU Level o	of Service
Analysis Period (min)			15			
			10			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations	ሻ	1		र्स	4Î		
Traffic Volume (veh/h)	133	178	215	474	556	121	
Future Volume (Veh/h)	133	178	215	474	556	121	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.80	0.80	0.90	0.90	0.90	0.80	
Hourly flow rate (vph)	166	223	239	527	618	151	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh)							
Upstream signal (ft)							
pX, platoon unblocked							
vC, conflicting volume	1698	694	769				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1698	694	769				
tC, single (s)	6.4	6.2	4.1				
tC, 2 stage (s)							
tF (s)	3.5	3.3	2.2				
p0 queue free %	0	50	72				
cM capacity (veh/h)	74	447	854				
Direction, Lane #	EB 1	EB 2	NB 1	SB 1			
Volume Total	166	223	766	769			
Volume Left	166	0	239	0			
Volume Right	0	223	0	151			
cSH	74	447	854	1700			
Volume to Capacity	2.25	0.50	0.28	0.45			
Queue Length 95th (ft)	388	68	29	0			
Control Delay (s)	691.7	20.8	6.4	0.0			
Lane LOS	F	С	А				
Approach Delay (s)	307.1		6.4	0.0			
Approach LOS	F						
Intersection Summary							
Average Delay			64.6				
Intersection Capacity Utiliz	zation		90.8%	IC	CU Level o	of Service	
Analysis Period (min)			15				

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲	1		<b>†</b>	1	
Traffic Volume (veh/h)	1059	129	0	385	105	0
Future Volume (Veh/h)	1059	129	0	385	105	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	1151	140	0	418	114	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type		-		None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	532	114	114			
vC1, stage 1 conf vol	001					
vC2, stage 2 conf vol						
vCu, unblocked vol	532	114	114			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)	0.1	0.2				
tF (s)	3.5	3.3	2.2			
p0 queue free %	0	85	100			
cM capacity (veh/h)	508	939	1475			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	1291	418	114			
Volume Left	1151	0	0			
Volume Right	140	0	0			
cSH	536	1700	1700			
Volume to Capacity	2.41	0.25	0.07			
Queue Length 95th (ft)	2482	0	0			
Control Delay (s)	657.2	0.0	0.0			
Lane LOS	F					
Approach Delay (s)	657.2	0.0	0.0			
Approach LOS	F					
Intersection Summary						
Average Delay			465.4			
Intersection Capacity Utiliz	zation		85.6%	IC	CU Level o	of Service
Analysis Period (min)			15			
			10			

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Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	۲	1		<b>†</b>	<b>†</b>	
Traffic Volume (veh/h)	261	52	0	124	328	0
Future Volume (Veh/h)	261	52	0	124	328	0
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.92	0.92	1.00	0.92	0.92	1.00
Hourly flow rate (vph)	284	57	0	135	357	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)		6				
Median type				None	None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	492	357	357			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	492	357	357			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	47	92	100			
cM capacity (veh/h)	536	687	1202			
Direction, Lane #	EB 1	NB 1	SB 1			
Volume Total	341	135	357			
Volume Left	284	0	0			
Volume Right	57	0	0			
cSH	644	1700	1700			
Volume to Capacity	0.53	0.08	0.21			
Queue Length 95th (ft)	78	0	0			
Control Delay (s)	17.6	0.0	0.0			
Lane LOS	С					
Approach Delay (s)	17.6	0.0	0.0			
Approach LOS	С					
Intersection Summary						
Average Delay			7.2			
Intersection Capacity Utiliza	otion		38.4%	IC	CU Level o	of Sorvico
	alion		JU.470			JEIVICE

2045 BUILD MID-BLOCK ANALYSIS

Project Information					
Analyst	MAA	Date		6/16/2020	
Agency	WSP	Analysis Year		2020	
Jurisdiction		Time Period Ana	lyzed	AM Peak Hour	
Project Description	CR 519, northeast of CC 610	D Unit		United States Customary	
	Se	gment 1			
Vehicle Inputs					
Segment Type	Passing Zone	Length, ft		5280	
Lane Width, ft	12	Shoulder Width,	ft	3	
Speed Limit, mi/h	50	Access Point Der	nsity, pts/mi	9.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h	343	Opposing Dema	nd Flow Rate, veh/h	879	
Peak Hour Factor	0.92	Total Trucks, %		2.00	
Segment Capacity, veh/h 1700		Demand/Capacit	ry (D/C)	0.20	
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed	Free-Flow Speed, mi/h		
Speed Slope Coefficient	3.31611	Speed Power Coefficient		0.44498	
PF Slope Coefficient	-1.32825	PF Power Coeffic	ient	0.75770	
In Passing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	3.0	
%Improved % Followers	0.0	% Improved Avg	Speed	0.0	
Subsegment Data					
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-	-	50.8	
Vehicle Results					
Average Speed, mi/h	50.8	Percent Follower	s, %	44.6	
Segment Travel Time, minutes	1.18	Followers Densit	Followers Density, followers/mi/ln		
Vehicle LOS	В				

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Project Information					
Analyst	МАА	Date		6/16/2020	
Agency	WSP	Analysis Year		2020	
Jurisdiction		Time Period Ana	alyzed	AM Peak Hour	
Project Description	CR 519, northeast of CO 610	D Unit		United States Customary	
	Se	gment 1			
Vehicle Inputs					
Segment Type	Passing Zone	Length, ft		5280	
Lane Width, ft	12	Shoulder Width,	ft	3	
Speed Limit, mi/h	50	Access Point De	nsity, pts/mi	9.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h	879	Opposing Dema	and Flow Rate, veh/h	343	
Peak Hour Factor	0.92	Total Trucks, %		2.00	
Segment Capacity, veh/h 1700		Demand/Capaci	ty (D/C)	0.52	
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed	52.6		
Speed Slope Coefficient	3.20083 Speed Power Co		pefficient	0.50667	
PF Slope Coefficient	-1.26944	PF Power Coeffic	cient	0.77916	
In Passing Lane Effective Length?	No	Total Segment D	Density, veh/mi/ln	12.1	
%Improved % Followers	0.0	% Improved Avg	y Speed	0.0	
Subsegment Data					
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-	-	49.8	
Vehicle Results					
Average Speed, mi/h	49.8	Percent Followe	rs, %	68.3	
Segment Travel Time, minutes	1.21	Followers Densit	Followers Density, followers/mi/ln		
Vehicle LOS	D				

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Project Information					
Analyst	МАА	Date		6/16/2020	
Agency	WSP	Analysis Year		2020	
Jurisdiction		Time Period Ana	alyzed	PM Peak Hour	
Project Description	CR 519, northeast of CO 610	D Unit		United States Customary	
	Se	gment 1			
Vehicle Inputs					
Segment Type	Passing Zone	Length, ft		5280	
Lane Width, ft	12	Shoulder Width,	, ft	3	
Speed Limit, mi/h	50	Access Point De	nsity, pts/mi	9.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h	614	Opposing Dema	and Flow Rate, veh/h	399	
Peak Hour Factor	0.92	Total Trucks, %		2.00	
Segment Capacity, veh/h 1700		Demand/Capaci	ty (D/C)	0.36	
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed	d, mi/h	52.6	
Speed Slope Coefficient	3.21576	Speed Power Co	pefficient	0.49701	
PF Slope Coefficient	-1.27872	PF Power Coeffi	cient	0.77628	
In Passing Lane Effective Length?	No	Total Segment D	Density, veh/mi/ln	7.1	
%Improved % Followers	0.0	% Improved Ave	g Speed	0.0	
Subsegment Data					
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-	-	50.3	
Vehicle Results					
Average Speed, mi/h	50.3	Percent Followe	rs, %	58.3	
Segment Travel Time, minutes	1.19	Followers Densi	Followers Density, followers/mi/ln		
Vehicle LOS	С				

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# HCS7 Two-Lane Highway Report

## sight Informatio

Pro	ject Information					
Analy	vst	MAA		Date		6/16/2020
Agen	су	WSP		Analysis Year		2020
Jurisc	diction			Time Period Analy	/zed	PM Peak Hour
Proje	ct Description	CR 519, northeast of C 610	0	Unit		United States Customary
		S	egn	nent 1		
Veh	icle Inputs					
Segn	nent Type	Passing Zone		Length, ft		5280
Lane	Width, ft	12		Shoulder Width, f	t	3
Spee	d Limit, mi/h	50		Access Point Dens	sity, pts/mi	9.0
Den	nand and Capacity					
Direc	tional Demand Flow Rate, veh/h	399		Opposing Deman	d Flow Rate, veh/h	303
Peak	Hour Factor	0.92		Total Trucks, %		2.00
Segment Capacity, veh/h 1700				Demand/Capacity	/ (D/C)	0.23
Inte	ermediate Results					
Segm	nent Vertical Class	1		Free-Flow Speed,	mi/h	52.6
Spee	d Slope Coefficient	3.18924		Speed Power Coefficient		0.51453
PF SI	ope Coefficient	-1.26192		PF Power Coefficient		0.78143
In Pa	ssing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.6
%lmp	proved % Followers	0.0	% Improved Avg S		Speed	0.0
Sub	segment Data			-		
#	Segment Type	Length, ft	Rac	dius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-		50.9
Veh	icle Results	•			•	
Avera	age Speed, mi/h	50.9		Percent Followers, %		46.0
Segm	nent Travel Time, minutes	1.18		Followers Density	, followers/mi/ln	3.6
Vehic	le LOS	В				
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	HCS7 Two-	Lane	Highway Re	eport	
Project Information					
Analyst	MAA		Date		6/17/2020
Agency	WSP		Analysis Year		2020
Jurisdiction			Time Period Analy	zed	AM Peak Hour
Project Description	CR 519, Stone Hedg to Hope Crossing R		Unit		United States Customary
		Segn	nent 1		
Vehicle Inputs					
Segment Type	Passing Constrained	d	Length, ft		5280
Lane Width, ft	12		Shoulder Width, f	t	6
Speed Limit, mi/h	50		Access Point Dens	iity, pts/mi	0.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h 385			Opposing Deman	-	
Peak Hour Factor	0.80		Total Trucks, %		3.00
Segment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.23
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed, mi/h		56.9
Speed Slope Coefficient	3.64416		Speed Power Coefficient		0.41674
PF Slope Coefficient	-1.32222		PF Power Coefficie	ent	0.75266
In Passing Lane Effective Length	? No	No		nsity, veh/mi/ln	3.3
%Improved % Followers	0.0		% Improved Avg Speed 0.0		
Subsegment Data					
# Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	54.7
Vehicle Results				· 	
Average Speed, mi/h	54.7		Percent Followers, %		47.5
Segment Travel Time, minutes 1.10			Followers Density, followers/mi/ln 3.3		

Vehicle LOS

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HCS7 Two-La	ne Hiahwa	av Renort	
			_
MAA	Date		6/17/2020
WSP	Analysis Ye	ar	2020
	Time Period	d Analyzed	AM Peak Hour
CR 519, Stone Hedge R to Hope Crossing Rd	d Unit		United States Customary
Se	gment 1		
Passing Constrained	Length, ft		5280
12	Shoulder W	/idth, ft	6
50	Access Poir	nt Density, pts/mi	0.0
Directional Demand Flow Rate, veh/h 887			h/h -
0.84	Total Trucks	5, %	3.00
1700	Demand/C	apacity (D/C)	0.52
1	Free-Flow S	Speed, mi/h	56.9
3.64416	Speed Pow	er Coefficient	0.41674
-1.32222	PF Power C	oefficient	0.75266
No	Total Segm	ent Density, veh/mi/In	n 11.6
0.0	% Improve	d Avg Speed	0.0
Segment Type Length, ft Ra		Superelevatio	n, % Average Speed, mi/h
5280	-	-	53.6
53.6	Percent Fol	Percent Followers, % 70.1	
Segment Travel Time, minutes 1.12 Followers Density,			
	MAA         WSP         CR 519, Stone Hedge R         to Hope Crossing Rd         Passing Constrained         12         50         887         0.84         1700         1         3.64416         -1.32222         No         0.0         Length, ft         5280	MAA       Date         WSP       Analysis Yeat         Image: CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         Segment 1       Image: CR 519, Stone Hedge Rd to Hope Crossing Rd       Unit         Passing Constrained       Length, ft         12       Shoulder W         50       Access Point         887       Opposing R         0.84       Total Trucks         1700       Demand/Ca         1       Free-Flow S         3.64416       Speed Pow         1.32222       PF Power C         No       Total Segm         0.0       % Improver         Length, ft       Radius, ft         5280       -         53.6       Percent Fol	WSP       Analysis Year         Image: Part of the period Analyzed       Unit         Segment 1         Segment 1         Passing Constrained       Length, ft         12       Shoulder Width, ft         50       Access Point Density, pts/mi         887       Opposing Demand Flow Rate, veret         0.84       Total Trucks, %         1700       Demand/Capacity (D/C)         1       Free-Flow Speed, mi/h         3.64416       Speed Power Coefficient         1.32222       PF Power Coefficient         No       Total Segment Density, veh/mi/lr         0.0       % Improved Avg Speed         Improved Avg Speed       -         Stato       Percent Followers, %

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Vehicle LOS

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	HCS7 Two-La	no Highway D	oport	
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Project Information				
Analyst	MAA	Date		6/17/2020
Agency	WSP	Analysis Year		2020
Jurisdiction		Time Period Analy	/zed	PM Peak Hour
Project Description	CR 519, Stone Hedge Ro to Hope Crossing Rd	d Unit		United States Customary
	Se	gment 1		
Vehicle Inputs				
Segment Type	Passing Constrained	Length, ft		5280
Lane Width, ft	12	Shoulder Width, f	ťt	6
Speed Limit, mi/h	50	50 Access Point Density, pts/mi		0.0
Demand and Capacity				
Directional Demand Flow Rate, veh/h	334	Opposing Deman	d Flow Rate, veh/h	-
Peak Hour Factor	0.90	Total Trucks, %		3.00
Segment Capacity, veh/h 1700		Demand/Capacity	0.20	
Intermediate Results				
Segment Vertical Class	1	Free-Flow Speed,	mi/h	56.9
Speed Slope Coefficient	3.64416	Speed Power Coe	fficient	0.41674
PF Slope Coefficient	-1.32222	PF Power Coeffici	ent	0.75266
In Passing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	2.7
%Improved % Followers	0.0	0.0 % Improved Avg S		0.0
Subsegment Data				
# Segment Type	ment Type Length, ft Ra		Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-	-	54.9
Vehicle Results				
Average Speed, mi/h	54.9	Percent Followers, %		44.0
Segment Travel Time, minutes	1.09	Followers Density	2.7	

В

Vehicle LOS

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HCS7 Two-La	ne Highway R	eport	
MAA	Date		6/17/2020
WSP	Analysis Year		2020
	Time Period Anal	yzed	PM Peak Hour
CR 519, Stone Hedge R to Hope Crossing Rd	d Unit		United States Customary
Se	gment 1		
Passing Constrained	Length, ft		5280
12	Shoulder Width,	ft	6
50	Access Point Den	sity, pts/mi	0.0
427	Opposing Demar	nd Flow Rate, veh/h	-
0.82	Total Trucks, %		3.00
1700	Demand/Capacit	y (D/C)	0.25
1	Free-Flow Speed,	mi/h	56.9
3.64416	Speed Power Coe	efficient	0.41674
-1.32222	PF Power Coeffic	ent	0.75266
No	Total Segment De	ensity, veh/mi/ln	3.9
0.0	% Improved Avg	Speed	0.0
÷			
Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent 5280 -		-	54.6
			· · ·
54.6	Percent Followers	5, %	50.2
1.10	Followers Density	/, followers/mi/In	3.9
В			
	MAA         WSP         CR 519, Stone Hedge R         to Hope Crossing Rd         Example Constrained         12         50         427         0.82         1700         13.64416         -1.32222         No         0.0         Length, ft         5280         54.6         1.10	MAA       Date         WSP       Analysis Year         Image:	WSP       Analysis Year         Image: I

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HCS7 Two-Lane Highway Report	
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Project Information					
Analyst	МАА		Date		6/16/2020
Agency	WSP		Analysis Year		2020
Jurisdiction			Time Period Analy	/zed	AM Peak Hour
Project Description	CR 519, CO 623 Brass Castle Rd to Pequest R		Unit		United States Customary
	S	egn	nent 1		
Vehicle Inputs					
Segment Type	Passing Zone		Length, ft		5280
Lane Width, ft	12		Shoulder Width, f	t	6
Speed Limit, mi/h	50		Access Point Dens	sity, pts/mi	4.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h	567		Opposing Demand Flow Rate, veh/h		1159
Peak Hour Factor	0.88		Total Trucks, %		0.00
Segment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.33
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed, mi/h		55.7
Speed Slope Coefficient	3.53055		Speed Power Coefficient		0.42884
PF Slope Coefficient	-1.32485	-1.32485		ent	0.75803
In Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		6.2
%Improved % Followers	0.0		% Improved Avg Speed		0.0
Subsegment Data					
# Segment Type	Length, ft	Rac	dius, ft Superelevation, %		Average Speed, mi/h
1 Tangent 5280 -			-	53.2	
Vehicle Results				·	
Average Speed, mi/h	53.2		Percent Followers, %		57.8
Segment Travel Time, minutes	1.13		Followers Density	, followers/mi/ln	6.2
Vehicle LOS	С				

