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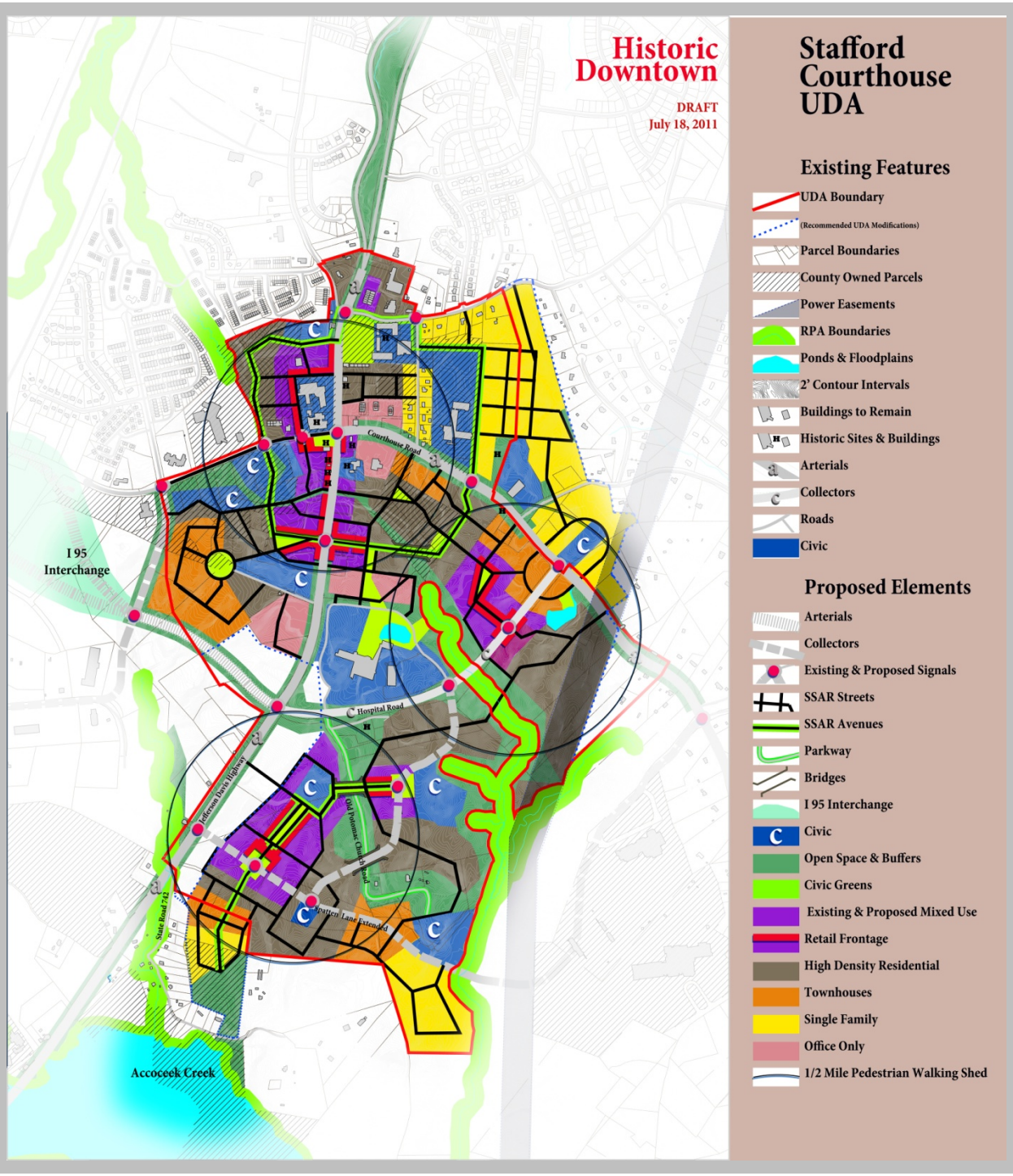
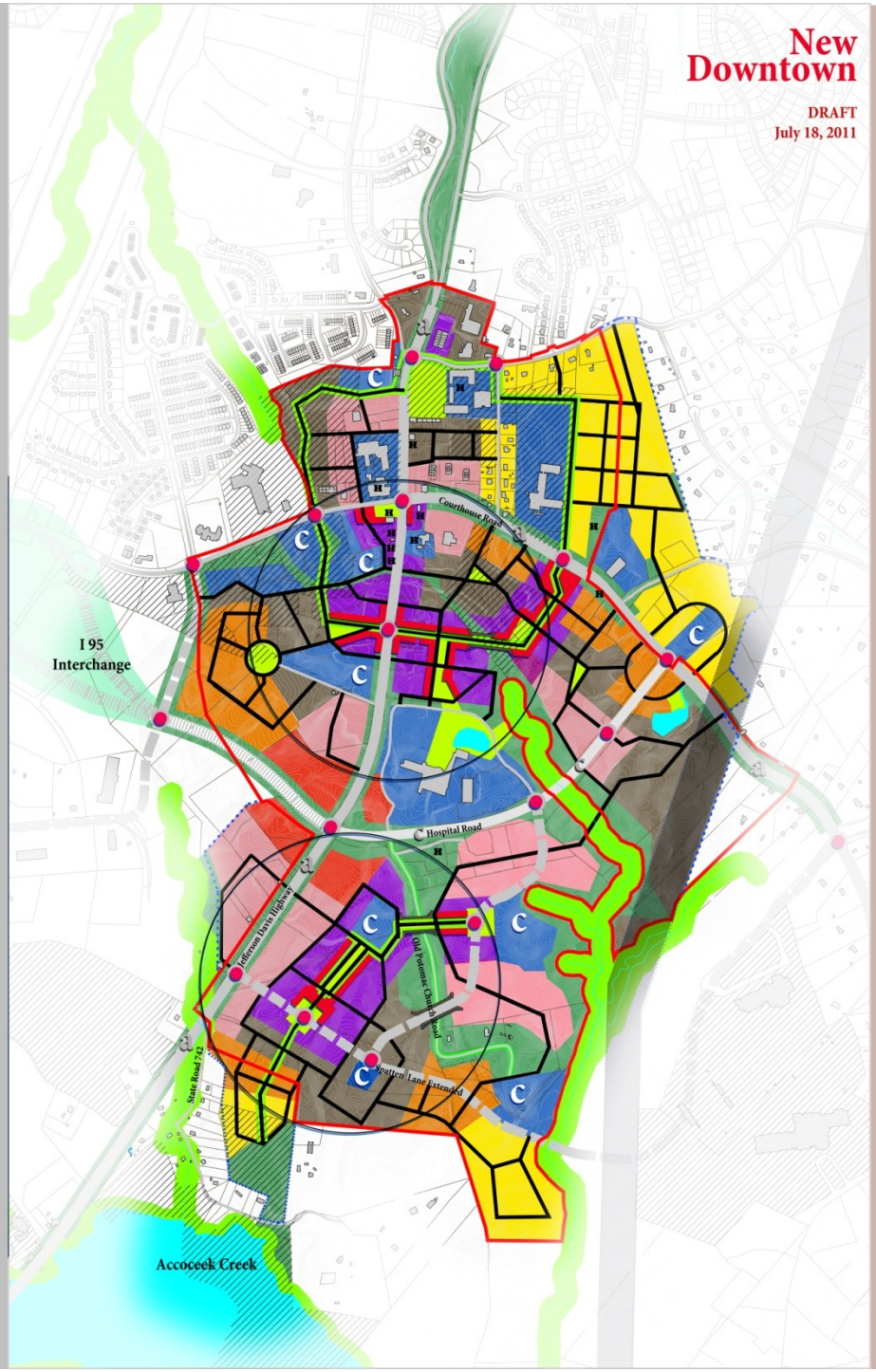
Appendix A - Public Outreach

A1 - Alternatives Presented at Workshop



CONCEPT 1: HISTORIC DOWNTOWN

Overall Land Use Plan



Stafford Courthouse UDA

Existing Features

- UDA Boundary
- (Recommended UDA Modifications)
- Parcel Boundaries
- County Owned Parcels
- Power Easements
- RPA Boundaries
- Ponds & Floodplains
- 2' Contour Intervals
- Buildings to Remain
- Historic Sites & Buildings
- Arterials
- Collectors
- Roads
- Civic

Proposed Elements

- Arterials
- Collectors
- Existing & Proposed Signals
- SSAR Streets
- SSAR Avenues
- Parkway
- Bridges
- I 95 Interchange
- Civic
- Open Space & Buffers
- Civic Greens
- Existing & Proposed Mixed Use
- Retail Frontage
- High Density Residential
- Townhouses
- Single Family
- Office Only
- Highway Commercial
- 1/2 Mile Pedestrian Walking Shed

CONCEPT 2: NEW DOWNTOWN

Overall Land Use Plan

Appendix A - Public Outreach

A2 - Compiled Public Workshop Notes

STAFFORD COUNTY COURTHOUSE UDA: COMMUNITY WORKSHOP

July 19, 2011

Compiled Table Notes

Table 1:

1. Vision
    - Charming, Southern town center
    - Park/civic area/town square
    - Fountain, tree-lined streets
    - Architectural detail is needed
    - Want something unique from the rest of Stafford
    - Civic center/event center/convention hall
    - Shopping center (Fredericksburg) – Village
    - Need places for companies in Stafford to have convention
    - Need a visual model or prototype model with small building – 3D aspect
    - Quaint downtown
    - Historic Stafford
    - Route 1 is a major road and may not draw seating (outdoor cafes)
2. Mix of uses
    - Less square footage
    - Denser living units
3. Downtown
    - Improve blight in area
    - No strip malls
    - Like apts. above commercial
    - Prefer southern area as a "Phase 2"
    - Focus on northern section first
    - Historic Downtown alternative is preferred
    - Don't believe there is enough room behind courthouse for development
    - Better to have mixed-use where square footage is, across Rt. 1, near courthouse
    - Need a cleaner grid
        i. Need to divert traffic away from Rt. 1
        ii. Better internal connections to avoid getting onto Rt. 1 – better grid
    - Don't want it to end up at Rt. 1 and 17
    - Don't see enough land use analysis to justify office west of Rt. 1 in the southern node as shown on New Downtown alternative
    - Need civic focal point for development in a major node
    - Like the town square grid (north)

- Shift the circle to the east and keep the avenue as a bypass around the UDA (as in Gettysburg)
- Don't want US-1 to disturb the quaintness of UDA, want focus to be around courthouse
- Could shift development closer to the hospital
- Like models
- Like Stafford marketing/branding
- Don't necessarily need a convention center in the downtown, could be south
- Moving east is close to VRE
- Less residential in the east, and likelier to attract residential from the north and northwest

Table 2:

- Entrance from rear parking -- don't like that idea
- Areas like downtown Fredericksburg, Alexandria Old Town, Reston should serve as models for this downtown area
- Like to have options to not use car
- Trees, shrubs, flowers are important, keep it green
- Bring in retail to Stafford Courthouse area
- Move center south
- County and hospital own lots of land
- Build the center off of the main roadways because of high traffic levels over time
- Tie in courthouse UDA to Brooke Station and, possibly, Eskimo Hill areas
- Area of concern: traffic on Rt. 1; the way it is designed, Rt. 1 will get inundated with traffic
- Maybe need pedestrian bridge over Route 1
- Very difficult to get a rezoning now
- Make the area competitively attractive to anyone who wants to live there – flexible regulations
- Prefer the "less complicated" "New Downtown" option
- Overall vision:
    - Maximize competitiveness of commercial development
    - Must attract customers
    - Possibly a shopping center just south of this Courthouse area
- Right now people go north or south of Stafford County to do their shopping (to the mega centers/Walmart/discount centers)
- Would be good to have a shopping center, useful stores
- The single family shown in NE area – this should be higher density
- Amphitheater- something unique to Stafford

Table 3:

1. Like Original Concept – show amphitheater
2. Having a walkable downtown with shopping, drinking, arena
3. Unique Stafford, entertainment center, business expo, arena,
    - Multi-use facility
    - Higher density for professionals
    - Spartan Lane
    - Parade avenue, walkable
    - Show bike lanes

Table 4

1. Downtown Vision
    - Arlington - Drive over, get coffee/shop
    - Places for young people- apts./townhomes
    - Not only chain restaurants
    - Reston/Alexandria Old Town
    - Restaurants – outside dining
    - Walkability – pedestrian -friendly so you can bring family
    - Arts & crafts/activities
    - Attract people who don't live in Stafford – get a good rep. (a buzz)
    - Old Britt House - ugly
    - Prefers office uses at southern gateway to this UDA
2. However, is there too much office? New Downtown option may show too much office
    - Don't want only one predominant type of land use – want to be sure there is a mix
    - Likes buffers on Rt. 1; also likes park in the downtown, green in the downtown
4. Concerns: too much office in New Downtown option
    - Find spots for residential around the core and in the downtown area, concentrate residential
    - Likes concentration of mixed use in New downtown core
    - Perhaps the southern area of this UDA should be more residential and northern part more office/mixed use
    - How to zone to make land use consolidation easier?
5. Prefer New Downtown option
6. New Downtown option but put more residential closer to downtown core,
    - Historic Downtown – don't like eastern end mixed use

Appendix A - Public Outreach

A3 - Workshop Vision for the Area

COURTHOUSE UDA PUBLIC WORKSHOP: JULY 2011

Participant Vision for the Courthouse UDA

- A quiet, Southern, tree-lined neighborhood with a town center, park or historic focal point
- Areas like Fredericksburg, Old Town Alexandria, Reston and Arlington
- A place that provides options to get out of your car (i.e., a walkable downtown)
- A place that offers community gathering spaces, coffee shops, shopping; a place that has more than just chain stores, but can offer nice shops and restaurants
- An entertainment center
- A place that has live, work, and play development, attracting young adults
- A place with family-oriented spaces and uses
- A place that offers attractions both for people living inside and outside the County

Appendix A - Public Outreach

A4 - Comments from Public Open House

COURTHOUSE UDA SMALL AREA PLAN PUBLIC OPEN HOUSE: COMMENTS
September 26, 2011

Number of Attendees Signed In: 44
Number of Attendees Providing Comments: 8

1. **Comments Related to Route 1/Courthouse Road Streetscape Presentation**
    - The County should make a decision immediately regarding the proposed streetscape at the intersection of Route 1 and Courthouse Road. On our property at the southeast corner, we cannot develop due to the uncertainty. Also, we cannot lease to any of the many prospective tenants who have investigated the site, as they continue to be frightened off when shown the County's proposals.
    - I am glad to see the streetscape plans. I've wanted to see the County plant beautiful trees in front of the huge administration building. I think there should be evergreen magnolias to showcase the County seat and leave a grand impression of a Southern city. However, they are large and require special locations. I have mixed feelings about a tree-lined median in front of the courthouse. Good points made by citizens at this meeting. Finally, I am very concerned about traffic management. The interstate and commuter traffic are a huge dilemma.
    - I like the trees and underground utilities. I am concerned about how the County will pay for all this as the entire road will need to be rebuilt before you can get some of the traffic off Route 1. Surely, the County can't require it as they would get no proffers.
    - Not sure about the 16' median --- walk the area again!
    - Oppose the highway median until all supporting infrastructure is in place. Will also adversely affect future sales. Must be coordinated properly. Also, oppose the cul-de-sac on Route 630 W.

2. **Comments Related to Courthouse UDA Small Area Plan Concept Presentation**
    - Adequate parking is currently an issue for the courts. Please ensure that consideration is given to development of a parking garage, especially with increased development. Additionally, the courthouse is not ADA-friendly – people need to walk through the Administration Building to get to an

elevator and then walk a long distance to reach the courthouse. This is "shameful".

- Provide basketball courts for neighborhood youth.
- Please prepare a tax map parcel overlay so there is a better visual of all parcels impacted by the UDA plan and color codes
- The County will have to be vigilant to make sure that the green spaces will be built.
- A vastly improved concept over the last meeting. Do "safe intersections" actually mean more traffic lights? Need to better define the proposed civic areas (parks, amphitheater, etc.); the transportation phase must be done first.

Appendix A - Public Outreach

A5 - Precedents Shown at Public Sessions

DEVELOPMENT EXAMPLES

UDA CONCEPT EXAMPLES

Mixed Use

UDA CONCEPT EXAMPLES

Mixed Use

UDA CONCEPT EXAMPLES

Mixed Use

UDA CONCEPT EXAMPLES

Residential

Single-Family Detached

UDA CONCEPT EXAMPLES

Residential

Single-Family Detached

UDA CONCEPT EXAMPLES

Residential

Townhomes

UDA CONCEPT EXAMPLES

Commercial - Retail

Appendix B - Courthouse UDA Transportation Analysis

Stafford Courthouse UDA Traffic Impact Analysis

January 31, 2012

For Submittal to the Virginia Department of Transportation
In compliance with VDOT Chapter 527 Requirements

Executive Summary

RK&K has completed the Traffic Impact Analysis for the proposed Courthouse Urban Development Area (UDA) in Stafford County, Virginia. This analysis focuses on traffic operations along Route 1 within the UDA boundary, which extends just beyond Hope Road on the north, a power line easement on the east, Red Oak Road on the west, and just north of Jumping Branch Road on the south. The existing intersection that were evaluated along Route 1 are at Hope Road/Bells Hill Road, Route 630 (Courthouse Road), and Hospital Center Boulevard. The study includes an evaluation of the current Year 2011 traffic conditions, the projected year 2020 traffic conditions with background traffic growth, and the projected year 2020 traffic conditions with full build-out of the UDA (622 apartments, 333 townhouses, 652 single-family homes, 346,212 sq. ft. of retail space, and 1.6 million sq. ft. of office space).

With the existing 2011 traffic volumes and intersection lane configurations, two of the three intersections that were evaluated operate at an overall level of service (LOS) E or F during the AM and/or PM peak hours. Background traffic growth through Year 2020 (which excludes any traffic that would be generated by the Courthouse UDA) was assumed to be 2% per year based on historical traffic data and future year traffic projections from the regional travel demand model and a recent traffic study for the proposed upgraded interchange along Interstate 95 at Route 630 (Courthouse Road). With these projected background traffic volumes in Year 2020, and the proposed extension of Hospital Center Boulevard westward to the new Route 630 interchange at I-95, all three of the intersections that were evaluated would operate at LOS E or F during the AM and/or PM peak hours.

The number of trips that would be generated by the proposed development of the Courthouse UDA was determined by applying standard ITE trip generation functions to the planned land uses in the UDA. These trips were distributed throughout the Year 2020 roadway network based on the projected directional split of traffic using Route 1, the current percentage of total traffic within the study area that enters and exits via each of the key access points (i.e., Route 1, Courthouse Road, Hope Road, and Bells Hill Road), the relocation of the primary link between Route 1 and I-95 to Hospital Center Boulevard Extended, and the new interchange along I-95.

When added to the Year 2020 background traffic volumes, the three existing intersections along Route 1 that were evaluated previously would operate at an overall LOS F during the AM and/or PM peak hours. However, with the traffic impact mitigation actions described in the table on the following page, traffic operations along Route 1 would improve to LOS D or better. This would be an improvement above the current Year 2011 and Year 2020 background traffic operations, even with the additional development associated with the full build-out of the Courthouse Urban Development Area.

Intersection Improvements Needed for LOS D or Better with UDA Full Build-Out in Year 2020

Intersection	Recommended Action for Traffic Impact Mitigation
Route 1 at Bells Hill Rd/Hope Rd	• Widen to provide a separate left-turn lane in each direction along Route 1 • Swap the lane designations on the side street approaches to provide a separate left-turn lane and a shared through/right-turn lane • Eliminate all split-phasing and provide protected/permissive left-turn phasing
Route 1 at Courthouse Rd	• Widen to provide a separate left-turn lane in each direction along Route 1 • Swap the lane designation on the eastbound Courthouse Road approach to provide a separate left-turn lane and a shared through/right-turn lane • Of the two existing departing lanes on the east leg of Courthouse Road, remove the left lane and replace it with a separate westbound left turn lane, resulting in separate left, through, and right turn lanes on the westbound Courthouse Road approach. • Replace the existing split-phasing with protected/permissive left-turn phasing on the Courthouse Road approaches and protected-only left-turn phasing on the Route 1 approaches. • Provide a permissive-overlap right-turn phase for the westbound Courthouse Road approach.
Route 1 at Relocated Route 630/ Hospital Center Boulevard	• Widen to provide a 2nd left-turn lane on all approaches • Widen to provide a separate right-turn lane on the westbound approach • Convert the eastbound right-turn lane into a free-flow channelized right-turn lane

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Appendix B: Existing 2011 Synchro HCM Traffic Analysis Reports
Appendix C: Year 2020 Background Conditions Synchro HCM Traffic Analysis Reports
Appendix D: VDOT MXD v4.0 Internal Trip Capture Calculations for UDA Trip Generation
Appendix E: MUTCD Signal Warrant Analysis Report for Route 1 at Proposed New UDA Street
Appendix F: Year 2020 UDA Full Build-Out Synchro HCM Traffic Analysis Reports (No Mitigation)
Appendix G: Year 2020 UDA Full Build-Out Synchro HCM Traffic Analysis Reports (With Mitigation)

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I. Introduction

RK&K has completed the Traffic Impact Analysis for the proposed Courthouse Urban Development Area (UDA) in Stafford County, Virginia. **Figure 1** is a vicinity map of the study area. This analysis focuses on traffic operations along Route 1 within the UDA boundary. The study includes an evaluation of the current Year 2011 traffic conditions, the projected year 2020 traffic conditions with background traffic growth, and the projected year 2020 traffic conditions with full build-out of the UDA. Trip generation for full build-out of the UDA was based on ITE formulas. Potential traffic impact mitigation actions were recommended at the key intersections along Route 1 to achieve level of service "D" or better during the AM and PM peak hours of travel on a typical weekday in 2020 with full build-out of the UDA.

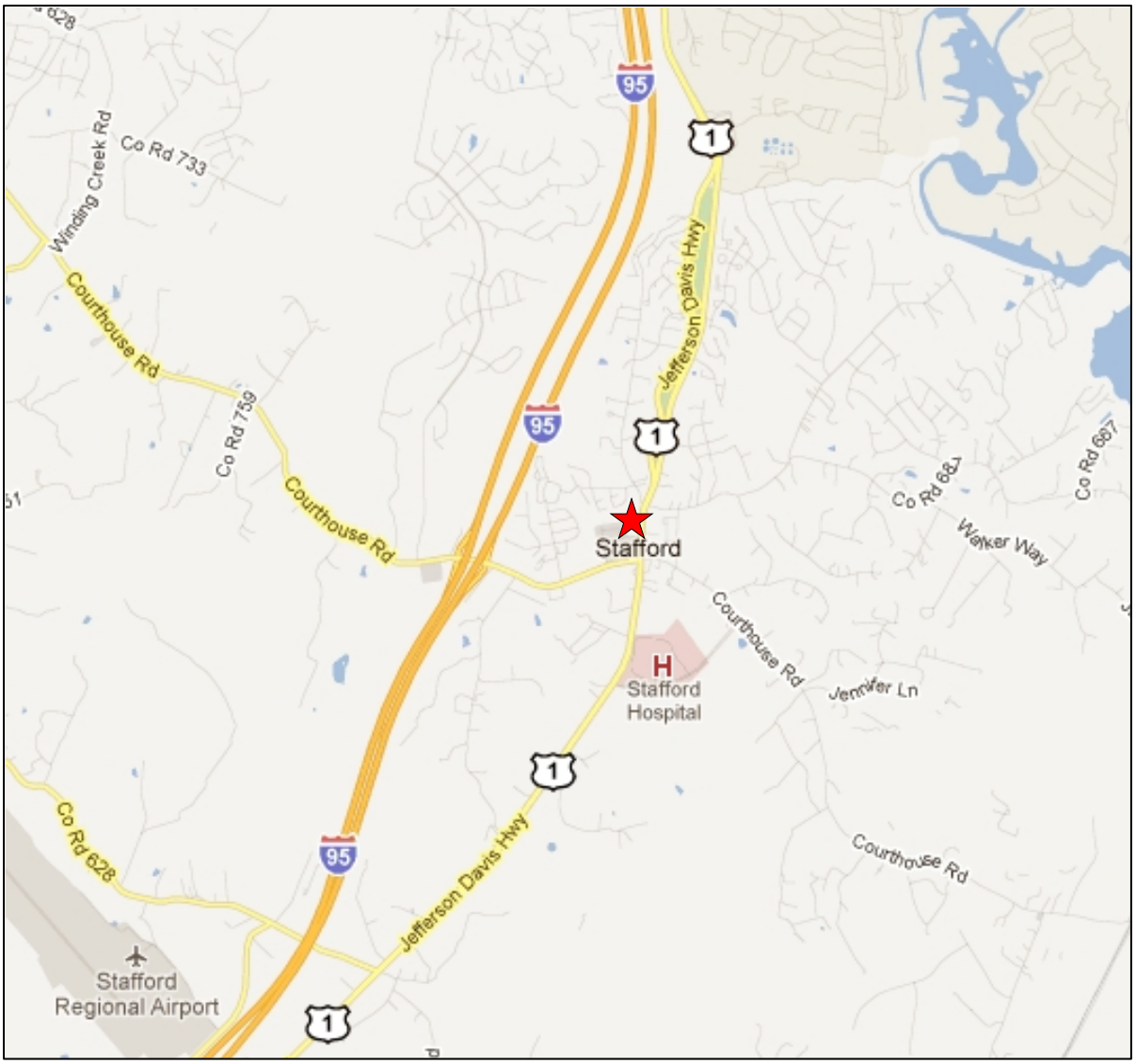

Figure 1: Vicinity Map of the Study Area

II. Existing 2011 Conditions

RK&K performed AM and PM peak period intersection turning movement volume counts in September 2011 at three (3) key intersections along Route 1 that would be most affected by the proposed Urban Development Area (UDA):

1. Route 1 at Hope Rd / Bells Hill Road
2. Route 1 at Route 630 (Courthouse Road)
3. Route 1 at Hospital Center Boulevard

The current lane configurations at these three signalized intersections are shown in **Figures 2, 3 and 4**. The original traffic count data sheets are provided in **Appendix A**.

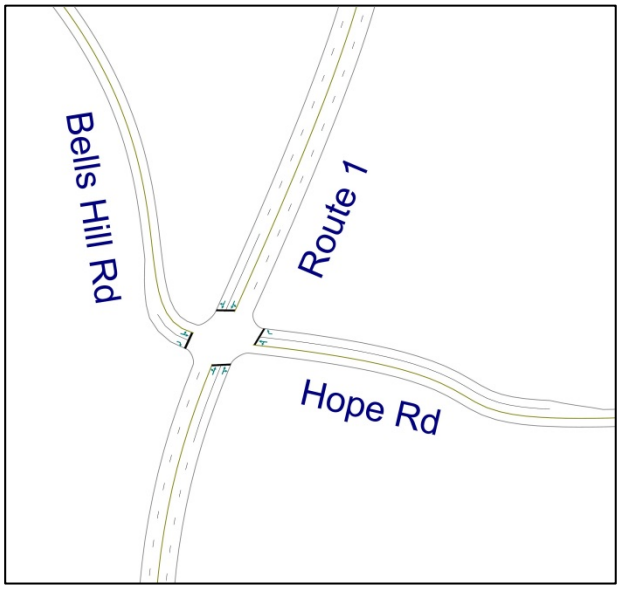

Figure 2: Current Lanes for Rte. 1 @ Hope Rd

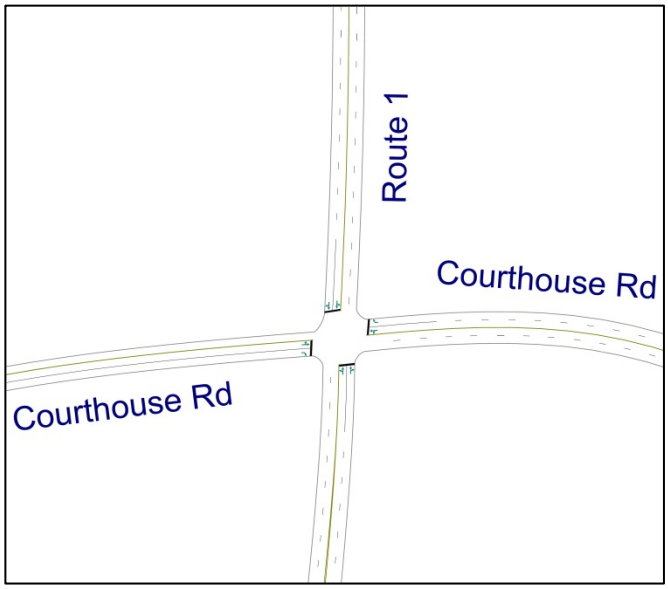

Figure 3: Current Lanes for Rte. 1 @ Courthouse Rd

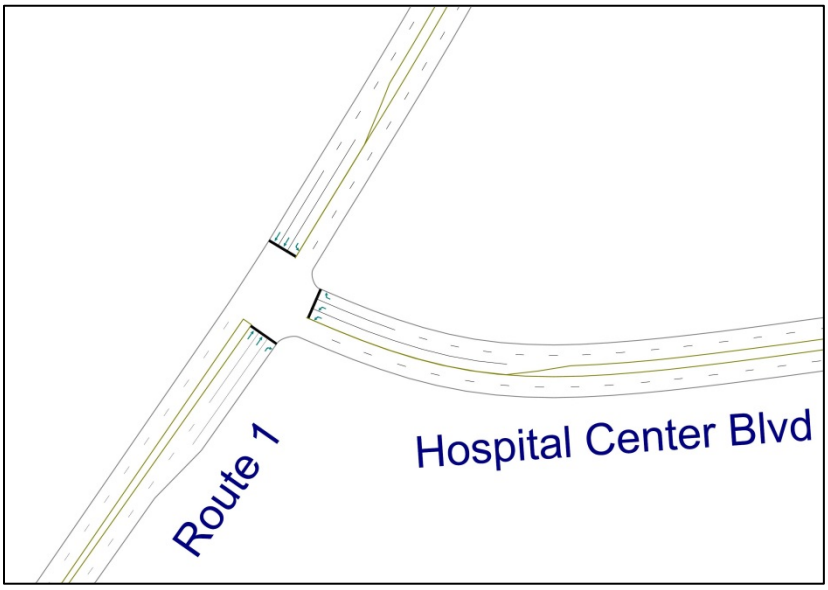

Figure 4: Current Lanes for Rte. 1 @ Hospital Center Blvd

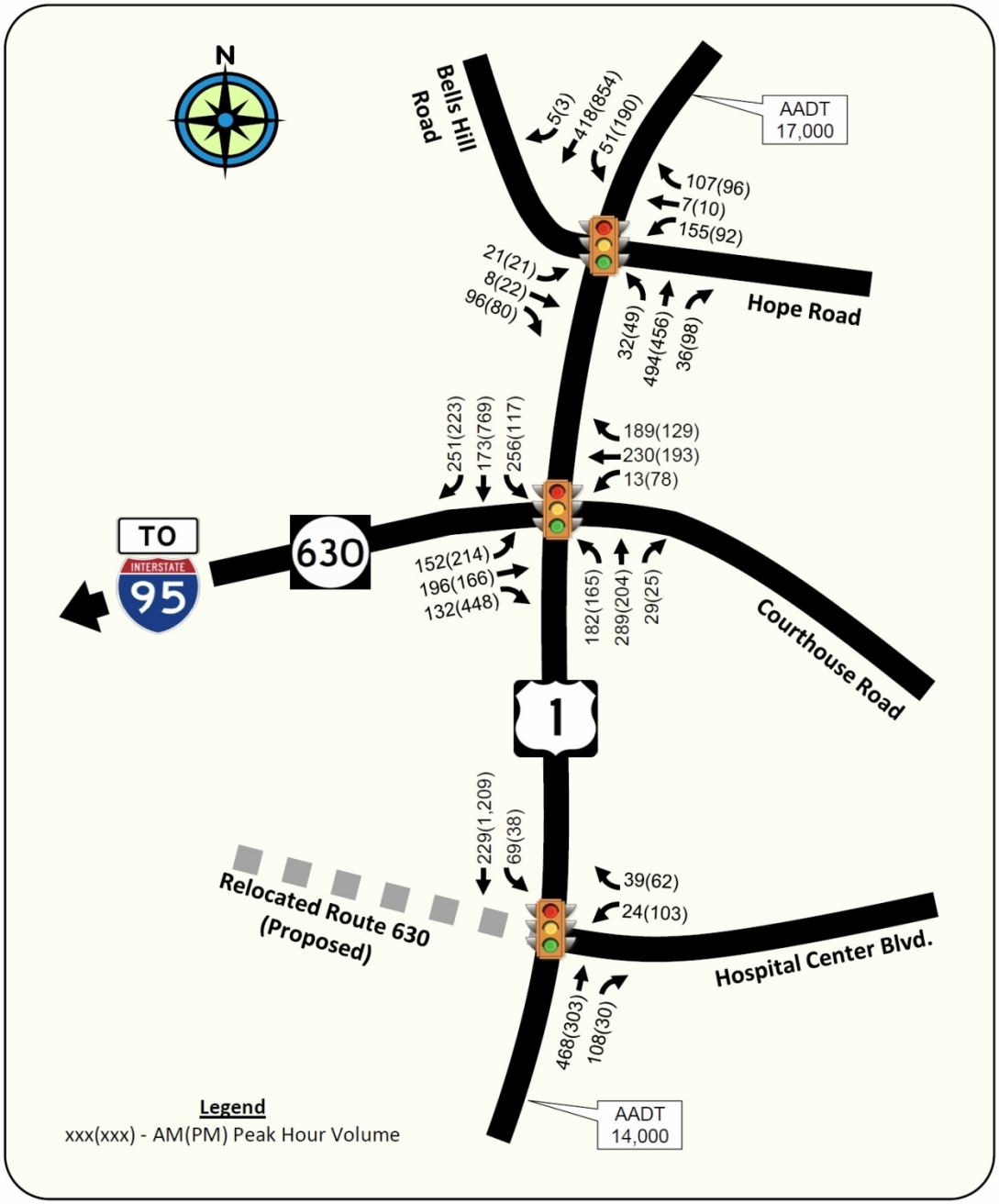

Figure 5: Current Year 2011 Traffic Volumes

Figure 5 shows the current year 2011 volumes corresponding to the AM and PM peak hours (7:00 – 8:00 AM and 4:00 – 5:00 PM, respectively), as well as the annual average daily traffic volumes (AADTs).