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HCS7 Two-Lane Highway Report	
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Project Information				
Analyst	МАА	Date		6/16/2020
Agency	WSP	Analysis Year		2020
Jurisdiction		Time Period A	nalyzed	AM Peak Hour
Project Description	CR 519, CO 623 Brass Castle Rd to Pequest Rc	Unit d		United States Customary
	Se	gment 1		
Vehicle Inputs				
Segment Type	Passing Zone	Length, ft		5280
Lane Width, ft	12	Shoulder Wid	th, ft	6
Speed Limit, mi/h	50	Access Point [	Density, pts/mi	4.0
Demand and Capacity				
Directional Demand Flow Rate, veh/h	1109	Opposing Der	mand Flow Rate, veh/h	542
Peak Hour Factor	0.92	Total Trucks, %	6	0.00
Segment Capacity, veh/h	1700	Demand/Capa	acity (D/C)	0.65
Intermediate Results				
Segment Vertical Class	1	Free-Flow Spe	ed, mi/h	55.7
Speed Slope Coefficient	3.41906	Speed Power	Coefficient	0.47664
PF Slope Coefficient	-1.28592	PF Power Coe	fficient	0.77876
In Passing Lane Effective Length?	No	Total Segment	t Density, veh/mi/ln	15.9
%Improved % Followers	0.0	% Improved A	wg Speed	0.0
Subsegment Data				
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-	-	52.3
Vehicle Results				
Average Speed, mi/h	52.3	Percent Follov	vers, %	75.2
Segment Travel Time, minutes	1.15	Followers Den	sity, followers/mi/ln	15.9

Vehicle LOS

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	HCS7 Two-Land	e Highway Report		
Project Information				
Analyst	MAA	Date	6/16/2020	
Agency	WSP	Analysis Year	2020	
Jurisdiction		Time Period Analyzed	PM Peak Hour	
Project Description	CR 519, CO 623 Brass Castle Rd to Pequest Rd	Unit	United States Customary	
	Seg	ment 1		
Vehicle Inputs				
Segment Type	Passing Zone	Length, ft	5280	
Lane Width, ft	12	Shoulder Width, ft	6	
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0	
Demand and Capacity				
Directional Demand Flow Rate, veh/h	971	Opposing Demand Flow Rate, veh/h	481	
Peak Hour Factor	0.85	Total Trucks, %	7.00	
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.57	
Intermediate Results				
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.5	
Speed Slope Coefficient	3.39239	Speed Power Coefficient	0.48463	
PF Slope Coefficient	-1.27901	PF Power Coefficient	0.78178	
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	13.2	
%Improved % Followers	0.0	% Improved Avg Speed	0.0	

## Subsegment Data

#	Segment Type	Length, ft	Radius, ft Superelevation, %		Average Speed, mi/h
1	Tangent	5280	-	-	52.3

## Vehicle Results

Average Speed, mi/h	52.3	Percent Followers, %	71.3
Segment Travel Time, minutes	1.15	Followers Density, followers/mi/ln	13.2
Vehicle LOS	D		

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HCS T Two-Lane Version 7.8.5 HCS - midblock 04-11\_PM\_NB.xuf Generated: 06/23/2020 09:44:09

	HCS7 Two-Lane	Highway Report				
Project Information						
Analyst	МАА	Date	6/16/2020			
Agency	WSP	Analysis Year	2020			
Jurisdiction		Time Period Analyzed	PM Peak Hour			
Project Description	CR 519, CO 623 Brass Castle Rd to Pequest Rd	Unit	United States Customary			
Segment 1						
Vehicle Inputs						
Segment Type	Passing Zone	Length, ft	5280			
Lane Width, ft	12	Shoulder Width, ft	6			
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0			
Demand and Capacity						
Directional Demand Flow Rate, veh/h	431	Opposing Demand Flow Rate, veh/h	868			
Peak Hour Factor	0.95	Total Trucks, %	7.00			
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.25			
Intermediate Results						
Segment Vertical Class	1	Free-Flow Speed, mi/h	55.5			
Speed Slope Coefficient	3.47048	Speed Power Coefficient	0.44577			
PF Slope Coefficient	-1.31265	PF Power Coefficient	0.76717			
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	4.0			
%Improved % Followers	0.0	% Improved Avg Speed	0.0			

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	53.3

## Vehicle Results

Average Speed, mi/h	53.3	Percent Followers, %	49.7
Segment Travel Time, minutes	1.12	Followers Density, followers/mi/ln	4.0
Vehicle LOS	В		

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HCS TM Two-Lane Version 7.8.5

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HCS - midblock 04-11\_PM\_SB.xuf

		HCS7 Two-La	ane	Highway Re	eport		
Pro	oject Information						
Ana	lyst	MAA	AA			6/16/2020	
Age	ncy	WSP		Analysis Year		2020	
Juris	diction			Time Period Analy	zed	AM Peak Hour	
Proj	ect Description	CR 519, CO 620 to Brookfield Dr		Unit		United States Customary	
		S	egn	nent 1			
Ve	hicle Inputs						
Seg	ment Type	Passing Zone		Length, ft		5280	
Lane	e Width, ft	11		Shoulder Width, f	t	5	
Spe	ed Limit, mi/h	50		Access Point Dens	sity, pts/mi	2.0	
De	mand and Capacity						
Dire	ctional Demand Flow Rate, veh/h	369		Opposing Demand Flow Rate, veh/h		1759	
Peal	k Hour Factor	0.85		Total Trucks, %		2.00	
Seg	ment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.22	
Int	ermediate Results						
Seg	ment Vertical Class	1		Free-Flow Speed,	mi/h	55.1	
Spe	ed Slope Coefficient	3.58166		Speed Power Coefficient		0.41151	
PF S	lope Coefficient	-1.33664	-1.33664		ent	0.74144	
In Pa	assing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		3.3	
%In	nproved % Followers	0.0		% Improved Avg Speed		0.0	
Su	bsegment Data						
#	Segment Type	Length, ft	Rad	lius, ft	Superelevation, %	Average Speed, mi/h	
1	Tangent	5280	-		-	53.0	
Ve	hicle Results						
Ave	rage Speed, mi/h	53.0		Percent Followers, %		47.2	
Seg	ment Travel Time, minutes	1.13		Followers Density, followers/mi/ln		3.3	
Veh	icle LOS	В					

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HCS - midblock 03-04\_AM\_NB.xuf

	HCS7 Two-La	ne	Highway Re	nort	
					_
Project Information					
Analyst	MAA		Date		6/16/2020
Agency	WSP		Analysis Year		2020
Jurisdiction			Time Period Analy	zed	AM Peak Hour
Project Description	CR 519, CO 620 to Brookfield Dr		Unit		United States Customary
	Se	egm	ent 1		
Vehicle Inputs					
Segment Type	Passing Zone		Length, ft		5280
Lane Width, ft	11		Shoulder Width, ft	:	5
Speed Limit, mi/h	50		Access Point Dens	ity, pts/mi	2.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h	1718		Opposing Demand	d Flow Rate, veh/h	361
Peak Hour Factor	0.87		Total Trucks, %		2.00
Segment Capacity, veh/h	1700		Demand/Capacity	(D/C)	1.01
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.1
Speed Slope Coefficient	3.34386		Speed Power Coef	ficient	0.50350
PF Slope Coefficient	-1.26381		PF Power Coefficie	ent	0.78594
In Passing Lane Effective Length?	No		Total Segment Der	nsity, veh/mi/ln	1.9
%Improved % Followers	0.0		% Improved Avg S	peed	0.0
Subsegment Data	•				
# Segment Type	Length, ft	Radi	ius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	53.7
Vehicle Results					
Average Speed, mi/h	53.7		Percent Followers, %		36.7
Segment Travel Time, minutes	1.12		Followers Density,	followers/mi/ln	1.9
Vehicle LOS	F				

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HCS - midblock 03-04\_AM\_SB.xuf

	HCS7 Two-La	ane	Highway Re	eport	
Project Information					
Analyst	MAA		Date		6/16/2020
Agency	WSP		Analysis Year		2020
Jurisdiction			Time Period Analy	zed	PM Peak Hour
Project Description	CR 519, CO 620 to Brookfield Dr		Unit		United States Customary
	S	egm	nent 1		
Vehicle Inputs					
Segment Type	Passing Zone		Length, ft		5280
Lane Width, ft	11		Shoulder Width, ft	t	5
Speed Limit, mi/h	50		Access Point Dens	ity, pts/mi	2.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h	1420		Opposing Deman	d Flow Rate, veh/h	292
Peak Hour Factor	0.91		Total Trucks, %		2.00
Segment Capacity, veh/h	1700		Demand/Capacity	(D/C)	0.84
Intermediate Results					
Segment Vertical Class	1		Free-Flow Speed,	mi/h	55.1
Speed Slope Coefficient	3.32416		Speed Power Coe	fficient	0.51681
PF Slope Coefficient	-1.25158		PF Power Coefficie	ent	0.78984
In Passing Lane Effective Length?	No		Total Segment De	nsity, veh/mi/ln	22.4
%Improved % Followers	0.0		% Improved Avg S	Speed	0.0
Subsegment Data			-		
# Segment Type	Length, ft	Rad	ius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	51.3
Vehicle Results				<u>.</u>	
Average Speed, mi/h	51.3		Percent Followers, %		80.8
Segment Travel Time, minutes	1.17		Followers Density,	followers/mi/ln	22.4
Vehicle LOS	E				

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	HCS7 Two-La	ane F	lighway Re	eport	
Project Information		_			
Analyst	МАА	C	Date		6/16/2020
Agency	WSP	Α	Analysis Year		2020
Jurisdiction		Т	Time Period Analy	zed	PM Peak Hour
Project Description	CR 519, CO 620 to Brookfield Dr	L	Jnit		United States Customary
	Se	egme	ent 1		
Vehicle Inputs					
Segment Type	Passing Zone	L	ength, ft		5280
Lane Width, ft	11	S	Shoulder Width, ft	:	5
Speed Limit, mi/h	50	А	Access Point Dens	ity, pts/mi	2.0
Demand and Capacity					
Directional Demand Flow Rate, veh/h	296	C	Opposing Demand	d Flow Rate, veh/h	1436
Peak Hour Factor	0.90	Т	Total Trucks, %		2.00
Segment Capacity, veh/h	1700	C	Demand/Capacity	(D/C)	0.17
Intermediate Results					
Segment Vertical Class	1	F	Free-Flow Speed, I	mi/h	55.1
Speed Slope Coefficient	3.53968	S	Speed Power Coef	ficient	0.41853
PF Slope Coefficient	-1.33454	P	PF Power Coefficie	ent	0.74933
In Passing Lane Effective Length?	No	Т	Total Segment Dei	nsity, veh/mi/ln	2.3
%Improved % Followers	0.0	%	% Improved Avg S	peed	0.0
Subsegment Data					
# Segment Type	Length, ft	Radius	s, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280	-		-	53.3
Vehicle Results	•				
Average Speed, mi/h	53.3	P	Percent Followers, %		41.5
Segment Travel Time, minutes	1.12	F	ollowers Density,	followers/mi/ln	2.3
Vehicle LOS	A				

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	HCS7 Two-Lane	Highway Report	
Project Information			

Analyst	MAA	Date		6/16/2020
Agency	WSP	Analysis Year		2020
Jurisdiction		Time Period Ana	lyzed	AM Peak Hour
Project Description	CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
	Seg	gment 1		
Vehicle Inputs				
Segment Type	Passing Zone	Length, ft		5280
Lane Width, ft	12	Shoulder Width,	ft	6
Speed Limit, mi/h	50	Access Point Der	nsity, pts/mi	5.0
Demand and Capacity				
Directional Demand Flow Rate, veh/h	2948	Opposing Dema	nd Flow Rate, veh/h	635
Peak Hour Factor	0.92	Total Trucks, %		7.00
Segment Capacity, veh/h	1700	Demand/Capacit	ty (D/C)	1.73
Intermediate Results				
Segment Vertical Class	1	Free-Flow Speed	l, mi/h	55.2
Speed Slope Coefficient	3.36841	Speed Power Co	efficient	0.49086
PF Slope Coefficient	-1.27444	PF Power Coeffic	ient	0.78305
In Passing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	4.4
%Improved % Followers	0.0	% Improved Avg Speed		0.0
Subsegment Data				
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1 Tangent	5280 -	-	-	53.2
Vehicle Results	· · ·			
Average Speed, mi/h	53.2	Percent Follower	rs, %	50.5
Segment Travel Time, minutes	1.13	Followers Densit	y, followers/mi/ln	4.4

Vehicle LOS

F

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HCS - midblock 01-02\_AM\_NB.xuf

	HCS7 Two-Lane Highway Report
Project Information	

	,				
Anal	yst	MAA	Date		6/16/2020
Agei	псу	WSP	Analysis Year		2020
Juris	diction		Time Period Ana	alyzed	AM Peak Hour
Proje	ect Description	CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
		Seg	gment 1		
Veł	nicle Inputs				
Segr	nent Type	Passing Zone	Length, ft		5280
Lane	e Width, ft	12	Shoulder Width	, ft	6
Spee	ed Limit, mi/h	50	Access Point De	nsity, pts/mi	5.0
De	mand and Capacity				
Dire	ctional Demand Flow Rate, veh/h	635	Opposing Dema	and Flow Rate, veh/h	2948
Peak	Hour Factor	0.92	Total Trucks, %		7.00
Segr	nent Capacity, veh/h	1700	Demand/Capac	ity (D/C)	0.37
Inte	ermediate Results				
Segr	nent Vertical Class	1	Free-Flow Speed	d, mi/h	55.2
Spee	ed Slope Coefficient	3.71426	Speed Power Co	pefficient	0.41457
PF S	lope Coefficient	-1.31276	PF Power Coeffi	cient	0.71807
In Pa	assing Lane Effective Length?	No	Total Segment [	Density, veh/mi/ln	7.4
%lm	proved % Followers	0.0	% Improved Ave	g Speed	0.0
Suł	osegment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280 ·	-	-	52.4
Veł	nicle Results	·		·	
Aver	age Speed, mi/h	52.4	Percent Followe	ers, %	61.2
Segr	nent Travel Time, minutes	1.15	Followers Densi	ty, followers/mi/ln	7.4
Vehi	cle LOS	С			

HCSTM Two-Lane Version 7.8.5 HCS - midblock 01-02\_AM\_SB.xuf Generated: 06/23/2020 09:20:35

		HCS7 Two-Lar	ne Highway Re	eport	
Proj	ect Information				
Analys	t	MAA	Date		6/16/2020
Agenc	у	WSP	Analysis Year		2020
Jurisdi	ction		Time Period Analy	/zed	PM Peak Hour
Projec	t Description	CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
		Se	gment 1		
Vehi	cle Inputs				
Segme	ent Type	Passing Zone	Length, ft		5280
Lane V	Vidth, ft	12	Shoulder Width, f	t	6
Speed	Limit, mi/h	50	Access Point Dens	sity, pts/mi	5.0
Dem	and and Capacity				
Directi	ional Demand Flow Rate, veh/h	547	Opposing Deman	d Flow Rate, veh/h	1650
Peak H	lour Factor	0.92	Total Trucks, %		3.00
Segme	ent Capacity, veh/h	1700	Demand/Capacity	r (D/C)	0.32
Inter	rmediate Results				
Segme	ent Vertical Class	1	Free-Flow Speed,	mi/h	55.4
Speed	Slope Coefficient	3.57974	Speed Power Coe	fficient	0.41336
PF Slo	pe Coefficient	-1.33472	PF Power Coefficie	ent	0.74476
In Pass	sing Lane Effective Length?	No	Total Segment De	nsity, veh/mi/ln	5.9
%lmpr	roved % Followers	0.0	% Improved Avg Speed		0.0
Subs	segment Data				
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	52.8
	ala Daardaa				

### **Vehicle Results**

Average Speed, mi/h	52.8	Percent Followers, %	57.3
Segment Travel Time, minutes	1.14	Followers Density, followers/mi/ln	5.9
Vehicle LOS	С		

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	HCS7 Two-Lar	ne Highway Re	eport	
ect Information				
t	MAA	Date		6/16/2020
у	WSP	Analysis Year		2020
ction		Time Period Analy	vzed	PM Peak Hour
t Description	CR 519, Reeder Rd to Gr Mill Rd	ist Unit		United States Customary
	See	gment 1		
cle Inputs				
ent Type	Passing Zone	Length, ft		5280
Vidth, ft	12	Shoulder Width, f	t	6
Limit, mi/h	50	Access Point Dens	sity, pts/mi	5.0
and and Capacity				
onal Demand Flow Rate, veh/h	1650	Opposing Deman	d Flow Rate, veh/h	547
lour Factor	0.92	Total Trucks, %		3.00
ent Capacity, veh/h	1700	Demand/Capacity	r (D/C)	0.97
mediate Results				
ent Vertical Class	1	Free-Flow Speed,	mi/h	55.4
Slope Coefficient	3.40106	Speed Power Coe	fficient	0.47611
pe Coefficient	-1.28762	PF Power Coeffici	ent	0.77801
sing Lane Effective Length?	No	Total Segment De	nsity, veh/mi/ln	27.4
oved % Followers	0.0	% Improved Avg	Speed	0.0
egment Data				
Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
Tangent	5280	-	-	51.2
	t y ction t Description cle Inputs ent Type Vidth, ft Limit, mi/h and and Capacity onal Demand Flow Rate, veh/h lour Factor ent Capacity, veh/h comediate Results ent Vertical Class Slope Coefficient one Coefficient one Coefficient sing Lane Effective Length? oved % Followers egment Data Segment Type	t MAA y WSP ction WSP ction CR 519, Reeder Rd to Gr Mill Rd CR 50 CR 5	t MAA Date y MSP Analysis Year Time Period Analy t Description CR 519, Reeder Rd to Grist Mill Rd Unit CR 519, Reeder Rd to Grist Unit CR 519, Reeder Rd to Grist Unit CEE Inputs Exernet 1 CEE Inputs ent Type Passing Zone Length, ft 12 Shoulder Width, ft 12 Shoulder Width, ft Limit, mi/h 50 Access Point Dens and and Capacity onal Demand Flow Rate, veh/h 1650 Opposing Deman tour Factor 0.92 Total Trucks, % ent Capacity, veh/h 1700 Demand/Capacity remediate Results ent Vertical Class 1 Free-Flow Speed, Slope Coefficient 3.40106 Speed Power Coe pe Coefficient 1.28762 PF Power Coefficient ing Lane Effective Length? No Total Segment Deta segment Data Segment Type Length, ft Radius, ft	t market

### Vehicle Results

Average Speed, mi/h	51.2	Percent Followers, %	85.1
Segment Travel Time, minutes	1.17	Followers Density, followers/mi/ln	27.4
Vehicle LOS	E		

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HCS珈 Two-Lane Version 7.8.5 HCS - midblock 01-02\_PM\_SB.xuf Generated: 08/19/2020 13:54:46

PM\_SB.xuf

	HCS7 Two-Lan	e Highway Report			
Project Information					
Analyst	МАА	Date	6/17/2020		
Agency	WSP	Analysis Year	2020		
Jurisdiction		Time Period Analyzed	AM Peak Hour		
Project Description	CR 519, Fairway Rd to Hillside Ave	Unit	United States Customary		
	Seg	ment 1			
Vehicle Inputs					
Segment Type	Passing Zone	Length, ft	5280		
Lane Width, ft	12	Shoulder Width, ft	5		
Speed Limit, mi/h	50	Access Point Density, pts/mi	4.0		
Demand and Capacity					
Directional Demand Flow Rate, veh/h	985	Opposing Demand Flow Rate, veh/h	372		
Peak Hour Factor	0.78	Total Trucks, %	3.00		
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.58		
Intermediate Results					
Segment Vertical Class	1	Free-Flow Speed, mi/h	54.9		
Speed Slope Coefficient	3.33416	Speed Power Coefficient	0.50158		
PF Slope Coefficient	-1.26634	PF Power Coefficient	0.78482		
	1	i	1		

In Passing Lane Effective Length?		No	No		nsity, veh/mi/ln	13.6			
%Improved % Followers		0.0	0.0		Speed	0.0			
Subsegment Data									
#	Segment Type	Length, ft	Rac	lius, ft	Superelevation, %	Average Speed, mi/h			
1	Tangent	5280	-		-	51.8			
Vehicle Results									
Average Speed, mi/h		51.8	51.8		%	71.4			
Seg	egment Travel Time, minutes 1.16 Followers Density, followers/mi/In		13.6						
Veh	icle LOS	D							

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HCS - midblock south of 01\_AM\_NB.xuf

	HCS7 Two-La	ane	Highway Re	eport						
Project Information										
Analyst	MAA		Date		6/17/2020					
Agency	WSP		Analysis Year		2020					
Jurisdiction			Time Period Analyzed		AM Peak Hour					
Project Description	CR 519, Fairway Rd to Unit Hillside Ave		Unit		United States Customary					
Segment 1										
Vehicle Inputs										
Segment Type	Passing Zone		Length, ft		5280					
Lane Width, ft	12		Shoulder Width, ft		5					
Speed Limit, mi/h	50		Access Point Dens	ity, pts/mi	4.0					
Demand and Capacity										
Directional Demand Flow Rate, veh/h	312		Opposing Demand Flow Rate, veh/h		826					
Peak Hour Factor	0.93		Total Trucks, %		3.00					
Segment Capacity, veh/h	1700		Demand/Capacity (D/C)		0.18					
Intermediate Results										
Segment Vertical Class	1		Free-Flow Speed, mi/h		54.9					
Speed Slope Coefficient	3.43217		Speed Power Coefficient		0.44894					
PF Slope Coefficient	-1.31349		PF Power Coefficient		0.76638					
In Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		2.4					
%Improved % Followers	0.0		% Improved Avg Speed		0.0					
Subsegment Data										
# Segment Type	Length, ft Radi		us, ft	Superelevation, %	Average Speed, mi/h					
1 Tangent	5280	-		-	53.2					
Vehicle Results				·						

Average Speed, mi/h	53.2	Percent Followers, %	41.6
Segment Travel Time, minutes	1.13	Followers Density, followers/mi/ln	2.4
Vehicle LOS	А		

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HCS - midblock south of 01\_AM\_SB.xuf

020 ak Hour States Customary			
ak Hour			
ak Hour			
States Customar			
1			
9			
% Improved Avg Speed 0.0			
je Speed, mi/h			

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Vehicle LOS

В

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HCS - midblock south of 01\_PM\_NB.xuf

	HCS7 Two-La	ane	Highway Re	eport		
Project Information						
Analyst	МАА		Date		6/17/2020	
Agency	WSP		Analysis Year		2020	
lurisdiction			Time Period Analy	zed	PM Peak Hour	
Project Description	CR 519, Fairway Rd to Hillside Ave		Unit		United States Customary	
	S	egm	nent 1			
Vehicle Inputs						
Segment Type	Passing Zone		Length, ft		5280	
ane Width, ft	12		Shoulder Width, ft	t	5	
Speed Limit, mi/h	50		Access Point Dens	ity, pts/mi	4.0	
Demand and Capacity						
Directional Demand Flow Rate, veh/h	803		Opposing Deman	d Flow Rate, veh/h	431	
Peak Hour Factor	0.87		Total Trucks, %		3.00	
Segment Capacity, veh/h	1700		Demand/Capacity	(D/C)	0.47	
Intermediate Results						
Segment Vertical Class	1		Free-Flow Speed,	mi/h	54.9	
Speed Slope Coefficient	3.34950		Speed Power Coef	fficient	0.49192	
PF Slope Coefficient	-1.27520		PF Power Coefficient		0.78186	
n Passing Lane Effective Length?	No		Total Segment Density, veh/mi/ln		10.2	
%Improved % Followers	0.0		% Improved Avg S	0.0		
Subsegment Data					•	
# Segment Type	Length, ft	Rad	ius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-		-	52.1	
Vehicle Results	•			·		
Average Speed, mi/h	52.1		Percent Followers, % 65.9			

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1.15

D

Segment Travel Time, minutes

Vehicle LOS

HCS TWO-Lane Version 7.8.5

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10.2

HCS - midblock south of 01\_PM\_SB.xuf

Followers Density, followers/mi/ln

	HCS7 Two-Lane Highway Report	
Project Information		

Pro	oject Information						
Anal	yst	MAA	Date		6/16/2020		
Age	ncy	WSP	Analysis Year		2020		
Juris	diction		Time Period Anal	yzed	AM Peak Hour		
Proje	ect Description	CR 632, Shurts Rd to Ha Mill Rd	Ils Unit		United States Customary		
		Se	gment 1				
Veł	nicle Inputs						
Segr	nent Type	Passing Zone	Length, ft		5280		
Lane	e Width, ft	12	Shoulder Width,	ft	3		
Spee	ed Limit, mi/h	45	Access Point Den	sity, pts/mi	8.0		
De	mand and Capacity						
Dire	ctional Demand Flow Rate, veh/h	565	Opposing Demar	nd Flow Rate, veh/h	305		
Peak	Hour Factor	0.92	Total Trucks, %		6.00		
Segr	ment Capacity, veh/h	1700	Demand/Capacit	y (D/C)	0.33		
Int	ermediate Results						
Segr	ment Vertical Class	1	Free-Flow Speed	, mi/h	46.7		
Spee	ed Slope Coefficient	2.87101	Speed Power Coe	efficient	0.51408		
PF S	lope Coefficient	-1.27182	PF Power Coeffic	ient	0.76259		
In Pa	assing Lane Effective Length?	No	Total Segment De	ensity, veh/mi/ln	7.1		
%lm	proved % Followers	0.0	% Improved Avg	% Improved Avg Speed 0.0			
Sul	osegment Data						
#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h		
1	Tangent	5280	-	-	44.8		
Veł	nicle Results						
Aver	age Speed, mi/h	44.8	Percent Followers	Percent Followers, % 56.1			
Segr	ment Travel Time, minutes	1.34	Followers Density	/, followers/mi/ln	7.1		
Vehi	cle LOS	С					

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HCS TM Two-Lane Version 7.8.5

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HCS - midblock 07-08\_AM\_WB.xuf

	HCS7 Two-Lar	ne Highway R	eport	
Project Information				
Analyst	MAA	Date		6/16/2020
Agency	WSP	Analysis Year		2020
Jurisdiction		Time Period Anal	yzed	PM Peak Hour
Project Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary
	Se	gment 1		
Vehicle Inputs				
Segment Type	Passing Zone	Length, ft		5280
Lane Width, ft	12	Shoulder Width, 1	t	3
Speed Limit, mi/h	45	Access Point Den	sity, pts/mi	8.0
Demand and Capacity		·		
Directional Demand Flow Rate, veh/h	590	Opposing Demar	nd Flow Rate, veh/h	529
Peak Hour Factor	0.92	Total Trucks, %		4.00
Segment Capacity, veh/h	1700	Demand/Capacity	/ (D/C)	0.35
Intermediate Results				
Segment Vertical Class	1	Free-Flow Speed,	mi/h	46.8
Speed Slope Coefficient	2.93196	Speed Power Coe	fficient	0.47827
PF Slope Coefficient	-1.30994		ent	0.75172
In Passing Lane Effective Length? No		Total Segment De	ensity, veh/mi/ln	7.7
%Improved % Followers	0.0	% Improved Avg	Speed	0.0
Subsegment Data				
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h

-

HCSTM Two-Lane Version 7.8.5

HCS - midblock 07-08\_PM\_EB.xuf

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Followers Density, followers/mi/In

Percent Followers, %

44.7

58.6

7.7

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1

Tangent

**Vehicle Results** 

Average Speed, mi/h

Vehicle LOS

Segment Travel Time, minutes

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5280

44.7

1.34

С

HCS7 Two-Lane Highway Report	
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#### niast Info ..

Project Information					
Analyst	MAA	Date		6/16/2020	
Agency	WSP	Analysis Year		2020	
Jurisdiction		Time Period Ana	lyzed	AM Peak Hour	
Project Description	CR 632, Shurts Rd to Ha Mill Rd	lls Unit		United States Customary	
	Se	gment 1			
Vehicle Inputs					
Segment Type	Passing Zone	Length, ft		5280	
Lane Width, ft	12	Shoulder Width,	ft	3	
Speed Limit, mi/h	45	Access Point Der	nsity, pts/mi	8.0	
Demand and Capacity					
Directional Demand Flow Rate, veh/h	305	Opposing Dema	nd Flow Rate, veh/h	565	
Peak Hour Factor	0.92	Total Trucks, %		6.00	
Segment Capacity, veh/h	1700	Demand/Capacit	ty (D/C)	0.18	
Intermediate Results	·				
Segment Vertical Class	1	Free-Flow Speed	l, mi/h	46.7	
Speed Slope Coefficient	2.93629	Speed Power Co	efficient	0.47388	
PF Slope Coefficient	-1.31456	PF Power Coeffic	cient	0.75033	
In Passing Lane Effective Length?	No	Total Segment D	ensity, veh/mi/ln	2.8	
%Improved % Followers	0.0	% Improved Avg	Speed	0.0	
Subsegment Data					
# Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h	
1 Tangent	5280	-		45.3	
Vehicle Results					
Average Speed, mi/h	45.3	Percent Follower	rs, %	41.7	
Segment Travel Time, minutes	1.32	Followers Densit	Followers Density, followers/mi/ln 2.8		
Vehicle LOS	В				

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HCSTM Two-Lane Version 7.8.5 HCS - midblock 07-08\_AM\_EB.xuf Generated: 06/23/2020 10:27:16

HCS7 Two-Lane Highway Report								
Project Information								
Analyst	МАА	MAA Date 6/16/2						
Agency	WSP	Analysis Year	2020					
Jurisdiction		Time Period Analyzed	PM Peak Hour					
Project Description	CR 632, Shurts Rd to Halls Mill Rd							
	Segn	nent 1						
Vehicle Inputs								
Segment Type	Passing Zone	Length, ft 5280						
Lane Width, ft	12	Shoulder Width, ft	3					
Speed Limit, mi/h	45	Access Point Density, pts/mi 8.0						
Demand and Capacity								
Directional Demand Flow Rate, veh/h	529	Opposing Demand Flow Rate, veh/h	590					
Peak Hour Factor	0.92	Total Trucks, %	4.00					
Segment Capacity, veh/h	1700	Demand/Capacity (D/C)	0.31					
Intermediate Results								
Segment Vertical Class	1	Free-Flow Speed, mi/h	46.8					
Speed Slope Coefficient	2.94529	Speed Power Coefficient	0.47099					
PF Slope Coefficient	-1.31790	PF Power Coefficient	0.74929					
In Passing Lane Effective Length?	No	Total Segment Density, veh/mi/ln	6.6					
%Improved % Followers	0.0	% Improved Avg Speed	0.0					

#### Subsegment Data

#	Segment Type	Length, ft	Radius, ft	Superelevation, %	Average Speed, mi/h
1	Tangent	5280	-	-	44.8

### Vehicle Results

Average Speed, mi/h	44.8	Percent Followers, %	55.9
Segment Travel Time, minutes	1.34	Followers Density, followers/mi/ln	6.6
Vehicle LOS	С		

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HCS TWO-Lane Version 7.8.5

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**2045 BUILD MITIGATION ANALYSIS** 

#### Timings 3: RT 519 & US 46

06/25/2020

	٦	-	4	-	1	1	1	Ļ	
Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		\$		\$	ľ	el 🗧	۲.	eî 👘	
Traffic Volume (vph)	24	287	132	450	37	206	235	441	
Future Volume (vph)	24	287	132	450	37	206	235	441	
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)	40.0	40.0	40.0	40.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	47.0	47.0	47.0	47.0	12.0	12.0	12.0	12.0	
Total Split (s)	58.0	58.0	58.0	58.0	32.0	32.0	32.0	32.0	
Total Split (%)	64.4%	64.4%	64.4%	64.4%	35.6%	35.6%	35.6%	35.6%	
Yellow Time (s)	5.0	5.0	5.0	5.0	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	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Мах	Мах	
Act Effct Green (s)		51.0		51.0	27.0	27.0	27.0	27.0	
Actuated g/C Ratio		0.57		0.57	0.30	0.30	0.30	0.30	
v/c Ratio		0.45		1.05	0.56	0.52	1.07	1.07	
Control Delay		13.0		65.7	56.3	28.5	110.0	91.6	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		13.0		65.7	56.3	28.5	110.0	91.6	
LOS Ammanach Dalau		B		E	E	C	F	F	
Approach Delay		13.0		65.7		32.3		97.1	
Approach LOS		В		E		С		F	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Natural Cycle: 110									
Control Type: Semi Act-Unco	oord								
Maximum v/c Ratio: 1.07									
Intersection Signal Delay: 63				lr	ntersectio	n LOS: E			
Intersection Capacity Utilizat	ion 118.7	%		](	CU Level	of Servic	e H		
Analysis Period (min) 15									

Splits and Phases: 3: RT 519 & US 46

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32 s	58 s
Ø6	✓ Ø8
32 s	58 s

### Timings <u>3: RT 519 & US 46</u>

06/25/2020

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations		\$		\$	ľ	el	۲.	el 🕺	
Traffic Volume (vph)	51	380	59	498	80	388	118	213	
Future Volume (vph)	51	380	59	498	80	388	118	213	
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)	40.0	40.0	40.0	40.0	7.0	7.0	7.0	7.0	
Minimum Split (s)	47.0	47.0	47.0	47.0	12.0	12.0	12.0	12.0	
Total Split (s)	47.0	47.0	47.0	47.0	43.0	43.0	43.0	43.0	
Total Split (%)	52.2%	52.2%	52.2%	52.2%	47.8%	47.8%	47.8%	47.8%	
Yellow Time (s)	5.0	5.0	5.0	5.0	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	
Lost Time Adjust (s)		0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		7.0		7.0	5.0	5.0	5.0	5.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Max	Max	Max	Max	
Act Effct Green (s)		40.0		40.0	38.0	38.0	38.0	38.0	
Actuated g/C Ratio		0.44		0.44	0.42	0.42	0.42	0.42	
v/c Ratio		0.86		1.05	0.26	0.77	0.94	0.39	
Control Delay		37.6		73.4	19.2	29.7	88.0	19.0	
Queue Delay		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		37.6		73.4	19.2	29.7	88.0	19.0	
LOS		D		E	В	С	F	В	
Approach Delay		37.6		73.4		28.2		41.5	
Approach LOS		D		E		С		D	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Natural Cycle: 90									
Control Type: Semi Act-Unco	oord								
Maximum v/c Ratio: 1.05									
Intersection Signal Delay: 46	o.6			Ir	ntersectio	n LOS: D			
Intersection Capacity Utilizat		6				of Servic			
Analysis Period (min) 15									
Splits and Phases: 3: RT	519 & US	46							