Synchro was used to evaluate the current traffic operations at these intersections using the Year 2010 edition of the Highway Capacity Manual (HCM) methodology for signals. The measures of effectiveness evaluated include levels of service (LOS) and delay in seconds per vehicle. The results of these analyses are summarized in **Table 1**. Synchro was also used to evaluate the travel times and average speeds for vehicles traveling the entire length of Route 1 within the UDA limits, a distance of approximately one (1) mile. These results are also shown in **Table 1**. **Appendix B** contains the results sheets from Synchro for the existing conditions analysis.

Table 1: Existing 2011 Traffic Operations

HCM Signalized Intersection Analysis Key: AM (PM)	**Levels of Service (LOS)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	F (D)	D (D)	C (F)	D (E)	*D (E)*
2) Route 1 @ Route 630 (Courthouse Rd)	D (F)	F (F)	E (F)	E (F)	*E (F)*
3) Route 1 @ Hospital Center Boulevard	A (A)	A (A)		C (D)	*A (A)*
HCM Signalized Intersection Analysis Key: AM (PM)	**Delay (s/veh)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	123.9(50.6)	54.1(53.9)	27.1(106.5)	54.5(75.2)	*49.7(58.3)*
2) Route 1 @ Route 630 (Courthouse Rd)	54.9(100.3)	101.3(99.8)	62.9(189.5)	77.1(98.3)	*76.4(126.9)*
3) Route 1 @ Hospital Center Boulevard	6.2(5.6)	9.0(5.7)		31.9(39.3)	*8.8(8.8)*
HCM Arterial Analysis		**AM Peak Hour**		**PM Peak Hour**	
		Travel Time	**Avg. Speed**	**Travel Time**	**Avg. Speed**
Route 1 Northbound		3 min 8 sec	19.2 mph	4 min 18 sec	14.0 mph
Route 1 Southbound		3 min 30 sec	16.8 mph	3 min 27 sec	17.1 mph

The existing conditions analysis shows levels of service indicative of congested traffic operations, with the average delay per vehicle at the Courthouse Road and Hope Road intersections along Route 1 being greater than or equal to 55 seconds during one of both peak hours of a typical weekday. This amount of delay corresponds to LOS E or F using the HCM methodology. The travel times along the Route 1 corridor are longer in the non-peak-direction of travel (based on volumes) than in the peak direction (e.g., the northbound traffic has a longer travel time during the PM peak hour than the southbound traffic, even though the southbound traffic volume is higher during this period). This trend is the result of the four-way split-phasing of several traffic signals along this corridor, which requires more green time to be allocated to the peak direction of travel, allowing less green time for the non-peak direction, since the opposing directions do not operate on concurrent phases. The worst travel time occurs in the northbound direction on Route 1 during the PM peak hour, when it takes the average vehicle just over 4 minutes to travel one (1) mile through the study area.

III. Year 2020 Background Conditions

According to historical annual average daily traffic (AADT) volumes measured by VDOT along this segment of Route 1, there has been no significant growth in daily volumes traffic during the past ten (10) years. However, the Metropolitan Washington Council of Governments (COG) regional travel demand model shows 6% growth per year on Route 1 between 2011 and 2020, and the traffic projections from the VDOT Route 630 Interchange Study show 8% growth per year on Route 1 between 2009 and 2017. Keeping in mind the low rate of historical growth, and considering the future growth rates from both aforementioned sources already include traffic generated by development proposed to be consolidated within the Courthouse UDA, a future growth rate of 2% per year was assumed for the Year 2020 Background Conditions. The year 2020 background conditions assume a new interchange at Route 630 (Courthouse Road) and Interstate 95 would be completed by 2020, served by a relocated Route 630 that would intersect Route 1 at Hospital Center Boulevard. The lane configuration assumed for this proposed intersection is shown in **Figure 6**. The existing portion of Courthouse Road between Red Oak Road and Route 1 would remain. Although the current long-range plan calls for Route 1 to be

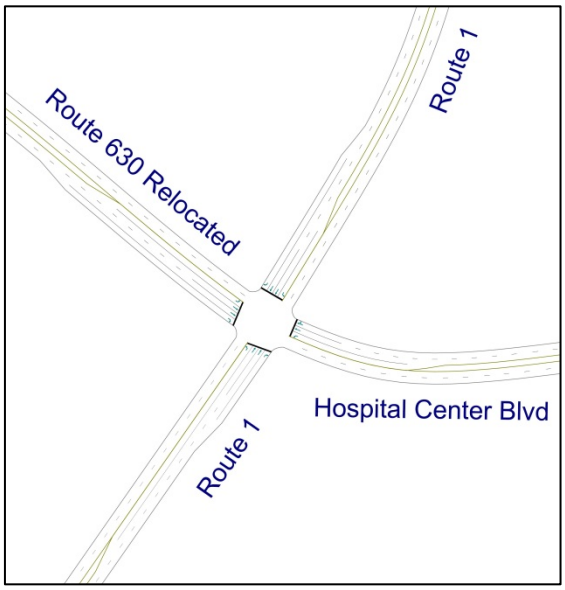

Figure 6: Assumed Lanes for Rte. 1 @ Hospital Center Blvd/ Route 630 Relocated in 2020 without UDA Build-Out

widened to six lanes by 2020, a study is currently underway to determine whether improvements to the existing four lane roadway might satisfy projected traffic needs while, at the same time, respecting the current and anticipated land use patterns in this area. Therefore, for the purposes of this UDA area analysis, Route 1 is assumed to remain a four lane roadway under the 2020 background conditions.

Figure 7 shows the peak hour volumes distributed onto this future roadway network within the study area, with AADTs. The Synchro HCM analysis of the year 2020 background conditions are summarized in **Table 2**, and the results sheets from Synchro are provided in **Appendix C**.

Table 2: Year 2020 Background Traffic Operations

HCM Signalized Intersection Analysis Key: AM (PM)	**Levels of Service (LOS)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	D (D)	E (E)	F (F)	E (E)	*E (E)*
2) Route 1 @ Route 630 (Courthouse Rd)	C (E)	E (E)	E (E)	F (F)	*F (E)*
3) Route 1 @ Hospital Center Boulevard	C (D)	D (C)	C(F)	C (E)	*C (E)*
HCM Signalized Intersection Analysis Key: AM (PM)	**Delay (s/veh)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	42.4(50.8)	70.9(62.5)	261.1(113.7)	73.9(72.3)	*76.9(63.0)*
2) Route 1 @ Route 630 (Courthouse Rd)	33.7(73.7)	71.9(60.0)	76.3(71.6)	568.9(99.6)	*139.4(68.9)*
3) Route 1 @ Hospital Center Boulevard	28.5(37.1)	36.4(34.3)	28.1(90.1)	31.7 (78.3)	*30.8(56.9)*

HCM Arterial Analysis	**AM Peak Hour**		**PM Peak Hour**	
	Travel Time	**Avg. Speed**	**Travel Time**	**Avg. Speed**
Route 1 Northbound	3 min 16 sec	19.8 mph	4 min 38 sec	13.9 mph
Route 1 Southbound	3 min 46 sec	15.6 mph	3 min 12 sec	18.4 mph

The 2020 background conditions analysis results show that none of the three intersections would operate at LOS D or better during both the AM and PM peak hours, except for the Route 1 at Hospital Center Boulevard/Route 630 Relocated intersection, which would operate at LOS C during the AM peak hour only. Under this scenario, the longest travel time would be experienced by northbound drivers on Route 1, who would require about 4-½ minutes to travel the length of the one (1) mile corridor during the PM peak hour.

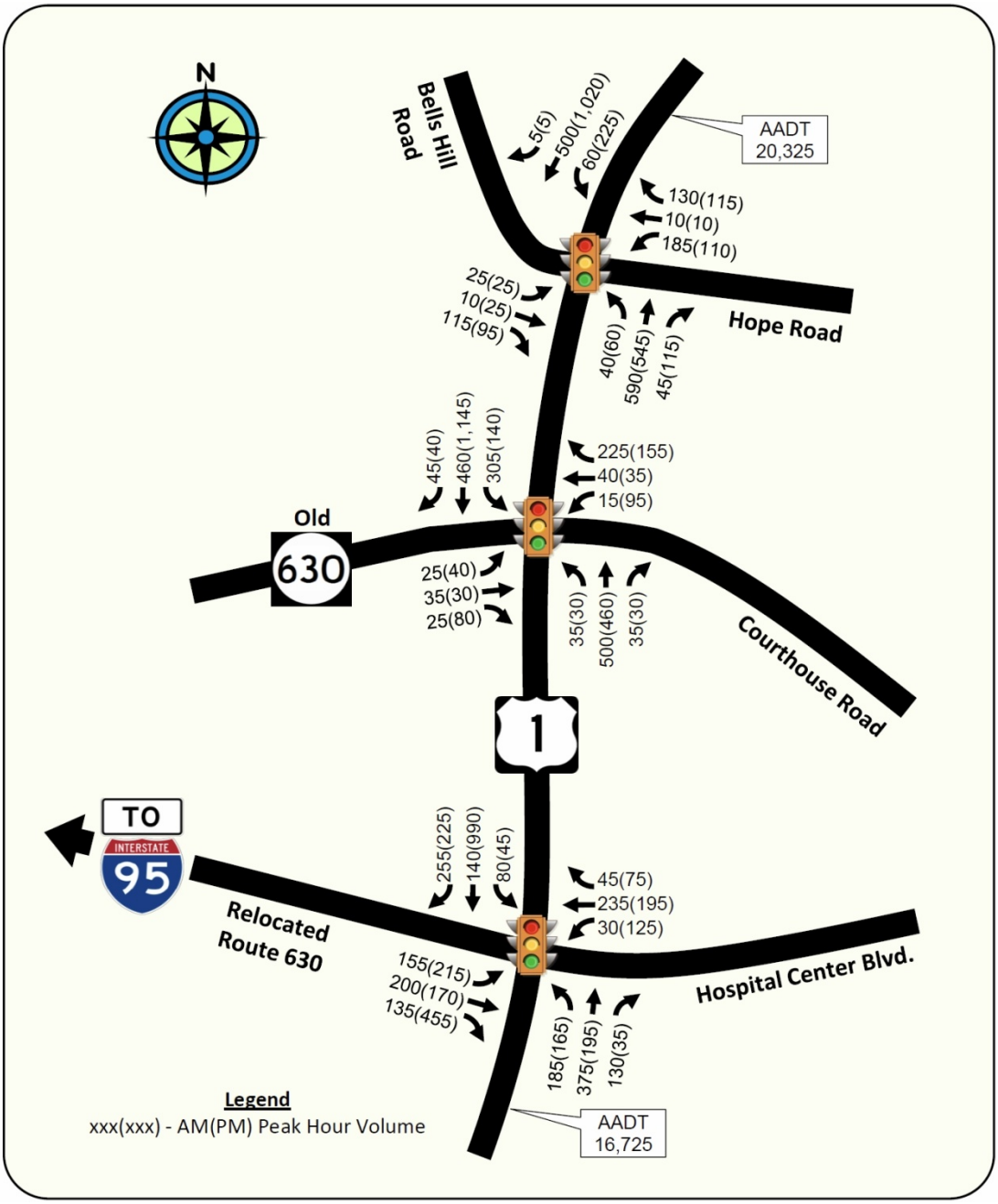

Figure 7: Year 2020 Background Traffic Volumes

IV. UDA-Generated Site Trips

Rhodeside and Harwell (RHI) provided RK&K with the most recent estimated number of proposed residential units, retail gross floor area, and office gross floor area that would be built in the Courthouse UDA. Residential units would consist of three types: Single Family Detached, Townhouses, and Multifamily (Apartments). It is assumed the traffic from the development associated with full build-out of the UDA would account for all traffic growth in the Courthouse UDA between 2011 and 2020. **Table 3** summarizes the characteristics of the proposed development in the UDA as well as the number of trips that would be generated during the AM and PM peak hours and a typical weekday based on Institute of Transportation Engineers (ITE) Trip Generation formulas. These are the trips that would be generated if the residential, retail and office components of the UDA were constructed as stand-alone sites.

Table 3: Courthouse UDA Land Use and ITE Trip Generation (Excludes Internal Capture and Pass-by Reduction)

	LAND USE	Residential Dwelling Units						
		Multi-Family ITE 220	Townhouse ITE 230	Single Family ITE 210		Retail (gsf) ITE 820	Office (gsf) ITE 710	
	Development	622	333	652		346,212	1,577,188	
TRIPS					*Residential Trip Total*			***Trip Grand Total***
	AM IN	62	23	117	*201*	195	1,499	***1,896***
	AM OUT	247	112	350	*709*	125	204	***1,038***
	AM TOTAL	*309*	*135*	*466*	*910*	*320*	*1,704*	***2,934***
	PM IN	234	108	358	*700*	716	314	***1,730***
	PM OUT	126	53	210	*389*	746	1,532	***2,666***
	PM TOTAL	*360*	*161*	*568*	*1,089*	*1,462*	*1,845*	***4,396***
	Weekday IN	1,946	916	2,918	*5,780*	7,612	5,578	***18,970***
	Weekday OUT	1,946	916	2,918	*5,780*	7,612	5,578	***18,970***
	Weekday TOTAL	*3,893*	*1,832*	*5,835*	*11,560*	*15,223*	*11,157*	***37,940***

However, since the UDA will include enhanced connectivity for all modes of transportation by implementing a new internal street and pathway network (or "grid"), and many proposed buildings will contain mixed uses (residential, retail, office), it is appropriate to treat the entire UDA as a large mixed-use development, and apply an internal trip capture estimation process to reduce the estimated number of trips generated. The VDOT MXD v4.0 (SANDAG) trip generation model was used to determine the appropriate internal capture and pass-by trip reduction factors for the UDA. **Figure 8** shows a conceptual layout of a potential internal street network for the UDA, which was prepared by RHI.

Pass-by trips are single trips with multiple destinations. The pass-by trip reduction factor eliminates the double-counting of trips. If a driver is traveling from the office to home, but stops at the supermarket on the way home, this is considered to be one trip. However, without using the pass-by trip reduction factor, the stop at the supermarket would be calculated as a separate trip, when in reality, it is a stop that was made as the driver "passed by" the supermarket on his/her way to another destination. The VDOT MXD v4.0 internal trip capture and pass-by trip reduction model results sheet is provided in **Appendix D**. The reduced trip estimates from this process were used to determine the UDA-generated traffic volumes shown in **Figure 9**.

Site trips were distributed throughout the Year 2020 roadway network based on the projected directional split of traffic using Route 1, the current percentage of total traffic within the study area that enters and exits via each of the key access points (i.e., Route 1, Courthouse Road, Hope Road, and Bells Hill Road), the relocation of the primary link between Route 1 and I-95 to Hospital Center Boulevard

Extended, and the new interchange along I-95. This resulted in the volume distribution shown in **Figure 9**. The daily trips generated by the UDA site would be distributed in the same manner, such that only 45% of the total daily UDA-generated trips would actually enter/exit the study area using Route 1. The remainder of the daily trips would enter/exit the area via Route 630 relocated, Courthouse Road, Hope Road, Bells Hill Road, and Hospital Center Boulevard.

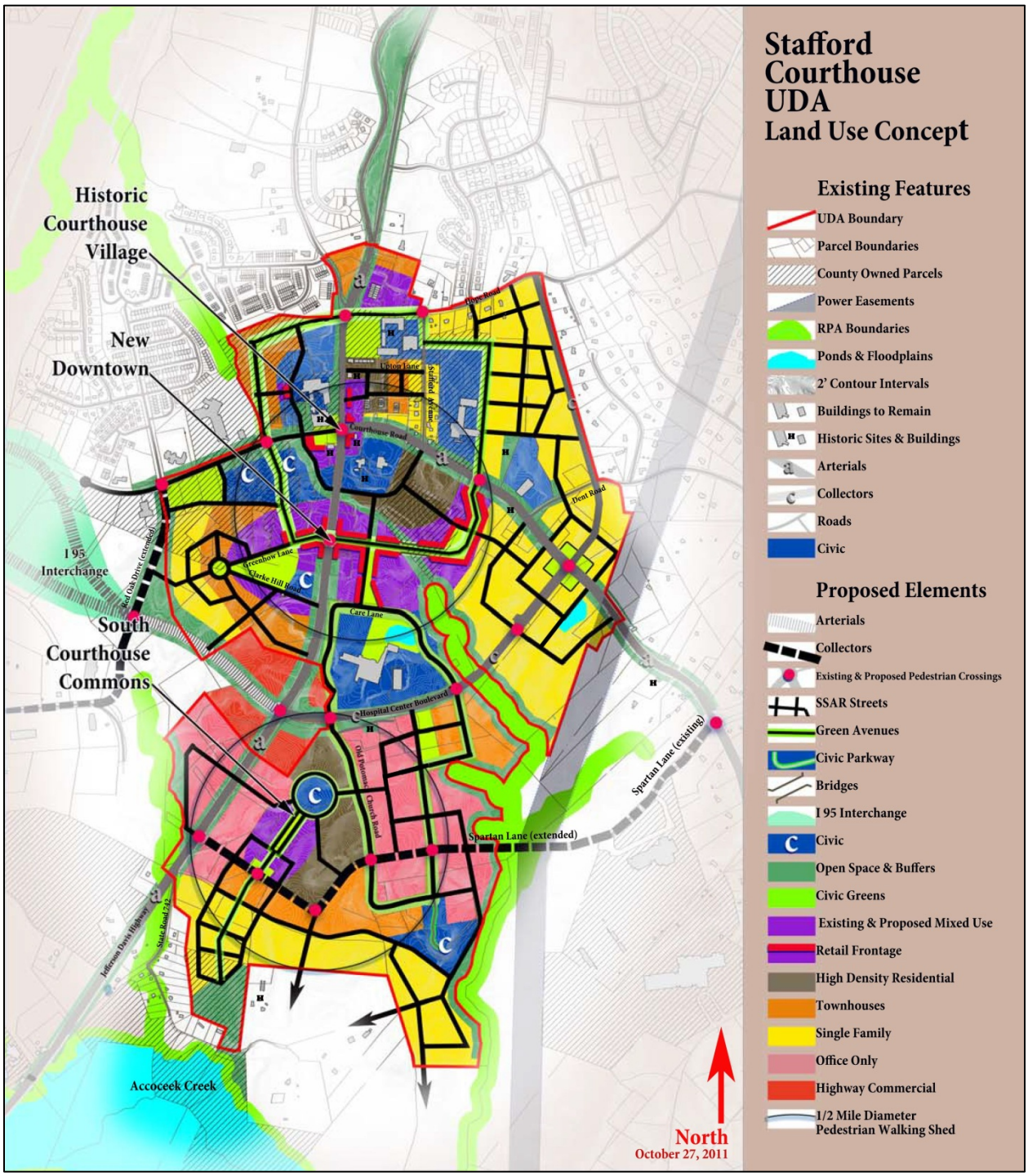

Figure 8: Conceptual UDA Internal Street Network *(Source: Rhodeside & Harwell, Inc.)*

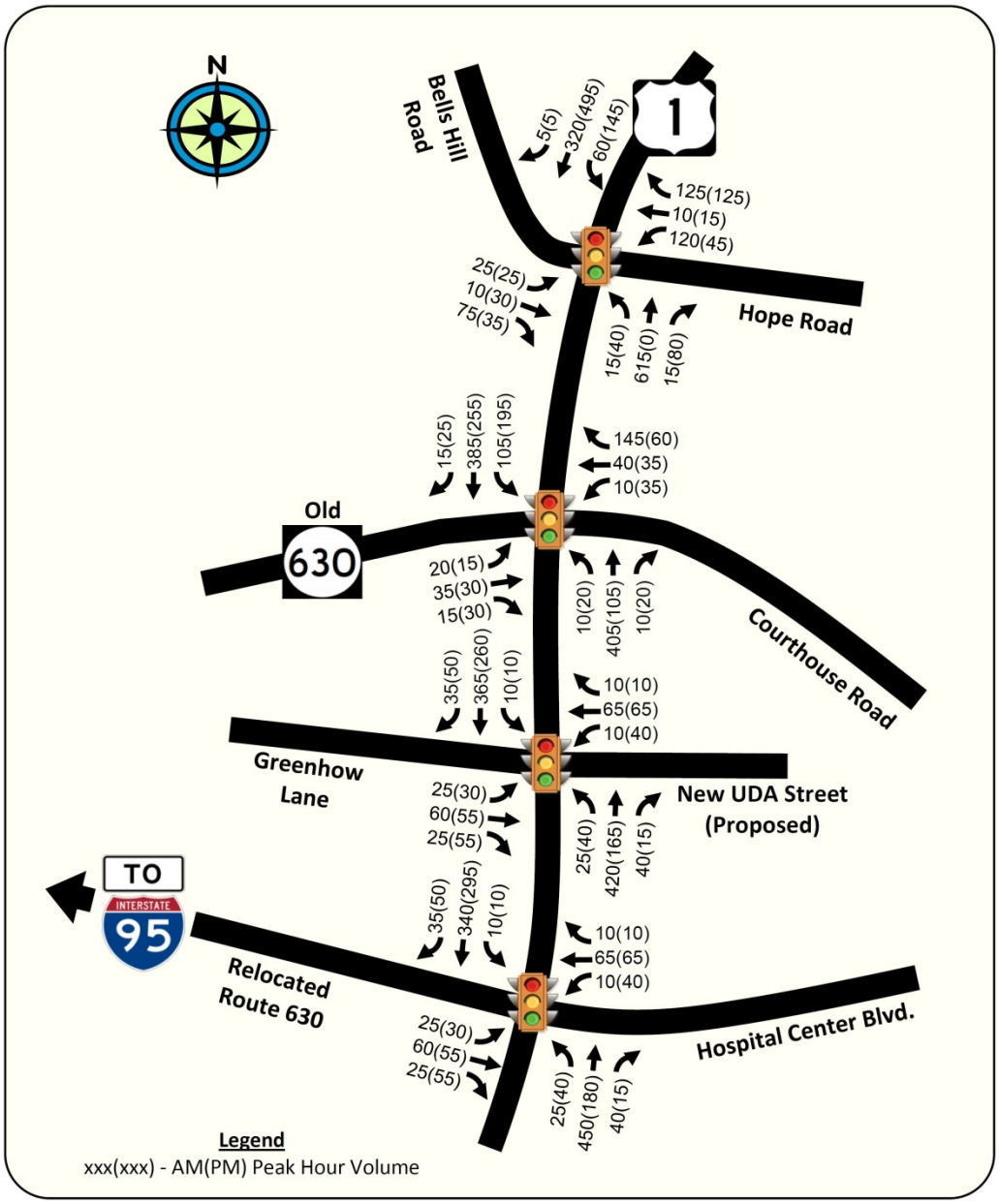

Figure 9: Peak Hour Trips Generated by Full Build-Out of New Development Within the UDA

V. Year 2020 Conditions with UDA Full Build-Out

RK&K analyzed the traffic operations in year 2020 with the additional trips that would be generated by the full build-out of the Courthouse UDA area using the land uses described in **Table 3**. The roadway network for these analyses is assumed to be the same as the network used for the 2020 background conditions analysis. However, there will be several intermediate intersections along Route 1, located between the three key intersections being analyzed, that will provide access to and from new internal streets to be built as part of the UDA development. There is a relatively high level of uncertainty associated with projecting specific turning movement volumes at new intersections with minor streets; therefore, only one of these intermediate intersections is being evaluated as part of this study (near existing Greenhow Lane, which is between Courthouse Road and Hospital Center Boulevard). To prevent undue uncertainty from entering into the analysis, the traffic volumes along Route 1 between each of

the key intersections along the corridor is assumed to be balanced (i.e., the volume of traffic entering an intersection equals the volume of traffic that departed the upstream intersection).

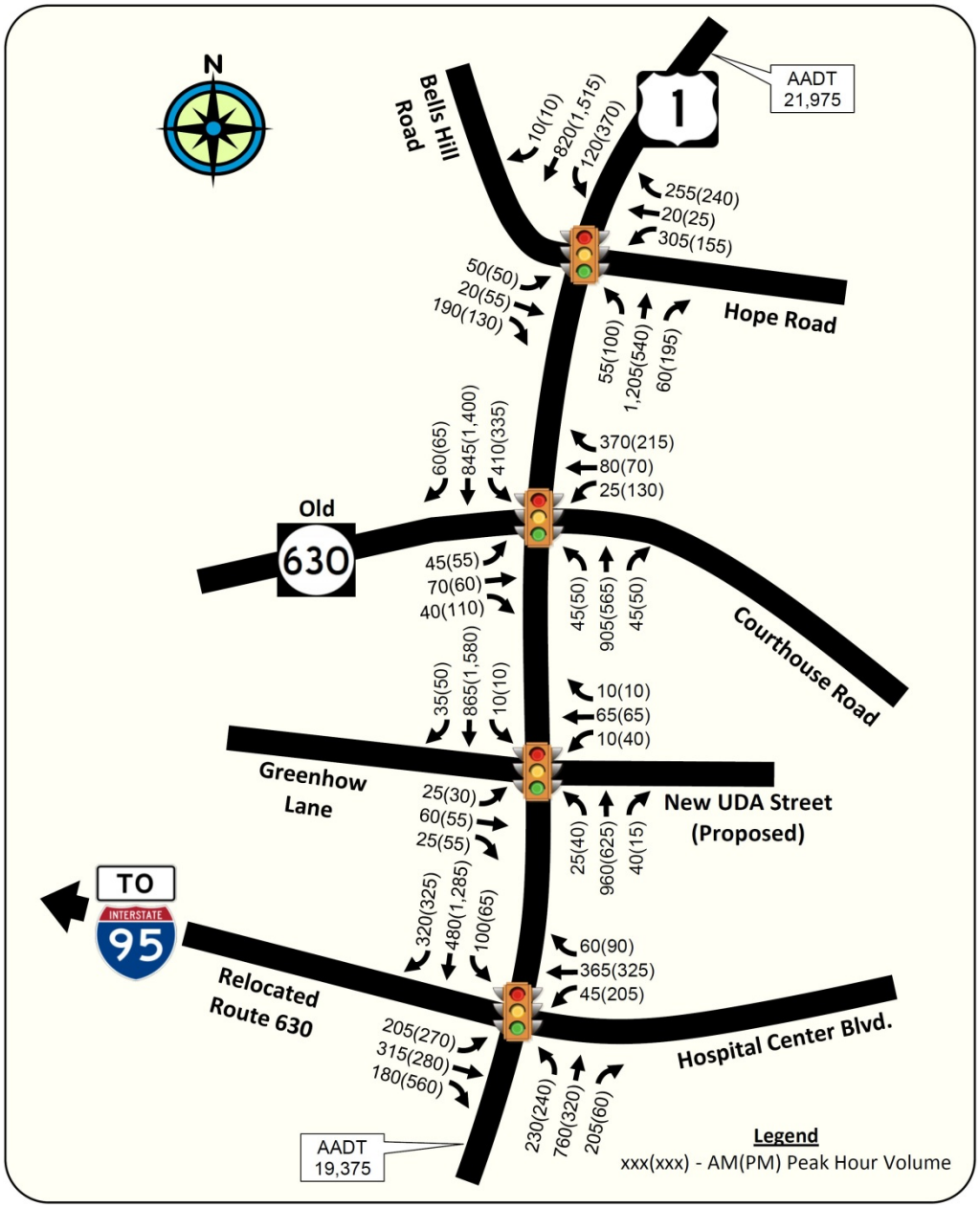

Figure 10: Year 2020 Total Traffic Volumes with Courthouse UDA Full Build-Out

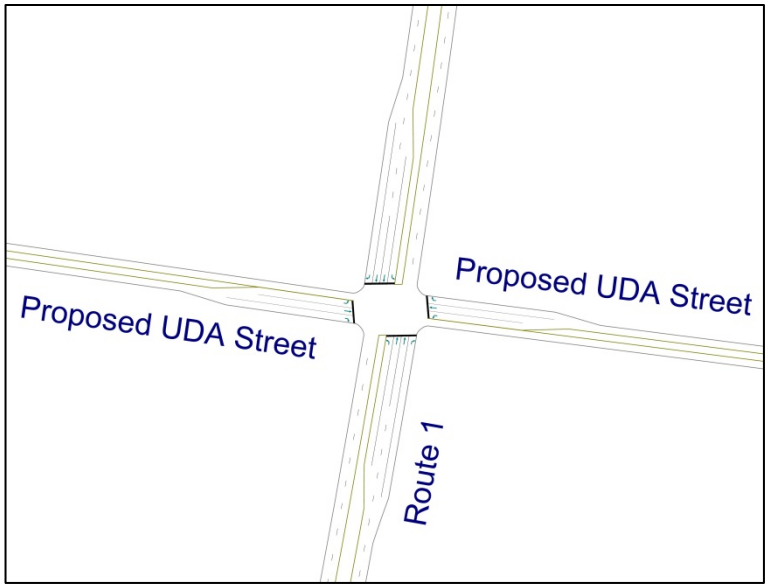

Figure 11: Assumed Lanes for Rte. 1 @ Proposed New UDA Street

It is assumed the proposed intersection of Route 1 and the New UDA Street near the current location of Greenhow Lane would be signalized. An MUTCD signal warrant analysis was performed for this intersection using the projected peak hour volumes shown in **Figure 10**. Since projected traffic volumes at this proposed intersection are not available for the non-peak hours, only Warrant #3: Peak Hour could be evaluated. This warrant requires the intersection to be located near a trip generator that produces a high volume of traffic during a brief interval, and it was assumed the office space component of the proposed UDA development would satisfy this requirement. The proposed lane configuration for this new intersection is shown in **Figure 11**. The results of the MUTCD signal warrant analysis indicate that Warrant #3 would be satisfied during both the AM and PM peak hours. The signal warrant analysis results sheets are provided in **Appendix E**.

The results of Synchro HCM analyses for the Year 2020 traffic operations with full build-out of the Courthouse UDA and no traffic impact mitigation are summarized in **Table 4**. The Synchro results sheets for this scenario are provided in **Appendix F**.

Table 4: Year 2020 Traffic Operations with UDA Full Build-Out and No Traffic Impact Mitigation

HCM Signalized Intersection Analysis Key: AM (PM)	**Levels of Service (LOS)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	F (F)	F (F)	F (F)	F (F)	*F (F)*
2) Route 1 @ Courthouse Rd	F (F)	F (F)	E (F)	F (F)	*F (F)*
3) Route 1 @ New Proposed UDA Street	A (A)	A (A)	C (C)	C (C)	*A (A)*
4) Rt 1 @ Hospital Ctr Blvd / Rt 630 Reloc	D (D)	E (F)	D (F)	E (F)	*D (F)*
HCM Signalized Intersection Analysis Key: AM (PM)	**Delay (s/veh)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	119.1(167.4)	183.5(202.8)	314.6(109.6)	100.9(187.7)	*151.7(185.7)*
2) Route 1 @ Courthouse Rd	86.2(130.4)	126.6(165.3)	76.4(86.8)	701.7(171.2)	*203.2(152.9)*
3) Route 1 @ New Proposed UDA Street	0.3(6.0)	9.9(6.9)	32.7(33.0)	32.6(33.1)	*7.5(9.3)*
4) Rt 1 @ Hospital Ctr Blvd / Rt 630 Reloc	40.2(35.0)	55.2(80.3)	49.1(106.5)	70.7(137.8)	*50.6(89.4)*
HCM Arterial Analysis	**AM Peak Hour**		**PM Peak Hour**		
	Travel Time	**Avg. Speed**	**Travel Time**	**Avg. Speed**	
Route 1 Northbound	6 min 18 sec	10.3 mph	7 min 20 sec	8.8 mph	
Route 1 Southbound	7 min 11 sec	8.2 mph	9 min 11 sec	6.4 mph	

With full build-out of the UDA and no capacity improvements, aside from Relocated Route 630 which is assumed to be in place under the 2020 background conditions scenario, the levels of service at the three existing intersections along the corridor would be LOS F during one or both of the peak hours. The time required to travel the length of this one (1) mile long corridor within the UDA would be greater than nine minutes for southbound traffic during the PM peak hour.

The effect of the proposed internal UDA street grid (see **Figure 8** for a preliminary grid concept) on Route 1 traffic volumes within the UDA study area is incorporated in the analyses of the Full Build-Out scenarios through the application of VDOT MXD model v4.0 internal trip capture factors during the trip generation process described in Section VI of this report. This process reduced the estimated vehicle trips generated by the new development in the UDA, which results in fewer vehicle trips on Route 1, Route 630 Relocated, and the other key roads providing access to the UDA study area. The premise of the internal trip capture process is that people can use internal local street connections within the UDA to travel between different destinations within the UDA without having to use Route 1 for every trip. The traffic operations in Year 2020 with Full UDA Build-Out were analyzed using total traffic volumes based on these reduced site trips.

VI. Traffic Impact Mitigation

Based on the analysis results summarized in **Table 4**, the additional traffic that would be generated by the full build-out of the Courthouse UDA would result in overall level of service (LOS) F occurring at one additional existing intersection during the AM peak hour (for 2 LOS F locations total) and at all three existing intersections along Route 1 during the PM peak hour, compared to the year 2020 background conditions. To mitigate these impacts and provide overall LOS D or better performance at each intersection during both the AM and PM peak hours, the actions listed in **Table 5** and shown in **Figures 12, 13 and 14** are recommended to supplement the roadway network improvements already assumed to be in place under the 2002 background conditions. With these improvements, each of these intersections would operate at the levels of service shown in **Table 6**. The Synchro results sheets for the analysis of these improvements are provided in **Appendix G**.

Table 5: Intersection Improvements Needed for LOS D or Better with UDA Full Build-Out in Year 2020

Intersection	Recommended Action for Traffic Impact Mitigation
Route 1 at Bells Hill Rd/Hope Rd	• Widen to provide a separate left-turn lane in each direction along Route 1 • Swap the lane designations on the side street approaches to provide a separate left-turn lane and a shared through/right-turn lane • Eliminate all split-phasing and provide protected/permissive left-turn phasing
Route 1 at Courthouse Rd	• Widen to provide a separate left-turn lane in each direction along Route 1 • Swap the lane designation on the eastbound Courthouse Road approach to provide a separate left-turn lane and a shared through/right-turn lane • Of the two existing departing lanes on the east leg of Courthouse Road, remove the left lane and replace it with a separate westbound left turn lane, resulting in separate left, through, and right turn lanes on the westbound Courthouse Road approach. • Replace the existing split-phasing with protected/permissive left-turn phasing on the Courthouse Road approaches and protected-only left-turn phasing on the Route 1 approaches. • Provide a permissive-overlap right-turn phase for the westbound Courthouse Road approach.
Route 1 at Relocated Route 630/ Hospital Center Boulevard	• Widen to provide a 2nd left-turn lane on all approaches • Widen to provide a separate right-turn lane on the westbound approach • Convert the eastbound right-turn lane into a free-flow channelized right-turn lane

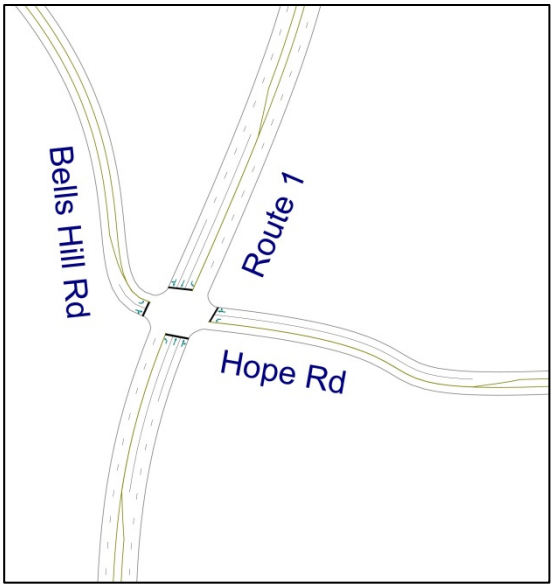

Figure 12: Improvements for Route 1 @ Hope Rd to Achieve LOS D or Better

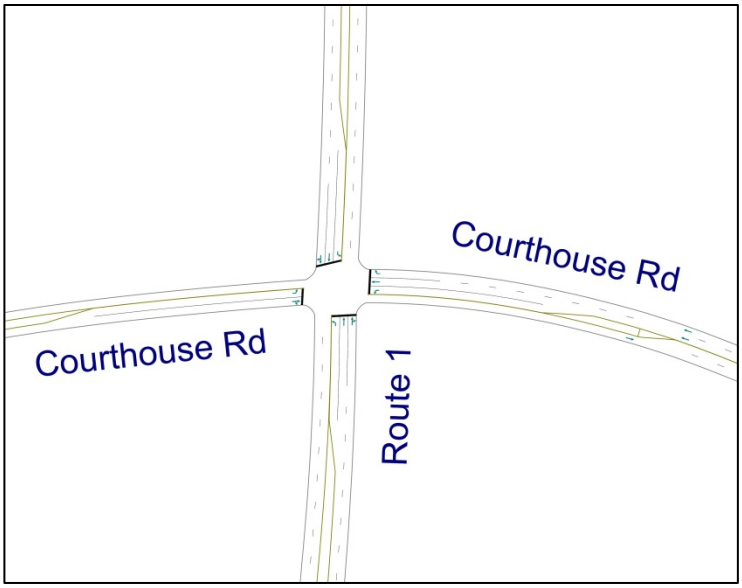

Figure 13: Improvements for Route 1 @ Courthouse Rd to Achieve LOS D or Better

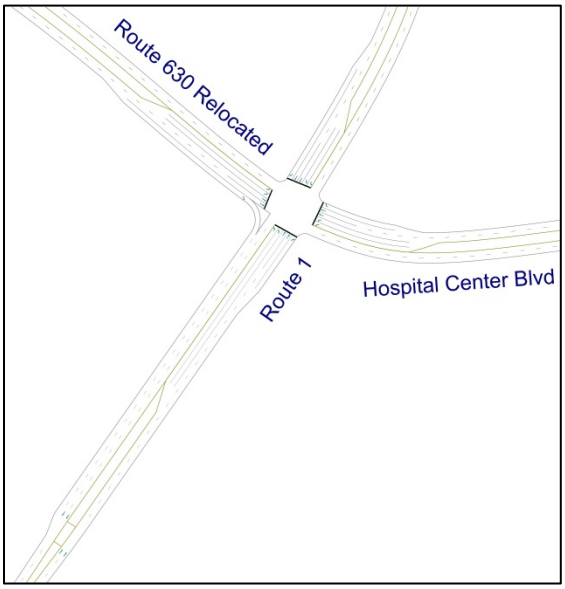

Figure 14: Improvements for Route 1 @ Route 630 Relocated to Achieve LOS D or Better

The Stafford County Comprehensive Plan 2010-2030 sets level of service "C" as the goal for traffic operations county-wide. However, the infrastructure improvements that would be required to achieve LOS C along Route 1 within the UDA would create a wide arterial roadway that would also serve as a physical barrier to the pedestrian and bicycle travel that is desired in the proposed UDA. LOS D would provide sufficient mobility for vehicles without compromising pedestrian and bicycle mobility.

The analysis results for the 2020 conditions with full build-out of the UDA and the recommended traffic impact mitigation actions show that each of the three existing intersections along Route 1 within the study area would operate at LOS D or better during the AM and PM peak hours. The new signalized intersection proposed to be constructed along Route 1 between Courthouse Road and Hospital Center Boulevard as part of the full build-out of the UDA would operate at LOS C or better overall. The travel

times in the northbound and southbound directions along the one (1) mile segment of Route 1 within the UDA would be 3-½ minutes or less during both the AM and PM peak hours, which are shorter than the existing and 2020 background travel times for this segment.

SimTraffic was used to simulate the AM and PM peak hour traffic operations along the corridor to validate the Synchro results and confirm the effectiveness of the recommended traffic impact mitigation options. Five (5) simulation runs were performed for the AM peak hour and again for the PM peak hour. The SimTraffic results show that the percentage of the projected input volumes that actually pass through the intersections in the simulation is near or equal to 100 percent during both the AM and PM peak hour simulations. SimTraffic also showed that the maximum queue lengths would not exceed the available distance between adjacent signalized intersections. The results sheets from the SimTraffic simulations are provided in **Appendix G**.

With the traffic impact mitigation actions described earlier in **Table 5**, traffic operations along Route 1 within the UDA would be improved above the current Year 2011 and projected Year 2020 background traffic operations, even with the additional development associated with the full build-out of the Courthouse Urban Development Area.

Table 6: Year 2020 Traffic Operations with UDA Full Build-Out & Traffic Impact Mitigation for Overall LOS D or Better

HCM Signalized Intersection Analysis Key: AM (PM)	**Levels of Service (LOS)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	C (C)	B (D)	D (D)	D (E)	*C (D)*
2) Route 1 @ Courthouse Rd	D (D)	C (D)	D (D)	C (C)	*C (D)*
3) Route 1 @ New Proposed UDA Street	C (B)	B(C)	D (D)	D (D)	*B (C)*[1]
4) Rt 1 @ Hospital Ctr Blvd / Rt 630 Reloc	C (D)	C (D)	C (D)	D (D)	*C (D)*
HCM Signalized Intersection Analysis Key: AM (PM)	**Delay (s/veh)**				
	Northbound	**Southbound**	**Eastbound**	**Westbound**	***Overall***
1) Route 1 @ Hope Rd / Bells Hill Rd	34.1(29.0)	16.6(44.5)	38.1(51.5)	40.0(59.0)	*30.7(42.9)*
2) Route 1 @ Courthouse Rd	43.6(39.4)	27.0(40.2)	41.1(55.0)	28.2(26.3)	*33.6(39.2)*
3) Route 1 @ New Proposed UDA Street	23.4(10.4)	11.4(22.3)	40.9(45.2)	40.8(45.4)	*19.8(21.5)*
4) Rt 1 @ Hospital Ctr Blvd / Rt 630 Reloc	25.8(32.6)	31.1(37.2)	35.0(48.5)	38.6(46.4)	*30.9(39.8)*
HCM Arterial Analysis		**AM Peak Hour**		**PM Peak Hour**	
		Travel Time	**Avg. Speed**	**Travel Time**	**Avg. Speed**
Route 1 Northbound		3 min 17 sec	19.7 mph	2 min 57 sec	22.0 mph
Route 1 Southbound		2 min 46 sec	21.3 mph	3 min 10 sec	18.6 mph

1 – The overall PM peak hour LOS at this intersection is worse with traffic mitigation than without mitigation due to the signal timing offset between this intersection and the adjacent signals. For the traffic impact mitigation scenario, the offset here is optimized for efficient flow at the higher-volume intersections to the north and south, but results in a worse LOS at this minor intersection.

VII. Conclusions

The key findings of this study are as follows:

- Background traffic growth between 2011 and 2020 is assumed to be 2 percent per year, based on a relatively flat historical traffic growth rate coupled with future growth rates from various sources in the 6% to 8% per year range (however, these future rates include development proposed for the Courthouse UDA).
- The additional traffic generated by full build-out of the Courthouse UDA would result in LOS F conditions at one additional intersection during the AM peak hour, and at all three existing intersections during the PM peak hour, compared to the 2020 background conditions.
- It is possible to achieve LOS D or better traffic operations at these intersections with full build-out of the UDA by implementing capacity improvements such as separate left turn lanes, which allows for the elimination of the current inefficient split-phasing at these signals.
- To reach LOS D at the Route 1/Hospital Center Boulevard/Route 630 Relocated intersection, a second left turn lane would be required on all four approaches, a separate right turn lane would be needed on the westbound approach, and the right turn lane on the eastbound approach would need to be converted to a free-flow channelized right turn lane.
- Travel times along northbound and southbound Route 1 within the UDA would significantly improve with full build-out of the UDA after implementing the recommended traffic impact mitigation options.

\\RKKM\V2010\2010\10085_VDOTRHI\02_STAFFORD_UDA\TRAFFIC\VDOT_527\STAFFORD COURTHOUSE UDA TRAFFIC ANALYSIS FOR VDOT 527 - 01-31-2012.DOCX

Appendix A:

Existing 2011 Traffic Counts

Rummel, Klepper, & Kahl, LLP

81 Mosher St
Baltimore, MD 21217
Consulting Engineers

Location: US 1 @ Hope Road
County: Stafford
Weather: Cloudy, periods of rain
Counters: RMF, MF

File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 1

Groups Printed- Vehicles

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
06:00 AM	0	22	7	0	29	24	0	15	0	39	3	91	5	0	99	6	0	0	0	6	173
06:15 AM	0	33	3	0	36	19	0	18	0	37	3	115	9	0	127	11	0	4	0	15	215
06:30 AM	0	42	10	0	52	38	0	25	0	63	9	110	4	0	123	19	1	3	0	23	261
06:45 AM	0	58	14	0	72	30	0	30	0	60	6	127	14	0	147	20	3	4	0	27	306
Total	0	155	34	0	189	111	0	88	0	199	21	443	32	0	496	56	4	11	0	71	955
07:00 AM	1	112	17	0	130	32	2	42	0	76	2	103	7	0	112	27	0	3	0	30	348
07:15 AM	2	132	15	0	149	30	2	58	0	90	10	147	6	0	163	29	4	0	0	33	435
07:30 AM	1	82	5	0	88	23	3	42	0	68	6	144	8	0	158	18	2	8	0	28	342
07:45 AM	1	92	14	0	107	22	0	13	0	35	18	100	11	0	129	22	2	10	0	34	305
Total	5	418	51	0	474	107	7	155	0	269	36	494	32	0	562	96	8	21	0	125	1430
08:00 AM	1	67	15	0	83	23	0	24	0	47	15	115	3	0	133	19	1	5	0	25	288
08:15 AM	1	84	19	0	104	26	0	37	0	63	7	136	11	0	154	22	1	9	0	32	353
08:30 AM	2	81	15	0	98	24	0	33	0	57	12	114	12	0	138	18	0	6	0	24	317
08:45 AM	1	75	13	0	89	37	3	29	0	69	20	121	10	0	151	31	1	3	0	35	344
Total	5	307	62	0	374	110	3	123	0	236	54	486	36	0	576	90	3	23	0	116	1302
*** BREAK ***																					
04:00 PM	0	191	37	0	228	23	1	16	0	40	26	129	14	0	169	24	7	5	0	36	473
04:15 PM	2	207	58	0	267	18	2	35	0	55	17	97	10	0	124	19	3	5	0	27	473
04:30 PM	1	216	53	0	270	25	4	17	0	46	31	101	11	0	143	19	5	5	0	29	488
04:45 PM	0	240	42	0	282	30	3	24	0	57	24	129	14	0	167	18	7	6	0	31	537
Total	3	854	190	0	1047	96	10	92	0	198	98	456	49	0	603	80	22	21	0	123	1971
05:00 PM	2	196	39	0	237	32	3	23	0	58	25	135	13	0	173	17	5	2	0	24	492
05:15 PM	3	234	51	0	288	18	1	16	0	35	31	108	17	0	156	28	4	4	0	36	515
05:30 PM	0	213	46	0	259	33	3	16	1	53	33	132	14	0	179	24	7	2	0	33	524
05:45 PM	2	203	52	0	257	18	3	23	0	44	14	108	16	0	138	21	4	3	0	28	467
Total	7	846	188	0	1041	101	10	78	1	190	103	483	60	0	646	90	20	11	0	121	1998
06:00 PM	0	179	41	0	220	21	4	18	0	43	32	96	23	0	151	19	0	4	0	23	437
06:15 PM	1	226	40	0	267	13	5	24	0	42	19	114	20	0	153	7	2	3	0	12	474
06:30 PM	2	146	31	0	179	9	1	18	0	28	18	109	12	0	139	10	1	2	0	13	359
06:45 PM	1	108	31	0	140	8	1	17	0	26	17	81	15	0	113	7	2	3	0	12	291
Total	4	659	143	0	806	51	11	77	0	139	86	400	70	0	556	43	5	12	0	60	1561
Grand Total	24	3239	668	0	3931	576	41	613	1	1231	398	2762	279	0	3439	455	62	99	0	616	9217
Apprch %	0.6	82.4	17	0		46.8	3.3	49.8	0.1		11.6	80.3	8.1	0		73.9	10.1	16.1	0		
Total %	0.3	35.1	7.2	0	42.6	6.2	0.4	6.7	0	13.4	4.3	30	3	0	37.3	4.9	0.7	1.1	0	6.7	

Rummel, Klepper, & Kahl, LLP

81 Mosher St
Baltimore, MD 21217
Consulting Engineers

Location: US 1 @ Hope Road
County: Stafford
Weather: Cloudy, periods of rain
Counters: RMF, MF

File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 2

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	0	58	14	0	72	30	0	30	0	60	6	127	**14**	0	147	20	3	4	0	27	306
07:00 AM	1	112	**17**	0	130	**32**	2	42	0	76	2	103	7	0	112	27	0	3	0	30	348
07:15 AM	**2**	**132**	15	0	**149**	30	2	**58**	0	**90**	**10**	**147**	6	0	**163**	**29**	**4**	0	0	**33**	**435**
07:30 AM	1	82	5	0	88	23	**3**	42	0	68	6	144	8	0	158	18	2	**8**	0	28	342
Total Volume	4	384	51	0	439	115	7	172	0	294	24	521	35	0	580	94	9	15	0	118	1431
% App. Total	0.9	87.5	11.6	0		39.1	2.4	58.5	0		4.1	89.8	6	0		79.7	7.6	12.7	0		
PHF	.500	.727	.750	.000	.737	.898	.583	.741	.000	.817	.600	.886	.625	.000	.890	.810	.563	.469	.000	.894	.822
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	**240**	42	0	282	30	**3**	**24**	0	57	24	129	14	0	167	18	**7**	**6**	0	31	**537**
05:00 PM	2	196	39	0	237	32	3	23	0	**58**	25	**135**	13	0	173	17	5	2	0	24	492
05:15 PM	**3**	234	**51**	0	**288**	18	1	16	0	35	31	108	**17**	0	156	**28**	4	4	0	**36**	515
05:30 PM	0	213	46	0	259	**33**	3	16	**1**	53	**33**	132	14	0	**179**	24	7	2	0	33	524
Total Volume	5	883	178	0	1066	113	10	79	1	203	113	504	58	0	675	87	23	14	0	124	2068
% App. Total	0.5	82.8	16.7	0		55.7	4.9	38.9	0.5		16.7	74.7	8.6	0		70.2	18.5	11.3	0		
PHF	.417	.920	.873	.000	.925	.856	.833	.823	.250	.875	.856	.933	.853	.000	.943	.777	.821	.583	.000	.861	.963

AM

*SB backing (25+ vehicles) did not clear 7:00am - 7:15am.

PM

*SB backing (25+ vehicles) did not clear 4:00pm - 4:30pm.
*NB backing (15+ vheicles) always cleared.
*WB backing (5+ vehicles) left turns get caught in the middle briefly blocking NB thru movements due to SB queue from Courthouse Rd intersection...this happened from 4:00pm - 4:15pm.
*EB backing (less than 5 vehicles) always cleared.

Rummel, Klepper, & Kahl, LLP

81 Mosher St
Baltimore, MD 21217
Consulting Engineers

Location: US 1 @ Hope Road
County: Stafford
Weather: Cloudy, periods of rain
Counters: RMF, MF

File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 3

Groups Printed- Peds

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
*** BREAK ***																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	2
*** BREAK ***																					
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
*** BREAK ***																					
05:45 PM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	1	1	3
*** BREAK ***																					
06:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Grand Total	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	3	3	6
Apprch %	0	0	0	0		0	0	0	100		0	0	0	100		0	0	0	100		
Total %	0	0	0	0	0	0	0	0	33.3	33.3	0	0	0	16.7	16.7	0	0	0	50	50	

Rummel, Klepper, & Kahl, LLP

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File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 4

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:00 AM																					
06:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
06:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% App. Total	0	0	0	0		0	0	0	0		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	**1**	**1**	**2**
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Total Volume	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	2	2	3
% App. Total	0	0	0	0		0	0	0	0		0	0	0	100		0	0	0	100		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.500	.500	.375

Rummel, Klepper, & Kahl, LLP

81 Mosher St
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File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 5

Groups Printed- Vehicles - Peds

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	0	22	7	0	29	24	0	15	0	39	3	91	5	0	99	6	0	0	0	6	173
06:15 AM	0	33	3	0	36	19	0	18	0	37	3	115	9	0	127	11	0	4	0	15	215
06:30 AM	0	42	10	0	52	38	0	25	0	63	9	110	4	0	123	19	1	3	0	23	261
06:45 AM	0	58	14	0	72	30	0	30	0	60	6	127	14	0	147	20	3	4	0	27	306
Total	0	155	34	0	189	111	0	88	0	199	21	443	32	0	496	56	4	11	0	71	955
07:00 AM	1	112	17	0	130	32	2	42	0	76	2	103	7	0	112	27	0	3	0	30	348
07:15 AM	2	132	15	0	149	30	2	58	0	90	10	147	6	0	163	29	4	0	0	33	435
07:30 AM	1	82	5	0	88	23	3	42	0	68	6	144	8	0	158	18	2	8	0	28	342
07:45 AM	1	92	14	0	107	22	0	13	0	35	18	100	11	0	129	22	2	10	0	34	305
Total	5	418	51	0	474	107	7	155	0	269	36	494	32	0	562	96	8	21	0	125	1430
08:00 AM	1	67	15	0	83	23	0	24	0	47	15	115	3	0	133	19	1	5	0	25	288
08:15 AM	1	84	19	0	104	26	0	37	0	63	7	136	11	0	154	22	1	9	0	32	353
08:30 AM	2	81	15	0	98	24	0	33	0	57	12	114	12	0	138	18	0	6	0	24	317
08:45 AM	1	75	13	0	89	37	3	29	0	69	20	121	10	0	151	31	1	3	0	35	344
Total	5	307	62	0	374	110	3	123	0	236	54	486	36	0	576	90	3	23	0	116	1302
*** BREAK ***																					
04:00 PM	0	191	37	0	228	23	1	16	0	40	26	129	14	0	169	24	7	5	0	36	473
04:15 PM	2	207	58	0	267	18	2	35	0	55	17	97	10	0	124	19	3	5	0	27	473
04:30 PM	1	216	53	0	270	25	4	17	0	46	31	101	11	1	144	19	5	5	1	30	490
04:45 PM	0	240	42	0	282	30	3	24	0	57	24	129	14	0	167	18	7	6	0	31	537
Total	3	854	190	0	1047	96	10	92	0	198	98	456	49	1	604	80	22	21	1	124	1973
05:00 PM	2	196	39	0	237	32	3	23	0	58	25	135	13	0	173	17	5	2	0	24	492
05:15 PM	3	234	51	0	288	18	1	16	0	35	31	108	17	0	156	28	4	4	1	37	516
05:30 PM	0	213	46	0	259	33	3	16	1	53	33	132	14	0	179	24	7	2	0	33	524
05:45 PM	2	203	52	0	257	18	3	23	2	46	14	108	16	0	138	21	4	3	0	28	469
Total	7	846	188	0	1041	101	10	78	3	192	103	483	60	0	646	90	20	11	1	122	2001
06:00 PM	0	179	41	0	220	21	4	18	0	43	32	96	23	0	151	19	0	4	0	23	437
06:15 PM	1	226	40	0	267	13	5	24	0	42	19	114	20	0	153	7	2	3	0	12	474
06:30 PM	2	146	31	0	179	9	1	18	0	28	18	109	12	0	139	10	1	2	0	13	359
06:45 PM	1	108	31	0	140	8	1	17	0	26	17	81	15	0	113	7	2	3	1	13	292
Total	4	659	143	0	806	51	11	77	0	139	86	400	70	0	556	43	5	12	1	61	1562
Grand Total	24	3239	668	0	3931	576	41	613	3	1233	398	2762	279	1	3440	455	62	99	3	619	9223
Apprch %	0.6	82.4	17	0		46.7	3.3	49.7	0.2		11.6	80.3	8.1	0		73.5	10	16	0.5		
Total %	0.3	35.1	7.2	0	42.6	6.2	0.4	6.6	0	13.4	4.3	29.9	3	0	37.3	4.9	0.7	1.1	0	6.7	
Vehicles	24	3239	668	0	3931	576	41	613	1	1231	398	2762	279	0	3439	455	62	99	0	616	9217
% Vehicles	100	100	100	0	100	100	100	100	33.3	99.8	100	100	100	0	100	100	100	100	0	99.5	99.9

Rummel, Klepper, & Kahl, LLP

81 Mosher St
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Location: US 1 @ Hope Road
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File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 6

Groups Printed- Vehicles - Peds

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peds	0	0	0	0	0	0	0	0	2	2	0	0	0	1	1	0	0	0	3	3	6
% Peds	0	0	0	0	0	0	0	0	66.7	0.2	0	0	0	100	0	0	0	0	100	0.5	0.1

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File Name : US 1 @ Hope Rd - Bells Hill Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 7

	US 1 From North					Hope Road From East					US 1 From South					Bells Hill Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 06:45 AM																					
06:45 AM	0	58	14	0	72	30	0	30	0	60	6	127	**14**	0	147	20	3	4	0	27	306
07:00 AM	1	112	**17**	0	130	**32**	2	42	0	76	2	103	7	0	112	27	0	3	0	30	348
07:15 AM	**2**	**132**	15	0	**149**	30	2	**58**	0	**90**	**10**	**147**	6	0	**163**	**29**	**4**	0	0	**33**	**435**
07:30 AM	1	82	5	0	88	23	**3**	42	0	68	6	144	8	0	158	18	2	**8**	0	28	342
Total Volume	4	384	51	0	439	115	7	172	0	294	24	521	35	0	580	94	9	15	0	118	1431
% App. Total	0.9	87.5	11.6	0		39.1	2.4	58.5	0		4.1	89.8	6	0		79.7	7.6	12.7	0		
PHF	.500	.727	.750	.000	.737	.898	.583	.741	.000	.817	.600	.886	.625	.000	.890	.810	.563	.469	.000	.894	.822
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	0	**240**	42	0	282	30	**3**	**24**	0	57	24	129	14	0	167	18	**7**	**6**	0	31	**537**
05:00 PM	2	196	39	0	237	32	3	23	0	**58**	25	**135**	13	0	173	17	5	2	0	24	492
05:15 PM	**3**	234	**51**	0	**288**	18	1	16	0	35	31	108	**17**	0	156	**28**	4	4	**1**	**37**	516
05:30 PM	0	213	46	0	259	**33**	3	16	**1**	53	**33**	132	14	0	**179**	24	7	2	0	33	524
Total Volume	5	883	178	0	1066	113	10	79	1	203	113	504	58	0	675	87	23	14	1	125	2069
% App. Total	0.5	82.8	16.7	0		55.7	4.9	38.9	0.5		16.7	74.7	8.6	0		69.6	18.4	11.2	0.8		
PHF	.417	.920	.873	.000	.925	.856	.833	.823	.250	.875	.856	.933	.853	.000	.943	.777	.821	.583	.250	.845	.963