	<u></u> Ø4
43 s	47 s
<b>↓</b> Ø6	₩ Ø8
43 s	47 s

### Timings 3: CR 519 & CR 623

07/27/2020

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	1	4	<u> </u>	eî 👘		4î b		đ þ	
Traffic Volume (vph)	74	315	227	598	7	237	152	561	
Future Volume (vph)	74	315	227	598	7	237	152	561	
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	48.0	48.0	48.0	48.0	42.0	42.0	42.0	42.0	
Total Split (%)	53.3%	53.3%	53.3%	53.3%	46.7%	46.7%	46.7%	46.7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	
Act Effct Green (s)	43.5	43.5	43.5	43.5		36.2		36.2	
Actuated g/C Ratio	0.49	0.49	0.49	0.49		0.41		0.41	
v/c Ratio	0.96	0.49	0.70	1.08		0.28		0.93	
Control Delay	119.7	17.4	30.9	78.1		16.3		39.2	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	
Total Delay	119.7	17.4	30.9	78.1		16.3		39.2	
LOS	F	В	С	E		В		D	
Approach Delay		33.1		68.5		16.3		39.2	
Approach LOS		С		E		В		D	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 88.7									
Natural Cycle: 75									
Control Type: Actuated-Unco	oordinated	d							
Maximum v/c Ratio: 1.08									
Intersection Signal Delay: 46	5.8			Ir	ntersectio	n LOS: D			
Intersection Capacity Utilizat		6		[(	CU Level	of Servic	e F		
Analysis Period (min) 15									
Calita and Dhasses 2, 0D		1 / 22							
Splits and Phases: 3: CR	519 & CF	K 023							

▲	<u>→</u> <sub>Ø4</sub>
42 s	48 s
<b>↓</b> Ø6	₩ Ø8
42 s	48 s

### Timings 3: CR 519 & CR 623

07/27/2020

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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	1	el 🗧	٦	4Î		4î b		4 î b	
Traffic Volume (vph)	105	397	57	288	155	802	60	253	
Future Volume (vph)	105	397	57	288	155	802	60	253	
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)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	35.0	35.0	35.0	35.0	55.0	55.0	55.0	55.0	
Total Split (%)	38.9%	38.9%	38.9%	38.9%	61.1%	61.1%	61.1%	61.1%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		0.0		0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None	None	Min	Min	Min	Min	
Act Effct Green (s)	28.3	28.3	28.3	28.3		47.8		47.8	
Actuated g/C Ratio	0.33	0.33	0.33	0.33		0.56		0.56	
v/c Ratio	0.62	0.89	0.71	0.66		0.91		0.37	
Control Delay	41.6	46.4	70.7	30.5		27.2		10.5	
Queue Delay	0.0	0.0	0.0	0.0		0.0		0.0	
Total Delay	41.6	46.4	70.7	30.5		27.2		10.5	
LOS	D	D	E	С		С		В	
Approach Delay		45.5		35.9		27.2		10.5	
Approach LOS		D		D		С		В	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 85.2	า								
Natural Cycle: 60	2								
Control Type: Actuated-Unc	oordinator	4							
Maximum v/c Ratio: 0.91		J							
Intersection Signal Delay: 3	0.0			6	ntersectio	n I OS· C			
Intersection Capacity Utiliza		4			CU Level				
Analysis Period (min) 15	111011 07.97	0		1	CO Level	UI SEIVIC	σL		
maysis r thua (IIIII) 13									
Splits and Phases: 3: CR	519 & CF	2 623							
Spins and Fliases. S. CR		1025							

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55 s	35 s	
Ø6	Ø8	
55 s	35 s	

### Timings 3: CO 620 & RT 519

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Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	1	- <b>†</b> †	1	ሻ	<b>††</b>
Traffic Volume (vph)	1501	75	843	300	13	1734
Future Volume (vph)	1501	75	843	300	13	1734
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	43.0	43.0	47.0	47.0	47.0	47.0
Total Split (%)	47.8%	47.8%	52.2%	52.2%	52.2%	52.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	38.5	38.5	42.5	42.5	42.5	42.5
Actuated g/C Ratio	0.43	0.43	0.47	0.47	0.47	0.47
v/c Ratio	1.14	0.13	0.56	0.36	0.09	1.15
Control Delay	96.7	5.6	18.7	2.8	14.8	101.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	96.7	5.6	18.7	2.8	14.8	101.2
LOS	F	А	В	А	В	F
Approach Delay	91.9		14.5			100.5
Approach LOS	F		В			F
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90	)					
Offset: 0 (0%), Reference	d to phase 2	:NBT and	d 6:SBTL	, Start of	Green	
Natural Cycle: 130						
Control Type: Actuated-Co	pordinated					
Maximum v/c Ratio: 1.15						
Intersection Signal Delay:				li li	ntersectio	n LOS: E
Intersection Capacity Utiliz	zation 98.3%	, D		[(	CU Level	of Service
Analysis Period (min) 15						
Splits and Phases: 3: C	:O 620 & RT	519				
<b>≜</b>		517				
<sup>6</sup> Ø2 (R)						

47 s 43 s

47 s

### Timings 3: CO 620 & RT 519

	4	*	1	۲	5	ŧ
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	ሻሻ	1	<b>††</b>	1	ኘ	<b>††</b>
Traffic Volume (vph)	364	513	2236	1280	9	756
Future Volume (vph)	364	513	2236	1280	9	756
Turn Type	Prot	Perm	NA	Perm	Perm	NA
Protected Phases	8		2			6
Permitted Phases		8		2	6	
Detector Phase	8	8	2	2	6	6
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5
Total Split (s)	30.0	30.0	60.0	60.0	60.0	60.0
Total Split (%)	33.3%	33.3%	66.7%	66.7%	66.7%	66.7%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	25.5	25.5	55.5	55.5	55.5	55.5
Actuated g/C Ratio	0.28	0.28	0.62	0.62	0.62	0.62
v/c Ratio	0.42	1.42	1.14	1.02	0.13	0.38
Control Delay	27.8	230.6	88.3	36.0	11.9	9.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.8	230.6	88.3	36.0	11.9	9.3
LOS	С	F	F	D	В	А
Approach Delay	152.2		69.3			9.3
Approach LOS	F		E			А
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 0 (0%), Referenced	to phase 2	:NBT and	d 6:SBTL,	Start of	Green	
Natural Cycle: 100						
Control Type: Actuated-Coc	ordinated					
Maximum v/c Ratio: 1.42						
Intersection Signal Delay: 7	5.4			Ir	ntersectio	n LOS: E
Intersection Capacity Utiliza		%				of Service
Analysis Period (min) 15						
	(00	540				
Splits and Phases: 3: CC	620 & RT	519				



### Timings 3: CR 519 Belvidere Rd & Foul Lift Rd

07/24/2020
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Lane Group         EBL         NBL         NBT         SBT         SBR           Lane Configurations         YY		٦	1	Ť	Ļ	~
Traffic Volume (vph)       650       750       1128       1838       1607         Future Volume (vph)       650       750       1128       1838       1607         Turn Type       Prot       Perm       NA       NA       Perm         Protected Phases       4       2       6       6         Detector Phase       4       2       2       6       6         Switch Phase       2       2       6       6       6         Minimum Initial (s)       5.0       5.0       5.0       5.0       5.0         Total Split (s)       22.5       22.5       22.5       22.5       22.5         Total Split (s)       26.7%       73.3%       73.3%       73.3%       73.3%         Vellow Time (s)       3.5       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0       1.0         Lead/Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Recall Mode       None       C-Max       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5	Lane Group	EBL	NBL	NBT	SBT	SBR
Traffic Volume (vph)       650       750       1128       1838       1607         Future Volume (vph)       650       750       1128       1838       1607         Turn Type       Prot       Perm       NA       NA       Perm         Protected Phases       4       2       6       6         Detector Phase       4       2       2       6       6         Switch Phase       2       2       6       6         Switch Phase       2       2       6       6         Minimum Initial (s)       5.0       5.0       5.0       5.0       5.0         Total Split (s)       24.0       66.0       66.0       66.0       66.0         Total Split (s)       26.7%       73.3%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0       1.0         Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max       Act Effect Green (s)       19.5       61.5       61.5       61.5       61.5	Lane Configurations	٦Y	ሻሻ	<b>†</b> †	<u>†</u> †	11
Turn Type         Prot         Perm         NA         NA         Perm           Protected Phases         4         2         6         6           Detector Phase         4         2         2         6         6           Switch Phase         4         2         2         6         6           Minimum Initial (s)         5.0         5.0         5.0         5.0         5.0           Minimum Split (s)         22.5         22.5         22.5         22.5         73.3%						
Protected Phases       4       2       6         Permitted Phases       2       6       6         Detector Phase       4       2       2       6       6         Switch Phase       9       5.0       5.0       5.0       5.0       5.0         Minimum Initial (s)       22.5       22.5       22.5       22.5       22.5       22.5         Total Split (s)       26.7%       73.3%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0       0.0         Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effect Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         V/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.	Future Volume (vph)	650	750	1128	1838	1607
Permitted Phases         2         6           Detector Phase         4         2         2         6         6           Switch Phase		Prot	Perm		NA	Perm
Detector Phase         4         2         2         6         6           Switch Phase		4		2	6	
Switch Phase         Minimum Initial (s)       5.0       5.0       5.0       5.0         Minimum Split (s)       22.5       22.5       22.5       22.5         Total Split (s)       24.0       66.0       66.0       66.0         Total Split (s)       24.0       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       1.0       1.0         Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Detimize?       Ecadlag       Ecadlag       C-Max       C-Max       C-Max         Actated g/C Ratio       0.22       0.68						6
Minimum Initial (s)       5.0       5.0       5.0       5.0       5.0         Minimum Split (s)       22.5       22.5       22.5       22.5       22.5         Total Split (s)       24.0       66.0       66.0       66.0       66.0         Total Split (s)       26.7%       73.3%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68       0.68         V/c Ratio       1.17       5.72       0.53       0.87       0.79       Control Delay       125.4       2146.1		4	2	2	6	6
Minimum Split (s)       22.5       22.5       22.5       22.5       22.5         Total Split (s)       24.0       66.0       66.0       66.0       66.0         Total Split (s)       26.7%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79       Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0       0.0 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
Total Split (s)       24.0       66.0       66.0       66.0       66.0         Total Split (%)       26.7%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
Total Split (%)       26.7%       73.3%       73.3%       73.3%       73.3%         Yellow Time (s)       3.5       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach LOS       F       F						
Yellow Time (s) $3.5$ $3.5$ $3.5$ $3.5$ $3.5$ $3.5$ All-Red Time (s) $1.0$ $1.0$ $1.0$ $1.0$ $1.0$ Lost Time Adjust (s) $0.0$ $0.0$ $0.0$ $0.0$ Total Lost Time (s) $4.5$ $4.5$ $4.5$ $4.5$ Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Recall Mode       None       C-Max       C-Max       C-Max       C-Max         Act Effct Green (s) $19.5$ $61.5$ $61.5$ $61.5$ $61.5$ Actuated g/C Ratio $0.22$ $0.68$ $0.68$ $0.68$ $0.68$ v/c Ratio $1.17$ $5.72$ $0.53$ $0.87$ $0.79$ Control Delay $125.4$ $2146.1$ $8.1$ $16.5$ $3.1$ Queue Delay $0.0$ $0.0$ $0.0$ $0.0$ $0.0$ $0.0$ Total Delay $125.4$ $2146.1$ $8.1$ $16.5$ $3.1$ LOS       F       F       A       B       A						
All-Red Time (s)       1.0       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach LOS       F       F       A       B       A         Intersection Summary       Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55       Control Type: Actuated-Coordinated						
Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9       9         Approach LOS       F       F       A       Intersection Summary         Cycle Length: 90       Actuated Cycle Length: 90       Actuated Cycle Length: 90       Actuated Cycle: 55         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72       Intersection Signal	· · ·					
Total Lost Time (s)       4.5       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?         Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach LOS       F       F       A       B         Intersection Summary       V       V       V       V         Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural						
Lead/Lag         Lead-Lag Optimize?         Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green         Natural Cycle: 55       Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3       Intersection LOS: F						
Lead-Lag Optimize?         Recall Mode       None       C-Max       C-Max       C-Max         Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       100         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach LOS       F       F       A       B       A         Intersection Summary       Cycle Length: 90       Queue Set       Set       Set       Set         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55       Set       Set       Set       Set         Control Type: Actuated-Coordinated </td <td></td> <td>4.5</td> <td>4.5</td> <td>4.5</td> <td>4.5</td> <td>4.5</td>		4.5	4.5	4.5	4.5	4.5
Recall Mode         None         C-Max         C-Max         C-Max         C-Max           Act Effct Green (s)         19.5         61.5         61.5         61.5         61.5         61.5         Actuated g/C Ratio         0.22         0.68         0.68         0.68         0.68         0.68         0.68         0.68         0.68         0.79           Control Delay         125.4         2146.1         8.1         16.5         3.1         Queue Delay         0.0 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Act Effct Green (s)       19.5       61.5       61.5       61.5       61.5         Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       Vicke Length: 90       Vicke Length: 90       Vicke Length: 90         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55       Vicke Length: 90         Natural Cycle: 55       Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72       Intersection LOS: F         Intersection Signal Delay: 3						
Actuated g/C Ratio       0.22       0.68       0.68       0.68       0.68         v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       100         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       V       V       V       V         Cycle Length: 90       V       V       V       V       V         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55       V       V       V         Control Type: Actuated-Coordinated       V       V       V       V       V       V         Maximum v/c Ratio: 5.72       Intersection LOS: F </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
v/c Ratio       1.17       5.72       0.53       0.87       0.79         Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green         Natural Cycle: 55       Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3       Intersection LOS: F						
Control Delay       125.4       2146.1       8.1       16.5       3.1         Queue Delay       0.0       0.0       0.0       0.0       0.0         Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       Cycle Length: 90       Volume       Actuated Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55       Control Type: Actuated-Coordinated         Maximum v/c Ratio: 5.72       Intersection Signal Delay: 305.3       Intersection LOS: F						
Queue Delay         0.0         0.0         0.0         0.0         0.0           Total Delay         125.4         2146.1         8.1         16.5         3.1           LOS         F         F         A         B         A           Approach Delay         125.4         923.4         9.9           Approach LOS         F         F         A           Intersection Summary         F         F         A           Cycle Length: 90         Actuated Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green           Natural Cycle: 55         Control Type: Actuated-Coordinated         Maximum v/c Ratio: 5.72         Intersection LOS: F						
Total Delay       125.4       2146.1       8.1       16.5       3.1         LOS       F       F       A       B       A         Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary       F       F       A         Cycle Length: 90       Actuated Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green         Natural Cycle: 55       Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3       Intersection LOS: F						
LOSFFABAApproach Delay125.4923.49.9Approach LOSFFAIntersection SummaryCycle Length: 90Actuated Cycle Length: 90Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of GreenNatural Cycle: 55Control Type: Actuated-CoordinatedMaximum v/c Ratio: 5.72Intersection Signal Delay: 305.3Intersection LOS: F						
Approach Delay       125.4       923.4       9.9         Approach LOS       F       F       A         Intersection Summary         Cycle Length: 90       Actuated Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3       Intersection LOS: F						
Approach LOS       F       F       A         Intersection Summary       Cycle Length: 90       Actuated Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green       Natural Cycle: 55         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3       Intersection LOS: F		-	F			A
Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 55 Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F						
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 55 Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F	Approach LOS	F		F	A	
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 55 Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F	Intersection Summary					
Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 55 Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F						
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBT, Start of Green Natural Cycle: 55 Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F						
Natural Cycle: 55         Control Type: Actuated-Coordinated         Maximum v/c Ratio: 5.72         Intersection Signal Delay: 305.3		to phase 2	NBTL ar	nd 6:SBT	Start of	Green
Control Type: Actuated-Coordinated Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F						0.001
Maximum v/c Ratio: 5.72 Intersection Signal Delay: 305.3 Intersection LOS: F		ordinated				
Intersection Signal Delay: 305.3 Intersection LOS: F						
		305.3			I	ntersection
	Intersection Capacity Utiliza		%			
Analysis Period (min) 15						
	,					

Splits and Phases: 3: CR 519 Belvidere Rd & Foul Lift Rd

Ø2 (R)	▶ <sub>Ø4</sub>
66 s	24 s
Ø6 (R)	
66 s	

### Timings 3: CR 519 Belvidere Rd & Foul Lift Rd

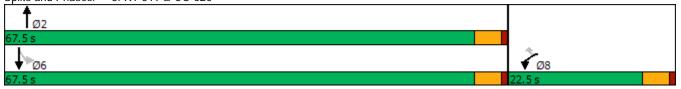
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Lane Group	EBL	NBL	NBT	SBT	SBR		
Lane Configurations	ሻቸ	ሻሻ	<b>†</b> †	<u>†</u> †	11		
Traffic Volume (vph)	1103	2	1129	1064	458		
Future Volume (vph)	1103	2	1129	1064	458		
Turn Type	Prot	Perm	NA	NA	Perm		
Protected Phases	4		2	6			
Permitted Phases		2			6		
Detector Phase	4	2	2	6	6		
Switch Phase							
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0		
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5		
Total Split (s)	55.0	35.0	35.0	35.0	35.0		
Total Split (%)	61.1%	38.9%	38.9%	38.9%	38.9%		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5		
Lead/Lag							
Lead-Lag Optimize?							
Recall Mode	None	C-Max	C-Max	C-Max	C-Max		
Act Effct Green (s)	50.5	30.5	30.5	30.5	30.5		
Actuated g/C Ratio	0.56	0.34	0.34	0.34	0.34		
v/c Ratio	1.40	0.02	1.08	1.01	0.43		
Control Delay	206.7	20.5	79.7	60.9	3.0		
Queue Delay	0.0	0.0	0.0	0.0	0.0		
Total Delay	206.7	20.5	79.7	60.9	3.0		
LOS	F	С	E	E	А		
Approach Delay	206.7		79.6	42.0			
Approach LOS	F		E	D			
Intersection Summary							
Cycle Length: 90							
Actuated Cycle Length: 90							
Offset: 0 (0%), Referenced	to phase 2	NBTL ar	nd 6:SBT	Start of	Green		
Natural Cycle: 150							
Control Type: Actuated-Coo	ordinated						
Maximum v/c Ratio: 1.40							
Intersection Signal Delay: 1	27.2			I	ntersection	1 LOS: F	
Intersection Capacity Utiliza		%		](	CU Level	of Service G	
Analysis Period (min) 15							