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Consulting Engineers

Location: US 1 @ Courthouse Rd
County: Stafford
Weather: Cloudy, periods of rain
Counters: TK, MF

File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 1

Groups Printed- Vehicles

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
06:00 AM	22	18	11	0	51	22	16	3	0	41	2	62	11	0	75	15	46	19	0	80	247
06:15 AM	27	15	15	0	57	28	25	1	0	54	6	69	18	0	93	16	36	28	0	80	284
06:30 AM	42	32	13	0	87	27	27	3	0	57	4	78	33	0	115	33	53	32	0	118	377
06:45 AM	62	27	20	0	109	34	55	2	0	91	6	86	43	0	135	41	40	34	0	115	450
Total	153	92	59	0	304	111	123	9	0	243	18	295	105	0	418	105	175	113	0	393	1358
07:00 AM	61	28	86	0	175	31	51	2	0	84	5	67	51	0	123	31	44	22	0	97	479
07:15 AM	56	37	120	0	213	62	62	1	0	125	8	72	45	0	125	31	48	42	0	121	584
07:30 AM	71	61	31	0	163	65	72	6	0	143	6	59	34	0	99	27	66	43	0	136	541
07:45 AM	63	47	19	0	129	31	45	4	0	80	10	91	52	0	153	43	38	45	0	126	488
Total	251	173	256	0	680	189	230	13	0	432	29	289	182	0	500	132	196	152	0	480	2092
08:00 AM	55	37	9	0	101	33	36	6	0	75	15	94	49	0	158	40	36	45	0	121	455
08:15 AM	82	40	16	0	138	28	44	3	0	75	14	85	51	0	150	37	32	36	0	105	468
08:30 AM	71	54	14	0	139	39	48	8	0	95	8	66	34	0	108	39	29	55	0	123	465
08:45 AM	60	49	13	0	122	30	73	13	0	116	8	71	47	0	126	34	25	59	0	118	482
Total	268	180	52	0	500	130	201	30	0	361	45	316	181	0	542	150	122	195	0	467	1870
*** BREAK ***																					
04:00 PM	44	179	25	0	248	22	39	26	0	87	5	63	28	0	96	116	34	63	0	213	644
04:15 PM	71	206	23	0	300	22	50	23	0	95	1	34	34	0	69	112	40	46	0	198	662
04:30 PM	46	175	35	0	256	30	43	9	0	82	16	64	53	0	133	133	56	49	0	238	709
04:45 PM	62	209	34	0	305	55	61	20	0	136	3	43	50	0	96	87	36	56	0	179	716
Total	223	769	117	0	1109	129	193	78	0	400	25	204	165	0	394	448	166	214	0	828	2731
05:00 PM	74	193	33	0	300	46	43	19	0	108	10	62	44	0	116	94	53	36	0	183	707
05:15 PM	43	156	31	0	230	26	34	28	0	88	6	51	38	0	95	94	52	72	0	218	631
05:30 PM	59	188	23	0	270	38	65	12	0	115	5	60	36	0	101	110	41	71	0	222	708
05:45 PM	48	151	32	0	231	34	31	10	0	75	8	55	35	0	98	86	51	51	0	188	592
Total	224	688	119	0	1031	144	173	69	0	386	29	228	153	0	410	384	197	230	0	811	2638
06:00 PM	68	141	13	0	222	29	30	7	0	66	8	47	34	0	89	65	64	49	0	178	555
06:15 PM	54	170	22	0	246	31	48	8	0	87	3	44	31	0	78	57	32	62	0	151	562
06:30 PM	48	119	14	0	181	27	46	5	0	78	7	46	33	0	86	36	32	52	0	120	465
06:45 PM	46	76	16	0	138	17	21	3	0	41	8	63	30	0	101	34	33	44	0	111	391
Total	216	506	65	0	787	104	145	23	0	272	26	200	128	0	354	192	161	207	0	560	1973
Grand Total	1335	2408	668	0	4411	807	1065	222	0	2094	172	1532	914	0	2618	1411	1017	1111	0	3539	12662
Apprch %	30.3	54.6	15.1	0		38.5	50.9	10.6	0		6.6	58.5	34.9	0		39.9	28.7	31.4	0		
Total %	10.5	19	5.3	0	34.8	6.4	8.4	1.8	0	16.5	1.4	12.1	7.2	0	20.7	11.1	8	8.8	0	27.9	

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File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
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	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	61	28	86	0	175	31	51	2	0	84	5	67	51	0	123	31	44	22	0	97	479
07:15 AM	56	37	**120**	0	**213**	62	62	1	0	125	8	72	45	0	125	31	48	42	0	121	**584**
07:30 AM	**71**	**61**	31	0	163	**65**	**72**	**6**	0	**143**	6	59	34	0	99	27	**66**	43	0	**136**	541
07:45 AM	63	47	19	0	129	31	45	4	0	80	**10**	**91**	**52**	0	**153**	**43**	38	**45**	0	126	488
Total Volume	251	173	256	0	680	189	230	13	0	432	29	289	182	0	500	132	196	152	0	480	2092
% App. Total	36.9	25.4	37.6	0		43.8	53.2	3	0		5.8	57.8	36.4	0		27.5	40.8	31.7	0		
PHF	.884	.709	.533	.000	.798	.727	.799	.542	.000	.755	.725	.794	.875	.000	.817	.767	.742	.844	.000	.882	.896
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	71	206	23	0	300	22	50	**23**	0	95	1	34	34	0	69	112	40	46	0	198	662
04:30 PM	46	175	**35**	0	256	30	43	9	0	82	**16**	**64**	**53**	0	**133**	**133**	**56**	49	0	**238**	709
04:45 PM	62	**209**	34	0	**305**	**55**	**61**	20	0	**136**	3	43	50	0	96	87	36	**56**	0	179	**716**
05:00 PM	**74**	193	33	0	300	46	43	19	0	108	10	62	44	0	116	94	53	36	0	183	707
Total Volume	253	783	125	0	1161	153	197	71	0	421	30	203	181	0	414	426	185	187	0	798	2794
% App. Total	21.8	67.4	10.8	0		36.3	46.8	16.9	0		7.2	49	43.7	0		53.4	23.2	23.4	0		
PHF	.855	.937	.893	.000	.952	.695	.807	.772	.000	.774	.469	.793	.854	.000	.778	.801	.826	.835	.000	.838	.976

AM

*SB backing (25+ vehicles), SB left turns did not clear 7:15am - 7:27am. SB right turns did not clear one time 7:40am.
*NB backing (10+ vehicles), as far as seen from intersection.
*EB backing (15+ vehicles).
*WB backing (15+ vehicles).

PM

Same as AM.

Rummel, Klepper, & Kahl, LLP

81 Mosher St
Baltimore, MD 21217
Consulting Engineers

Location: US 1 @ Courthouse Rd
County: Stafford
Weather: Cloudy, periods of rain
Counters: TK, MF

File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 3

Groups Printed- Peds

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
*** BREAK ***																					
08:15 AM	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
*** BREAK ***																					
05:15 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
06:45 PM	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Total	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
Grand Total	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	4
Apprch %	0	0	0	0		0	0	0	100		0	0	0	0		0	0	0	0		
Total %	0	0	0	0	0	0	0	0	100	100	0	0	0	0	0	0	0	0	0	0	

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File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 4

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
08:15 AM	0	0	0	0	0	0	0	0	**2**	**2**	0	0	0	0	0	0	0	0	0	0	**2**
Total Volume	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0	2
% App. Total	0	0	0	0		0	0	0	100		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:15 PM	0	0	0	0	0	0	0	0	**1**	**1**	0	0	0	0	0	0	0	0	0	0	**1**
Total Volume	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1
% App. Total	0	0	0	0		0	0	0	100		0	0	0	0		0	0	0	0		
PHF	.000	.000	.000	.000	.000	.000	.000	.000	.250	.250	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.250

Rummel, Klepper, & Kahl, LLP

81 Mosher St
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Consulting Engineers

Location: US 1 @ Courthouse Rd
County: Stafford
Weather: Cloudy, periods of rain
Counters: TK, MF

File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 5

Groups Printed- Vehicles - Peds

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
06:00 AM	22	18	11	0	51	22	16	3	0	41	2	62	11	0	75	15	46	19	0	80	247
06:15 AM	27	15	15	0	57	28	25	1	0	54	6	69	18	0	93	16	36	28	0	80	284
06:30 AM	42	32	13	0	87	27	27	3	0	57	4	78	33	0	115	33	53	32	0	118	377
06:45 AM	62	27	20	0	109	34	55	2	0	91	6	86	43	0	135	41	40	34	0	115	450
Total	153	92	59	0	304	111	123	9	0	243	18	295	105	0	418	105	175	113	0	393	1358
07:00 AM	61	28	86	0	175	31	51	2	0	84	5	67	51	0	123	31	44	22	0	97	479
07:15 AM	56	37	120	0	213	62	62	1	0	125	8	72	45	0	125	31	48	42	0	121	584
07:30 AM	71	61	31	0	163	65	72	6	0	143	6	59	34	0	99	27	66	43	0	136	541
07:45 AM	63	47	19	0	129	31	45	4	0	80	10	91	52	0	153	43	38	45	0	126	488
Total	251	173	256	0	680	189	230	13	0	432	29	289	182	0	500	132	196	152	0	480	2092
08:00 AM	55	37	9	0	101	33	36	6	0	75	15	94	49	0	158	40	36	45	0	121	455
08:15 AM	82	40	16	0	138	28	44	3	2	77	14	85	51	0	150	37	32	36	0	105	470
08:30 AM	71	54	14	0	139	39	48	8	0	95	8	66	34	0	108	39	29	55	0	123	465
08:45 AM	60	49	13	0	122	30	73	13	0	116	8	71	47	0	126	34	25	59	0	118	482
Total	268	180	52	0	500	130	201	30	2	363	45	316	181	0	542	150	122	195	0	467	1872
*** BREAK ***																					
04:00 PM	44	179	25	0	248	22	39	26	0	87	5	63	28	0	96	116	34	63	0	213	644
04:15 PM	71	206	23	0	300	22	50	23	0	95	1	34	34	0	69	112	40	46	0	198	662
04:30 PM	46	175	35	0	256	30	43	9	0	82	16	64	53	0	133	133	56	49	0	238	709
04:45 PM	62	209	34	0	305	55	61	20	0	136	3	43	50	0	96	87	36	56	0	179	716
Total	223	769	117	0	1109	129	193	78	0	400	25	204	165	0	394	448	166	214	0	828	2731
05:00 PM	74	193	33	0	300	46	43	19	0	108	10	62	44	0	116	94	53	36	0	183	707
05:15 PM	43	156	31	0	230	26	34	28	1	89	6	51	38	0	95	94	52	72	0	218	632
05:30 PM	59	188	23	0	270	38	65	12	0	115	5	60	36	0	101	110	41	71	0	222	708
05:45 PM	48	151	32	0	231	34	31	10	0	75	8	55	35	0	98	86	51	51	0	188	592
Total	224	688	119	0	1031	144	173	69	1	387	29	228	153	0	410	384	197	230	0	811	2639
06:00 PM	68	141	13	0	222	29	30	7	0	66	8	47	34	0	89	65	64	49	0	178	555
06:15 PM	54	170	22	0	246	31	48	8	0	87	3	44	31	0	78	57	32	62	0	151	562
06:30 PM	48	119	14	0	181	27	46	5	0	78	7	46	33	0	86	36	32	52	0	120	465
06:45 PM	46	76	16	0	138	17	21	3	1	42	8	63	30	0	101	34	33	44	0	111	392
Total	216	506	65	0	787	104	145	23	1	273	26	200	128	0	354	192	161	207	0	560	1974
Grand Total	1335	2408	668	0	4411	807	1065	222	4	2098	172	1532	914	0	2618	1411	1017	1111	0	3539	12666
Apprch %	30.3	54.6	15.1	0		38.5	50.8	10.6	0.2		6.6	58.5	34.9	0		39.9	28.7	31.4	0		
Total %	10.5	19	5.3	0	34.8	6.4	8.4	1.8	0	16.6	1.4	12.1	7.2	0	20.7	11.1	8	8.8	0	27.9	
Vehicles	1335	2408	668	0	4411	807	1065	222	0	2094	172	1532	914	0	2618	1411	1017	1111	0	3539	12662
% Vehicles	100	100	100	0	100	100	100	100	0	99.8	100	100	100	0	100	100	100	100	0	100	100

Rummel, Klepper, & Kahl, LLP

81 Mosher St
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Consulting Engineers

Location: US 1 @ Courthouse Rd
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File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 6

Groups Printed- Vehicles - Peds

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peds	0	0	0	0	0	0	0	0	4	4	0	0	0	0	0	0	0	0	0	0	4
% Peds	0	0	0	0	0	0	0	0	100	0.2	0	0	0	0	0	0	0	0	0	0	0

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File Name : US 1 @ Courthouse Rd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 7

	US 1 From North					Courthouse Road From East					US 1 From South					Courthouse Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	61	28	86	0	175	31	51	2	0	84	5	67	51	0	123	31	44	22	0	97	479
07:15 AM	56	37	**120**	0	**213**	62	62	1	0	125	8	72	45	0	125	31	48	42	0	121	**584**
07:30 AM	**71**	**61**	31	0	163	**65**	**72**	**6**	0	**143**	6	59	34	0	99	27	**66**	43	0	**136**	541
07:45 AM	63	47	19	0	129	31	45	4	0	80	**10**	**91**	**52**	0	**153**	**43**	38	**45**	0	126	488
Total Volume	251	173	256	0	680	189	230	13	0	432	29	289	182	0	500	132	196	152	0	480	2092
% App. Total	36.9	25.4	37.6	0		43.8	53.2	3	0		5.8	57.8	36.4	0		27.5	40.8	31.7	0		
PHF	.884	.709	.533	.000	.798	.727	.799	.542	.000	.755	.725	.794	.875	.000	.817	.767	.742	.844	.000	.882	.896
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	71	206	23	0	300	22	50	**23**	0	95	1	34	34	0	69	112	40	46	0	198	662
04:30 PM	46	175	**35**	0	256	30	43	9	0	82	**16**	**64**	**53**	0	**133**	**133**	**56**	49	0	**238**	709
04:45 PM	62	**209**	34	0	**305**	**55**	**61**	20	0	**136**	3	43	50	0	96	87	36	**56**	0	179	**716**
05:00 PM	**74**	193	33	0	300	46	43	19	0	108	10	62	44	0	116	94	53	36	0	183	707
Total Volume	253	783	125	0	1161	153	197	71	0	421	30	203	181	0	414	426	185	187	0	798	2794
% App. Total	21.8	67.4	10.8	0		36.3	46.8	16.9	0		7.2	49	43.7	0		53.4	23.2	23.4	0		
PHF	.855	.937	.893	.000	.952	.695	.807	.772	.000	.774	.469	.793	.854	.000	.778	.801	.826	.835	.000	.838	.976

Rummel, Klepper, & Kahl, LLP

81 Mosher St
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Consulting Engineers

Location: US 1 @ Hospital Center Blvd
County: Stafford
Weather: Cloudy, periods of rain
Counters: KF

File Name : US 1 @ Hospital Center Blvd
Site Code : 10085023
Start Date : 9/8/2011
Page No : 1

Groups Printed- Vehicles

	US 1 From North					Hospital Center Blvd From East					US 1 From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
06:00 AM	0	29	6	0	35	3	0	3	0	6	9	67	0	0	76	0	0	0	0	0	117
06:15 AM	0	17	11	0	28	3	0	2	0	5	8	93	0	0	101	0	0	0	0	0	134
06:30 AM	0	40	18	0	58	1	0	1	0	2	19	106	0	0	125	0	0	0	0	0	185
06:45 AM	0	43	32	0	75	2	0	2	0	4	50	128	0	0	178	0	0	0	0	0	257
Total	0	129	67	0	196	9	0	8	0	17	86	394	0	0	480	0	0	0	0	0	693
07:00 AM	0	37	17	0	54	8	0	13	0	21	33	118	0	0	151	0	0	0	0	0	226
07:15 AM	0	48	13	0	61	6	0	9	0	15	27	104	0	0	131	0	0	0	0	0	207
07:30 AM	0	74	14	0	88	7	0	11	0	18	21	118	0	0	139	0	0	0	0	0	245
07:45 AM	0	70	25	0	95	3	0	6	0	9	27	128	0	0	155	0	0	0	0	0	259
Total	0	229	69	0	298	24	0	39	0	63	108	468	0	0	576	0	0	0	0	0	937
08:00 AM	0	57	14	0	71	5	0	11	0	16	21	149	0	0	170	0	0	0	0	0	257
08:15 AM	0	51	13	0	64	13	0	7	0	20	23	121	0	0	144	0	0	0	0	0	228
08:30 AM	0	72	14	0	86	5	0	16	0	21	30	101	0	0	131	0	0	0	0	0	238
08:45 AM	0	84	9	0	93	8	0	21	0	29	21	99	0	0	120	0	0	0	0	0	242
Total	0	264	50	0	314	31	0	55	0	86	95	470	0	0	565	0	0	0	0	0	965
*** BREAK ***																					
04:00 PM	0	290	6	0	296	9	0	37	0	46	7	81	0	0	88	0	0	0	0	0	430
04:15 PM	0	326	13	0	339	17	0	20	0	37	5	40	0	0	45	0	0	0	0	0	421
04:30 PM	0	308	6	0	314	23	0	28	0	51	7	118	0	0	125	0	0	0	0	0	490
04:45 PM	0	285	13	0	298	13	0	18	0	31	11	64	0	0	75	0	0	0	0	0	404
Total	0	1209	38	0	1247	62	0	103	0	165	30	303	0	0	333	0	0	0	0	0	1745
05:00 PM	0	264	5	0	269	13	0	24	0	37	10	83	0	0	93	0	0	0	0	0	399
05:15 PM	0	302	6	0	308	12	0	13	0	25	9	70	0	0	79	0	0	0	0	0	412
05:30 PM	1	285	10	0	296	13	0	9	0	22	4	84	0	0	88	0	0	0	0	0	406
05:45 PM	0	225	11	0	236	5	0	13	0	18	9	75	0	0	84	0	0	0	0	0	338
Total	1	1076	32	0	1109	43	0	59	0	102	32	312	0	0	344	0	0	0	0	0	1555
06:00 PM	0	195	11	0	206	4	0	10	0	14	11	81	0	0	92	0	0	0	0	0	312
06:15 PM	0	211	14	0	225	12	0	12	0	24	6	56	0	0	62	0	0	1	0	1	312
06:30 PM	0	144	15	0	159	8	0	9	0	17	7	67	0	1	75	0	0	0	0	0	251
06:45 PM	1	107	7	0	115	12	0	9	0	21	15	76	0	0	91	0	0	0	0	0	227
Total	1	657	47	0	705	36	0	40	0	76	39	280	0	1	320	0	0	1	0	1	1102
Grand Total	2	3564	303	0	3869	205	0	304	0	509	390	2227	0	1	2618	0	0	1	0	1	6997
Apprch %	0.1	92.1	7.8	0		40.3	0	59.7	0		14.9	85.1	0	0		0	0	100	0		
Total %	0	50.9	4.3	0	55.3	2.9	0	4.3	0	7.3	5.6	31.8	0	0	37.4	0	0	0	0	0	

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Location: US 1 @ Hospital Center Blvd
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Counters: KF

File Name : US 1 @ Hospital Center Blvd
Site Code : 10085023
Start Date : 9/8/2011
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	US 1 From North					Hospital Center Blvd From East					US 1 From South					Driveway From West					
Start Time	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Right	Thru	Left	U-Turns	App. Total	Int. Total
Peak Hour Analysis From 06:00 AM to 11:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	0	**74**	14	0	88	7	0	**11**	0	18	21	118	0	0	139	0	0	0	0	0	245
07:45 AM	0	70	**25**	0	**95**	3	0	6	0	9	**27**	128	0	0	155	0	0	0	0	0	**259**
08:00 AM	0	57	14	0	71	5	0	11	0	16	21	**149**	0	0	**170**	0	0	0	0	0	257
08:15 AM	0	51	13	0	64	**13**	0	7	0	**20**	23	121	0	0	144	0	0	0	0	0	228
Total Volume	0	252	66	0	318	28	0	35	0	63	92	516	0	0	608	0	0	0	0	0	989
% App. Total	0	79.2	20.8	0		44.4	0	55.6	0		15.1	84.9	0	0		0	0	0	0		
PHF	.000	.851	.660	.000	.837	.538	.000	.795	.000	.788	.852	.866	.000	.000	.894	.000	.000	.000	.000	.000	.955
Peak Hour Analysis From 12:00 PM to 06:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	0	290	6	0	296	9	0	**37**	0	46	7	81	0	0	88	0	0	0	0	0	430
04:15 PM	0	**326**	**13**	0	**339**	17	0	20	0	37	5	40	0	0	45	0	0	0	0	0	421
04:30 PM	0	308	6	0	314	**23**	0	28	0	**51**	7	**118**	0	0	**125**	0	0	0	0	0	**490**
04:45 PM	0	285	13	0	298	13	0	18	0	31	**11**	64	0	0	75	0	0	0	0	0	404
Total Volume	0	1209	38	0	1247	62	0	103	0	165	30	303	0	0	333	0	0	0	0	0	1745
% App. Total	0	97	3	0		37.6	0	62.4	0		9	91	0	0		0	0	0	0		
PHF	.000	.927	.731	.000	.920	.674	.000	.696	.000	.809	.682	.642	.000	.000	.666	.000	.000	.000	.000	.000	.890

*More traffic in the PM (especially for SB traffic).
*Many right turns on red (which is allowed).
*Very few cars from driveway.
*No peds.

Appendix B:

Existing 2011 Traffic Analysis (Synchro HCM)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	152	196	132	13	230	189	182	289	29	256	173	251
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	179	231	357	15	273	246	265	453	47	258	180	277
Proportion Arriving On Green	0.23	0.23	0.23	0.16	0.16	0.16	0.21	0.21	0.21	0.10	0.10	0.10
Movement Delay, s/veh	71.4	0.0	40.3	82.0	0.0	70.7	56.8	0.0	52.7	112.5	0.0	87.8
Movement LOS	E		D	F		E	E		D	F		F
Approach Volume, veh/h		522			470			543			739	
Approach Delay, s/veh		62.9			77.1			54.9			101.3	
Approach LOS		E			E			D			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	31.00	31.30	24.60	33.00				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.27	5.17	4.64	4.85				
Maximum Green Setting (Gmax), s	25.00	25.30	18.60	27.00				
Max. Queue Clearance Time (g_c+I1), s	27.00	19.66	18.79	26.32				
Green Extension Time (g_e), s	0.00	1.55	0.00	0.21				
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000				
Probability of Max Out (p_x)	1.000	0.891	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	1238.85	1257.74	99.39	796.22

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	862.79	2145.12	1758.39	1026.71

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	1327.63	220.79	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	404.5	283.1	264.1	378.3	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1800.8	1799.9	1857.8	1822.9	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	25.0	17.7	16.8	24.3	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	25.0	17.7	16.8	24.3	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.688	0.699	0.053	0.437	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	375.5	379.8	288.2	410.5	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.077	0.745	0.916	0.921	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	375.5	379.8	288.2	410.5	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.604	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	53.8	44.3	49.9	45.4	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	58.7	12.5	32.1	26.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	112.5	56.8	82.0	71.4	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	11.9	7.8	7.7	10.8	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	6.1	1.3	2.6	3.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	18.0	9.1	10.3	13.8	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.37	0.13	0.15	0.21	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	7.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	334.6	260.4	205.4	143.5	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1628.5	1823.8	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	24.6	15.8	15.1	9.3	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	24.6	15.8	15.1	9.3	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.815	0.121	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	339.5	384.8	245.6	356.5	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.986	0.677	0.836	0.402	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	339.5	384.8	245.6	356.5	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.604	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	53.6	43.5	49.2	39.6	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	34.2	9.2	21.5	0.7	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	87.8	52.7	70.7	40.3	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	10.6	7.0	5.9	3.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	3.2	1.0	1.5	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	13.8	8.0	7.4	3.7	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.29	0.11	0.11	0.09	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	76.4
HCM Level of Service	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	8	96	155	7	107	32	494	36	51	418	5
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	86	33	104	242	11	225	81	1303	100	71	617	8
Proportion Arriving On Green	0.07	0.07	0.07	0.14	0.14	0.14	0.40	0.40	0.40	0.19	0.19	0.19
Movement Delay, s/veh	54.5	0.0	144.8	57.1	0.0	49.7	27.4	0.0	26.8	56.9	0.0	51.9
Movement LOS	D		F	E		D	C		C	E		D
Approach Volume, veh/h		136			292			611			515	
Approach Delay, s/veh		123.9			54.1			27.1			54.5	
Approach LOS		F			D			C			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	28.60	54.50	23.10	13.90				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.13	5.14	4.82	4.28				
Maximum Green Setting (Gmax), s	22.60	48.50	17.10	7.90				
Max. Queue Clearance Time (g_c+I1), s	18.66	17.19	13.32	9.90				
Green Extension Time (g_e), s	1.09	3.89	0.48	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.989				
Probability of Max Out (p_x)	1.000	0.003	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	379.80	199.99	1700.89	1301.75

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3278.49	3225.35	76.82	495.91

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	40.98	246.63	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	269.1	322.2	176.1	31.5	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1843.8	1852.7	1777.7	1797.7	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	16.7	15.2	11.3	2.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	16.7	15.2	11.3	2.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.206	0.108	0.957	0.724	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	347.0	748.2	253.1	118.2	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.776	0.431	0.696	0.267	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	347.0	748.2	253.1	118.2	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.683	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	46.3	26.2	49.0	53.3	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	10.5	1.2	8.0	1.2	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	56.9	27.4	57.1	54.5	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	7.6	6.6	5.0	0.9	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	1.0	0.3	0.6	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	8.6	6.9	5.6	0.9	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.29	0.14	0.18	0.04	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	246.1	288.6	116.3	104.3	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1855.5	1819.2	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	14.9	13.6	8.2	7.9	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	14.9	13.6	8.2	7.9	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.022	0.136	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	349.2	734.7	225.4	104.2	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.705	0.393	0.516	1.002	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	349.2	734.7	225.4	104.2	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.683	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	45.6	25.7	47.7	56.1	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	6.3	1.1	2.0	88.7	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	51.9	26.8	49.7	144.8	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	6.8	5.8	3.2	3.1	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.6	0.2	0.1	2.6	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	7.4	6.1	3.4	5.7	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.25	0.13	0.20	2.89	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		49.7						
HCM Level of Service		D						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	24	0	39	0	468	108	69	229	0
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1900	1900	1900	1863	1900	1863	1900	1863	1863	1863	1863	1900
Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Lane Assignment												
Capacity, veh/h	3	3	0	118	126	105	107	2150	962	157	2673	0
Proportion Arriving On Green	0.00	0.00	0.00	0.07	0.00	0.07	0.00	0.61	0.61	0.09	0.76	0.00
Movement Delay, s/veh	0.0	0.0	0.0	30.7	0.0	32.6	0.0	6.3	5.9	31.5	2.2	0.0
Movement LOS				C		C		A	A	C	A	
Approach Volume, veh/h		0			68			626			324	
Approach Delay, s/veh		0.0			31.9			6.2			9.0	
Approach LOS					C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	8	4		6		
Case No	2.0	5.0	9.0	10.0		4.0		
Phase Duration (G+Y+Rc), s	9.96	46.90	10.48	0.00		56.86		
Change Period (Y+Rc), s	4.00	6.00	6.00	2.00		6.00		
Max. Allowable Headway (MAH), s	3.70	4.77	3.92	0.00		4.77		
Maximum Green Setting (Gmax), s	7.90	40.90	6.20	3.00		48.80		
Max. Queue Clearance Time (g_c+I1), s	4.71	6.44	3.73	0.00		3.25		
Green Extension Time (g_e), s	0.03	5.51	0.03	0.00		5.64		
Probability of Phase Call (p_c)	0.754	1.000	0.722	0.000		1.000		
Probability of Max Out (p_x)	1.000	0.004	1.000	0.000		0.001		

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	1774.04	1148.76	1774.04	1809.52

Through Movement Data				
Assigned Movement		2	8	4		6
Mvmt. Sat Flow, veh/h		3539.22	1900.00	1900.00		3632.35

Right-Turn Movement Data				
Assigned Movement		12	18	14		16
Mvmt. Sat Flow, veh/h		1583.33	1583.33	0.00		0.00

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L (Prot)	L	L	L				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	75.0	0.0	26.1	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	1148.8	1774.0	1809.5	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	2.7	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	2.7	0.0	0.9	0.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	1148.8	1774.0	1809.5	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	157.0	106.9	118.0	2.7	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.478	0.000	0.221	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	208.1	106.9	163.3	80.6	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	29.2	0.0	29.8	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	2.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	31.5	0.0	30.7	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	1.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	1.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.20	0.00	0.04	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	8	4	0	6	0	0
Lane Assignment		T	T	T		T		
Lanes in Group	0	2	1	1	0	2	0	0
Group Volume (v), veh/h	0.0	508.7	0.0	0.0	0.0	248.9	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	1900.0	1900.0	0.0	1769.6	0.0	0.0
Queue Serve Time (g_s), s	0.0	4.4	0.0	0.0	0.0	1.2	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	4.4	0.0	0.0	0.0	1.2	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	2149.8	126.3	2.8	0.0	2673.1	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.237	0.000	0.000	0.000	0.093	0.000	0.000
Available Capacity (c_a), veh/h	0.0	2149.8	174.9	84.7	0.0	2673.1	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	0.000	0.000	0.000	1.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	6.1	0.0	0.0	0.0	2.2	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.3	0.0	0.0	0.0	0.1	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.3	0.0	0.0	0.0	2.2	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	1.1	0.0	0.0	0.0	0.1	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	1.000	1.000	0.000	1.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	1.2	0.0	0.0	0.0	0.2	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	18	14	0	16	0	0
Lane Assignment		R	R					
Lanes in Group	0	1	1	0	0	0	0	0
Group Volume (v), veh/h	0.0	117.4	42.4	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	1583.3	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	2.1	1.7	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	2.1	1.7	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	0.0	961.7	105.3	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.122	0.403	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	961.7	145.8	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	5.6	30.1	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.3	2.5	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.9	32.6	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.5	0.6	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	1.000	1.000	0.000	1.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.5	0.7	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.09	0.01	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	8.8
HCM Level of Service	A

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	45	19.3	8.3	27.6	0.18	23.1	C
Courthouse Rd	II	38	54.5	44.6	99.1	0.58	21.0	D
Hope Rd	II	35	29.7	32.0	61.7	0.25	14.6	E
Total	II		103.5	84.9	188.4	1.01	19.2	D