Splits and Phases: 3: CR 519 Belvidere Rd & Foul Lift Rd

Ø2 (R)	▶ <sub>Ø4</sub>
35 s	55 s
35 s	

### Timings 3: RT 519 & CO 626

	4	•	Ť	1	ţ			
Lane Group	WBL	WBR	NBT	SBL	SBT			
Lane Configurations	ኘ	1	A		441>			
Traffic Volume (vph)	188	250	427	100	3060			
Future Volume (vph)	188	250	427	100	3060			
Turn Type	Prot	Perm	NA	Perm	NA			
Protected Phases	8		2		6			
Permitted Phases		8		6				
Detector Phase	8	8	2	6	6			
Switch Phase								
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0			
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5			
Total Split (s)	22.5	22.5	67.5	67.5	67.5			
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%			
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5			
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0			
Lost Time Adjust (s)	0.0	0.0	0.0		0.0			
Total Lost Time (s)	4.5	4.5	4.5		4.5			
Lead/Lag								
Lead-Lag Optimize?								
Recall Mode	None	None	Min	Min	Min			
Act Effct Green (s)	15.4	15.4	63.1		63.1			
Actuated g/C Ratio	0.18	0.18	0.72		0.72			
v/c Ratio	0.75	0.58	0.18		1.05			
Control Delay	50.0	8.7	4.4		45.6			
Queue Delay	0.0	0.0	0.0		0.0			
Total Delay	50.0	8.7	4.4		45.6			
LOS	D	А	А		D			
Approach Delay	26.4		4.4		45.6			
Approach LOS	С		А		D			
Intersection Summary								
Cycle Length: 90								
Actuated Cycle Length: 87.	5							
Natural Cycle: 110	5							
Control Type: Actuated-Und	coordinated	1						
Maximum v/c Ratio: 1.05		л 						
Intersection Signal Delay: 3	89			Ir	ntersection			
Intersection Capacity Utiliza		6			CU Level			
Analysis Period (min) 15		•						
Splits and Phases: 3: RT	Splits and Phases: 3: RT 519 & CO 626							



Warren County Capacity Assess  $\,$  06/17/2020 2045 Build - AM Peak Hour WSP  $\,$ 

### Timings 3: RT 519 & CO 626

06/25/2020
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Lane Group	WBL	WBR	NBT	SBL	SBT	
Lane Configurations	۲	1	<b>∱</b> ⊅		441>	
Traffic Volume (vph)	65	50	1654	32	992	
Future Volume (vph)	65	50	1654	32	992	
Turn Type	Prot	Perm	NA	Perm	NA	
Protected Phases	8		2		6	
Permitted Phases		8		6		
Detector Phase	8	8	2	6	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5	67.5	67.5	67.5	
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	
Total Lost Time (s)	4.5	4.5	4.5		4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	9.1	9.1	55.8		55.8	
Actuated g/C Ratio	0.13	0.13	0.80		0.80	
v/c Ratio	0.35	0.27	0.64		0.32	
Control Delay	35.7	20.7	5.7		3.2	
Queue Delay	0.0	0.0	0.0		0.0	
Total Delay	35.7	20.7	5.7		3.2	
LOS	D	С	А		А	
Approach Delay	29.2		5.7		3.2	
Approach LOS	С		А		А	
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 69.6	6					
Natural Cycle: 60	0					
Control Type: Actuated-Unc	coordinated	1				
Maximum v/c Ratio: 0.64		л 				
Intersection Signal Delay: 5	9			Ir	ntersection	
Intersection Capacity Utiliza		6				of Service B
Analysis Period (min) 15	1011 57.07	0				
Splits and Phases: 3: RT	519 & CO	626				

<b>↑</b> ø2	
67.5 s	
Ø6	¢øв
67.5 s	22.5 s

### Timings 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd

08/18/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		<del>ب</del> ا	1		4	ሻ	<b>≜</b> ⊅	ሻ	- <b>†</b> †	1	
Traffic Volume (vph)	189	1	17	8	51	1055	1735	1	656	1485	
Future Volume (vph)	189	1	17	8	51	1055	1735	1	656	1485	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases		4			8		2		6		
Permitted Phases	4		4	8		2		6		6	
Detector Phase	4	4	4	8	8	2	2	6	6	6	
Switch Phase											
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5	22.5	22.5	22.5	67.5	67.5	67.5	67.5	67.5	
Total Split (%)	25.0%	25.0%	25.0%	25.0%	25.0%	75.0%	75.0%	75.0%	75.0%	75.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	
Lead/Lag											
Lead-Lag Optimize?											
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		18.0	18.0		18.0	63.0	63.0	63.0	63.0	63.0	
Actuated g/C Ratio		0.20	0.20		0.20	0.70	0.70	0.70	0.70	0.70	
v/c Ratio		0.98	0.08		0.25	3.05	0.83	0.01	0.31	1.58	
Control Delay		91.4	13.3		29.1	944.8	13.6	5.0	5.6	280.9	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		91.4	13.3		29.1	944.8	13.6	5.0	5.6	280.9	
LOS		F	В		С	F	В	А	А	F	
Approach Delay		85.0			29.1		391.3		203.2		
Approach LOS		F			С		F		F		
Intersection Summary											
Cycle Length: 90											
Actuated Cycle Length: 90											
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green											
Natural Cycle: 150											
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 3.05											
Intersection Signal Delay: 2					ntersectio						
Intersection Capacity Utiliz	ation 165.8	%		[(	CU Level	of Servic	еH				
Analysis Period (min) 15											
Solits and Dhasast 2: CI	D 510 Dobi	dara Dd (	2. CD 600	Dovburg	Station [	04/CD 40	2 Dovbur				
Splits and Phases: 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd											

Ø2 (R)		
67.5 s	22.5 s	
Ø6 (R)	<b>★</b> Ø8	
67.5 s	22.5 s	

### Timings 3: CR 519 Belvidere Rd & CR 622 Roxbury Station Rd/CR 622 Roxbury Hill Rd

08/18/2020

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Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR	
Lane Configurations		<del>ب</del> ا ا	1		\$	ľ	<b>≜</b> ⊅	ľ	<u></u>	1	
Traffic Volume (vph)	570	430	1027	5	1	14	586	1144	450	471	
Future Volume (vph)	570	430	1027	5	1	14	586	1144	450	471	
Turn Type	Perm	NA	Perm	Perm	NA	Perm	NA	Perm	NA	Perm	
Protected Phases		4			8		2		6		
Permitted Phases	4		4	8		2		6		6	
Detector Phase	4	4	4	8	8	2	2	6	6	6	
Switch Phase											
Vinimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
Vinimum Split (s)	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	41.0	41.0	41.0	41.0	41.0	49.0	49.0	49.0	49.0	49.0	
Fotal Split (%)	45.6%	45.6%	45.6%	45.6%	45.6%	54.4%	54.4%	54.4%	54.4%	54.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	
_ost Time Adjust (s)		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Fotal Lost Time (s)		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	
_ead/Lag											
_ead-Lag Optimize?											
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	
Act Effct Green (s)		36.5	36.5		36.5	44.5	44.5	44.5	44.5	44.5	
Actuated g/C Ratio		0.41	0.41		0.41	0.49	0.49	0.49	0.49	0.49	
//c Ratio		2.04	1.60		0.02	0.07	0.40	4.41	0.31	0.65	
Control Delay		495.5	295.2		15.3	12.9	15.3	1554.9	14.2	5.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay		495.5	295.2		15.3	12.9	15.3	1554.9	14.2	5.0	
_OS		F	F		В	В	В	F	В	А	
Approach Delay		394.0			15.3		15.2		886.7		
Approach LOS		F			В		В		F		
ntersection Summary											
Cycle Length: 90											
Actuated Cycle Length: 90	)										
Offset: 0 (0%), Referenced		:NBTL ar	nd 6:SBTI	, Start of	f Green						
Natural Cycle: 150											
Control Type: Actuated-Co	ordinated										
Maximum v/c Ratio: 4.41											
ntersection Signal Delay:	565.3			Ir	ntersectio	n LOS: F					
ntersection Capacity Utiliz	ation 148.8	%		[(	CU Level	of Servic	еH				
Analysis Period (min) 15											
Splits and Phases: 3: C	R 519 Belvi										

Ø2 (R)	<b>→</b> Ø4
49 s	41 s
●	₩ Ø8
49 s	41 s

Warren Truck Study 07/23/2020 2045 BUILD Mitigation WSP

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Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ሻ	1	ካካ	<u>†</u> †	A	
Traffic Volume (vph)	1158	113	1494	1419	451	
Future Volume (vph)	1158	113	1494	1419	451	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	41.0	41.0	49.0	49.0	49.0	
Total Split (%)	45.6%	45.6%	54.4%	54.4%	54.4%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	36.5	36.5	44.5	44.5	44.5	
Actuated g/C Ratio	0.41	0.41	0.49	0.49	0.49	
v/c Ratio	2.02	0.21	3.55	0.93	0.45	
Control Delay	485.3	9.8	1166.8	32.5	12.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	485.3	9.8	1166.8	32.5	12.4	
LOS	F	А	F	С	В	
Approach Delay	443.1			647.6	12.4	
Approach LOS	F			F	В	
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 0 (0%), Referenced	to phase 2	NBTL ar	nd 6:SBT,	, Start of	Green	
Natural Cycle: 150						
Control Type: Actuated-Coc	ordinated					
Maximum v/c Ratio: 3.55						
Intersection Signal Delay: 5	07.3			l	ntersectior	1 LOS: F
Intersection Capacity Utiliza		%		l	CU Level o	of Service H
Analysis Period (min) 15						

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Splits and Phases: 3: CR 519 Belvidere Rd & CR 621 Brainards Rd

∫ ¶ Ø2 (R)	A 04
49 s	41 s
Ø6 (R)	
49 s	

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Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ሻ	1	ካካ	<b>††</b>	A	
Traffic Volume (vph)	86	1477	189	494	925	
Future Volume (vph)	86	1477	189	494	925	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	44.0	44.0	46.0	46.0	46.0	
Total Split (%)	48.9%	48.9%	51.1%	51.1%	51.1%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	39.5	39.5	41.5	41.5	41.5	
Actuated g/C Ratio	0.44	0.44	0.46	0.46	0.46	
v/c Ratio	0.14	2.55	1.45	0.35	0.96	
Control Delay	15.7	717.8	257.6	16.3	37.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	717.8	257.6	16.3	37.9	
LOS	В	F	F	В	D	
Approach Delay	679.0			88.9	37.9	
Approach LOS	F			F	D	
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90	)					
Offset: 0 (0%), Referenced		•NRTL ar	nd 6.SBT	Start of	Green	
Natural Cycle: 90	1 to phase 2		10 0.5D1		Oreen	
Control Type: Actuated-Co	ordinated					
Maximum v/c Ratio: 2.55	orainateu					
Intersection Signal Delay:	340 1			h	ntersectio	1105 <sup>.</sup> F
Intersection Capacity Utiliz		%				of Service H
Analysis Period (min) 15		, ,				
Splits and Dhasas 2: Cl		doro Dd S	2. CD 601	Drainard	lc Dd	

Splits and Phases: 3: CR 519 Belvidere Rd & CR 621 Brainards Rd

, <sup>™</sup> Ø2 (R)	📌 ø4
46 s	44 s
🗸 🖉 Ø6 (R)	
46 s	

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Lane Group	NBL	NET	SWL	SWT		
Lane Configurations	Y	1.	<u> </u>	<u> </u>		
Traffic Volume (vph)	2	1176	302	430		
Future Volume (vph)	2	1176	302	430		
Turn Type	Prot	NA	Perm	NA		
Protected Phases	2	4		8		
Permitted Phases			8			
Detector Phase	2	4	8	8		
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0		
Minimum Split (s)	22.5	22.5	22.5	22.5		
Total Split (s)	35.0	55.0	55.0	55.0		
Total Split (%)	38.9%	61.1%	61.1%	61.1%		
Yellow Time (s)	3.5	3.5	3.5	3.5		
All-Red Time (s)	1.0	1.0	1.0	1.0		
Lost Time Adjust (s)	0.0	0.0	0.0	0.0		
Total Lost Time (s)	4.5	4.5	4.5	4.5		
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	C-Max	None	None	None		
Act Effct Green (s)	30.5	50.5	50.5	50.5		
Actuated g/C Ratio	0.34	0.56	0.56	0.56		
v/c Ratio	1.50	1.30	4.20	0.47		
Control Delay	258.1	164.1	1480.9	13.7		
Queue Delay	0.0	0.0	0.0	0.0		
Total Delay	258.1	164.1	1480.9	13.7		
LOS	F	F	F	В		
Approach Delay	258.1	164.1		619.3		
Approach LOS	F	F		F		
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90	)					
Offset: 0 (0%), Reference	d to phase 2	:NBL and	d 6:, Start	of Greer	า	
Natural Cycle: 60						
Control Type: Actuated-Co	oordinated					
Maximum v/c Ratio: 4.20						
Intersection Signal Delay:					ntersection LOS: F	
	Intersection Capacity Utilization 137.2% ICI					
Analysis Period (min) 15						

Analysis Period (min) 15

Splits and Phases: 2: CR 646 Belvidere Rd/CR 519 Belvidere Rd & CR 519 Uniontown Rd