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	54.6	73.6	0.15	7.4	F
Courthouse Rd	II	35	29.7	49.1	78.8	0.25	11.4	F
Hospital Center Blvd	II	38	54.5	2.7	57.2	0.58	36.5	A
Total	II		103.2	106.4	209.6	0.98	16.8	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	214	166	448	78	193	129	165	204	25	117	769	223
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	224	174	348	85	209	253	192	257	32	118	803	246
Proportion Arriving On Green	0.22	0.22	0.22	0.16	0.16	0.16	0.13	0.13	0.13	0.13	0.13	0.13
Movement Delay, s/veh	113.3	0.0	254.2	116.2	0.0	60.7	107.7	0.0	92.2	112.5	0.0	85.0
Movement LOS	F		F	F		E	F		F	F		F
Approach Volume, veh/h		900			435			428			1205	
Approach Delay, s/veh		189.5			98.3			100.3			99.8	
Approach LOS		F			F			F			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	55.00	26.00	30.00	39.00				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.19	5.18	4.78	4.54				
Maximum Green Setting (Gmax), s	49.00	20.00	24.00	33.00				
Max. Queue Clearance Time (g_c+I1), s	51.00	20.49	26.00	35.00				
Green Extension Time (g_e), s	0.00	0.00	0.00	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	361.26	1440.13	528.53	1020.29

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	2459.12	1929.84	1307.78	791.44

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	753.99	240.99	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	649.4	223.0	294.6	413.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1844.7	1790.7	1836.3	1811.7	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	49.0	18.5	24.0	33.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	49.0	18.5	24.0	33.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.196	0.804	0.288	0.563	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	602.6	238.8	293.8	398.6	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.078	0.934	1.003	1.036	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	602.6	238.8	293.8	398.6	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.395	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	65.4	64.3	63.0	58.5	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	47.1	43.4	53.2	54.8	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	112.5	107.7	116.2	113.3	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	24.3	8.4	11.2	15.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	7.9	2.9	4.3	6.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	32.1	11.3	15.5	21.1	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.67	0.16	0.22	0.31	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	11.7	0.0	0.2	3.6	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.0	0.3	0.3	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	556.1	205.2	140.2	487.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1729.7	1820.2	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	48.1	16.5	12.2	33.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	48.1	16.5	12.2	33.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.436	0.132	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	565.0	242.7	253.3	348.3	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.984	0.846	0.553	1.398	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	565.0	242.7	253.3	348.3	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.395	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	65.0	63.5	58.1	58.5	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	20.0	28.7	2.6	195.7	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	85.0	92.2	60.7	254.2	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	22.3	7.6	4.9	13.1	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	3.1	1.9	0.2	18.9	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	25.5	9.6	5.1	32.1	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.53	0.13	0.07	0.81	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	34.7	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		126.9						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	21	22	80	92	10	96	49	456	98	190	854	3
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	55	58	98	155	17	153	89	855	194	234	1112	4
Proportion Arriving On Green	0.06	0.06	0.06	0.10	0.10	0.10	0.24	0.24	0.24	0.37	0.37	0.37
Movement Delay, s/veh	70.2	0.0	126.0	73.3	0.0	77.3	51.2	0.0	49.9	57.8	0.0	49.7
Movement LOS	E		F	E		E	D		D	E		D
Approach Volume, veh/h		134			215			655			1138	
Approach Delay, s/veh		106.5			75.2			50.6			53.9	
Approach LOS		F			E			D			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	60.90	53.40	20.50	15.30				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.13	5.18	4.71	4.41				
Maximum Green Setting (Gmax), s	54.90	47.40	14.50	9.30				
Max. Queue Clearance Time (g_c+I1), s	47.42	27.34	11.57	10.18				
Green Extension Time (g_e), s	4.10	3.88	0.24	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.996				
Probability of Max Out (p_x)	0.807	0.052	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	639.38	280.67	1607.62	888.03

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3041.09	2708.99	174.74	930.32

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	11.10	613.53	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	591.3	350.8	110.9	46.7	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1830.8	1848.7	1782.4	1818.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	45.4	25.3	9.0	3.7	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	45.4	25.3	9.0	3.7	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.349	0.152	0.902	0.488	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	669.6	583.8	172.2	112.7	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.883	0.601	0.644	0.415	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	669.6	583.8	172.2	112.7	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.514	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	44.6	48.8	65.3	67.8	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	13.2	2.4	8.0	2.4	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	57.8	51.2	73.3	70.2	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	20.4	12.1	4.1	1.7	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	2.5	0.4	0.4	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	22.8	12.4	4.5	1.8	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.78	0.26	0.15	0.07	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	546.7	304.6	104.3	87.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1860.8	1754.5	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	39.6	22.9	9.6	8.2	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	39.6	22.9	9.6	8.2	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.006	0.350	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	680.6	554.1	152.9	98.1	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.803	0.550	0.682	0.886	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	680.6	554.1	153.0	98.1	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.514	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	42.7	47.9	65.6	69.9	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	6.9	2.0	11.7	56.1	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	49.7	49.9	77.3	126.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	18.1	10.3	3.9	3.3	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	1.3	0.3	0.5	1.5	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	19.4	10.6	4.4	4.8	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.66	0.22	0.26	2.46	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		58.3						
HCM Level of Service		E						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	0	0	103	0	62	0	303	30	38	1209	0
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1900	1900	1900	1863	1900	1863	1900	1863	1863	1863	1863	1900
Lanes	1	1	0	1	1	1	1	2	1	1	2	0
Lane Assignment												
Capacity, veh/h	2	2	0	175	188	156	91	2282	1021	98	2655	0
Proportion Arriving On Green	0.00	0.00	0.00	0.10	0.00	0.10	0.00	0.64	0.64	0.05	0.75	0.00
Movement Delay, s/veh	0.0	0.0	0.0	41.6	0.0	35.5	0.0	5.7	5.2	39.2	4.6	0.0
Movement LOS				D		D		A	A	D	A	
Approach Volume, veh/h		0			179			362			1355	
Approach Delay, s/veh		0.0			39.3			5.6			5.7	
Approach LOS					D			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	8	4		6		
Case No	2.0	5.0	9.0	10.0		4.0		
Phase Duration (G+Y+Rc), s	8.36	57.20	13.85	0.00		65.56		
Change Period (Y+Rc), s	4.00	6.00	6.00	2.00		6.00		
Max. Allowable Headway (MAH), s	3.70	4.89	3.86	0.00		4.89		
Maximum Green Setting (Gmax), s	7.30	51.20	8.00	3.00		58.50		
Max. Queue Clearance Time (g_c+I1), s	3.79	4.89	6.82	0.00		13.72		
Green Extension Time (g_e), s	0.01	16.33	0.06	0.00		16.17		
Probability of Phase Call (p_c)	0.598	1.000	0.981	0.000		1.000		
Probability of Max Out (p_x)	1.000	0.096	1.000	0.000		0.105		

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	1774.04	424.78	1774.04	1809.52

Through Movement Data				
Assigned Movement		2	8	4		6
Mvmt. Sat Flow, veh/h		3539.22	1900.00	1900.00		3632.35

Right-Turn Movement Data				
Assigned Movement		12	18	14		16
Mvmt. Sat Flow, veh/h		1583.33	1583.33	0.00		0.00

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L (Prot)	L	L	L				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	41.3	0.0	112.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	424.8	1774.0	1809.5	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	1.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	1.8	0.0	4.8	0.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	424.8	1774.0	1809.5	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	97.5	90.7	175.3	2.3	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.424	0.000	0.639	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	163.1	90.7	178.7	68.4	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.000	1.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	36.3	0.0	34.4	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	2.9	0.0	7.2	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	39.2	0.0	41.6	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.7	0.0	2.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.1	0.0	0.4	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.8	0.0	2.4	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.14	0.00	0.25	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	8	4	0	6	0	0
Lane Assignment		T	T	T		T		
Lanes in Group	0	2	1	1	0	2	0	0
Group Volume (v), veh/h	0.0	329.3	0.0	0.0	0.0	1314.1	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	1900.0	1900.0	0.0	1769.6	0.0	0.0
Queue Serve Time (g_s), s	0.0	2.9	0.0	0.0	0.0	11.7	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	2.9	0.0	0.0	0.0	11.7	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	2281.9	187.7	2.4	0.0	2654.7	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.144	0.000	0.000	0.000	0.495	0.000	0.000
Available Capacity (c_a), veh/h	0.0	2281.9	191.4	71.8	0.0	2654.7	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	0.000	0.000	0.000	1.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	5.5	0.0	0.0	0.0	3.9	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.7	0.0	0.0	0.0	4.6	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.8	0.0	0.0	0.0	2.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	1.000	1.000	0.000	1.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.8	0.0	0.0	0.0	2.3	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.02	0.00	0.00	0.00	0.05	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	18	14	0	16	0	0
Lane Assignment		R	R					
Lanes in Group	0	1	1	0	0	0	0	0
Group Volume (v), veh/h	0.0	32.6	67.4	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	1583.3	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.6	3.2	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.6	3.2	0.0	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	0.0	1020.8	156.5	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.032	0.431	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	1020.8	159.5	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	1.000	1.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	5.1	33.7	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.1	1.9	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	35.5	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.1	1.2	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	1.000	1.000	0.000	1.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.2	1.3	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.03	0.02	0.00	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	8.8
HCM Level of Service	A

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	45	19.3	6.9	26.2	0.18	24.4	C
Courthouse Rd	II	38	54.5	96.8	151.3	0.58	13.8	E
Hope Rd	II	35	29.7	50.9	80.6	0.25	11.1	F
Total	II		103.5	154.6	258.1	1.01	14.0	E

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	38.1	57.1	0.15	9.6	F
Courthouse Rd	II	35	29.7	62.9	92.6	0.25	9.7	F
Hospital Center Blvd	II	38	54.5	2.5	57.0	0.58	36.6	A
Total	II		103.2	103.5	206.7	0.98	17.1	D

Appendix C:

Year 2020 Background Conditions Traffic Analysis (Synchro HCM)

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	35	25	15	40	225	35	500	35	305	460	45
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	51	71	106	34	90	106	92	1373	101	380	616	62
Proportion Arriving On Green	0.07	0.07	0.07	0.07	0.07	0.07	0.43	0.43	0.43	0.15	0.15	0.15
Movement Delay, s/veh	77.6	0.0	73.2	75.9	0.0	689.4	34.0	0.0	33.2	74.7	0.0	68.8
Movement LOS	E		E	E		F	C		C	E		E
Approach Volume, veh/h		92			304			620			880	
Approach Delay, s/veh		76.3			568.9			33.7			71.9	
Approach LOS		E			F			C			E	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	53.40	75.20	16.90	16.83				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.17	5.14	4.22	4.82				
Maximum Green Setting (Gmax), s	47.40	69.20	10.90	11.00				
Max. Queue Clearance Time (g_c+I1), s	42.43	21.94	12.90	7.62				
Green Extension Time (g_e), s	2.35	4.10	0.00	0.08				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.984				
Probability of Max Out (p_x)	1.000	0.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	1302.31	215.69	501.19	760.30

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	2109.62	3220.77	1336.50	1064.43

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	211.18	236.51	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	457.6	326.6	59.8	65.2	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1797.6	1852.0	1837.7	1824.7	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	40.4	19.9	5.1	5.6	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	40.4	19.9	5.1	5.6	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.724	0.116	0.273	0.417	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	524.9	789.5	123.4	121.7	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.872	0.414	0.484	0.536	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	524.9	789.5	123.4	123.7	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.513	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	66.3	32.4	73.0	73.3	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	8.4	1.6	2.9	4.3	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	74.7	34.0	75.9	77.6	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	19.4	9.0	2.4	2.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	1.2	0.4	0.1	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	20.6	9.4	2.5	2.8	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.43	0.13	0.04	0.04	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	422.8	292.9	244.6	27.2	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1825.5	1821.0	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	36.3	17.9	10.9	2.6	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	36.3	17.9	10.9	2.6	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.116	0.130	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	533.0	776.3	106.3	105.6	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.793	0.377	2.300	0.257	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	533.0	776.3	106.3	107.3	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.513	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	64.6	31.8	75.7	71.9	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	4.3	1.4	613.7	1.3	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	68.8	33.2	689.4	73.2	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	17.7	7.9	4.4	1.1	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.6	0.3	18.1	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	18.3	8.2	22.6	1.1	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.38	0.12	0.33	0.03	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	34.6	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	139.4
HCM Level of Service	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	10	115	185	10	130	40	590	45	60	500	5
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	72	29	88	257	14	242	90	1383	111	79	692	7
Proportion Arriving On Green	0.06	0.06	0.06	0.15	0.15	0.15	0.30	0.30	0.30	0.21	0.21	0.21
Movement Delay, s/veh	75.2	0.0	317.6	78.8	0.0	66.6	43.0	0.0	41.7	74.2	0.0	67.2
Movement LOS	E		F	E		E	D		D	E		E
Approach Volume, veh/h		163			353			734			614	
Approach Delay, s/veh		261.1			73.9			42.4			70.9	
Approach LOS		F			E			D			E	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	39.60	75.00	30.40	14.90				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.13	5.14	4.82	4.28				
Maximum Green Setting (Gmax), s	33.60	69.00	24.40	8.90				
Max. Queue Clearance Time (g_c+I1), s	28.58	29.30	20.33	10.90				
Green Extension Time (g_e), s	1.61	5.02	0.65	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.999				
Probability of Max Out (p_x)	1.000	0.002	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	375.08	207.89	1687.19	1284.65

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3291.21	3205.19	91.20	513.86

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	34.38	256.71	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	320.6	387.4	212.0	38.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1844.0	1852.4	1778.4	1798.5	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	26.6	27.3	18.3	3.3	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	26.6	27.3	18.3	3.3	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.203	0.112	0.949	0.714	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	387.5	799.3	271.4	100.1	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.827	0.485	0.781	0.380	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	387.5	799.3	271.4	100.1	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.858	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	60.4	41.1	65.2	72.8	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	13.8	1.8	13.6	2.4	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	74.2	43.0	78.8	75.2	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	12.4	13.1	8.4	1.5	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	1.5	0.4	1.0	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	13.9	13.5	9.4	1.6	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.47	0.28	0.31	0.06	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	293.5	346.3	141.3	125.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1856.7	1817.4	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	23.7	24.5	13.3	8.9	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	23.7	24.5	13.3	8.9	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.019	0.141	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	390.1	784.3	241.6	88.1	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.752	0.442	0.585	1.418	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	390.1	784.3	241.6	88.1	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.858	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	59.2	40.2	63.0	75.5	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	8.0	1.5	3.6	242.1	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	67.2	41.7	66.6	317.6	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	11.1	11.5	5.4	3.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.9	0.3	0.2	5.9	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	12.0	11.8	5.6	9.6	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.41	0.25	0.34	4.85	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	9.2	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		76.9						
HCM Level of Service		E						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	200	135	30	235	45	185	375	130	80	140	255
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	249	912	665	144	606	114	288	1113	498	162	862	386
Proportion Arriving On Green	0.14	0.26	0.26	0.08	0.20	0.20	0.16	0.31	0.31	0.09	0.24	0.24
Movement Delay, s/veh	42.1	25.4	16.1	37.9	30.9	31.1	41.3	23.8	23.7	40.2	26.2	40.9
Movement LOS	D	C	B	D	C	C	D	C	C	D	C	D
Approach Volume, veh/h		533			337			750			516	
Approach Delay, s/veh		28.1			31.7			28.5			36.4	
Approach LOS		C			C			C			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration (G+Y+Rc), s	12.88	33.10	12.00	28.22	18.99	26.99	17.08	23.14
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.49	3.77	4.85	3.70	4.49	3.73	4.85
Maximum Green Setting (Gmax), s	9.00	27.10	7.00	23.70	14.10	19.90	12.30	11.80
Max. Queue Clearance Time (g_c+I1), s	6.04	9.69	3.48	7.11	11.23	15.84	9.78	8.42
Green Extension Time (g_e), s	0.04	4.47	0.01	1.75	0.14	1.85	0.10	1.18
Probability of Phase Call (p_c)	0.875	1.000	1.000	1.000	0.992	1.000	0.982	1.000
Probability of Max Out (p_x)	1.000	0.097	1.000	0.064	1.000	1.000	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	3049.32

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1583.33	1583.33	1583.33	574.74

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	87.0	0.0	32.6	0.0	201.1	0.0	168.5	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	4.0	0.0	1.5	0.0	9.2	0.0	7.8	0.0
Cycle Queue Clear Time (g_c), s	4.0	0.0	1.5	0.0	9.2	0.0	7.8	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	162.1	0.0	144.1	0.0	287.8	0.0	248.7	0.0
Volume-to-Capacity Ratio (X)	0.536	0.000	0.226	0.000	0.699	0.000	0.678	0.000
Available Capacity (c_a), veh/h	185.2	0.0	144.1	0.0	290.2	0.0	253.1	0.0
Upstream Filter Factor (I)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	37.4	0.0	37.1	0.0	34.1	0.0	35.2	0.0
Incremental Delay (d2), s/veh	2.7	0.0	0.8	0.0	7.1	0.0	6.9	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.2	0.0	37.9	0.0	41.3	0.0	42.1	0.0
First-Term Queue (Q1), veh/ln	1.7	0.0	0.6	0.0	3.7	0.0	3.2	0.0
Second-Term Queue (Q2), veh/ln	0.1	0.0	0.0	0.0	0.6	0.0	0.5	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	1.8	0.0	0.7	0.0	4.3	0.0	3.7	0.0
Percentile Storage Ratio (RQ%)	0.30	0.00	0.07	0.00	0.24	0.00	0.31	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	1
Group Volume (v), veh/h	0.0	407.6	0.0	217.4	0.0	152.2	0.0	154.5
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	7.7	0.0	4.2	0.0	2.9	0.0	6.2
Cycle Queue Clear Time (g_c), s	0.0	7.7	0.0	4.2	0.0	2.9	0.0	6.2
Lane Group Capacity (c), veh/h	0.0	1112.7	0.0	912.4	0.0	861.9	0.0	370.4
Volume-to-Capacity Ratio (X)	0.000	0.366	0.000	0.238	0.000	0.177	0.000	0.417
Available Capacity (c_a), veh/h	0.0	1112.7	0.0	973.1	0.0	861.9	0.0	370.4
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	22.9	0.0	25.3	0.0	25.8	0.0	30.2
Incremental Delay (d2), s/veh	0.0	0.9	0.0	0.1	0.0	0.4	0.0	0.7
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.8	0.0	25.4	0.0	26.2	0.0	30.9
First-Term Queue (Q1), veh/ln	0.0	3.0	0.0	1.7	0.0	1.2	0.0	2.7
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	3.1	0.0	1.7	0.0	1.2	0.0	2.8
Percentile Storage Ratio (RQ%)	0.00	0.09	0.00	0.02	0.00	0.03	0.00	0.05

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	141.3	0.0	146.7	0.0	277.2	0.0	149.9
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1761.3
Queue Serve Time (g_s), s	0.0	5.8	0.0	5.1	0.0	13.8	0.0	6.4
Cycle Queue Clear Time (g_c), s	0.0	5.8	0.0	5.1	0.0	13.8	0.0	6.4
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	1583.3	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	14.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	0.326
Lane Group Capacity (c), veh/h	0.0	497.8	0.0	665.1	0.0	385.6	0.0	350.2
Volume-to-Capacity Ratio (X)	0.000	0.284	0.000	0.221	0.000	0.719	0.000	0.428
Available Capacity (c_a), veh/h	0.0	497.8	0.0	692.2	0.0	385.6	0.0	350.2
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	22.2	0.0	16.0	0.0	29.9	0.0	30.2
Incremental Delay (d2), s/veh	0.0	1.4	0.0	0.2	0.0	11.0	0.0	0.8
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.7	0.0	16.1	0.0	40.9	0.0	31.1
First-Term Queue (Q1), veh/ln	0.0	2.1	0.0	1.7	0.0	5.0	0.0	2.6
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	1.2	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	2.3	0.0	1.8	0.0	6.2	0.0	2.7
Percentile Storage Ratio (RQ%)	0.00	0.38	0.00	0.11	0.00	0.53	0.00	0.05
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		30.8						
HCM Level of Service		C						

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	23.9	51.3	0.25	17.5	D
Courthouse Rd	II	38	54.5	31.5	86.0	0.58	24.3	C
Hope Rd	II	35	29.7	29.2	58.9	0.25	15.2	E
Total	II		111.6	84.6	196.2	1.08	19.8	D

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	70.5	89.5	0.15	6.1	F
Courthouse Rd	II	35	29.7	36.8	66.5	0.25	13.5	E
Route 630 Relocated	II	38	54.5	15.3	69.8	0.58	29.9	B
Total	II		103.2	122.6	225.8	0.98	15.6	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	30	80	95	35	155	30	460	30	140	1145	40
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	83	62	126	144	53	173	37	592	41	170	1462	53
Proportion Arriving On Green	0.08	0.08	0.08	0.11	0.11	0.11	0.18	0.18	0.18	0.12	0.12	0.12
Movement Delay, s/veh	65.3	0.0	77.1	72.3	0.0	122.5	78.6	0.0	68.3	61.9	0.0	57.9
Movement LOS	E		E	E		F	E		E	E		E
Approach Volume, veh/h		163			310			565			1440	
Approach Delay, s/veh		71.6			99.6			73.7			60.0	
Approach LOS		E			F			E			E	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	70.00	31.50	21.30	17.18				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.14	5.14	4.54	4.55				
Maximum Green Setting (Gmax), s	64.00	25.50	15.30	11.20				
Max. Queue Clearance Time (g_c+I1), s	58.48	23.92	16.85	9.48				
Green Extension Time (g_e), s	3.94	0.55	0.00	0.09				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.998				
Probability of Max Out (p_x)	0.979	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	372.02	202.88	1313.25	1034.86

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3197.49	3250.90	483.83	776.15

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	116.77	222.33	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	754.3	297.8	141.3	76.1	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1844.1	1852.6	1797.1	1811.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	56.5	21.9	10.6	5.6	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	56.5	21.9	10.6	5.6	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.202	0.110	0.731	0.571	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	843.2	337.5	196.4	144.6	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.895	0.882	0.719	0.526	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	843.2	337.5	196.4	144.9	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.200	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	58.5	55.8	60.3	61.9	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	3.4	22.8	12.0	3.5	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	61.9	78.6	72.3	65.3	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	28.3	10.2	4.8	2.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.8	2.1	0.7	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	29.1	12.3	5.5	2.7	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.60	0.17	0.08	0.04	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	685.9	267.4	168.5	87.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1842.1	1823.5	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	50.9	19.7	14.8	7.5	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	50.9	19.7	14.8	7.5	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.063	0.122	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	842.2	332.2	173.1	126.5	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.814	0.805	0.974	0.688	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	842.2	332.2	173.1	126.7	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.200	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	56.1	54.9	62.1	62.7	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	1.8	13.5	60.4	14.4	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	57.9	68.3	122.5	77.1	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	25.4	9.0	5.9	3.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.4	1.2	2.9	0.5	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	25.9	10.2	8.8	3.5	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.54	0.14	0.13	0.09	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	68.9
HCM Level of Service	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	25	95	110	10	115	60	545	115	225	1020	5
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	62	62	107	176	16	171	75	705	157	249	1195	6
Proportion Arriving On Green	0.07	0.07	0.07	0.11	0.11	0.11	0.34	0.34	0.34	0.39	0.39	0.39
Movement Delay, s/veh	65.2	0.0	139.3	69.4	0.0	75.3	53.2	0.0	48.1	71.2	0.0	53.0
Movement LOS	E		F	E		E	D		D	E		D
Approach Volume, veh/h		158			255			783			1359	
Approach Delay, s/veh		113.7			72.3			50.8			62.5	
Approach LOS		F			E			D			E	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	61.00	42.40	21.10	15.50				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.13	5.18	4.70	4.40				
Maximum Green Setting (Gmax), s	55.00	36.40	15.10	9.50				
Max. Queue Clearance Time (g_c+I1), s	55.45	31.84	12.71	11.10				
Green Extension Time (g_e), s	0.00	1.95	0.26	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.998				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	633.52	287.46	1632.68	908.65

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3042.05	2712.72	148.43	908.66

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	15.51	604.30	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	706.9	419.4	130.4	54.3	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1831.1	1848.4	1781.1	1817.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	53.4	29.8	9.9	4.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	53.4	29.8	9.9	4.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.346	0.156	0.917	0.500	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	719.4	480.6	192.1	123.3	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.983	0.873	0.679	0.441	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	719.4	480.6	192.1	123.3	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.500	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	42.0	44.3	60.1	62.7	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	29.1	8.9	9.3	2.5	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	71.2	53.2	69.4	65.2	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	23.6	12.9	4.5	1.9	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	5.8	1.2	0.5	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	29.4	14.1	5.0	1.9	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	1.00	0.29	0.16	0.08	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	651.8	363.3	125.0	103.3	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1860.0	1756.1	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	45.9	26.2	10.7	9.1	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	45.9	26.2	10.7	9.1	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.008	0.344	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	730.7	456.6	170.8	107.4	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.892	0.796	0.732	0.961	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	730.7	456.6	170.8	107.4	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.500	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	39.7	43.1	60.5	65.1	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	13.3	4.9	14.9	74.2	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	53.0	48.1	75.3	139.3	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	20.6	10.8	4.3	3.7	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	2.7	0.6	0.7	2.2	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	23.3	11.4	5.0	5.9	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.79	0.24	0.30	2.98	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	63.0
HCM Level of Service	E

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	215	170	455	125	195	75	165	195	35	45	990	225
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	276	534	466	194	271	101	254	1888	845	89	1558	697
Proportion Arriving On Green	0.16	0.15	0.15	0.11	0.10	0.10	0.14	0.53	0.53	0.05	0.44	0.44
Movement Delay, s/veh	78.9	54.0	108.9	71.1	78.5	85.0	66.0	16.4	15.8	70.5	34.2	27.5
Movement LOS	E	D	F	E	E	F	E	B	B	E	C	C
Approach Volume, veh/h		913			429			429			1370	
Approach Delay, s/veh		90.1			78.3			37.1			34.3	
Approach LOS		F			E			D			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration (G+Y+Rc), s	12.07	81.10	20.40	27.23	25.18	67.99	26.90	20.73
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.73	3.77	4.52	3.70	4.73	3.73	4.52
Maximum Green Setting (Gmax), s	8.30	75.10	15.40	21.20	20.20	61.10	21.90	14.80
Max. Queue Clearance Time (g_c+I1), s	5.79	6.19	12.40	23.23	15.57	36.43	20.04	13.64
Green Extension Time (g_e), s	0.01	13.44	0.09	0.00	0.18	10.52	0.12	0.54
Probability of Phase Call (p_c)	0.852	1.000	1.000	1.000	0.999	1.000	1.000	1.000
Probability of Max Out (p_x)	1.000	0.009	1.000	1.000	0.451	0.231	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	2590.76

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1583.33	1583.33	1583.33	964.52

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	48.9	0.0	135.9	0.0	179.3	0.0	233.7	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	3.8	0.0	10.4	0.0	13.6	0.0	18.0	0.0
Cycle Queue Clear Time (g_c), s	3.8	0.0	10.4	0.0	13.6	0.0	18.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	89.1	0.0	194.0	0.0	254.3	0.0	275.9	0.0
Volume-to-Capacity Ratio (X)	0.549	0.000	0.700	0.000	0.705	0.000	0.847	0.000
Available Capacity (c_a), veh/h	104.6	0.0	194.0	0.0	254.5	0.0	275.9	0.0
Upstream Filter Factor (I)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	65.3	0.0	60.5	0.0	57.5	0.0	57.8	0.0
Incremental Delay (d2), s/veh	5.2	0.0	10.6	0.0	8.5	0.0	21.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	70.5	0.0	71.1	0.0	66.0	0.0	78.9	0.0
First-Term Queue (Q1), veh/ln	1.7	0.0	4.7	0.0	6.0	0.0	8.0	0.0
Second-Term Queue (Q2), veh/ln	0.1	0.0	0.6	0.0	0.6	0.0	1.6	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	1.8	0.0	5.2	0.0	6.6	0.0	9.6	0.0
Percentile Storage Ratio (RQ%)	0.31	0.00	0.55	0.00	0.37	0.00	0.81	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	1
Group Volume (v), veh/h	0.0	212.0	0.0	184.8	0.0	1076.1	0.0	150.4
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	4.2	0.0	6.6	0.0	34.4	0.0	11.1
Cycle Queue Clear Time (g_c), s	0.0	4.2	0.0	6.6	0.0	34.4	0.0	11.1
Lane Group Capacity (c), veh/h	0.0	1887.7	0.0	533.6	0.0	1558.2	0.0	194.9
Volume-to-Capacity Ratio (X)	0.000	0.112	0.000	0.346	0.000	0.691	0.000	0.772
Available Capacity (c_a), veh/h	0.0	1887.7	0.0	533.6	0.0	1558.2	0.0	195.8
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	16.3	0.0	53.6	0.0	31.7	0.0	61.4
Incremental Delay (d2), s/veh	0.0	0.1	0.0	0.4	0.0	2.5	0.0	17.1
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	16.4	0.0	54.0	0.0	34.2	0.0	78.5
First-Term Queue (Q1), veh/ln	0.0	1.7	0.0	2.9	0.0	14.2	0.0	5.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.9
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	1.7	0.0	2.9	0.0	14.7	0.0	6.1
Percentile Storage Ratio (RQ%)	0.00	0.05	0.00	0.04	0.00	0.34	0.00	0.12

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	38.0	0.0	494.6	0.0	244.6	0.0	143.1
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1692.5
Queue Serve Time (g_s), s	0.0	1.6	0.0	21.2	0.0	14.4	0.0	11.6
Cycle Queue Clear Time (g_c), s	0.0	1.6	0.0	21.2	0.0	14.4	0.0	11.6
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	1583.3	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	20.2	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	0.570
Lane Group Capacity (c), veh/h	0.0	844.5	0.0	465.7	0.0	697.1	0.0	177.1
Volume-to-Capacity Ratio (X)	0.000	0.045	0.000	1.062	0.000	0.351	0.000	0.808
Available Capacity (c_a), veh/h	0.0	844.5	0.0	465.7	0.0	697.1	0.0	177.9
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	15.7	0.0	49.7	0.0	26.1	0.0	61.7
Incremental Delay (d2), s/veh	0.0	0.1	0.0	59.2	0.0	1.4	0.0	23.3
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.8	0.0	108.9	0.0	27.5	0.0	85.0
First-Term Queue (Q1), veh/ln	0.0	0.6	0.0	16.2	0.0	5.4	0.0	5.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	7.7	0.0	0.3	0.0	1.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.6	0.0	23.8	0.0	5.7	0.0	6.1
Percentile Storage Ratio (RQ%)	0.00	0.10	0.00	1.51	0.00	0.48	0.00	0.12
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	7.2	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	56.9
HCM Level of Service	E

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	17.8	45.2	0.25	19.9	D
Courthouse Rd	II	38	54.5	69.8	124.3	0.58	16.8	E
Hope Rd	II	35	29.7	79.2	108.9	0.25	8.2	F
Total	II		111.6	166.8	278.4	1.08	13.9	E

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	63.4	82.4	0.15	6.6	F
Courthouse Rd	II	35	29.7	15.5	45.2	0.25	19.9	D
Route 630 Relocated	II	38	54.5	10.1	64.6	0.58	32.3	B
Total	II		103.2	89.0	192.2	0.98	18.4	D

Appendix D:

VDOT MXD v4.0 Internal Trip Capture/Pass-By Trip Calculations for UDA Trip Generation

MIXED USE TRIP GENERATION MODEL V4 - RESULTS

MODEL APPLICATION - ALL TRIPS

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model	10774	18558	9231	38563	1766	1088	157	3011	1646	1701	1120	4468
Predicted Probabilities:												
Internal Capture	2.57%	7.97%	16.46%	8.49%	2.57%	7.97%	16.46%	5.25%	2.57%	7.97%	16.46%	8.11%
Walking External	0.97%	0.99%	0.41%	0.86%	0.97%	0.99%	0.41%	0.95%	0.97%	0.99%	0.41%	0.85%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Number of Trips:												
Internal Capture	277	1478	1519	3275	45	87	26	158	42	136	184	362
Walking External	102	169	32	302	17	10	1	27	16	15	4	35
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Net Number of IXXI Vehicle Trips	**10395**	**16910**	**7680**	**34985**	**1704**	**991**	**131**	**2826**	**1588**	**1550**	**932**	**4071**

	External Vehicle Trips			VMT		
Results	Raw	Net	Reduction %	Raw	Net	Reduction %
Daily	38,563	34,985	9%	161,811	149,526	8%
AM Peak Hour	3,011	2,826	6%	15,519	14,750	5%
PM Peak Hour	4,468	4,071	9%	20,013	18,597	7%

NOTE: External trips are attributed half to project site uses,
internal trips all to site uses for purposes of VMT allocation.
NHB Trips by households that start and end outside the site are not included.

MODEL APPLICATION - TRIP ENDS ASSOCIATED WITH HOUSES IN THE PROJECT ONLY

	Daily				AM Peak Hour				PM Peak Hour			
	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total	HBW	HBO	NHB	Total
Number of "Raw" ITE Trips Subject to Model	2504	7920	1759	12183	443	509	34	987	326	651	183	1160
Predicted Probabilities:												
Internal Capture	2.57%	7.97%	16.46%	8.08%	2.57%	7.97%	16.46%	5.84%	2.57%	7.97%	16.46%	7.79%
Walking External	0.97%	0.99%	0.41%	0.91%	0.97%	0.99%	0.41%	0.96%	0.97%	0.99%	0.41%	0.90%
Transit External	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Number of Trips:												
Internal Capture	64	631	289	985	11	41	6	58	8	52	30	90
Walking External	24	72	6	102	4	5	0	9	3	6	1	10
Transit External	0	0	0	0	0	0	0	0	0	0	0	0
Net Number of IXXI Vehicle Trips generated by Project Residences	**2416**	**7217**	**1463**	**11096**	**428**	**464**	**28**	**920**	**314**	**593**	**153**	**1060**

	External Vehicle Trips			VMT			VMT Per Household	
Results	Raw	Net	Reduction %	Raw	Net	Reduction %	Raw	Net
Daily	12,183	11,096	9%	107,323	99,810	7%	68.1	63.3
AM Peak Hour	987	920	7%	9,481	8,958	6%	6.0	5.7
PM Peak Hour	1,160	1,060	9%	10,748	10,034	7%	6.8	6.4

NOTE: all trips generated by project households (either produced or attracted or both)
are counted 100%. This cannot be compared directly to the VMT in the section above.

Appendix E:

MUTCD Signal Warrant Analysis Report for

Proposed Intersection of Route 1 @ New UDA Street

Using Year 2020 UDA Full Build-Out Traffic Volumes

Supplemental Traffic Signal Evaluation Form

RK&K

Location	Route 1 at New UDA Street	Date	January 31, 2012
County	Stafford, VA	Analyst	**JCP**

Summary Sheet

The following Signal Warrant Evaluation is based on the criteria presented in the **2009 Edition** of the Manual on Uniform Traffic Control Devices, Chapter 4C: Traffic Control Signal Needs Studies

NOTE: The 70% criteria applies for these analyses
NOTE: the 56% criteria do not apply for these analyses
NOTE: Right turns from the Minor street ARE included in these analyses

	MUTCD Min. Requirement	Current Conditions	Criteria Met?	Warrant Met?
Warrant 1 - 8 Hour Volumes				
A. Minimum Volume	8 hours	2 hour(s)	**No**	**NO**
B. Continuous Traffic	8 hours	2 hour(s)	**No**	
C. 80% of A and B	8 hours	2 hour(s)	**No**	
NOTE: Warrant 1 is met if any of criteria A, B or C are met				
Warrant 2 - Four Hour Vehicular Volume				
A. Four Hour Volume	4 hours	2 hour(s)	**No**	**NO**
Warrant 3 - Peak Hour				
"Unusual" Case Clause	"Unusual" Case?		**Yes**	**YES**
A. Peak Hour Delay	14,400 seconds	4,620 seconds	**No**	
	100 vehicles	140 vehicles		
	800 vehicles	2,575 vehicles		
B. Peak Hour Volume	1 hour	2 hour(s)	**Yes**	
NOTE: Warrant 3 is met if either criteria A or B is met AND it is an "Unusual" Case				
Warrant 4 - Pedestrian Volume				
A. Ped. Crossing Volume	100 peds./hr.		**No**	**NO**
	for 4 hours	0 hour(s)		
	190 peds./hr.			
	for 1 hour	0 hour(s)		
B. Acceptable Gaps	60+ gaps/hr.	100+ gaps/hr.	**No**	
		Nearby signal < 300 feet away?	**No**	
NOTE: Warrant 4 is met if both criteria A and B are met AND no signals are within 300'				
Warrant 5 - School Crossing				
A. Student Crossing Volume	20 peds./hr.	0 peds./hr.	**No**	**NO**
B. Acceptable gaps (calculated based on pedestrian volume)			**N/A**	
		Tried other remedial measures	**No**	
		Nearby signal < 300 feet away?	**No**	
NOTE: Warrant 5 is met if both criteria A or B are met AND no signals are within 300' or other remedial measures have been tried				
Warrant 6 - Coordinated Signal System				
A. One-Way Street: existing signals widely spaced (inadequate platooning)?			**No**	**NO**
B. Two-Way Street: existing signals widely spaced (inadequate platooning)?			**No**	
If a signal were installed, would resulting signal spacing > 1,000 feet?			**Yes**	
NOTE: Warrant 6 is met if either criteria A or B is met AND the resulting signal spacing > 1000 feet				
Warrant 7 - Crash Experience				
A. Have other remedial measures been tried?			**No**	**NO**
B. Accident Experience	5 acc./yr.	0 acc./yr.	**No**	
C. 8 hour volume @ 80%	8 hours	2 hours	**No**	
NOTE: Warrant 7 is met if ALL three of these criteria are satisfied				
Warrant 8 - Roadway Network				
A. Total Entering Volume	1 Hour	2 hour(s)	**Yes**	**NO**
B. Projected Volumes	1 Hour	N/A hour(s)	**No**	
		Is this the junction of two or more MAJOR routes?	**No**	
NOTE: Warrant 8 is met if either criteria A or B is met AND the intersection is the junction of major roads				

Supplemental Traffic Signal Evaluation Form

RK&K

Location	Route 1 at New UDA Street	Date	January 31, 2012
County	Stafford, VA	Analyst	**JCP**

Warrant 1 - 8 Hour Volumes

MUTCD Requirements:

Number of Lanes for moving traffic on each approach		Condition A - Minimum Vehicular Volume							
		Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	500	400	350	280	150	120	105	84
2 or more	1	600	480	420	336	150	120	105	84
2 or more	2 or more	600	480	420	336	200	160	140	112
1	2 or more	500	400	350	280	200	160	140	112

Number of Lanes for moving traffic on each approach		Condition B - Interruption of Continuous Traffic							
		Vehicles per hour on major street				Vehicles per hour on higher-volume minor street (one direction)			
Major Street	Minor Street	100%	80%	70%	56%	100%	80%	70%	56%
1	1	750	600	525	420	75	60	53	42
2 or more	1	900	720	630	504	75	60	53	42
2 or more	2 or more	900	720	630	504	100	80	70	56
1	2 or more	750	600	525	420	100	80	70	56

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Condition A met?	Condition B met?	A & B Condition met?
7 AM	0	0	No	No	No
8 AM	1,935	110	Yes	Yes	Yes
9 AM	0	0	No	No	No
10 AM	0	0	No	No	No
11 AM	0	0	No	No	No
12 PM	0	0	No	No	No
1 PM	0	0	No	No	No
2 PM	0	0	No	No	No
3 PM	0	0	No	No	No
4 PM	0	0	No	No	No
5 PM	0	0	No	No	No
6 PM	2,320	140	Yes	Yes	Yes

Warrant 1 Summary	Hours Met	Warrant Met?	
Condition A:	**2**	**No**	(70 percent criteria applies)
Condition B:	**2**	**No**	(70 percent criteria applies)
A & B Combination:	**2**	**No**	(56 percent criteria does not apply)

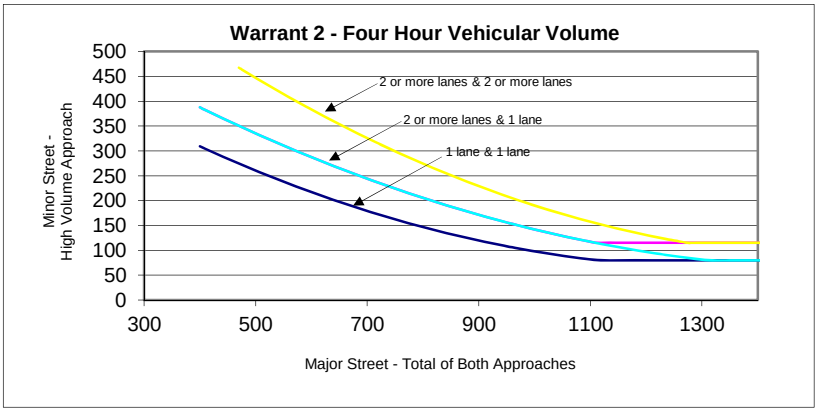
Is Warrant 1 Satisfied?	**NO**

Supplemental Traffic Signal Evaluation Form

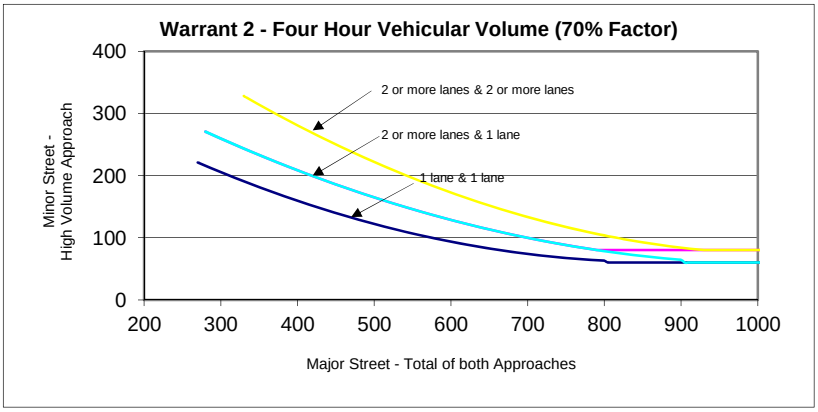
RK&K

Location: Route 1 at New UDA Street Date: January 31, 2012

Warrant 2 - Four Hour Vehicular Volume



NOTE: This chart not used (70% Criteria applies)



NOTE: some ploted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,300 vph)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	0	0	457	No
8 AM	1,935	110	80	Yes
9 AM	0	0	457	No
10 AM	0	0	457	No
11 AM	0	0	457	No
12 PM	0	0	457	No
1 PM	0	0	457	No
2 PM	0	0	457	No
3 PM	0	0	457	No
4 PM	0	0	457	No
5 PM	0	0	457	No
6 PM	2,320	140	80	Yes

	Hours Met	Warrant Met?
Total Hours Met:	**2**	**No**

(70 percent criteria applies)

Is Warrant 2 Satisfied?	**NO**

Supplemental Traffic Signal Evaluation Form

RK&K

Location: Route 1 at New UDA Street Date: January 31, 2012

Warrant 3 - Peak Hour

NOTE: Warrant 3 is applicable because this area IS considered an 'unusual' case

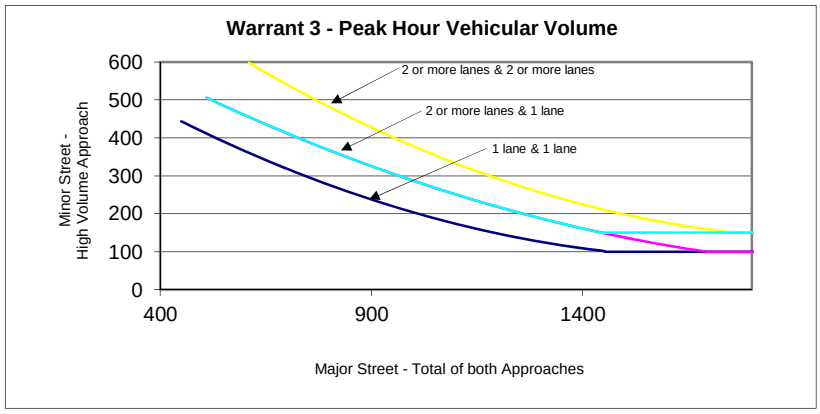
An "unusual" case refers to locations such as an office complex, a manufacturing plant, an industrial plant, or a facility that discharges/attracts a large volume of traffic over a short time

Criteria A: Peak Hour Delay

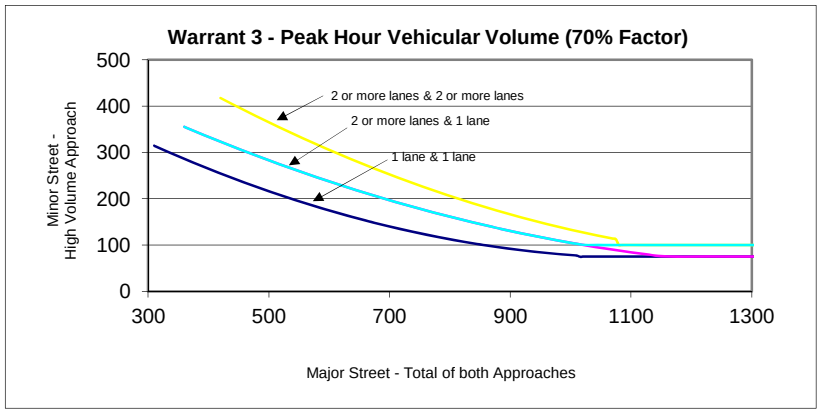
			Minimum Required
1. Total Stopped Delay	4,620	vehicle-seconds	14,400
2. Volume on Minor Street Approach during same hour	140	vehicles	100
3. Total entering traffic during hour more than 800 vehicles?	Yes	(2575 vehicles)	800

Is the Peak Hour Delay Criteria Met?	No

Criteria B: Peak Hour Volume



NOTE: This chart not used (70% Criteria applies)



NOTE: some ploted data points will not appear on this chart because the volume on the Major Street is higher than the scale of the chart (1,300 vph)

- Warrant 3 Worksheet Continued on Next Page -

Supplemental Traffic Signal Evaluation Form

RK&K

Location: Route 1 at New UDA Street Date: January 31, 2012

Warrant 3 - Peak Hour (Continued)

Field Data

Hour Ending	Combined Major Approach	Highest Minor Approach	Minimum Required	Warrant met?
7 AM	0	0	586	No
8 AM	1,935	110	75	Yes
9 AM	0	0	586	No
10 AM	0	0	586	No
11 AM	0	0	586	No
12 PM	0	0	586	No
1 PM	0	0	586	No
2 PM	0	0	586	No
3 PM	0	0	586	No
4 PM	0	0	586	No
5 PM	0	0	586	No
6 PM	2,320	140	75	Yes

	Hours Met	Warrant Met?	
Is the Peak Hour Volume Criteria Met?	**2**	**Yes**	(70 percent criteria applies)

Warrant 3 Summary:	Warrant Met?	
Warrant 3.A - Peak Hour Delay:	**No**	
Warrant 3.B - Peak Hour Volume:	**Yes**	(70 percent criteria applies)

Is Warrant 3 Satisfied?	**YES**

(NOTE: Criteria B - Peak Hour Volume is not recognized by Maryland SHA)

Warrant 4 - Pedestrian Volume

Criteria A

Pedestrian volume crossing major street greater than 100 during any four hours?	**No**
Pedestrian volume crossing major street greater than 190 during any one hour?	**No**

Criteria B

Are there fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian criterion is satisfied?	**No**

NOTE: A formal Gap Study was not conducted because A gap study was not included in the scope of this study.

Warrant 4 Summary:	Warrant Met?
Warrant 4.A - Ped. Crossing Volume:	**No**
Warrant 4.B - Acceptable Gaps:	**No**

Is Warrant 4 Satisfied?	**NO**

Supplemental Traffic Signal Evaluation Form

RK&K

Location: Route 1 at New UDA Street | Date: January 31, 2012

Warrant 5 - School Crossing

1. Are there 20 or more students during the highest crossing hour?	No
2. Are there an adequate number of gaps?	N/A
NOTE: A formal Gap Study was not conducted because A gap study was not included in the scope of this study.	
3. Have other remedial measures been tried? (items can include warning signs, flashers, crossing guards, etc.)	No
4. Is there another nearby signal located < 300 feet from the intersection?	No

Is Warrant 5 Satisfied? NO

Warrant 6 - Coordinated Signal System

The need for a signal based on Warrant 6 shall be considered if either of the following criteria is met AND if the resultant spacing of traffic control signals would be > 1,000 feet:

A.	On a one-way street or a street that has traffic predominantly in one direction, the adjacent traffic control signals are so far apart that they do not provide the necessary degree of vehicular platooning	**Not Met**
B.	On a two-way street, adjacent traffic control signals do not provide the necessary degree of platooning and the proposed and adjacent traffic control signals will provide collectively progressive operation	**Not Met**

If a signal were installed, would the resulting signal spacing be > 1,000 feet? **Yes**

Is Warrant 6 Satisfied? NO

Warrant 7 - Crash Experience

A.	Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.	**Not Met**
B.	Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage, apparently exceeding the applicable requirements for a reportable crash	**Not Met**
C.	For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1, or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major street and on the higher volume minor street approach, respectively, to the intersection, or the volume of pedestrian traffic is not less than 80 percent of the requirements specified in the Pedestrian Volume warrant. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours.	**Not Met**

Is Warrant 7 Satisfied? NO

Supplemental Traffic Signal Evaluation Form

RK&K

Location	Route 1 at New UDA Street	Date	January 31, 2012

Warrant 8 - Roadway Network

The need for a signal based on Warrant 8 shall be considered if either of the following criteria is met AND if the intersection is a junction of two or more MAJOR roads:

NOTE: Portions of the criteria for Warrant 8 are based on projected traffic volumes and weekend traffic volumes. However, projected and weekend volumes were not available during the preparation of this study, so Warrant 8 was only evaluated based on current weekday traffic conditions.

A.	The intersection has a total existing, or immediately projected, entering volume of at least 1,000 vehicles per hour during the peak hour of a typical weekday and has a 5-year projected traffic volume, based on an engineering study, that meets one or more of Warrants 1,2 and 3 during an average weekday	**Met**
B.	The intersection has a total existing or immediately projected entering volume of at least 1,000 vehicles per hour for each of and 5 hours of a non-normal business day (Saturday or Sunday).	**N/A**
	Is this the junction of two or more MAJOR routes?	**No**

Is Warrant 8 Satisfied? NO

Appendix F:

Year 2020 UDA Full Build-Out Traffic Analysis (Synchro HCM)

No Traffic Impact Mitigation Options

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	70	40	25	80	370	45	905	45	410	845	60
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	67	104	149	40	129	146	49	1030	54	375	826	61
Proportion Arriving On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.22	0.22	0.22	0.15	0.15	0.15
Movement Delay, s/veh	80.5	0.0	64.4	76.0	0.0	879.3	94.8	0.0	76.6	149.5	0.0	101.7
Movement LOS	F		E	E		F	F		E	F		F
Approach Volume, veh/h		168			516			1082			1429	
Approach Delay, s/veh		76.4			701.7			86.2			126.6	
Approach LOS		E			F			F			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	58.00	52.10	19.80	20.09				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.16	5.13	4.25	4.86				
Maximum Green Setting (Gmax), s	52.00	46.10	13.80	14.10				
Max. Queue Clearance Time (g_c+I1), s	54.00	48.05	15.80	11.98				
Green Extension Time (g_e), s	0.00	0.00	0.00	0.14				
Probability of Phase Call (p_c)	1.000	1.000	1.000	0.999				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	1082.24	159.29	438.29	714.91

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	2383.81	3352.34	1402.54	1112.09

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	174.52	175.01	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	744.8	569.6	114.1	125.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1808.6	1854.8	1840.8	1827.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	52.0	46.0	9.0	10.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	52.0	46.0	9.0	10.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.598	0.086	0.238	0.391	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	627.0	570.1	169.4	171.6	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.188	0.999	0.674	0.728	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	627.0	570.1	169.4	171.8	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.090	0.933	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	63.4	58.6	65.9	66.1	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	86.1	36.2	10.0	14.4	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	149.5	94.8	76.0	80.5	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	25.1	22.1	4.2	4.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	15.0	5.7	0.5	0.7	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	40.1	27.8	4.7	5.3	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.83	0.55	0.07	0.08	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	29.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	684.6	512.0	402.2	43.5	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1831.9	1831.9	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	52.0	40.9	13.8	3.8	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	52.0	40.9	13.8	3.8	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.095	0.096	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	635.1	563.0	145.7	148.7	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.078	0.909	2.761	0.292	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	635.1	563.0	145.7	148.8	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.090	0.933	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	63.4	56.6	68.1	63.3	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	38.3	20.1	811.2	1.1	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	101.7	76.6	879.3	64.4	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	25.4	19.4	5.6	1.5	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	6.8	3.1	32.8	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	32.2	22.5	38.4	1.6	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.67	0.45	0.56	0.04	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	12.4	0.0	64.1	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.0	0.7	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		203.2						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	20	190	305	20	255	55	1205	60	120	820	10
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	100	40	124	326	21	309	50	1144	60	101	727	9
Proportion Arriving On Green	0.08	0.08	0.08	0.20	0.20	0.20	0.36	0.36	0.36	0.23	0.23	0.23
Movement Delay, s/veh	70.8	0.0	404.4	112.9	0.0	85.6	140.1	0.0	95.9	205.9	0.0	159.0
Movement LOS	E		F	F		F	F		F	F		F
Approach Volume, veh/h		283			630			1435			1033	
Approach Delay, s/veh		314.6			100.9			119.1			183.5	
Approach LOS		F			F			F			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	40.00	57.00	35.30	17.70				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.13	5.13	4.77	4.32				
Maximum Green Setting (Gmax), s	34.00	51.00	29.30	11.70				
Max. Queue Clearance Time (g_c+I1), s	36.00	53.00	31.30	13.70				
Green Extension Time (g_e), s	0.00	0.00	0.00	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	445.76	146.96	1669.76	1284.65

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	3209.41	3364.51	109.49	513.86

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	40.82	175.67	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	538.5	754.8	353.3	76.1	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1840.5	1855.4	1779.3	1798.5	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	34.0	51.0	29.3	6.1	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	34.0	51.0	29.3	6.1	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.242	0.079	0.938	0.714	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	417.2	630.8	347.5	140.3	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.291	1.196	1.016	0.542	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	417.2	630.8	347.5	140.3	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.220	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	58.0	48.0	60.4	66.6	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	147.9	92.1	52.5	4.2	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	205.9	140.1	112.9	70.8	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	15.7	23.0	13.2	2.8	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	17.1	16.1	5.1	0.2	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	32.8	39.2	18.3	3.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	1.12	0.81	0.60	0.12	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	30.3	31.0	1.4	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	494.1	680.0	277.2	206.5	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1855.5	1831.7	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	34.0	51.0	25.6	11.7	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	34.0	51.0	25.6	11.7	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.022	0.096	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	420.6	622.8	309.3	123.5	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.175	1.092	0.896	1.672	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	420.6	622.8	309.3	123.5	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.220	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	58.0	48.0	58.9	69.2	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	101.0	47.9	26.8	335.2	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	159.0	95.9	85.6	404.4	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	15.8	22.7	10.3	4.7	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	11.8	8.3	2.3	11.5	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	27.6	31.0	12.6	16.2	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.94	0.64	0.75	8.24	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	18.4	14.3	0.0	20.8	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.3	0.0	0.4	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		151.7						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	315	180	45	365	60	230	760	205	100	480	320
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	280	962	706	96	525	86	309	1544	691	164	1255	561
Proportion Arriving On Green	0.16	0.27	0.27	0.05	0.17	0.17	0.17	0.44	0.44	0.11	0.14	0.22
Movement Delay, s/veh	75.8	44.6	26.7	73.9	69.7	71.0	74.9	32.7	29.2	73.9	51.8	54.4
Movement LOS	E	D	C	E	E	E	E	C	C	E	D	D
Approach Volume, veh/h		761			511			1299			978	
Approach Delay, s/veh		49.1			70.7			40.2			55.2	
Approach LOS		D			E			D			E	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration (G+Y+Rc), s	18.95	71.95	13.20	47.07	31.30	59.60	28.90	31.38
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.62	3.77	4.88	3.70	4.62	3.73	4.88
Maximum Green Setting (Gmax), s	14.10	65.80	8.20	42.10	26.30	53.60	23.90	24.20
Max. Queue Clearance Time (g_c+I1), s	10.89	27.95	6.05	13.82	22.48	31.95	20.28	20.46
Green Extension Time (g_e), s	0.06	14.43	0.01	4.99	0.25	11.30	0.21	1.91
Probability of Phase Call (p_c)	0.990	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Probability of Max Out (p_x)	1.000	0.165	1.000	0.034	0.921	0.397	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	3125.79

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1583.33	1583.33	1583.33	509.75

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	108.7	0.0	48.9	0.0	250.0	0.0	222.8	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	8.9	0.0	4.1	0.0	20.5	0.0	18.3	0.0
Cycle Queue Clear Time (g_c), s	8.9	0.0	4.1	0.0	20.5	0.0	18.3	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	163.7	0.0	96.2	0.0	308.6	0.0	280.4	0.0
Volume-to-Capacity Ratio (X)	0.664	0.000	0.508	0.000	0.810	0.000	0.795	0.000
Available Capacity (c_a), veh/h	165.5	0.0	96.2	0.0	308.6	0.0	280.5	0.0
Upstream Filter Factor (I)	0.943	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	65.0	0.0	69.5	0.0	60.0	0.0	61.3	0.0
Incremental Delay (d2), s/veh	8.9	0.0	4.3	0.0	14.9	0.0	14.5	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	73.9	0.0	73.9	0.0	74.9	0.0	75.8	0.0
First-Term Queue (Q1), veh/ln	3.9	0.0	1.8	0.0	9.1	0.0	8.2	0.0
Second-Term Queue (Q2), veh/ln	0.4	0.0	0.1	0.0	1.3	0.0	1.1	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	4.3	0.0	2.0	0.0	10.3	0.0	9.3	0.0
Percentile Storage Ratio (RQ%)	0.73	0.00	0.21	0.00	0.58	0.00	0.79	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	1
Group Volume (v), veh/h	0.0	826.1	0.0	342.4	0.0	521.7	0.0	235.1
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	26.0	0.0	11.8	0.0	20.4	0.0	18.2
Cycle Queue Clear Time (g_c), s	0.0	26.0	0.0	11.8	0.0	20.4	0.0	18.2
Lane Group Capacity (c), veh/h	0.0	1543.9	0.0	961.6	0.0	1254.9	0.0	312.7
Volume-to-Capacity Ratio (X)	0.000	0.535	0.000	0.356	0.000	0.416	0.000	0.752
Available Capacity (c_a), veh/h	0.0	1543.9	0.0	985.6	0.0	1254.9	0.0	312.7
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.943	0.000	1.000
Uniform Delay (d1), s/veh	0.0	31.3	0.0	44.4	0.0	50.9	0.0	59.9
Incremental Delay (d2), s/veh	0.0	1.3	0.0	0.2	0.0	1.0	0.0	9.8
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	32.7	0.0	44.6	0.0	51.8	0.0	69.7
First-Term Queue (Q1), veh/ln	0.0	10.8	0.0	5.2	0.0	9.6	0.0	8.6
Second-Term Queue (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.9
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	11.1	0.0	5.2	0.0	9.8	0.0	9.4
Percentile Storage Ratio (RQ%)	0.00	0.33	0.00	0.07	0.00	0.16	0.00	0.18

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	222.8	0.0	195.7	0.0	347.8	0.0	226.8
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1772.8
Queue Serve Time (g_s), s	0.0	14.0	0.0	11.8	0.0	30.0	0.0	18.5
Cycle Queue Clear Time (g_c), s	0.0	14.0	0.0	11.8	0.0	30.0	0.0	18.5
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	1583.3	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	26.3	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	0.288
Lane Group Capacity (c), veh/h	0.0	690.7	0.0	705.6	0.0	561.4	0.0	297.6
Volume-to-Capacity Ratio (X)	0.000	0.323	0.000	0.277	0.000	0.620	0.000	0.762
Available Capacity (c_a), veh/h	0.0	690.7	0.0	716.4	0.0	561.4	0.0	297.6
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.943	0.000	1.000
Uniform Delay (d1), s/veh	0.0	28.0	0.0	26.5	0.0	49.6	0.0	60.0
Incremental Delay (d2), s/veh	0.0	1.2	0.0	0.2	0.0	4.8	0.0	11.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.2	0.0	26.7	0.0	54.4	0.0	71.0
First-Term Queue (Q1), veh/ln	0.0	5.3	0.0	4.5	0.0	12.4	0.0	8.3
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.7	0.0	0.9
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	5.6	0.0	4.5	0.0	13.1	0.0	9.2
Percentile Storage Ratio (RQ%)	0.00	0.94	0.00	0.29	0.00	1.11	0.00	0.18
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		50.6						
HCM Level of Service		D						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	60	25	10	65	10	25	960	40	10	865	35
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	188	198	168	192	198	168	0	2654	1187	0	2654	1187
Proportion Arriving On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.00	1.00	1.00	0.00	0.39	0.57
Movement Delay, s/veh	34.0	32.6	31.5	33.2	32.8	30.9	0.0	0.3	0.0	0.0	10.2	4.3
Movement LOS	C	C	C	C	C	C		A	A		B	A
Approach Volume, veh/h		120			92			1087			978	
Approach Delay, s/veh		32.7			32.6			0.3			9.9	
Approach LOS		C			C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase		2		4		6		8
Case No		3.0		5.0		3.0		5.0
Phase Duration (G+Y+Rc), s		63.30		13.11		63.30		13.11
Change Period (Y+Rc), s		6.00		5.00		6.00		5.00
Max. Allowable Headway (MAH), s		4.96		4.70		4.96		4.70
Maximum Green Setting (Gmax), s		57.30		8.20		54.50		8.20
Max. Queue Clearance Time (g_c+I1), s		2.00		6.18		16.32		5.06
Green Extension Time (g_e), s		23.61		0.17		20.12		0.25
Probability of Phase Call (p_c)		1.000		0.989		1.000		0.989
Probability of Max Out (p_x)		0.177		1.000		0.319		1.000