🖊 🕺 Ø2 (R)	<b>≯</b> ∅4
35 s	55 s
	🖌 Ø8
	55 s

Lane Group         NBL         NET         SWL         SWT           Lane Configurations         Y         Jacobia         Y         Jacobia         Y         Jacobia         Jacobia <t< th=""><th></th><th>*1</th><th>*</th><th>¥</th><th>¥</th></t<>		*1	*	¥	¥
Lane Configurations       Y       Y       Y       Y         Traffic Volume (vph)       12       358       702       1334         Future Volume (vph)       12       358       702       1334         Protected Phases       2       4       8       8         Detector Phase       2       4       8       8         Switch Phase        50       5.0       5.0       5.0         Minimum Initial (s)       22.5       22.5       22.5       22.5       7.0         Total Split (s)       23.0       67.0       67.0       67.0       67.0         Total Split (s)       20.0       0.0       0.0       0.0       1.0       1.0         Lead/Log       101       1.0       1.0       1.0       1.0       1.0	Lane Group	NBL	NET	SWL	SWT
Future Volume (vph)       12       358       702       1334         Turn Type       Prot       NA       Perm       NA         Protected Phases       2       4       8         Detector Phase       2       4       8         Detector Phase       2       4       8         Switch Phase       8         Minimum Initial (s)       5.0       5.0       5.0       5.0         Minimum Split (s)       22.5       22.5       22.5       22.5       22.5         Total Split (s)       23.0       67.0       67.0       67.0         Total Split (s)       23.0       67.0       67.0       67.0         Total Split (s)       23.0       67.0       67.0       67.0         Total Split (s)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       1.0       1.0       1.0       1.0         Lost Time Agius (s)       0.0       0.0       0.0       0.0         Lead/Lag       Eead/Lag       Eead/Lag       None       None       None         Recall Mode       C-Max       None       None       None       None         Act Effet Green (s)       18.		Y	¢Î	<u> </u>	1
Turn Type       Prot       NA       Perm       NA         Protected Phases       2       4       8         Permitted Phases       2       4       8         Detector Phase       2       4       8         Switch Phase       8       8         Minimum Initial (s)       5.0       5.0       5.0         Minimum Split (s)       22.5       22.5       22.5         Total Split (s)       23.0       67.0       67.0         Total Split (%)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lead/Lag       1.0       1.0       1.0       1.0         Lead/Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Dela		12		702	
Protected Phases       2       4       8         Permitted Phases       8         Detector Phase       2       4       8         Switch Phase	Future Volume (vph)		358	702	
Permitted Phases         8           Detector Phase         2         4         8         8           Switch Phase	Turn Type	Prot	NA	Perm	NA
Detector Phase         2         4         8         8           Switch Phase	Protected Phases	2	4		8
Switch Phase         Minimum Initial (s)       5.0       5.0       5.0       5.0         Minimum Split (s)       22.5       22.5       22.5       22.5         Total Split (s)       23.0       67.0       67.0       67.0         Total Split (s)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead-Lag       Eead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18       Control Delay       9.3       6.2       145.0       107.3         Loue Delay       9.3       6.2       145.0       107.3       105.3       105.3       105.3         LOS       A <td< td=""><td>Permitted Phases</td><td></td><td></td><td>8</td><td></td></td<>	Permitted Phases			8	
Minimum Initial (s) $5.0$ $5.0$ $5.0$ $5.0$ Minimum Split (s) $22.5$ $22.5$ $22.5$ $22.5$ Total Split (s) $23.0$ $67.0$ $67.0$ $67.0$ Total Split (%) $25.6\%$ $74.4\%$ $74.4\%$ $74.4\%$ Yellow Time (s) $3.5$ $3.5$ $3.5$ $3.5$ All-Red Time (s) $1.0$ $1.0$ $1.0$ $1.0$ Lost Time Adjust (s) $0.0$ $0.0$ $0.0$ $0.0$ Total Lost Time (s) $4.5$ $4.5$ $4.5$ $4.5$ Lead-LagLead-LagLead-LagLead-LagLead-Lag Optimize?Recall ModeC-MaxNoneNoneAct Effct Green (s) $18.5$ $62.5$ $62.5$ $62.5$ Actuated g/C Ratio $0.21$ $0.69$ $0.69$ $0.69$ v/c Ratio $0.63$ $0.32$ $1.25$ $1.18$ Control Delay $9.3$ $6.2$ $145.0$ $107.3$ Queue Delay $0.0$ $0.0$ $0.0$ $0.0$ Total Delay $9.3$ $6.2$ $120.3$ Approach LOSAAFFA proach LOSAAFIntersection SummaryCycle Length: 90Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of GreenNatural Cycle: 150Control Type: Actuated-CoordinatedMaximum v/c Ratio: 1.25		2	4	8	8
Minimum Split (s)       22.5       22.5       22.5       22.5         Total Split (s)       23.0       67.0       67.0       67.0         Total Split (%)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead-Lag       Lead-Lag       Eead-Lag       Vertaine (s)       1.6       0.0         Lead-Lag Optimize?       Recall Mode       C-Max       None       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18       Control Delay       9.3       6.2       145.0       107.3         Queue Delay       9.3       6.2       145.0       107.3       100.3       100.3       100.3       100.3       100.3       100.3       100.3					
Total Split (s)       23.0       67.0       67.0       67.0         Total Split (%)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F					
Total Split (%)       25.6%       74.4%       74.4%       74.4%         Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18       Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0       0.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       Image: Start St					
Yellow Time (s)       3.5       3.5       3.5       3.5         All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       7.3       6.2       120.3         Approach LOS       A       A       F       F					
All-Red Time (s)       1.0       1.0       1.0       1.0         Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18       Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach LOS       A       A       F       F         Intersection Summary       Cycle Length: 90       20.3       20.3       20.3         Approach LOS       A       A       F       F         Intersection Summary       Cycle Length: 90       20.5       20.5       20.5					
Lost Time Adjust (s)       0.0       0.0       0.0       0.0         Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?       Recall Mode       C-Max       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5       Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18       107.3       Queue Delay       9.3       6.2       145.0       107.3         Queue Delay       9.3       6.2       145.0       107.3       107.3       100       100       100       100       107.3       107.3       105       A       A       F       F       F       Approach Delay       9.3       6.2       145.0       107.3       107.3       105       A       A       F       F       F       Approach LOS       A       A       F       F       F       Approach LOS       A       A       A       F       F       Intersection Summary       Cycle Length: 90       200       20.3       Approach LOS       A       A       F       Intersection Summary       Cycle Length: 90       20.5       21.5					
Total Lost Time (s)       4.5       4.5       4.5       4.5         Lead/Lag       Lead-Lag Optimize?         Recall Mode       C-Max       None       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       120.3         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       Queue Cycle Length: 90       Queue Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150       Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25					
Lead/Lag         Lead-Lag Optimize?         Recall Mode       C-Max       None       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       90         Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 1.25					
Lead-Lag Optimize?         Recall Mode       C-Max       None       None       None         Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       107.3         Queue Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       90         Actuated Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green         Natural Cycle: 150       Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25       Image: None       None	( )	4.5	4.5	4.5	4.5
Recall Mode         C-Max         None         None         None           Act Effct Green (s)         18.5         62.5         62.5         62.5           Actuated g/C Ratio         0.21         0.69         0.69         0.69           v/c Ratio         0.63         0.32         1.25         1.18           Control Delay         9.3         6.2         145.0         107.3           Queue Delay         0.0         0.0         0.0         0.0           Total Delay         9.3         6.2         145.0         107.3           LOS         A         A         F         F           Approach Delay         9.3         6.2         120.3           Approach LOS         A         A         F           Intersection Summary         Cycle Length: 90         V         V           Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green         Natural Cycle: 150         V           Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25         V					
Act Effct Green (s)       18.5       62.5       62.5       62.5         Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       90         Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 1.25					
Actuated g/C Ratio       0.21       0.69       0.69       0.69         v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       90         Actuated Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green         Natural Cycle: 150       Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25       Listical Coordinated					
v/c Ratio       0.63       0.32       1.25       1.18         Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       90         Actuated Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green         Natural Cycle: 150       Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25					
Control Delay       9.3       6.2       145.0       107.3         Queue Delay       0.0       0.0       0.0       0.0         Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       F         Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 1.25					
Queue Delay         0.0         0.0         0.0         0.0           Total Delay         9.3         6.2         145.0         107.3           LOS         A         A         F         F           Approach Delay         9.3         6.2         120.3           Approach LOS         A         A         F           Intersection Summary         Cycle Length: 90         F           Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green         Natural Cycle: 150           Control Type: Actuated-Coordinated         Maximum v/c Ratio: 1.25					
Total Delay       9.3       6.2       145.0       107.3         LOS       A       A       F       F         Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       F         Actuated Cycle Length: 90       Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 1.25       Start of Control Type: Actuated Coordinated					
LOSAAFFApproach Delay9.36.2120.3Approach LOSAAFIntersection SummaryCycle Length: 90Actuated Cycle Length: 90Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of GreenNatural Cycle: 150Control Type: Actuated-CoordinatedMaximum v/c Ratio: 1.25120.3					
Approach Delay       9.3       6.2       120.3         Approach LOS       A       A       F         Intersection Summary       Cycle Length: 90       Actuated Cycle Length: 90         Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green       Natural Cycle: 150         Control Type: Actuated-Coordinated       Maximum v/c Ratio: 1.25					
Approach LOS       A       A       F         Intersection Summary				F	
Intersection Summary Cycle Length: 90 Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25					
Cycle Length: 90 Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25	Approach LOS	A	A		F
Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25	Intersection Summary				
Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25					
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Green Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25		)			
Natural Cycle: 150 Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25			:NBL and	d 6:. Start	of Gree
Control Type: Actuated-Coordinated Maximum v/c Ratio: 1.25					3. 5100
Maximum v/c Ratio: 1.25		oordinated			
		91.0			
Intersection Capacity Utilization 99.4% ICU Level of Service F			6		
Analysis Period (min) 15			-		
	, , , , , , , , , , , , , , , , , , ,				

Splits and Phases: 2: CR 646 Belvidere Rd/CR 519 Belvidere Rd & CR 519 Uniontown Rd

📕 🖉 Ø2 (R)	<b>≯</b> Ø4	
23 s	67 s	
	🖌 øs	
	67 s	

### Timings 3: CR 519 Uniontown Rd & NJ 57

08/18/2020	
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Lane ConfigurationsTraffic Volume (vph)Future Volume (vph)Turn TypeProtected PhasesPermitted PhasesDetector PhaseSwitch PhaseMinimum Initial (s)55Total Split (s)Total Split (s)Cost Time (s)All-Red Time (s)Lost Time Adjust (s)Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-MAct Effct Green (s)SActuated g/C RatioOCControl Delay22	5.0 2.0 0.0 7.0	EBT 356 356 NA 4 4 50.0 57.0 57.0 57.0 63.3% 63.3% 2.0 0.0 7.0	WBL 28 28 Perm 8 8 8 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0 7.0	WBT 290 290 NA 8 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0 7.0	NBL 36 36 Perm 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0 8.0	NBT 330 330 NA 2 2 15.0 23.0 36.7% 5.0 3.0 0.0 8.0	SBL 3 3 Perm 6 6 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	SBT 125 125 NA 6 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	
Traffic Volume (vph)Image: Constraint of the sector of the se	284 284 284 4 4 4 4 0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	356 356 NA 4 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	28 28 Perm 8 8 50.0 57.0 57.0 57.0 63.3% 5.0 2.0 0.0	290 290 NA 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	36 36 Perm 2 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	330 330 NA 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	3 3 Perm 6 6 6 7 5.0 33.0 36.7% 5.0 3.0	125 125 NA 6 15.0 23.0 33.0 36.7% 5.0 3.0	
Traffic Volume (vph)Image: Constraint of the sector of the se	4 4 4 0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	356 356 NA 4 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	28 Perm 8 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	290 290 NA 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	36 Perm 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	330 330 NA 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	3 3 Perm 6 6 6 7 5.0 33.0 36.7% 5.0 3.0	125 125 NA 6 15.0 23.0 33.0 36.7% 5.0 3.0	
Turn TypePerProtected PhasesPermitted PhasesPermitted PhasesDetector PhaseSwitch PhaseSwitch PhaseMinimum Initial (s)5Minimum Split (s)5Total Split (s)5Total Split (s)63.Yellow Time (s)All-Red Time (s)Lost Time Adjust (s)5Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeRecall ModeC-MAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	4 4 0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	NA 4 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	Perm 8 8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	NA 8 50.0 57.0 63.3% 5.0 2.0 0.0	Perm 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	NA 2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	Perm 6 6 15.0 23.0 33.0 36.7% 5.0 3.0	NA 6 15.0 23.0 33.0 36.7% 5.0 3.0	
Protected PhasesPermitted PhasesDetector PhaseSwitch PhaseMinimum Initial (s)55Minimum Split (s)55Total Split (s)55Total Split (%)63.Yellow Time (s)All-Red Time (s)Lost Time Adjust (s)Total Lost Time (s)Lead/LagLead/LagLead/LagLead/LagCate Effct Green (s)55Act Effct Green (s)00v/c Ratio00Control Delay22	4 4 7.0 7.0 3% 5.0 2.0 0.0 7.0	4 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	2 2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	6 6 15.0 23.0 33.0 36.7% 5.0 3.0	6 15.0 23.0 33.0 36.7% 5.0 3.0	
Permitted PhasesDetector PhaseSwitch PhaseMinimum Initial (s)5Minimum Split (s)5Total Split (s)5Total Split (s)63.Yellow Time (s)All-Red Time (s)Lost Time Adjust (s)Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	4 0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	4 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	8 50.0 57.0 63.3% 5.0 2.0 0.0	8 50.0 57.0 57.0 63.3% 5.0 2.0 0.0	2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	6 15.0 23.0 33.0 36.7% 5.0 3.0	6 15.0 23.0 33.0 36.7% 5.0 3.0	
Detector Phase Switch Phase Minimum Initial (s) 5 Minimum Split (s) 5 Total Split (s) 5 Total Split (s) 63. Yellow Time (s) All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s) Lead/Lag Lead-Lag Optimize? Recall Mode C-M Act Effct Green (s) 5 Actuated g/C Ratio 0 V/c Ratio 0 Control Delay 2	4 0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	50.0 57.0 63.3% 5.0 2.0 0.0	8 50.0 57.0 63.3% 5.0 2.0 0.0	50.0 57.0 63.3% 5.0 2.0 0.0	2 15.0 23.0 33.0 36.7% 5.0 3.0 0.0	15.0 23.0 33.0 36.7% 5.0 3.0 0.0	6 15.0 23.0 33.0 36.7% 5.0 3.0	15.0 23.0 33.0 36.7% 5.0 3.0	
Switch PhaseMinimum Initial (s)5Minimum Split (s)5Total Split (s)5Total Split (%)63.Yellow Time (s)63.All-Red Time (s)63.Lost Time Adjust (s)7Total Lost Time (s)6Lead/Lag6Lead-Lag Optimize?7Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	0.0 7.0 7.0 3% 5.0 2.0 0.0 7.0	50.0 57.0 63.3% 5.0 2.0 0.0	50.0 57.0 57.0 63.3% 5.0 2.0 0.0	50.0 57.0 63.3% 5.0 2.0 0.0	15.0 23.0 33.0 36.7% 5.0 3.0 0.0	15.0 23.0 33.0 36.7% 5.0 3.0 0.0	15.0 23.0 33.0 36.7% 5.0 3.0	15.0 23.0 33.0 36.7% 5.0 3.0	
Minimum Initial (s)5Minimum Split (s)5Total Split (s)5Total Split (%)63.Yellow Time (s)4All-Red Time (s)5Lost Time Adjust (s)5Total Lost Time (s)2Lead-Lag2Lead-Lag Optimize?5Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	7.0 7.0 3% 5.0 2.0 0.0 7.0	57.0 57.0 63.3% 5.0 2.0 0.0	57.0 57.0 63.3% 5.0 2.0 0.0	57.0 57.0 63.3% 5.0 2.0 0.0	23.0 33.0 36.7% 5.0 3.0 0.0	23.0 33.0 36.7% 5.0 3.0 0.0	23.0 33.0 36.7% 5.0 3.0	23.0 33.0 36.7% 5.0 3.0	
Minimum Split (s)5Total Split (s)5Total Split (%)63.Yellow Time (s)7All-Red Time (s)7Lost Time Adjust (s)7Total Lost Time (s)7Lead/Lag7Lead-Lag Optimize?7Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	7.0 7.0 3% 5.0 2.0 0.0 7.0	57.0 57.0 63.3% 5.0 2.0 0.0	57.0 57.0 63.3% 5.0 2.0 0.0	57.0 57.0 63.3% 5.0 2.0 0.0	23.0 33.0 36.7% 5.0 3.0 0.0	23.0 33.0 36.7% 5.0 3.0 0.0	23.0 33.0 36.7% 5.0 3.0	23.0 33.0 36.7% 5.0 3.0	
Total Split (s)5Total Split (%)63.Yellow Time (s)7All-Red Time (s)1Lost Time Adjust (s)1Total Lost Time (s)1Lead/Lag1Lead-Lag Optimize?1Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0V/c Ratio0Control Delay2	7.0 3% 5.0 2.0 0.0 7.0	57.0 63.3% 5.0 2.0 0.0	57.0 63.3% 5.0 2.0 0.0	57.0 63.3% 5.0 2.0 0.0	33.0 36.7% 5.0 3.0 0.0	33.0 36.7% 5.0 3.0 0.0	33.0 36.7% 5.0 3.0	33.0 36.7% 5.0 3.0	
Total Split (%)63.Yellow Time (s)All-Red Time (s)Lost Time Adjust (s)Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	3% 5.0 2.0 0.0 7.0	63.3% 5.0 2.0 0.0	63.3% 5.0 2.0 0.0	63.3% 5.0 2.0 0.0	36.7% 5.0 3.0 0.0	36.7% 5.0 3.0 0.0	36.7% 5.0 3.0	36.7% 5.0 3.0	
Total Split (%)63.Yellow Time (s)All-Red Time (s)Lost Time Adjust (s)Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	5.0 2.0 0.0 7.0	5.0 2.0 0.0	5.0 2.0 0.0	5.0 2.0 0.0	5.0 3.0 0.0	5.0 3.0 0.0	5.0 3.0	5.0 3.0	
Yellow Time (s) All-Red Time (s) Lost Time Adjust (s) Total Lost Time (s) Lead/Lag Lead-Lag Optimize? Recall Mode C-M Act Effct Green (s) 5 Actuated g/C Ratio 0 v/c Ratio 0 Control Delay 2	2.0 0.0 7.0	2.0 0.0	2.0 0.0	2.0 0.0	3.0 0.0	3.0 0.0	3.0	3.0	
Lost Time Adjust (s) Total Lost Time (s) Lead/Lag Lead-Lag Optimize? Recall Mode C-N Act Effct Green (s) 5 Actuated g/C Ratio 0 v/c Ratio 0 Control Delay 2	0.0 7.0	0.0	0.0	0.0	0.0	0.0			
Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	7.0						0.0	0.0	
Total Lost Time (s)Lead/LagLead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	7.0			7.0		0 0			
Lead/Lag Lead-Lag Optimize? Recall Mode C-M Act Effct Green (s) 5 Actuated g/C Ratio 0 v/c Ratio 0 Control Delay 2	1ov					0.0	8.0	8.0	
Lead-Lag Optimize?Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	lov								
Recall ModeC-NAct Effct Green (s)5Actuated g/C Ratio0v/c Ratio0Control Delay2	lov								
Actuated g/C Ratio0v/c Ratio0Control Delay2	//dX	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Actuated g/C Ratio0v/c Ratio0Control Delay2	0.0	50.0	50.0	50.0	25.0	25.0	25.0	25.0	
v/c Ratio 0 Control Delay 2	.56	0.56	0.56	0.56	0.28	0.28	0.28	0.28	
3	.69	0.43	0.07	0.39	0.14	0.95	0.04	0.41	
5	3.3	13.2	9.9	12.2	25.9	62.6	25.3	27.1	
	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	3.3	13.2	9.9	12.2	25.9	62.6	25.3	27.1	
LOS	С	В	А	В	С	E	С	С	
Approach Delay		17.7		12.0		59.5		27.1	
Approach LOS		В		В		E		С	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90									
Offset: 10.9 (12%), Referenced to	o pnas	Se 4:EBI	L and 8:	WBIL, SI	art of ye	IOW			
Natural Cycle: 90									
Control Type: Actuated-Coordinat	ea								
Maximum v/c Ratio: 0.95									
Intersection Signal Delay: 28.7	21 /0					n LOS: C			
Intersection Capacity Utilization 1 Analysis Period (min) 15	31.6%	/0		I.	JU Level	of Servic	ен		