Left-Turn Movement Data								
Assigned Movement				7				3
Mvmt. Sat Flow, veh/h				1324.40				1330.93

Through Movement Data								
Assigned Movement		2		4		6		8
Mvmt. Sat Flow, veh/h		3539.22		1862.75		3539.22		1862.75

Right-Turn Movement Data								
Assigned Movement		12		14		16		18
Mvmt. Sat Flow, veh/h		1583.33		1583.33		1583.33		1583.33

Left Lane Group Data								
Assigned Movement	0	0	0	7	0	0	0	3
Lane Assignment				L				L
Lanes in Group	0	0	0	1	0	0	0	1
Group Volume (v), veh/h	0.0	0.0	0.0	27.2	0.0	0.0	0.0	10.9
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	1324.4	0.0	0.0	0.0	1330.9
Queue Serve Time (g_s), s	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.6
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	4.2	0.0	0.0	0.0	3.1

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	1324.4	0.0	0.0	0.0	1330.9
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	8.1	0.0	0.0	0.0	8.1
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	5.4	0.0	0.0	0.0	5.6
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	1.5	0.0	0.0	0.0	0.6
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	188.1	0.0	0.0	0.0	192.3
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.144	0.000	0.000	0.000	0.057
Available Capacity (c_a), veh/h	0.0	0.0	0.0	189.7	0.0	0.0	0.0	193.9
Upstream Filter Factor (I)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	33.7	0.0	0.0	0.0	33.1
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.1
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	34.0	0.0	0.0	0.0	33.2
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.03
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	1	0	2	0	1
Group Volume (v), veh/h	0.0	1043.5	0.0	65.2	0.0	940.2	0.0	70.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1862.7	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	0.0	0.0	2.5	0.0	14.3	0.0	2.7
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	2.5	0.0	14.3	0.0	2.7
Lane Group Capacity (c), veh/h	0.0	2654.1	0.0	197.7	0.0	2654.1	0.0	197.7
Volume-to-Capacity Ratio (X)	0.000	0.393	0.000	0.330	0.000	0.354	0.000	0.357
Available Capacity (c_a), veh/h	0.0	2654.1	0.0	199.9	0.0	2654.1	0.0	199.9
Upstream Filter Factor (I)	0.000	0.782	0.000	1.000	0.000	0.090	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	31.6	0.0	10.1	0.0	31.7
Incremental Delay (d2), s/veh	0.0	0.3	0.0	1.0	0.0	0.0	0.0	1.1
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.3	0.0	32.6	0.0	10.2	0.0	32.8
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	1.1	0.0	6.1	0.0	1.2
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.1	0.0	1.1	0.0	6.2	0.0	1.2
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.03	0.00	0.12	0.00	0.03

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	43.5	0.0	27.2	0.0	38.0	0.0	10.9
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1583.3
Queue Serve Time (g_s), s	0.0	0.0	0.0	1.2	0.0	0.8	0.0	0.5
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	1.2	0.0	0.8	0.0	0.5
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	1187.4	0.0	168.0	0.0	1187.4	0.0	168.0
Volume-to-Capacity Ratio (X)	0.000	0.037	0.000	0.162	0.000	0.032	0.000	0.065
Available Capacity (c_a), veh/h	0.0	1187.4	0.0	169.9	0.0	1187.4	0.0	169.9
Upstream Filter Factor (I)	0.000	0.782	0.000	1.000	0.000	0.090	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	31.1	0.0	4.3	0.0	30.7
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	31.5	0.0	4.3	0.0	30.9
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.4	0.0	0.1	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.5	0.0	0.2	0.0	0.2
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.06	0.00	0.02	0.00	0.02
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		7.5						
HCM Level of Service		A						

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	34.5	61.9	0.25	14.5	E
Proposed UDA Street	II	45	31.7	9.6	41.3	0.32	27.9	C
Courthouse Rd	II	35	31.0	69.5	100.5	0.26	9.3	F
Hope Rd	II	35	29.7	144.1	173.8	0.25	5.2	F
Total	II		119.8	257.7	377.5	1.08	10.3	F

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	187.1	206.1	0.15	2.7	F
Courthouse Rd	II	35	29.7	110.9	140.6	0.25	6.4	F
Proposed UDA Street	II	35	31.0	3.5	34.5	0.26	27.2	C
Route 630 Relocated	II	45	31.7	17.8	49.5	0.32	23.3	C
Total	II		111.4	319.3	430.7	0.98	8.2	F

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	60	110	130	70	215	50	565	50	335	1400	65
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	82	89	149	140	75	189	49	580	54	286	1267	61
Proportion Arriving On Green	0.09	0.09	0.09	0.12	0.12	0.12	0.14	0.14	0.14	0.10	0.10	0.10
Movement Delay, s/veh	80.8	0.0	92.9	129.9	0.0	209.6	144.2	0.0	114.9	190.6	0.0	137.4
Movement LOS	F		F	F		F	F		F	F		F
Approach Volume, veh/h		245			451			723			1957	
Approach Delay, s/veh		86.8			171.2			130.4			165.3	
Approach LOS		F			F			F			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	72.00	34.00	23.90	20.10				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.14	5.15	4.57	4.60				
Maximum Green Setting (Gmax), s	66.00	28.00	17.90	14.10				
Max. Queue Clearance Time (g_c+I1), s	68.00	30.00	19.90	13.10				
Green Extension Time (g_e), s	0.00	0.00	0.00	0.10				
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	650.59	263.20	1172.67	870.07

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	2878.46	3109.32	631.44	949.17

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	139.32	288.84	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	1024.4	381.9	217.4	125.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1830.2	1849.6	1804.1	1819.2	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	66.0	28.0	17.9	10.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	66.0	28.0	17.9	10.0	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.355	0.142	0.650	0.478	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	805.3	345.3	215.3	171.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.272	1.106	1.010	0.731	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	805.3	345.3	215.3	171.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.090	0.978	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	67.3	64.5	66.0	66.1	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	123.3	79.7	63.9	14.7	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	190.6	144.2	129.9	80.8	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	32.9	13.4	8.2	4.6	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	27.6	7.6	3.8	0.7	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	60.5	21.1	12.0	5.3	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	1.26	0.42	0.18	0.08	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	54.8	9.2	0.5	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	932.2	340.9	233.7	119.6	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1838.2	1811.8	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	66.0	28.0	17.9	11.1	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	66.0	28.0	17.9	11.1	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.076	0.159	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	808.8	338.2	188.9	148.8	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.153	1.008	1.237	0.803	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	808.8	338.2	188.9	148.8	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.090	0.978	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	67.3	64.5	66.0	66.6	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	70.1	50.4	143.5	26.3	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	137.4	114.9	209.6	92.9	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	33.0	13.2	7.2	4.5	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	15.8	4.7	7.5	1.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	48.8	17.9	14.7	5.6	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	1.01	0.35	0.21	0.14	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	30.8	0.7	11.2	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		152.9						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	55	130	155	25	240	100	540	195	370	1515	10
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	0	1	1	0	1	1	0	2	0	0	2	0
Lane Assignment												
Capacity, veh/h	79	87	145	188	30	193	84	470	180	286	1254	9
Proportion Arriving On Green	0.09	0.09	0.09	0.12	0.12	0.12	0.25	0.25	0.25	0.42	0.42	0.42
Movement Delay, s/veh	77.3	0.0	135.7	99.7	0.0	253.7	190.5	0.0	140.0	233.2	0.0	169.4
Movement LOS	E		F	F		F	F		F	F		F
Approach Volume, veh/h		255			457			908			2060	
Approach Delay, s/veh		109.6			187.7			167.4			202.8	
Approach LOS		F			F			F			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	6	2	8	4				
Case No	12.0	12.0	11.0	11.0				
Phase Duration (G+Y+Rc), s	69.00	37.00	24.30	19.70				
Change Period (Y+Rc), s	6.00	6.00	6.00	6.00				
Max. Allowable Headway (MAH), s	5.14	5.20	4.59	4.52				
Maximum Green Setting (Gmax), s	63.00	31.00	18.30	13.70				
Max. Queue Clearance Time (g_c+I1), s	65.00	33.00	20.30	15.36				
Green Extension Time (g_e), s	0.00	0.00	0.00	0.00				
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000				
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000				

Left-Turn Movement Data				
Assigned Movement	1	5	3	7
Mvmt. Sat Flow, veh/h	681.96	406.95	1537.82	866.39

Through Movement Data				
Assigned Movement	6	2	8	4
Mvmt. Sat Flow, veh/h	2985.21	2272.61	248.04	953.03

Right-Turn Movement Data				
Assigned Movement	16	12	18	14
Mvmt. Sat Flow, veh/h	20.59	871.75	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	5	3	7	0	0	0	0
Lane Assignment	L+T	L+T	L+T	L+T				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	1078.4	492.1	195.7	114.1	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1828.6	1842.4	1785.9	1819.4	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	63.0	31.0	16.2	9.1	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	63.0	31.0	16.2	9.1	0.0	0.0	0.0	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.373	0.221	0.861	0.476	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	768.0	380.8	217.9	166.2	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.404	1.292	0.898	0.687	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	768.0	380.8	217.9	166.2	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.144	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	43.5	55.9	64.9	66.1	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	189.7	134.5	34.8	11.2	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	233.2	190.5	99.7	77.3	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	27.9	13.9	7.4	4.2	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	40.5	14.2	2.1	0.5	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	68.3	28.1	9.5	4.7	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	2.32	0.58	0.31	0.19	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	77.6	27.8	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	6	2	8	4	0	0	0	0
Lane Assignment								
Lanes in Group	0	0	0	0	0	0	0	0
Group Volume (v), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	16	12	18	14	0	0	0	0
Lane Assignment	T+R	T+R	R	R				
Lanes in Group	1	1	1	1	0	0	0	0
Group Volume (v), veh/h	981.4	415.5	260.9	141.3	0.0	0.0	0.0	0.0
Group Sat. Flow (s), veh/h/ln	1859.1	1708.9	1583.3	1583.3	0.0	0.0	0.0	0.0
Queue Serve Time (g_s), s	63.0	31.0	18.3	13.4	0.0	0.0	0.0	0.0
Cycle Queue Clear Time (g_c), s	63.0	31.0	18.3	13.4	0.0	0.0	0.0	0.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.011	0.510	1.000	1.000	0.000	0.000	0.000	0.000
Lane Group Capacity (c), veh/h	780.8	353.2	193.2	144.6	0.0	0.0	0.0	0.0
Volume-to-Capacity Ratio (X)	1.257	1.176	1.350	0.977	0.000	0.000	0.000	0.000
Available Capacity (c_a), veh/h	780.8	353.2	193.2	144.6	0.0	0.0	0.0	0.0
Upstream Filter Factor (I)	1.000	0.144	1.000	1.000	0.000	0.000	0.000	0.000
Uniform Delay (d1), s/veh	43.5	55.9	65.8	68.0	0.0	0.0	0.0	0.0
Incremental Delay (d2), s/veh	125.9	84.0	187.9	67.7	0.0	0.0	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	169.4	140.0	253.7	135.7	0.0	0.0	0.0	0.0
First-Term Queue (Q1), veh/ln	28.3	12.9	7.4	5.4	0.0	0.0	0.0	0.0
Second-Term Queue (Q2), veh/ln	27.3	8.2	10.1	2.7	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	1.000	1.000	1.000	0.000	0.000	0.000	0.000
Percentile Back of Queue (Q%), veh/ln	55.7	21.1	17.5	8.1	0.0	0.0	0.0	0.0
Percentile Storage Ratio (RQ%)	1.89	0.44	1.05	4.12	0.00	0.00	0.00	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	50.1	15.6	16.9	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		185.7						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	280	560	205	325	90	240	320	60	65	1285	325
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	2	1	1	2	0	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	277	444	527	255	320	87	368	1787	800	140	1333	596
Proportion Arriving On Green	0.16	0.13	0.13	0.14	0.11	0.11	0.21	0.51	0.51	0.07	0.25	0.35
Movement Delay, s/veh	134.2	67.1	112.9	89.2	156.9	167.1	61.4	20.6	6.2	68.5	90.5	42.2
Movement LOS	F	E	F	F	F	F	E	C	A	E	F	D
Approach Volume, veh/h		1207			674			674			1821	
Approach Delay, s/veh		106.5			137.8			35.0			80.3	
Approach LOS		F			F			D			F	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	4.0
Phase Duration (G+Y+Rc), s	16.84	81.76	26.60	24.80	36.10	62.50	28.40	23.00
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.72	3.77	4.57	3.70	4.72	3.73	4.57
Maximum Green Setting (Gmax), s	12.50	75.10	21.60	18.80	31.10	56.50	23.40	17.00
Max. Queue Clearance Time (g_c+I1), s	7.74	10.09	20.44	15.32	22.50	58.50	25.40	19.00
Green Extension Time (g_e), s	0.04	23.79	0.08	2.19	0.47	0.00	0.00	0.00
Probability of Phase Call (p_c)	0.947	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Probability of Max Out (p_x)	0.269	0.122	1.000	1.000	0.032	1.000	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	2819.62

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1583.33	1583.33	1583.33	769.99

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	70.7	0.0	222.8	0.0	260.9	0.0	293.5	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	5.7	0.0	18.4	0.0	20.5	0.0	23.4	0.0
Cycle Queue Clear Time (g_c), s	5.7	0.0	18.4	0.0	20.5	0.0	23.4	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	140.1	0.0	255.5	0.0	367.8	0.0	276.8	0.0
Volume-to-Capacity Ratio (X)	0.504	0.000	0.872	0.000	0.709	0.000	1.060	0.000
Available Capacity (c_a), veh/h	147.8	0.0	255.5	0.0	367.8	0.0	276.8	0.0
Upstream Filter Factor (I)	0.684	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	66.6	0.0	62.8	0.0	55.2	0.0	63.3	0.0
Incremental Delay (d2), s/veh	1.9	0.0	26.4	0.0	6.2	0.0	70.9	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	68.5	0.0	89.2	0.0	61.4	0.0	134.2	0.0
First-Term Queue (Q1), veh/ln	2.6	0.0	8.3	0.0	9.0	0.0	10.4	0.0
Second-Term Queue (Q2), veh/ln	0.1	0.0	1.9	0.0	0.6	0.0	5.5	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	2.6	0.0	10.2	0.0	9.6	0.0	15.9	0.0
Percentile Storage Ratio (RQ%)	0.45	0.00	1.08	0.00	0.54	0.00	1.35	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	4.2	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0

Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	1
Group Volume (v), veh/h	0.0	347.8	0.0	304.3	0.0	1396.7	0.0	231.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	8.1	0.0	12.3	0.0	56.5	0.0	17.0
Cycle Queue Clear Time (g_c), s	0.0	8.1	0.0	12.3	0.0	56.5	0.0	17.0
Lane Group Capacity (c), veh/h	0.0	1787.5	0.0	443.6	0.0	1333.1	0.0	211.1
Volume-to-Capacity Ratio (X)	0.000	0.195	0.000	0.686	0.000	1.048	0.000	1.097
Available Capacity (c_a), veh/h	0.0	1787.5	0.0	443.6	0.0	1333.1	0.0	211.1
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.684	0.000	1.000
Uniform Delay (d1), s/veh	0.0	20.4	0.0	62.8	0.0	56.3	0.0	66.5
Incremental Delay (d2), s/veh	0.0	0.2	0.0	4.4	0.0	34.2	0.0	90.4
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.6	0.0	67.1	0.0	90.5	0.0	156.9
First-Term Queue (Q1), veh/ln	0.0	3.3	0.0	5.5	0.0	25.7	0.0	8.1
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.3	0.0	6.3	0.0	5.3
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	3.4	0.0	5.8	0.0	32.0	0.0	13.4
Percentile Storage Ratio (RQ%)	0.00	0.10	0.00	0.08	0.00	0.51	0.00	0.26

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	15.9	0.0	5.1
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	65.2	0.0	608.7	0.0	353.3	0.0	219.4
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1726.9
Queue Serve Time (g_s), s	0.0	1.8	0.0	13.3	0.0	27.4	0.0	17.0
Cycle Queue Clear Time (g_c), s	0.0	1.8	0.0	13.3	0.0	27.4	0.0	17.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	1583.3	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	31.1	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	0.446
Lane Group Capacity (c), veh/h	0.0	799.7	0.0	526.7	0.0	596.4	0.0	195.7
Volume-to-Capacity Ratio (X)	0.000	0.082	0.000	1.156	0.000	0.592	0.000	1.121
Available Capacity (c_a), veh/h	0.0	799.7	0.0	526.7	0.0	596.4	0.0	195.7
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.684	0.000	1.000
Uniform Delay (d1), s/veh	0.0	6.0	0.0	23.1	0.0	39.3	0.0	66.5
Incremental Delay (d2), s/veh	0.0	0.2	0.0	89.8	0.0	3.0	0.0	100.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.2	0.0	112.9	0.0	42.2	0.0	167.1
First-Term Queue (Q1), veh/ln	0.0	0.6	0.0	11.2	0.0	10.7	0.0	7.5
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	13.1	0.0	0.5	0.0	5.5
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.6	0.0	24.4	0.0	11.1	0.0	12.9
Percentile Storage Ratio (RQ%)	0.00	0.10	0.00	1.55	0.00	0.94	0.00	0.25
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	20.5	0.0	0.0	0.0	5.9
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.3
Intersection Summary								
HCM Average Control Delay		89.4						
HCM Level of Service		F						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	55	55	40	65	10	40	625	15	10	1580	50
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	189	199	169	198	199	169	0	2652	1186	0	2652	1186
Proportion Arriving On Green	0.11	0.11	0.11	0.11	0.11	0.11	0.00	0.55	0.92	0.00	0.66	1.00
Movement Delay, s/veh	34.2	32.3	32.9	34.2	32.8	30.9	0.0	6.2	0.7	0.0	7.1	0.0
Movement LOS	C	C	C	C	C	C		A	A		A	A
Approach Volume, veh/h		152			125			696			1772	
Approach Delay, s/veh		33.0			33.1			6.0			6.9	
Approach LOS		C			C			A			A	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase		2		4		6		8
Case No		3.0		5.0		3.0		5.0
Phase Duration (G+Y+Rc), s		63.30		13.18		63.30		13.18
Change Period (Y+Rc), s		6.00		5.00		6.00		5.00
Max. Allowable Headway (MAH), s		5.03		4.49		5.03		4.49
Maximum Green Setting (Gmax), s		57.30		8.20		52.20		8.20
Max. Queue Clearance Time (g_c+I1), s		9.63		6.48		24.01		6.64
Green Extension Time (g_e), s		31.04		0.19		21.38		0.18
Probability of Phase Call (p_c)		1.000		0.997		1.000		0.997
Probability of Max Out (p_x)		0.476		1.000		0.668		1.000

Left-Turn Movement Data								
Assigned Movement				7				3
Mvmt. Sat Flow, veh/h				1324.40				1337.49

Through Movement Data								
Assigned Movement		2		4		6		8
Mvmt. Sat Flow, veh/h		3539.22		1862.75		3539.22		1862.75

Right-Turn Movement Data								
Assigned Movement		12		14		16		18
Mvmt. Sat Flow, veh/h		1583.33		1583.33		1583.33		1583.33

Left Lane Group Data								
Assigned Movement	0	0	0	7	0	0	0	3
Lane Assignment				L				L
Lanes in Group	0	0	0	1	0	0	0	1
Group Volume (v), veh/h	0.0	0.0	0.0	32.6	0.0	0.0	0.0	43.5
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	1324.4	0.0	0.0	0.0	1337.5
Queue Serve Time (g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.4
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	4.5	0.0	0.0	0.0	4.6

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	1324.4	0.0	0.0	0.0	1337.5
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	8.2	0.0	0.0	0.0	8.2
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	5.5	0.0	0.0	0.0	5.9
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	2.4
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	189.1	0.0	0.0	0.0	197.5
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.172	0.000	0.000	0.000	0.220
Available Capacity (c_a), veh/h	0.0	0.0	0.0	189.5	0.0	0.0	0.0	197.9
Upstream Filter Factor (I)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	33.8	0.0	0.0	0.0	33.6
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	34.2	0.0	0.0	0.0	34.2
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.8
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.8
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.13
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	1	0	2	0	1
Group Volume (v), veh/h	0.0	679.3	0.0	59.8	0.0	1717.4	0.0	70.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1862.7	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	7.6	0.0	2.3	0.0	22.0	0.0	2.7
Cycle Queue Clear Time (g_c), s	0.0	7.6	0.0	2.3	0.0	22.0	0.0	2.7
Lane Group Capacity (c), veh/h	0.0	2651.7	0.0	199.2	0.0	2651.7	0.0	199.2
Volume-to-Capacity Ratio (X)	0.000	0.256	0.000	0.300	0.000	0.648	0.000	0.355
Available Capacity (c_a), veh/h	0.0	2651.7	0.0	199.7	0.0	2651.7	0.0	199.7
Upstream Filter Factor (I)	0.000	0.777	0.000	1.000	0.000	0.090	0.000	1.000
Uniform Delay (d1), s/veh	0.0	6.0	0.0	31.5	0.0	7.0	0.0	31.7
Incremental Delay (d2), s/veh	0.0	0.2	0.0	0.8	0.0	0.1	0.0	1.1
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	6.2	0.0	32.3	0.0	7.1	0.0	32.8
First-Term Queue (Q1), veh/ln	0.0	1.6	0.0	1.0	0.0	6.7	0.0	1.2
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	1.7	0.0	1.0	0.0	6.7	0.0	1.2
Percentile Storage Ratio (RQ%)	0.00	0.03	0.00	0.03	0.00	0.13	0.00	0.03

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	16.3	0.0	59.8	0.0	54.3	0.0	10.9
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1583.3
Queue Serve Time (g_s), s	0.0	0.1	0.0	2.7	0.0	0.0	0.0	0.5
Cycle Queue Clear Time (g_c), s	0.0	0.1	0.0	2.7	0.0	0.0	0.0	0.5
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	1186.3	0.0	169.3	0.0	1186.3	0.0	169.3
Volume-to-Capacity Ratio (X)	0.000	0.014	0.000	0.353	0.000	0.046	0.000	0.064
Available Capacity (c_a), veh/h	0.0	1186.3	0.0	169.8	0.0	1186.3	0.0	169.8
Upstream Filter Factor (I)	0.000	0.777	0.000	1.000	0.000	0.090	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.7	0.0	31.7	0.0	0.0	0.0	30.7
Incremental Delay (d2), s/veh	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.7	0.0	32.9	0.0	0.0	0.0	30.9
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	1.0	0.0	0.0	0.0	0.2
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.02
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		9.3						
HCM Level of Service		A						

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	21.1	48.5	0.25	18.5	D
Proposed UDA Street	II	45	31.7	3.5	35.2	0.32	32.8	B
Courthouse Rd	II	35	31.0	113.5	144.5	0.26	6.5	F
Hope Rd	II	35	29.7	182.3	212.0	0.25	4.2	F
Total	II		119.8	320.4	440.2	1.08	8.8	F

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	219.2	238.2	0.15	2.3	F
Courthouse Rd	II	35	29.7	140.0	169.7	0.25	5.3	F
Proposed UDA Street	II	35	31.0	10.5	41.5	0.26	22.6	C
Route 630 Relocated	II	45	31.7	69.7	101.4	0.32	11.4	F
Total	II		111.4	439.4	550.8	0.98	6.4	F

Appendix G:

Year 2020 UDA Full Build-Out Traffic Analysis (Synchro HCM & SimTraffic)

Including Traffic Impact Mitigation Options

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	70	40	25	80	370	45	905	45	410	845	60
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	0	1	1	1	1	2	0	1	2	0
Lane Assignment												
Capacity, veh/h	208	130	74	175	201	633	137	1193	59	520	1907	135
Proportion Arriving On Green	0.03	0.12	0.12	0.02	0.11	0.11	0.07	0.20	0.20	0.19	0.40	0.40
Movement Delay, s/veh	36.3	0.0	43.1	37.2	40.9	24.9	43.2	43.6	43.7	45.9	18.3	18.3
Movement LOS	D		D	D	D	C	D	D	D	D	B	B
Approach Volume, veh/h		168			516			1082			1429	
Approach Delay, s/veh		41.1			28.2			43.6			27.0	
Approach LOS		D			C			D			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	4.0	1.1	4.0	2.0	4.0	1.1	3.0
Phase Duration (G+Y+Rc), s	32.70	38.04	6.73	17.04	12.30	58.44	7.60	16.18
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.77	5.13	3.77	4.40	3.77	5.13	3.77	4.40
Maximum Green Setting (Gmax), s	27.70	29.90	3.40	11.80	7.30	54.70	2.60	10.00
Max. Queue Clearance Time (g_c+I1), s	24.99	27.34	3.28	8.13	4.49	20.69	4.29	12.18
Green Extension Time (g_e), s	0.44	2.22	0.00	0.24	0.02	15.54	0.00	0.00
Probability of Phase Call (p_c)	1.000	1.000	0.510	1.000	1.000	1.000	0.994	1.000
Probability of Max Out (p_x)	1.000	1.000	1.000	1.000	1.000	0.427	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3519.02	1112.56	3437.48	1862.75

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	174.97	635.75	244.08	1578.60

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Pr/Pm)		L (Prot)		L (Pr/Pm)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	445.7	0.0	27.2	0.0	48.9	0.0	48.9	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	23.0	0.0	1.3	0.0	2.5	0.0	2.3	0.0
Cycle Queue Clear Time (g_c), s	23.0	0.0	1.3	0.0	2.5	0.0	2.3	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	1266.9	0.0	0.0	0.0	1305.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	10.2	0.0	0.0	0.0	11.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	4.9	0.0	0.0	0.0	6.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	519.9	0.0	174.6	0.0	137.0	0.0	208.5	0.0
Volume-to-Capacity Ratio (X)	0.857	0.000	0.156	0.000	0.357	0.000	0.235	0.000
Available Capacity (c_a), veh/h	519.9	0.0	205.9	0.0	137.0	0.0	208.5	0.0
Upstream Filter Factor (I)	0.671	0.000	1.000	0.000	0.939	0.000	1.000	0.000
Uniform Delay (d1), s/veh	36.5	0.0	36.8	0.0	41.8	0.0	35.7	0.0
Incremental Delay (d2), s/veh	9.4	0.0	0.4	0.0	1.5	0.0	0.6	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	45.9	0.0	37.2	0.0	43.2	0.0	36.3	0.0
First-Term Queue (Q1), veh/ln	10.3	0.0	0.5	0.0	1.1	0.0	1.0	0.0
Second-Term Queue (Q2), veh/ln	1.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	11.6	0.0	0.6	0.0	1.1	0.0	1.0	0.0
Percentile Storage Ratio (RQ%)	1.97	0.00	0.06	0.00	0.19	0.00	0.09	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Group	0	1	0	0	0	1	0	1
Group Volume (v), veh/h	0.0	520.7	0.0	0.0	0.0	497.7	0.0	87.0
Group Sat. Flow (s), veh/h/ln	0.0	1862.7	0.0	0.0	0.0	1862.7	0.0	1862.7
Queue Serve Time (g_s), s	0.0	25.3	0.0	0.0	0.0	18.7	0.0	4.1
Cycle Queue Clear Time (g_c), s	0.0	25.3	0.0	0.0	0.0	18.7	0.0	4.1
Lane Group Capacity (c), veh/h	0.0	631.4	0.0	0.0	0.0	1033.5	0.0	200.6
Volume-to-Capacity Ratio (X)	0.000	0.825	0.000	0.000	0.000	0.482	0.000	0.434
Available Capacity (c_a), veh/h	0.0	631.4	0.0	0.0	0.0	1078.0	0.0	200.6
Upstream Filter Factor (I)	0.000	0.939	0.000	0.000	0.000	0.671	0.000	1.000
Uniform Delay (d1), s/veh	0.0	35.3	0.0	0.0	0.0	18.1	0.0	39.5
Incremental Delay (d2), s/veh	0.0	8.3	0.0	0.0	0.0	0.2	0.0	1.5
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	43.6	0.0	0.0	0.0	18.3	0.0	40.9
First-Term Queue (Q1), veh/ln	0.0	12.0	0.0	0.0	0.0	8.3	0.0	1.9
Second-Term Queue (Q2), veh/ln	0.0	1.4	0.0	0.0	0.0	0.1	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	13.4	0.0	0.0	0.0	8.3	0.0	1.9
Percentile Storage Ratio (RQ%)	0.00	0.26	0.00	0.00	0.00	0.17	0.00	0.12

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	511.9	0.0	119.6	0.0	486.0	0.0	402.2
Group Sat. Flow (s), veh/h/ln	0.0	1831.3	0.0	1748.3	0.0	1818.8	0.0	1578.6
Queue Serve Time (g_s), s	0.0	25.3	0.0	6.1	0.0	18.7	0.0	10.2
Cycle Queue Clear Time (g_c), s	0.0	25.3	0.0	6.1	0.0	18.7	0.0	10.2
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1578.6
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.7
Proportion RT Outside Lane (P_R)	0.000	0.096	0.000	0.364	0.000	0.134	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	620.8	0.0	204.3	0.0	1009.1	0.0	632.6
Volume-to-Capacity Ratio (X)	0.000	0.825	0.000	0.585	0.000	0.482	0.000	0.636
Available Capacity (c_a), veh/h	0.0	620.8	0.0	218.3	0.0	1052.6	0.0	632.6
Upstream Filter Factor (I)	0.000	0.939	0.000	1.000	0.000	0.671	0.000	1.000
Uniform Delay (d1), s/veh	0.0	35.3	0.0	39.6	0.0	18.1	0.0	22.8
Incremental Delay (d2), s/veh	0.0	8.4	0.0	3.6	0.0	0.2	0.0	2.1
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	43.7	0.0	43.1	0.0	18.3	0.0	24.9
First-Term Queue (Q1), veh/ln	0.0	11.8	0.0	2.6	0.0	8.1	0.0	6.8
Second-Term Queue (Q2), veh/ln	0.0	1.4	0.0	0.2	0.0	0.1	0.0	0.4
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	13.2	0.0	2.8	0.0	8.1	0.0	7.2
Percentile Storage Ratio (RQ%)	0.00	0.26	0.00	0.04	0.00	0.17	0.00	0.46
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	33.6
HCM Level of Service	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	20	190	305	20	255	55	1205	60	120	820	10
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Lane Assignment												
Capacity, veh/h	308	29	274	389	27	347	0	1607	80	0	1677	20
Proportion Arriving On Green	0.09	0.19	0.19	0.13	0.23	0.23	0.00	0.17	0.17	0.00	0.46	0.46
Movement Delay, s/veh	23.0	0.0	41.7	39.3	0.0	40.8	0.0	34.0	34.2	0.0	16.6	16.6
Movement LOS	C		D	D		D		C	C		B	B
Approach Volume, veh/h		283			630			1375			902	
Approach Delay, s/veh		38.1			40.0			34.1			16.6	
Approach LOS		D			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase		2	3	4		6	7	8
Case No		4.0	1.1	4.0		4.0	1.1	4.0
Phase Duration (G+Y+Rc), s		43.36	17.00	21.46		43.36	13.30	25.16
Change Period (Y+Rc), s		6.00	6.00	6.00		6.00	6.00	6.00
Max. Allowable Headway (MAH), s		5.13	3.81	5.50		5.13	3.77	5.50
Maximum Green Setting (Gmax), s		37.40	11.00	9.10		37.30	7.30	19.60
Max. Queue Clearance Time (g_c+I1), s		31.36	13.00	13.03		16.25	3.87	16.44
Green Extension Time (g_e), s		5.21	0.00	0.00		15.20	0.02	0.59
Probability of Phase Call (p_c)		1.000	1.000	1.000		1.000	1.000	1.000
Probability of Max Out (p_x)		0.982	1.000	1.000		0.730	1.000	1.000