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

<b>₫</b> Ø2		•
33 s	57 s	
Ø6	€ Ø8 (R)	,
33 s	57 s	

### Timings 3: CR 519 Uniontown Rd & NJ 57

08/18/2020	
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Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT	
Lane Configurations	ሻ	र्च	ሻ	eî 👘	ሻ	el 👘	ሻ	ef 👘	
Traffic Volume (vph)	31	264	145	571	34	295	3	294	
Future Volume (vph)	31	264	145	571	34	295	3	294	
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)	50.0	50.0	50.0	50.0	15.0	15.0	15.0	15.0	
Minimum Split (s)	57.0	57.0	57.0	57.0	23.0	23.0	23.0	23.0	
Total Split (s)	57.0	57.0	57.0	57.0	33.0	33.0	33.0	33.0	
Total Split (%)	63.3%	63.3%	63.3%	63.3%	36.7%	36.7%	36.7%	36.7%	
Yellow Time (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	3.0	3.0	3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	7.0	7.0	7.0	7.0	8.0	8.0	8.0	8.0	
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	C-Max	C-Max	C-Max	C-Max	Min	Min	Min	Min	
Act Effct Green (s)	50.0	50.0	50.0	50.0	25.0	25.0	25.0	25.0	
Actuated g/C Ratio	0.56	0.56	0.56	0.56	0.28	0.28	0.28	0.28	
v/c Ratio	0.12	0.38	0.34	0.63	0.51	0.78	0.02	1.50	
Control Delay	10.8	12.1	13.3	17.3	52.1	41.6	24.3	259.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Delay	10.8	12.1	13.3	17.3	52.1	41.6	24.3	259.6	
LOS	В	В	В	В	D	D	С	F	
Approach Delay		12.0		16.4		42.6		258.4	
Approach LOS		В		В		D		F	
Intersection Summary									
Cycle Length: 90									
Actuated Cycle Length: 90	)								
Offset: 10.9 (12%), Refere			[] and 0.1		art of Vol	low			
Natural Cycle: 110	nceu to pha	13C 4.LDI		NDIL, SU		1010			
Control Type: Actuated-Co	ordinatod								
Maximum v/c Ratio: 1.50	Joiumateu								
Intersection Signal Delay:	00 3			l,	ntorsactio	n LOS: F			
Intersection Capacity Utiliz		0/				of Servic	ΔH		
	2011011 137.9	70		I.	SO LEVEL	UI JEIVIL			
Analysis Period (min) 15					20.01				

Splits and Phases: 3: CR 519 Uniontown Rd & NJ 57

▲ Ø2		l
33 s	57 s	
₩ø6	₩ Ø8 (R)	
33 s	57 s	

### Timings 4: CR 519 Uniontown Rd & Strykers Rd

07/29/2020
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	٦	$\mathbf{\hat{z}}$	1	1	Ŧ
Lane Group	EBL	EBR	NBL	NBT	SBT
Lane Configurations	1	1		र्स	eî 👘
Traffic Volume (vph)	102	254	89	386	326
Future Volume (vph)	102	254	89	386	326
Turn Type	Prot	Perm	Perm	NA	NA
Protected Phases	4			2	6
Permitted Phases		4	2		
Detector Phase	4	4	2	2	6
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5
Total Split (s)	25.0	25.0	65.0	65.0	65.0
Total Split (%)	27.8%	27.8%	72.2%	72.2%	72.2%
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.5	4.5		4.5	4.5
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Min	Min	Min
Act Effct Green (s)	8.8	8.8		22.3	22.3
Actuated g/C Ratio	0.22	0.22		0.55	0.55
v/c Ratio	0.33	0.49		0.70	0.45
Control Delay	18.1	6.4		11.8	6.7
Queue Delay	0.0	0.0		0.0	0.0
Total Delay	18.1	6.4		11.8	6.7
LOS	В	А		В	А
Approach Delay	10.0			11.8	6.7
Approach LOS	В			В	А
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 40.6	5				
Natural Cycle: 60					
Control Type: Actuated-Unc	oordinated	1			
Maximum v/c Ratio: 0.70		•			
Intersection Signal Delay: 9.	7			Ir	ntersectio
Intersection Capacity Utiliza		<u></u>			CU Level
Analysis Period (min) 15					

Splits and Phases: 4: CR 519 Uniontown Rd & Strykers Rd

▲ Ø2	Ø4	
65 s	25 s	
↓ Ø6		
65 s		

### Timings 4: CR 519 Uniontown Rd & Strykers Rd

	≯	$\mathbf{\hat{z}}$	1	Ť	Ļ	
Lane Group	EBL	EBR	NBL	NBT	SBT	
Lane Configurations	ኘ	1		र्भ	ef 🗧	
Traffic Volume (vph)	133	178	215	474	556	
Future Volume (vph)	133	178	215	474	556	
Turn Type	Prot	Perm	Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phase	4	4	2	2	6	
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	22.5	
Total Split (s)	22.5	22.5	67.5	67.5	67.5	
Total Split (%)	25.0%	25.0%	75.0%	75.0%	75.0%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	4.5		4.5	4.5	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	C-Max	C-Max	C-Max	
Act Effct Green (s)	13.4	13.4		67.6	67.6	
Actuated g/C Ratio	0.15	0.15		0.75	0.75	
v/c Ratio	0.62	0.52		1.09	0.57	
Control Delay	45.5	9.3		77.1	7.3	
Queue Delay	0.0	0.0		0.0	0.0	
Total Delay	45.5	9.3		77.1	7.3	
LOS	D	А		E	A	
Approach Delay	24.7			77.1	7.3	
Approach LOS	С			E	А	
Intersection Summary						
Cycle Length: 90						
Actuated Cycle Length: 90						
Offset: 0 (0%), Referenced t	to phase 2	:NBTL ar	nd 6:SBT	Start of	Green	
Natural Cycle: 130						
Control Type: Actuated-Coo	rdinated					
Maximum v/c Ratio: 1.09						
Intersection Signal Delay: 38	8.6			I	ntersection	LOS: D
Intersection Capacity Utiliza		, D		10	CU Level of	Service F
Analysis Period (min) 15						

Splits and Phases: 4: CR 519 Uniontown Rd & Strykers Rd

Ø2 (R)	Ø4	
67.5 s	22.5 s	
↓ Ø6 (R)		
67.5 s		

#### Timings 4: CO 632 & I-78 WB ramp

	٦	$\mathbf{r}$	t	Ļ	
Lane Group	EBL	EBR	NBT	SBT	
Lane Configurations	1	1	<b>†</b>	•	
Traffic Volume (vph)	1059	129	385	105	
Future Volume (vph)	1059	129	385	105	
Turn Type	Prot	Perm	NA	NA	
Protected Phases	4		2	6	
Permitted Phases		4			
Detector Phase	4	4	2	6	
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	
Total Split (s)	64.0	64.0	26.0	26.0	
Total Split (%)	71.1%	71.1%	28.9%	28.9%	
Yellow Time (s)	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Min	Min	
Act Effct Green (s)	59.2	59.2	21.3	21.3	
Actuated g/C Ratio	0.66	0.66	0.24	0.24	
v/c Ratio	0.98	0.13	0.94	0.26	
Control Delay	39.2	2.3	65.8	29.6	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	39.2	2.3	65.8	29.6	
LOS	D	А	E	С	
Approach Delay	35.2		65.8	29.6	
Approach LOS	D		E	С	
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 8	9.6				
Natural Cycle: 90					
Control Type: Actuated-U	Incoordinated	1			
Maximum v/c Ratio: 0.98					
Intersection Signal Delay:	: 41.9			Ir	ntersection LOS: D
Intersection Capacity Utili		, D			CU Level of Service E
Analysis Period (min) 15					

Splits and Phases: 4: CO 632 & I-78 WB ramp

<b>1</b> ø2	A 04
26 s	64 s
↓ Ø6	
26 s	

### Timings <u>4: CO 632 & I-78 WB ramp</u>

	≯	*	1	ţ	
Lane Group	EBL	EBR	NBT	SBT	
Lane Configurations	1	1	<b>†</b>	<b>†</b>	
Traffic Volume (vph)	261	52	124	328	
Future Volume (vph)	261	52	124	328	
Turn Type	Prot	Perm	NA	NA	
Protected Phases	4		2	6	
Permitted Phases		4			
Detector Phase	4	4	2	6	
Switch Phase					
Minimum Initial (s)	5.0	5.0	5.0	5.0	
Minimum Split (s)	22.5	22.5	22.5	22.5	
Total Split (s)	42.0	42.0	48.0	48.0	
Total Split (%)	46.7%	46.7%	53.3%	53.3%	
Yellow Time (s)	3.5	3.5	3.5	3.5	
All-Red Time (s)	1.0	1.0	1.0	1.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.5	4.5	4.5	4.5	
Lead/Lag					
Lead-Lag Optimize?					
Recall Mode	None	None	Min	Min	
Act Effct Green (s)	11.5	11.5	14.0	14.0	
Actuated g/C Ratio	0.33	0.33	0.40	0.40	
v/c Ratio	0.49	0.10	0.18	0.47	
Control Delay	12.7	3.8	8.1	10.7	
Queue Delay	0.0	0.0	0.0	0.0	
Total Delay	12.7	3.8	8.1	10.7	
LOS	В	А	А	В	
Approach Delay	11.2		8.1	10.7	
Approach LOS	В		А	В	
Intersection Summary					
Cycle Length: 90					
Actuated Cycle Length: 34.7	1				
Natural Cycle: 45					
Control Type: Actuated-Unco	oordinated	1			
Maximum v/c Ratio: 0.49					
Intersection Signal Delay: 10					ntersection LOS: B
Intersection Capacity Utilizat	tion 39.2%	, D		10	CU Level of Service A
Analysis Period (min) 15					

#### Splits and Phases: 4: CO 632 & I-78 WB ramp

¶ø₂	A 04
48 s	42 s
↓ Ø6	
48 s	

# APPENDIX E - CRASH TABLES

# US 22, Downtown Phillipsburg

		Crash Hotspot Location								
		D. 4								
	Statewide/		ing Peak eriod	Evening Peak / Period		All	Day			
Category	Average (reference)		AM - 09:00 AM)		M - 06:00 M)	(241	Hours)			
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total			
	By Ty	pe								
Same Direction - Rear End	47.82%	23	19.66%	65	31.86%	272	22.52%			
Right Angle	10.27%	22	18.80%	38	18.63%	211	17.47%			
Same Direction - Sideswipe	19.11%	18	15.38%	31	15.20%	235	19.45%			
Fixed Object	8.78%	22	18.80%	13	6.37%	142	11.75%			
Struck Parked Vehicle	1.31%	18	15.38%	25	12.25%	192	15.89%			
Left Turn/U Turn	2.29%	2	1.71%	3	1.47%	12	0.99%			
Opposite Direction (Head On	1.61%	1	0.85%	3	1.47%	23	1.90%			
Overturned	0.53%	1	0.85%	1	0.49%	4	0.33%			
Backing	0.84%	4	3.42%	8	3.92%	45	3.73%			
Non-fixed Object	0.88%	0	0.00%	0	0.00%	4	0.33%			
Animal	4.13%	0	0.00%	1	0.49%	8	0.66%			
Pedestrian	0.85%	3	2.56%	4	1.96%	19	1.57%			
Other	1.58%	3	2.56%	12	5.88%	41	3.39%			
Tot	al 100.00%	117	100.00%	204	100.00%	1208	100.00%			
By Surface Condition										
Dry	79.65%	78	66.67%	166	81.37%	918	75.99%			
Wet	17.89%	30	<b>25.64%</b>	33	16.18%	238	19.70%			
Other	2.46%	9	7.69%	5	2.45%	52	4.30%			
Tot	al 100.00%	117	100.00%	204	100.00%	1208	100.00%			
	By Lighting C	Conditions	5							
Daylight	70.21%	110	94.02%	157	76.96%	893	73.92%			
Dusk	2.59%	1	0.85%	8	3.92%	23	1.90%			
Night	25.32%	0	0.00%	0	0.00%	0	0.00%			
Other	1.88%	6	5.13%	39	19.12%	292	24.17%			
Tot	al 100.00%	117	100.00%	204	100.00%	1208	100.00%			
	By Seve	erity								
Property Damage Only	74.26%	93	79.49%	161	78.92%	978	80.96%			
Complaint of Pain	21.22%	18	15.38%	38	18.63%	186	15.40%			
Moderate Injury	3.82%	5	4.27%	5	2.45%	40	3.31%			
Killed	0.28%	1	0.85%	0	0.00%	1	0.08%			
Incapacitated	0.42%	0	0.00%	0	0.00%	3	0.25%			
Tot		117	100.00%	204	100.00%	1208	100.00%			
	Vehicle	Type								
Autos	#N/A	107	91.45%	190	93.14%	1105	91.47%			
Heavy Vehicles	#N/A	10	8.55%	14	6.86%	103	8.53%			
Tot		117	100.00%	204	100.00%	1208	100.00%			
Source: New Jersey Department of Transportatio		117	100.0070	201	100.0070	1200	100.0070			

# US 46, NJ 182, CR 517, & CR 604

		Crash Hotspot Location					
	Ctotowido		Morning Peak Period		ng Peak riod	All	Day
Category	Statewide		(07:00 AM - 09:00 AM)		.M - 09:00 .M)	(24 Hours)	
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
	Ву Тур						
Same Direction - Rear End	47.82%	25	38.46%	32	31.37%	227	37.90%
Right Angle	10.27%	14	21.54%	23	22.55%	146	24.37%
Same Direction - Sideswipe	19.11%	8	12.31%	10	9.80%	50	8.35%
Fixed Object	8.78%	4	6.15%	2	1.96%	26	4.34%
Struck Parked Vehicle	1.31%	4	6.15%	9	8.82%	63	10.52%
Left Turn/U Turn	2.29%	2	3.08%	5	4.90%	18	3.01%
Opposite Direction (Head On	1.61%	1	1.54%	6	5.88%	13	2.17%
Overturned	0.53%	0	0.00%	0	0.00%	1	0.17%
Backing	0.84%	2	3.08%	4	3.92%	17	2.84%
Non-fixed Object	0.88%	0	0.00%	1	0.98%	2	0.33%
Animal	4.13%	0	0.00%	3	2.94%	7	1.17%
Pedestrian	0.85%	2	3.08%	1	0.98%	8	1.34%
Other	1.58%	3	4.62%	6	5.88%	21	3.51%
Total	100.00%	65	100.00%	102	100.00%	599	100.00%
	By Surface Co	ondition					
Dry	79.65%	49	75.38%	82	80.39%	482	80.47%
Wet	17.89%	15	23.08%	16	15.69%	104	17.36%
Other	2.46%	1	1.54%	4	3.92%	13	2.17%
Total	100.00%	65	100.00%	102	100.00%	599	100.00%
	By Lighting Co	onditions					
Daylight	70.21%	61	93.85%	80	78.43%	468	78.13%
Dusk	2.59%	0	0.00%	6	5.88%	13	2.17%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	4	6.15%	16	15.69%	118	19.70%
Total	100.00%	65	100.00%	102	100.00%	599	100.00%
	By Sever	ity					
Property Damage Only	74.26%	49	75.38%	83	81.37%	457	76.29%
Complaint of Pain	21.22%	14	21.54%	12	11.76%	114	19.03%
Moderate Injury	3.82%	2	3.08%	6	5.88%	25	4.17%
Killed	0.28%	0	0.00%	0	0.00%	1	0.17%
Incapacitated	0.42%	0	0.00%	1	0.98%	2	0.33%
Total	100.00%	65	100.00%	102	100.00%	599	100.00%
	Vehicle T			102			
Autos	#N/A	60	92.31%	99	97.06%	554	92.49%
Heavy Vehicles	#N/A	5	7.69%	3	2.94%	45	7.51%
Total							
Source: New Jersey Department of Transportation	#N/A	65	100.00%	102	100.00%	599	100.00%

# US @ CR 638 and @ CR 519

	03@	CK 030 a				pot Locatior		
				1				
		Statewide/ Average	Per	Morning Peak Period		ng Peak riod	All Day	
Category		(reference)	(07:00 AM - 09:00 AM)		(04:00 PM - 06:00 PM)		(24 Hours)	
		% of Total	Number	% of Total	Number	% of Total	Number	% of Total
		By Ty	ne	. o tai	1 1	, o tai		, o tai
Same Direction - Rear End		47.82%	17	58.62%	45	53.57%	205	51.25%
Right Angle		10.27%	1	3.45%	6	7.14%	35	8.75%
Same Direction - Sideswipe		19.11%	9	31.03%	19	22.62%	101	25.25%
Fixed Object		8.78%	0	0.00%	2	2.38%	8	2.00%
Struck Parked Vehicle		1.31%	0	0.00%	1	1.19%	2	0.50%
Left Turn/U Turn		2.29%	0	0.00%	2	2.38%	7	1.75%
Opposite Direction (Head On		1.61%	0	0.00%	0	0.00%	6	1.50%
Overturned		0.53%	0	0.00%	0	0.00%	0	0.00%
Backing		0.84%	0	0.00%	1	1.19%	8	2.00%
Non-fixed Object		0.88%	0	0.00%	0	0.00%	1	0.25%
Animal		4.13%	0	0.00%	1	1.19%	3	0.75%
Pedestrian		0.85%	0	0.00%	0	0.00%	0	0.00%
Other		1.58%	2	6.90%	7	8.33%	24	6.00%
	Total	100.00%	29	100.00%	84	100.00%	400	100.00%
		By Surface (	Condition					
Dry		79.65%	21	72.41%	69	82.14%	321	80.25%
Wet		17.89%	7	24.14%	15	17.86%	73	18.25%
Other		2.46%	1	3.45%	0	0.00%	6	1.50%
	Total	100.00%	29	100.00%	84	100.00%	400	100.00%
		By Lighting C	onditions					
Daylight		70.21%	28	96.55%	59	70.24%	301	75.25%
Dusk		2.59%	0	0.00%	5	5.95%	8	2.00%
Night		25.32%	0	0.00%	0	0.00%	0	0.00%
Other		1.88%	1	3.45%	20	23.81%	91	22.75%
	Total	100.00%	29	100.00%	84	100.00%	400	100.00%
		By Seve	erity					
Property Damage Only		74.26%	23	79.31%	64	76.19%	309	77.25%
Complaint of Pain		21.22%	6	20.69%	19	22.62%	80	20.00%
Moderate Injury		3.82%	0	0.00%	1	1.19%	11	2.75%
Killed		0.28%	0	0.00%	0	0.00%	0	0.00%
Incapacitated		0.42%	0	0.00%	0	0.00%	0	0.00%
	Total	100.00%	29	100.00%	84	100.00%	400	100.00%
		Vehicle	Туре					
Autos		-	26	89.66%	75	89.29%	362	90.50%
Heavy Vehicles		-	3	10.34%	9	10.71%	38	9.50%
	Total	-	29	100.00%	84	100.00%	400	100.00%
Source: New Jersey Department of Transi	nortation							

# US 22 @ CR 519

			(	Crash Hots	pot Locatior	۱	
	Statewide	Morn Pe	Morning Peak Period (07:00 AM - 09:00 AM)		ng Peak riod	All Day	
Category	Average				'M - 06:00 M)	(24 ł	Hours)
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
	By T	уре					
Same Direction - Rear End	47.82%	1	20.00%	4	25.00%	38	41.30%
Right Angle	10.27%	0	0.00%	2	12.50%	13	14.13%
Same Direction - Sideswipe	19.11%	3	60.00%	5	31.25%	21	22.83%
Fixed Object	8.78%	0	0.00%	0	0.00%	1	1.09%
Struck Parked Vehicle	1.31%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	2.29%	0	0.00%	1	6.25%	1	1.09%
Opposite Direction (Head On Overturned	1.61%	0	0.00%	0	0.00% 0.00%	0	0.00%
Backing	0.53%	0	0.00%	0	0.00%	0	0.00% <b>4.35%</b>
Non-fixed Object	0.84%	0	0.00%	0	0.00%	4	0.00%
Animal	4.13%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	0.85%	0	0.00%	0	0.00%	0	0.00%
Other	1.58%	1	20.00%	4	25.00%	14	15.22%
Tot		5	100.00%	16	100.00%	92	100.00%
	By Surface	Condition	1				
Dry	79.65%	3	60.00%	13	81.25%	73	79.35%
Wet	17.89%	1	20.00%	3	18.75%	16	17.39%
Other	2.46%	1	20.00%	0	0.00%	3	3.26%
Tot	al 100.00%	5	100.00%	16	100.00%	92	100.00%
	By Lighting	Condition	S				
Daylight	70.21%	4	80.00%	12	75.00%	72	78.26%
Dusk	2.59%	0	0.00%	1	6.25%	1	1.09%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	1	20.00%	3	18.75%	19	20.65%
Tot	al 100.00%	5	100.00%	16	100.00%	92	100.00%
	By Sev	verity					
Property Damage Only	74.26%	5	100.00%	15	93.75%	75	81.52%
Complaint of Pain	21.22%	0	0.00%	1	6.25%	14	15.22%
Moderate Injury	3.82%	0	0.00%	0	0.00%	3	3.26%
Killed	0.28%	0	0.00%	0	0.00%	0	0.00%
Incapacitated	0.42%	0	0.00%	0	0.00%	0	0.00%
Tot		5	100.00%	16	100.00%	92	100.00%
	Vehicle	31					
Autos	-	5	100.00%	14	87.50%	89	96.74%
Heavy Vehicles	-	0	0.00%	2	12.50%	3	3.26%
Tot		5	100.00%	16	100.00%	92	100.00%
Source: New Jersey Department of Transportation	n						

### US 46 @ CR 517

		Crash Hotspot Location					
	Statewide	Morning Peak Period		Evening Peak Period		All Day	
Category	Average		(07:00 AM - 09:00 AM)		PM - 06:00 PM)	(24 ŀ	Hours)
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
	By T	vpe					
Same Direction - Rear End	47.82%	5	55.56%	3	27.27%	23	37.70%
Right Angle	10.27%	0	0.00%	2	18.18%	10	16.39%
Same Direction - Sideswipe	19.11%	1	11.11%	4	36.36%	6	9.84%
Fixed Object	8.78%	1	11.11%	0	0.00%	9	14.75%
Struck Parked Vehicle	1.31%	0	0.00%	1	9.09%	4	6.56%
Left Turn/U Turn	2.29%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On	1.61%	0	0.00%	0	0.00%	0	0.00%
Overturned	0.53%	0	0.00%	0	0.00%	0	0.00%
Backing	0.84%	0	0.00%	0	0.00%	2	3.28%
Non-fixed Object	0.88%	0	0.00%	0	0.00%	0	0.00%
Animal	4.13%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	0.85%	0	0.00%	1	9.09%	2	3.28%
Other	1.58%	2	22.22%	0	0.00%	5	8.20%
Tota	100.00%	9	100.00%	11	100.00%	61	100.00%
	By Surface	Condition	า				
Dry	79.65%	6	66.67%	10	90.91%	49	80.33%
Wet	17.89%	3	33.33%	1	9.09%	12	<b>19.67%</b>
Other	2.46%	0	0.00%	0	0.00%	0	0.00%
Tota	100.00%	9	100.00%	11	100.00%	61	100.00%
	By Lighting	Condition	IS				
Daylight	70.21%	7	77.78%	11	100.00%	43	70.49%
Dusk	2.59%	0	0.00%	0	0.00%	3	4.92%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	2	22.22%	0	0.00%	15	<b>24.59%</b>
Total	100.00%	9	100.00%	11	100.00%	61	100.00%
	By Sev	veritv					
Property Damage Only	74.26%	7	77.78%	9	81.82%	47	77.05%
Complaint of Pain	21.22%	2	22.22%	1	9.09%	11	18.03%
Moderate Injury	3.82%	0	0.00%	1	9.09%	2	3.28%
Killed	0.28%	0	0.00%	0	0.00%	1	1.64%
Incapacitated	0.42%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	9	100.00%	11	100.00%	61	100.00%
	Vehicle						
Autos	-	9	100.00%	11	100.00%	57	93.44%
Heavy Vehicles	-	0	0.00%	0	0.00%	4	6.56%
Total		9	100.00%	11	100.00%	61	100.00%
Source: New Jersey Department of Transportation		7	100.0070	11	100.0070	UI	100.0070

# I-80 @ CR 517

			C	Crash Hots	pot Location			
	Statewide		Morning Peak Period (07:00 AM - 09:00 AM)		ng Peak eriod	All	All Day	
Category	Average	<b>`</b>			PM - 06:00 PM)	(241	Hours)	
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total	
Ву Туре								
Same Direction - Rear End	47.82%	2	28.57%	4	57.14%	21	43.75%	
Right Angle	10.27%	0	0.00%	2	28.57%	4	8.33%	
Same Direction - Sideswipe	19.11%	1	14.29%	0	0.00%	3	6.25%	
Fixed Object	8.78%	2	28.57%	0	0.00%	5	10.42%	
Struck Parked Vehicle	1.31%	0	0.00%	0	0.00%	0	0.00%	
Left Turn/U Turn	2.29%	0	0.00%	0	0.00%	4	8.33%	
Opposite Direction (Head On	1.61%	0	0.00%	0	0.00%	2	4.17%	
Overturned	0.53%	0	0.00%	1	14.29%	1	2.08%	
Backing	0.84%	1	<b>14.29%</b>	0	0.00%	3	6.25%	
Non-fixed Object	0.88%	0	0.00%	0	0.00%	0	0.00%	
Animal	4.13% 0.85%	1	<b>14.29%</b> 0.00%	0	0.00% 0.00%	3	<b>6.25%</b> 0.00%	
Pedestrian Other	1.58%	0	0.00%	0	0.00%	0	<b>4.17%</b>	
		0		0				
Total	100.00%	7	100.00%	7	100.00%	48	100.00%	
	By Surface	Conditior	1					
Dry	79.65%	6	85.71%	5	71.43%	39	81.25%	
Wet	17.89%	1	14.29%	2	28.57%	6	12.50%	
Other	2.46%	0	0.00%	0	0.00%	3	6.25%	
Total	100.00%	7	100.00%	7	100.00%	48	100.00%	
	By Lighting (	Condition	s					
Daylight	70.21%	7	100.00%	5	71.43%	36	75.00%	
Dusk	2.59%	0	0.00%	2	28.57%	4	8.33%	
Night	25.32%	0	0.00%	0	0.00%	0	0.00%	
Other	1.88%	0	0.00%	0	0.00%	8	16.67%	
Total	100.00%	7	100.00%	7	100.00%	48	100.00%	
			100.0078	/	100.0078	40	100.0078	
	By Sev		100.00%		74 400/	14	05 40%	
Property Damage Only	74.26%	7	100.00%	5	71.43%	41	85.42%	
Complaint of Pain	21.22%	0	0.00%	0	0.00%	4	8.33%	
Moderate Injury	3.82%	0	0.00%	1	14.29%	2	4.17%	
Killed	0.28%	0	0.00%	0	0.00%	0	0.00%	
Incapacitated	0.42%	0	0.00%	1	14.29%	1	2.08%	
Total	100.00%	7	100.00%	7	100.00%	48	100.00%	
	Vehicle	Туре						
Autos	-	5	71.43%	7	#######	43	89.58%	
Heavy Vehicles	-	2	28.57%	0	0.00%	5	10.42%	
Total	_	7	100.00%	7	100.00%	48	100.00%	
Source: New Jersey Department of Transportation		,	100.0070	,	100.0070		100.0070	

# US 22 @ Morris St and CR 646

		Crash Hotspot Location					
	Statewide		Morning Peak Period		ng Peak riod	All	Day
Category	Average	``	AM - 09:00 AM)	· · · · · · · · · · · · · · · · · · ·	M - 06:00 M)	(24 ł	Hours)
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Ву Туре	47.000/		00 00 <sup>0</sup> /		00 00 <sup>0</sup> /	0.0	50.07%
Same Direction - Rear End	47.82%	5	83.33%	4	80.00%	23	<b>58.97%</b>
Right Angle	10.27%	0	0.00%	0	0.00%	0	0.00%
Same Direction - Sideswipe	19.11%	0	0.00%	0	0.00% <b>20.00%</b>	5	12.82% 12.82%
Fixed Object Struck Parked Vehicle	8.78% 1.31%	0	0.00% <b>16.67%</b>	1 0	0.00%	5	12.82%
Left Turn/U Turn	2.29%	1	0.00%		0.00%		0.00%
	1.61%	0	0.00%	0	0.00%	0	0.00%
Opposite Direction (Head On Overturned	0.53%	0	0.00%	0	0.00%	0	0.00%
	0.53%	0	0.00%	0	0.00%	1	<b>2.56%</b>
Backing Non-fixed Object	0.88%	0	0.00%	0	0.00%	0	0.00%
Animal	4.13%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	0.85%	0	0.00%	0	0.00%	0	0.00%
Other	1.58%	0	0.00%	0	0.00%	1	<b>2.56%</b>
Total		6	100.00%	5	100.00%	39	100.00%
	By Surface (	Condition					
Dry	79.65%	4	66.67%	4	80.00%	28	71.79%
Wet	17.89%	2	33.33%	1	20.00%	10	25.64%
Other	2.46%	0	0.00%	0	0.00%	1	2.56%
Tota	100.00%	6	100.00%	5	100.00%	39	100.00%
	By Lighting C	Conditions	5				
Daylight	70.21%	6	100.00%	3	60.00%	30	76.92%
Dusk	2.59%	0	0.00%	0	0.00%	0	0.00%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	0	0.00%	2	40.00%	9	23.08%
Total	100.00%	6	100.00%	5	100.00%	39	100.00%
	By Seve						
Property Damage Only	74.26%	5	83.33%	2	40.00%	32	82.05%
Complaint of Pain	21.22%	0	0.00%	2	<b>60.00%</b>	4	10.26%
Moderate Injury	3.82%	1	16.67%	0	0.00%	4	5.13%
Killed	0.28%	0	0.00%	0	0.00%	0	0.00%
Incapacitated	0.28%	0	0.00%	0	0.00%	1	2.56%
Total					100.00%		100.00%
		6 Turno	100.00%	5	100.00%	39	100.00%
	Vehicle						
Autos	-	6	100.00%	5	#######	37	94.87%
Heavy Vehicles	-	0	0.00%	0	0.00%	2	5.13%
Total	-	6	100.00%	5	100.00%	39	100.00%
Source: New Jersey Department of Transportation							

# CR 630 @ CR 640

		Crash Hotspot Location					
	Statewide	Morning Peak Period			ng Peak eriod	All	Day
Category	Average		(07:00 AM - 09:00 AM)		(04:00 PM - 06:00 PM)		Hours)
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
By Type	47.000/	1	05 749/	F	71 400/	22	E0.07%
Same Direction - Rear End	47.82% 10.27%	6	<b>85.71%</b> 0.00%	5	<b>71.43%</b> 0.00%	23	<b>58.97%</b> 5.13%
Right Angle Same Direction - Sideswipe	10.27%	0	0.00%	0	14.29%	2	10.26%
Fixed Object	8.78%	1	14.29%	0	0.00%	4	12.82%
Struck Parked Vehicle	1.31%	0	0.00%	0	0.00%	0	0.00%
Left Turn/U Turn	2.29%	0	0.00%	0	0.00%	1	2.56%
Opposite Direction (Head On	1.61%	0	0.00%	1	14.29%	2	5.13%
Overturned	0.53%	0	0.00%	0	0.00%	1	2.56%
Backing	0.84%	0	0.00%	0	0.00%	0	0.00%
Non-fixed Object	0.88%	0	0.00%	0	0.00%	0	0.00%
Animal	4.13%	0	0.00%	0	0.00%	0	0.00%
Pedestrian	0.85%	0	0.00%	0	0.00%	0	0.00%
Other	1.58%	0	0.00%	0	0.00%	1	2.56%
Tota	100.00%	7	100.00%	7	100.00%	39	100.00%
	By Surface (	Condition					
Dry	79.65%	5	71.43%	7	100.00%	29	74.36%
Wet	17.89%	2	28.57%	0	0.00%	10	25.64%
Other	2.46%	0	0.00%	0	0.00%	0	0.00%
Tota	100.00%	7	100.00%	7	100.00%	39	100.00%
	By Lighting C	conditions	5				
Daylight	70.21%	7	100.00%	4	57.14%	32	82.05%
Dusk	2.59%	0	0.00%	0	0.00%	0	0.00%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	0	0.00%	3	42.86%	7	17.95%
Tota	100.00%	7	100.00%	7	100.00%	39	100.00%
	By Sev	erity					
Property Damage Only	74.26%	4	57.14%	6	85.71%	25	64.10%
Complaint of Pain	21.22%	3	42.86%	0	0.00%	12	30.77%
Moderate Injury	3.82%	0	0.00%	1	14.29%	2	5.13%
Killed	0.28%	0	0.00%	0	0.00%	0	0.00%
Incapacitated	0.42%	0	0.00%	0	0.00%	0	0.00%
Tota	100.00%	7	100.00%	7	100.00%	39	100.00%
	Vehicle	Туре					
Autos	-	7	100.00%	7	100.00%	38	97.44%
Heavy Vehicles	-	0	0.00%	0	0.00%	1	2.56%
Tota		7	100.00%	7	100.00%	39	100.00%
Source: New Jersey Department of Transportation		1	100.00 /0	1	100.0070	37	100.0070

# CR 521 @ CR 621

		Crash Hotspot Location					
		Morn P	iing Peak eriod		ng Peak eriod	Al	l Day
Category	Statewide Average		(07:00 AM - 09:00 AM)		PM - 06:00 PM)	(24 Hours)	
	% of Total	Number	% of Total	Number	% of Total	Number	% of Total
Ву Туре							
Same Direction - Rear End	47.82%	1	33.33%	0	0.00%	7	25.93%
Right Angle	10.27%	1	33.33%	0	0.00%	2	7.41%
Same Direction - Sideswipe	19.11%	0	0.00%	0	0.00%	0	0.00%
Fixed Object	8.78%	1	33.33%	0	0.00%	3	11.11%
Struck Parked Vehicle	1.31%	0	0.00%	3	37.50%	7	25.93%
Left Turn/U Turn	2.29%	0	0.00%	1	12.50%	1	3.70%
Opposite Direction (Head On	1.61%	0	0.00%	1	12.50%	1	3.70%
Overturned	0.53%	0	0.00%	0	0.00%	0	0.00%
Backing	0.84%	0	0.00%	2	25.00%	5	18.52%
Non-fixed Object	0.88%	0	0.00%	0	0.00%	0	0.00%
Animal	4.13%	0	0.00%	1	12.50%	1	3.70%
Pedestrian	0.85%	0	0.00%	0	0.00%	0	0.00%
Other	1.58%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	3	100.00%	8	100.00%	27	100.00%
	By Surface	Conditior	ו				
Dry	79.65%	2	66.67%	7	87.50%	24	88.89%
Wet	17.89%	0	0.00%	1	12.50%	2	7.41%
Other	2.46%	1	33.33%	0	0.00%	1	3.70%
Total	100.00%	3	100.00%	8	100.00%	27	100.00%
	By Lighting (	Condition	S				
Daylight	70.21%	3	100.00%	4	50.00%	21	77.78%
Dusk	2.59%	0	0.00%	0	0.00%	0	0.00%
Night	25.32%	0	0.00%	0	0.00%	0	0.00%
Other	1.88%	0	0.00%	4	50.00%	6	22.22%
Total	100.00%	3	100.00%	8	100.00%	27	100.00%
	By Sev	erity					
Property Damage Only	74.26%	3	100.00%	8	100.00%	26	96.30%
Complaint of Pain	21.22%	0	0.00%	0	0.00%	1	3.70%
Moderate Injury	3.82%	0	0.00%	0	0.00%	0	0.00%
Killed	0.28%	0	0.00%	0	0.00%	0	0.00%
Incapacitated	0.42%	0	0.00%	0	0.00%	0	0.00%
Total	100.00%	3	100.00%	8	100.00%	27	100.00%
	Vehicle						
Autos			22.220/		100.000/		
Autos	-	1	33.33%	8	100.00%	25	92.59%
Heavy Vehicles	-	2	66.67%	0	0.00%	2	7.41%
Total		3	100.00%	8	100.00%	27	100.00%
Source: New Jersey Department of Transportation							