Left-Turn Movement Data				
Assigned Movement		3		7
Mvmt. Sat Flow, veh/h		1774.04		1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3519.04	152.56	3672.64	116.10

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	174.95	1449.31	44.79	1480.21

Left Lane Group Data								
Assigned Movement	0	0	3	0	0	0	7	0
Lane Assignment			L (Pr/Pm)				L (Pr/Pm)	
Lanes in Group	0	0	1	0	0	0	1	0
Group Volume (v), veh/h	0.0	0.0	331.5	0.0	0.0	0.0	54.3	0.0
Group Sat. Flow (s), veh/h/ln	0.0	0.0	1774.0	0.0	0.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	0.0	0.0	11.0	0.0	0.0	0.0	1.9	0.0
Cycle Queue Clear Time (g_c), s	0.0	0.0	11.0	0.0	0.0	0.0	1.9	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	1147.7	0.0	0.0	0.0	1075.9	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	19.2	0.0	0.0	0.0	15.5	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	4.4	0.0	0.0	0.0	4.7	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	4.4	0.0	0.0	0.0	0.6	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	0.000	1.000	0.000	0.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	0.0	0.0	388.6	0.0	0.0	0.0	308.4	0.0
Volume-to-Capacity Ratio (X)	0.000	0.000	0.853	0.000	0.000	0.000	0.176	0.000
Available Capacity (c_a), veh/h	0.0	0.0	388.6	0.0	0.0	0.0	308.4	0.0
Upstream Filter Factor (I)	0.000	0.000	1.000	0.000	0.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	0.0	0.0	22.8	0.0	0.0	0.0	22.7	0.0
Incremental Delay (d2), s/veh	0.0	0.0	16.5	0.0	0.0	0.0	0.3	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	39.3	0.0	0.0	0.0	23.0	0.0
First-Term Queue (Q1), veh/ln	0.0	0.0	4.7	0.0	0.0	0.0	0.7	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	1.8	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	0.000	1.000	0.000	0.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	6.5	0.0	0.0	0.0	0.8	0.0
Percentile Storage Ratio (RQ%)	0.00	0.00	0.39	0.00	0.00	0.00	0.39	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Group	0	1	0	0	0	1	0	0
Group Volume (v), veh/h	0.0	692.4	0.0	0.0	0.0	452.1	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1862.7	0.0	0.0	0.0	1862.7	0.0	0.0
Queue Serve Time (g_s), s	0.0	29.3	0.0	0.0	0.0	14.2	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	29.3	0.0	0.0	0.0	14.2	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	850.6	0.0	0.0	0.0	850.6	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.814	0.000	0.000	0.000	0.531	0.000	0.000
Available Capacity (c_a), veh/h	0.0	851.5	0.0	0.0	0.0	850.6	0.0	0.0
Upstream Filter Factor (I)	0.000	0.573	0.000	0.000	0.000	1.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	30.4	0.0	0.0	0.0	15.9	0.0	0.0
Incremental Delay (d2), s/veh	0.0	3.6	0.0	0.0	0.0	0.6	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.0	0.0	0.0	0.0	16.6	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	14.2	0.0	0.0	0.0	5.5	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.8	0.0	0.0	0.0	0.2	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	15.0	0.0	0.0	0.0	5.7	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.31	0.00	0.00	0.00	0.19	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	682.6	0.0	228.3	0.0	450.1	0.0	298.9
Group Sat. Flow (s), veh/h/ln	0.0	1831.3	0.0	1601.9	0.0	1854.7	0.0	1596.3
Queue Serve Time (g_s), s	0.0	29.4	0.0	11.0	0.0	14.2	0.0	14.4
Cycle Queue Clear Time (g_c), s	0.0	29.4	0.0	11.0	0.0	14.2	0.0	14.4
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.096	0.000	0.905	0.000	0.024	0.000	0.927
Lane Group Capacity (c), veh/h	0.0	836.2	0.0	302.6	0.0	846.9	0.0	373.8
Volume-to-Capacity Ratio (X)	0.000	0.816	0.000	0.754	0.000	0.531	0.000	0.800
Available Capacity (c_a), veh/h	0.0	837.1	0.0	302.6	0.0	846.9	0.0	382.4
Upstream Filter Factor (I)	0.000	0.573	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	30.5	0.0	31.4	0.0	15.9	0.0	29.5
Incremental Delay (d2), s/veh	0.0	3.7	0.0	10.3	0.0	0.6	0.0	11.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	34.2	0.0	41.7	0.0	16.6	0.0	40.8
First-Term Queue (Q1), veh/ln	0.0	14.0	0.0	4.1	0.0	5.5	0.0	5.3
Second-Term Queue (Q2), veh/ln	0.0	0.9	0.0	0.9	0.0	0.2	0.0	1.2
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	14.9	0.0	4.9	0.0	5.6	0.0	6.5
Percentile Storage Ratio (RQ%)	0.00	0.31	0.00	0.20	0.00	0.19	0.00	0.22
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	30.7
HCM Level of Service	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	205	315	0	45	365	60	230	760	205	100	480	320
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Lane Assignment												
Capacity, veh/h	375	839	382	148	605	270	405	1464	653	243	1297	579
Proportion Arriving On Green	0.11	0.24	0.00	0.04	0.17	0.17	0.12	0.41	0.41	0.08	0.21	0.31
Movement Delay, s/veh	42.1	30.4	0.0	44.7	38.7	33.9	42.0	22.5	20.1	42.3	29.0	30.8
Movement LOS	D	C		D	D	C	D	C	C	D	C	C
Approach Volume, veh/h		565			511			1299			978	
Approach Delay, s/veh		35.0			38.6			25.8			31.1	
Approach LOS		C			D			C			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration (G+Y+Rc), s	11.58	44.60	9.00	28.11	15.98	40.20	15.17	21.94
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.62	3.77	4.98	3.70	4.62	3.73	4.98
Maximum Green Setting (Gmax), s	7.00	38.60	4.00	24.20	11.00	32.50	10.20	14.40
Max. Queue Clearance Time (g_c+I1), s	4.81	18.65	3.29	9.62	8.45	19.44	7.75	11.77
Green Extension Time (g_e), s	0.05	10.81	0.00	2.15	0.20	8.23	0.17	1.24
Probability of Phase Call (p_c)	0.940	1.000	1.000	1.000	0.998	1.000	0.997	1.000
Probability of Max Out (p_x)	1.000	0.436	1.000	0.167	1.000	0.633	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	3441.64	3441.64	3441.64	3441.64

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	3539.22

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1578.60	1610.17	1578.60	1578.60

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	2	0	2	0	2	0	2	0
Group Volume (v), veh/h	108.7	0.0	48.9	0.0	250.0	0.0	222.8	0.0
Group Sat. Flow (s), veh/h/ln	1720.8	0.0	1720.8	0.0	1720.8	0.0	1720.8	0.0
Queue Serve Time (g_s), s	2.8	0.0	1.3	0.0	6.4	0.0	5.8	0.0
Cycle Queue Clear Time (g_c), s	2.8	0.0	1.3	0.0	6.4	0.0	5.8	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	242.8	0.0	147.6	0.0	405.2	0.0	375.1	0.0
Volume-to-Capacity Ratio (X)	0.448	0.000	0.331	0.000	0.617	0.000	0.594	0.000
Available Capacity (c_a), veh/h	258.2	0.0	147.6	0.0	405.8	0.0	376.3	0.0
Upstream Filter Factor (I)	0.950	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	41.1	0.0	43.3	0.0	39.2	0.0	39.6	0.0
Incremental Delay (d2), s/veh	1.2	0.0	1.3	0.0	2.8	0.0	2.5	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	42.3	0.0	44.7	0.0	42.0	0.0	42.1	0.0
First-Term Queue (Q1), veh/ln	1.1	0.0	0.5	0.0	2.6	0.0	2.4	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	1.2	0.0	0.6	0.0	2.8	0.0	2.5	0.0
Percentile Storage Ratio (RQ%)	0.20	0.00	0.06	0.00	0.16	0.00	0.21	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	2
Group Volume (v), veh/h	0.0	826.1	0.0	342.4	0.0	521.7	0.0	396.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1769.6
Queue Serve Time (g_s), s	0.0	16.7	0.0	7.6	0.0	11.9	0.0	9.8
Cycle Queue Clear Time (g_c), s	0.0	16.7	0.0	7.6	0.0	11.9	0.0	9.8
Lane Group Capacity (c), veh/h	0.0	1464.3	0.0	838.9	0.0	1297.4	0.0	604.9
Volume-to-Capacity Ratio (X)	0.000	0.564	0.000	0.408	0.000	0.402	0.000	0.656
Available Capacity (c_a), veh/h	0.0	1464.3	0.0	918.1	0.0	1297.4	0.0	604.9
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.950	0.000	1.000
Uniform Delay (d1), s/veh	0.0	20.9	0.0	30.1	0.0	28.1	0.0	36.1
Incremental Delay (d2), s/veh	0.0	1.6	0.0	0.3	0.0	0.9	0.0	2.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	22.5	0.0	30.4	0.0	29.0	0.0	38.7
First-Term Queue (Q1), veh/ln	0.0	6.3	0.0	3.1	0.0	5.1	0.0	4.1
Second-Term Queue (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.2
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	6.6	0.0	3.2	0.0	5.3	0.0	4.3
Percentile Storage Ratio (RQ%)	0.00	0.19	0.00	0.05	0.00	0.09	0.00	0.08

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	222.8	0.0	0.0	0.0	347.8	0.0	65.2
Group Sat. Flow (s), veh/h/ln	0.0	1578.6	0.0	1610.2	0.0	1578.6	0.0	1578.6
Queue Serve Time (g_s), s	0.0	9.0	0.0	0.0	0.0	17.4	0.0	3.3
Cycle Queue Clear Time (g_c), s	0.0	9.0	0.0	0.0	0.0	17.4	0.0	3.3
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	653.1	0.0	381.6	0.0	578.7	0.0	269.8
Volume-to-Capacity Ratio (X)	0.000	0.341	0.000	0.000	0.000	0.601	0.000	0.242
Available Capacity (c_a), veh/h	0.0	653.1	0.0	417.7	0.0	578.7	0.0	269.8
Upstream Filter Factor (I)	0.000	1.000	0.000	0.000	0.000	0.950	0.000	1.000
Uniform Delay (d1), s/veh	0.0	18.7	0.0	0.0	0.0	26.4	0.0	33.4
Incremental Delay (d2), s/veh	0.0	1.4	0.0	0.0	0.0	4.3	0.0	0.5
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	20.1	0.0	0.0	0.0	30.8	0.0	33.9
First-Term Queue (Q1), veh/ln	0.0	3.1	0.0	0.0	0.0	6.5	0.0	1.3
Second-Term Queue (Q2), veh/ln	0.0	0.3	0.0	0.0	0.0	0.7	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	3.4	0.0	0.0	0.0	7.2	0.0	1.3
Percentile Storage Ratio (RQ%)	0.00	0.57	0.00	0.00	0.00	0.61	0.00	0.16
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intersection Summary								
HCM Average Control Delay		30.9						
HCM Level of Service		C						

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	60	25	10	65	10	25	960	40	10	865	35
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	155	176	149	159	176	149	0	2578	1150	316	2787	1243
Proportion Arriving On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.00	0.08	0.01	0.00	0.39	0.18
Movement Delay, s/veh	42.6	40.8	39.4	41.4	41.1	38.6	0.0	23.8	13.7	15.4	11.5	8.8
Movement LOS	D	D	D	D	D	D		C	B	B	B	A
Approach Volume, veh/h		120			92			1087			989	
Approach Delay, s/veh		40.9			40.8			23.4			11.4	
Approach LOS		D			D			C			B	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2		4		6		8
Case No	1.3	3.0		5.0		3.0		5.0
Phase Duration (G+Y+Rc), s	5.49	73.68		13.76		79.17		13.76
Change Period (Y+Rc), s	5.00	6.00		5.00		6.00		5.00
Max. Allowable Headway (MAH), s	3.77	4.97		4.70		4.97		4.70
Maximum Green Setting (Gmax), s	1.00	71.40		8.80		69.00		8.80
Max. Queue Clearance Time (g_c+I1), s	2.00	28.12		7.15		19.42		5.77
Green Extension Time (g_e), s	0.00	17.65		0.14		22.66		0.24
Probability of Phase Call (p_c)	0.245	1.000		0.996		1.000		0.996
Probability of Max Out (p_x)	1.000	0.268		1.000		0.216		1.000

Left-Turn Movement Data				
Assigned Movement	1		7		3
Mvmt. Sat Flow, veh/h	1774.04		1324.40		1330.93

Through Movement Data				
Assigned Movement		2		4		6		8
Mvmt. Sat Flow, veh/h		3539.22		1862.75		3539.22		1862.75

Right-Turn Movement Data				
Assigned Movement		12		14		16		18
Mvmt. Sat Flow, veh/h		1578.60		1578.60		1578.60		1578.60

Left Lane Group Data								
Assigned Movement	1	0	0	7	0	0	0	3
Lane Assignment	L (Pr/Pm)			L				L
Lanes in Group	1	0	0	1	0	0	0	1
Group Volume (v), veh/h	10.9	0.0	0.0	27.2	0.0	0.0	0.0	10.9
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	0.0	1324.4	0.0	0.0	0.0	1330.9
Queue Serve Time (g_s), s	0.0	0.0	0.0	1.8	0.0	0.0	0.0	0.7
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	5.2	0.0	0.0	0.0	3.8

Perm LT Sat Flow Rate (s_l), veh/h/ln	538.5	0.0	0.0	1324.4	0.0	0.0	0.0	1330.9
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	65.7	0.0	0.0	8.8	0.0	0.0	0.0	8.8
Perm LT Serve Time (g_u), s	39.6	0.0	0.0	5.4	0.0	0.0	0.0	5.7
Perm LT Que Serve Time (g_ps), s	1.1	0.0	0.0	1.8	0.0	0.0	0.0	0.7
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Lane Group Capacity (c), veh/h	316.1	0.0	0.0	155.1	0.0	0.0	0.0	159.2
Volume-to-Capacity Ratio (X)	0.034	0.000	0.000	0.175	0.000	0.000	0.000	0.068
Available Capacity (c_a), veh/h	325.8	0.0	0.0	155.6	0.0	0.0	0.0	159.8
Upstream Filter Factor (I)	0.892	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Uniform Delay (d1), s/veh	15.4	0.0	0.0	42.0	0.0	0.0	0.0	41.3
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	15.4	0.0	0.0	42.6	0.0	0.0	0.0	41.4
First-Term Queue (Q1), veh/ln	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	0.000	1.000	0.000	0.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.2
Percentile Storage Ratio (RQ%)	0.01	0.00	0.00	0.11	0.00	0.00	0.00	0.04
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	1	0	2	0	1
Group Volume (v), veh/h	0.0	1043.5	0.0	65.2	0.0	940.2	0.0	70.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1862.7	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	26.1	0.0	3.1	0.0	17.4	0.0	3.3
Cycle Queue Clear Time (g_c), s	0.0	26.1	0.0	3.1	0.0	17.4	0.0	3.3
Lane Group Capacity (c), veh/h	0.0	2577.5	0.0	175.6	0.0	2786.6	0.0	175.6
Volume-to-Capacity Ratio (X)	0.000	0.405	0.000	0.371	0.000	0.337	0.000	0.402
Available Capacity (c_a), veh/h	0.0	2719.2	0.0	176.4	0.0	2786.6	0.0	176.4
Upstream Filter Factor (I)	0.000	0.833	0.000	1.000	0.000	0.892	0.000	1.000
Uniform Delay (d1), s/veh	0.0	23.7	0.0	39.5	0.0	11.4	0.0	39.6
Incremental Delay (d2), s/veh	0.0	0.1	0.0	1.3	0.0	0.1	0.0	1.5
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	23.8	0.0	40.8	0.0	11.5	0.0	41.1
First-Term Queue (Q1), veh/ln	0.0	12.6	0.0	1.4	0.0	7.7	0.0	1.5
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	12.7	0.0	1.4	0.0	7.8	0.0	1.6
Percentile Storage Ratio (RQ%)	0.00	0.21	0.00	0.04	0.00	0.15	0.00	0.04

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	43.5	0.0	27.2	0.0	38.0	0.0	10.9
Group Sat. Flow (s), veh/h/ln	0.0	1578.6	0.0	1578.6	0.0	1578.6	0.0	1578.6
Queue Serve Time (g_s), s	0.0	2.5	0.0	1.5	0.0	1.8	0.0	0.6
Cycle Queue Clear Time (g_c), s	0.0	2.5	0.0	1.5	0.0	1.8	0.0	0.6
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	1149.7	0.0	148.9	0.0	1242.9	0.0	148.9
Volume-to-Capacity Ratio (X)	0.000	0.038	0.000	0.183	0.000	0.031	0.000	0.073
Available Capacity (c_a), veh/h	0.0	1212.8	0.0	149.5	0.0	1242.9	0.0	149.5
Upstream Filter Factor (I)	0.000	0.833	0.000	1.000	0.000	0.892	0.000	1.000
Uniform Delay (d1), s/veh	0.0	13.7	0.0	38.8	0.0	8.8	0.0	38.4
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	13.7	0.0	39.4	0.0	8.8	0.0	38.6
First-Term Queue (Q1), veh/ln	0.0	0.6	0.0	0.6	0.0	0.4	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.6	0.0	0.6	0.0	0.4	0.0	0.2
Percentile Storage Ratio (RQ%)	0.00	0.06	0.00	0.07	0.00	0.04	0.00	0.03
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	19.8
HCM Level of Service	B

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	22.3	49.7	0.25	18.1	D
Proposed UDA Street	II	45	31.6	0.8	32.4	0.32	35.5	A
Courthouse Rd	II	35	31.0	30.9	61.9	0.26	15.1	E
Hope Rd	II	35	29.7	23.6	53.3	0.25	16.8	E
Total	II		119.7	77.6	197.3	1.08	19.7	D

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	24.8	43.8	0.15	12.5	F
Courthouse Rd	II	35	29.7	10.9	40.6	0.25	22.1	C
Proposed UDA Street	II	35	31.0	3.3	34.3	0.26	27.3	C
Route 630 Relocated	II	45	31.6	15.5	47.1	0.32	24.4	C
Total	II		111.3	54.5	165.8	0.98	21.3	D

1: Route 1 & Courthouse Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.5	2.4	13.7	7.7	25.3
Total Del/Veh (s)	34.9	17.9	47.6	21.1	30.5
Speed Delay (hr)	1.5	2.4	13.7	7.7	25.3
Speed Del/Veh (s)	33.8	17.9	47.6	21.1	30.4
Stop Delay (hr)	1.3	2.0	10.6	5.0	19.0
Stop Del/Veh (s)	30.1	15.2	37.0	13.6	22.8
Enter Delay (hr)	0.0	0.0	0.0	0.0	0.0
Enter Del/Veh (s)	1.1	0.0	0.0	0.0	0.1
Total Stops	132	304	946	659	2041
Stop/Veh	0.85	0.63	0.91	0.50	0.68
Vehicles Entered	154	476	1014	1297	2941
Vehicles Exited	154	477	1016	1299	2946
Hourly Exit Rate	154	477	1016	1299	2946
Input Volume	155	475	996	1316	2942
% of Volume	99	100	102	99	100

4: Route 1 & Bells Hill Rd/Hope Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.9	5.3	16.2	7.5	31.0
Total Del/Veh (s)	27.5	32.9	42.8	28.5	35.4
Speed Delay (hr)	1.9	4.6	16.2	7.2	29.9
Speed Del/Veh (s)	26.3	28.8	42.8	27.1	34.2
Stop Delay (hr)	1.6	4.1	11.3	5.8	22.8
Stop Del/Veh (s)	22.9	25.4	29.8	21.8	26.0
Enter Delay (hr)	0.1	0.6	0.0	0.4	1.1
Enter Del/Veh (s)	1.2	4.1	0.0	1.4	1.3
Total Stops	235	497	1170	618	2520
Stop/Veh	0.92	0.86	0.86	0.65	0.80
Vehicles Entered	253	569	1345	940	3107
Vehicles Exited	254	571	1343	940	3108
Hourly Exit Rate	254	571	1343	940	3108
Input Volume	260	580	1320	950	3110
% of Volume	98	98	102	99	100

8: Route 1 & Route 630 Relocated/Hospital Center Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	4.9	4.5	6.8	4.8	21.0
Total Del/Veh (s)	32.2	33.8	20.3	19.5	24.2
Speed Delay (hr)	4.7	4.3	6.8	4.8	20.6
Speed Del/Veh (s)	30.4	32.5	20.3	19.5	23.7
Stop Delay (hr)	4.0	3.6	5.0	3.2	15.9
Stop Del/Veh (s)	25.9	27.5	15.1	13.1	18.3
Enter Delay (hr)	0.3	0.2	0.0	0.0	0.4
Enter Del/Veh (s)	1.8	1.2	0.0	0.0	0.5
Total Stops	404	390	713	475	1982
Stop/Veh	0.73	0.82	0.59	0.53	0.63
Vehicles Entered	543	473	1188	873	3077
Vehicles Exited	541	472	1191	878	3082
Hourly Exit Rate	541	472	1191	878	3082
Input Volume	520	470	1195	900	3085
% of Volume	104	100	100	98	100

12: Route 1 & Proposed UDA Street Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.1	0.7	2.2	1.4	5.4
Total Del/Veh (s)	32.5	30.8	7.4	5.8	9.0
Speed Delay (hr)	1.0	0.7	2.2	1.4	5.3
Speed Del/Veh (s)	30.3	29.8	7.4	5.8	8.9
Stop Delay (hr)	0.9	0.6	0.4	0.5	2.4
Stop Del/Veh (s)	27.2	25.8	1.4	1.9	4.0
Enter Delay (hr)	0.1	0.0	0.0	0.0	0.1
Enter Del/Veh (s)	2.2	1.0	0.0	0.0	0.2
Total Stops	95	68	138	151	452
Stop/Veh	0.81	0.80	0.13	0.17	0.21
Vehicles Entered	117	84	1039	884	2124
Vehicles Exited	116	85	1037	882	2120
Hourly Exit Rate	116	85	1037	882	2120
Input Volume	109	86	1025	911	2131
% of Volume	106	99	101	97	99

Total Network Performance

Total Delay (hr)	86.5
Total Del/Veh (s)	62.2
Speed Delay (hr)	84.7
Speed Del/Veh (s)	60.9
Stop Delay (hr)	60.3
Stop Del/Veh (s)	43.3
Enter Delay (hr)	1.8
Enter Del/Veh (s)	1.4
Total Stops	6996
Stop/Veh	1.40
Vehicles Entered	4798
Vehicles Exited	4812
Hourly Exit Rate	4812
Input Volume	18788
% of Volume	26

Intersection: 1: Route 1 & Courthouse Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	89	144	59	135	251	197	579	598	223	571	432
Average Queue (ft)	34	64	21	55	116	42	276	300	183	192	137
95th Queue (ft)	74	119	51	106	210	111	525	552	258	468	316
Link Distance (ft)		1694		395	395		1290	1290		1230	1230
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300		250			150			150		
Storage Blk Time (%)							35		23	0	
Queuing Penalty (veh)							16		98	1	

Intersection: 4: Route 1 & Bells Hill Rd/Hope Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	107	210	325	308	277	857	867	209	281	273
Average Queue (ft)	36	96	164	122	39	331	361	100	141	136
95th Queue (ft)	83	176	281	230	118	709	749	202	252	245
Link Distance (ft)		635		767		1230	1230		752	752
Upstream Blk Time (%)						0	0			
Queuing Penalty (veh)						0	0			
Storage Bay Dist (ft)	50		425		250			250		
Storage Blk Time (%)	6	33	0			17		2	1	
Queuing Penalty (veh)	13	17	0			9		6	1	

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	T
Maximum Queue (ft)	124	122	117	139	41	59	182	193	76	114	131	204
Average Queue (ft)	57	68	55	68	9	26	94	109	31	63	67	122
95th Queue (ft)	101	109	97	116	32	52	151	164	62	101	105	188
Link Distance (ft)			1753	1753			1298	1298				858
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300			240	240			200	450	450	
Storage Blk Time (%)								0				
Queuing Penalty (veh)								0				

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	214	194	75	72	178	197	177
Average Queue (ft)	137	50	30	36	71	88	57
95th Queue (ft)	198	119	62	65	142	160	122
Link Distance (ft)	858				1569	1569	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150	150	150			300
Storage Blk Time (%)	4				1		
Queuing Penalty (veh)	9				1		

Intersection: 9: Bend

Movement	SB
Directions Served	T
Maximum Queue (ft)	11
Average Queue (ft)	1
95th Queue (ft)	12
Link Distance (ft)	858
Upstream Blk Time (%)	
Queuing Penalty (veh)	
Storage Bay Dist (ft)	
Storage Blk Time (%)	
Queuing Penalty (veh)	

Intersection: 12: Route 1 & Proposed UDA Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	74	101	43	35	108	30	40	126	136	20	33	161
Average Queue (ft)	21	37	10	7	40	5	8	34	44	2	4	35
95th Queue (ft)	55	77	31	27	85	21	27	92	109	12	20	105
Link Distance (ft)		882			975			1569	1569			1290
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150		200	150		200	200			250	200	
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 12: Route 1 & Proposed UDA Street

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	196	34
Average Queue (ft)	60	4
95th Queue (ft)	145	20
Link Distance (ft)	1290	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Network Summary

Network wide Queuing Penalty: 171

Intersection: 1: Route 1 & Courthouse Rd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	22.0	26.0	4.0	16.0	6.0	42.0	4.0	16.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	None	C-Min	None	None
Avg. Green (s)	28.1	31.2	5.9	13.3	7.1	58.4	6.5	12.3
g/C Ratio	0.27	0.35	0.03	0.13	0.05	0.62	0.04	0.11
Cycles Skipped (%)	14	0	53	14	32	5	42	16
Cycles @ Minimum (%)	0	0	33	0	0	0	39	0
Cycles Maxed Out (%)	52	100	42	3	3	95	50	3
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 90.0
Number of Complete Cycles : 36

Intersection: 4: Route 1 & Bells Hill Rd/Hope Rd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Maximum Green (s)	4.0	30.0	16.0	16.0	4.0	30.0	16.0	16.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	None	C-Min	None	None
Avg. Green (s)	4.1	16.4	17.6	14.0	5.8	40.1	13.8	25.4
g/C Ratio	0.04	0.18	0.20	0.12	0.04	0.45	0.10	0.24
Cycles Skipped (%)	5	0	0	24	43	0	35	16
Cycles @ Minimum (%)	92	0	0	3	25	0	0	0
Cycles Maxed Out (%)	89	100	67	35	28	100	16	32
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 90.0
Number of Complete Cycles : 36

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Maximum Green (s)	7.0	34.0	4.0	23.0	12.0	29.0	11.0	16.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	7.0	37.3	4.3	25.3	10.9	32.2	10.1	15.5
g/C Ratio	0.07	0.41	0.03	0.28	0.12	0.36	0.11	0.17
Cycles Skipped (%)	8	0	39	0	0	0	0	0
Cycles @ Minimum (%)	0	0	58	0	0	0	0	0
Cycles Maxed Out (%)	34	100	61	51	30	100	54	51
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 90.0
Number of Complete Cycles : 36

Intersection: 12: Route 1 & Proposed UDA Street

Phase	1	2	4	5	6	8
Movement(s) Served	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	6.0	50.0	18.0	6.0	50.0	18.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	C-Min	None
Avg. Green (s)	16.8	40.4	10.6	5.5	58.1	10.6
g/C Ratio	0.01	0.45	0.12	0.01	0.65	0.12
Cycles Skipped (%)	97	0	0	92	0	0
Cycles @ Minimum (%)	0	0	0	0	0	0
Cycles Maxed Out (%)	0	100	0	0	100	0
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 90.0
Number of Complete Cycles : 36

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	60	110	130	70	215	50	565	50	335	1400	65
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	0	1	1	1	1	2	0	1	2	0
Lane Assignment												
Capacity, veh/h	307	82	149	212	266	652	114	1086	96	477	1860	86
Proportion Arriving On Green	0.05	0.14	0.14	0.06	0.14	0.14	0.05	0.16	0.16	0.13	0.18	0.18
Movement Delay, s/veh	35.4	0.0	61.3	45.9	40.4	9.8	50.5	38.4	38.5	43.9	39.2	39.5
Movement LOS	D		E	D	D	A	D	D	D	D	D	D
Approach Volume, veh/h		245			451			723			1957	
Approach Delay, s/veh		55.0			26.3			39.4			40.2	
Approach LOS		D			C			D			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	4.0	1.1	4.0	2.0	4.0	1.1	3.0
Phase Duration (G+Y+Rc), s	33.00	39.51	11.20	20.38	11.70	60.81	10.70	20.88
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.77	5.13	3.77	4.67	3.77	5.13	3.77	4.67
Maximum Green Setting (Gmax), s	28.00	31.90	6.20	11.40	6.70	55.40	5.70	15.50
Max. Queue Clearance Time (g_c+I1), s	22.63	19.57	8.20	13.15	5.09	45.29	4.93	5.80
Green Extension Time (g_e), s	0.56	10.02	0.00	0.00	0.01	7.85	0.01	1.03
Probability of Phase Call (p_c)	1.000	1.000	0.983	1.000	1.000	1.000	1.000	1.000
Probability of Max Out (p_x)	0.413	0.874	1.000	1.000	1.000	0.911	1.000	0.198

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3374.68	590.06	3533.14	1862.75

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	298.19	1081.78	163.50	1583.33

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Pr/Pm)		L (Prot)		L (Pr/Pm)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	364.1	0.0	141.3	0.0	54.3	0.0	59.8	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	20.6	0.0	6.2	0.0	3.1	0.0	2.9	0.0
Cycle Queue Clear Time (g_c), s	20.6	0.0	6.2	0.0	3.1	0.0	2.9	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	1194.0	0.0	0.0	0.0	1317.9	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	14.9	0.0	0.0	0.0	14.4	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	3.2	0.0	0.0	0.0	11.1	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	3.1	0.0	0.0	0.0	0.2	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	477.2	0.0	212.0	0.0	114.2	0.0	306.7	0.0
Volume-to-Capacity Ratio (X)	0.763	0.000	0.667	0.000	0.476	0.000	0.195	0.000
Available Capacity (c_a), veh/h	477.2	0.0	212.0	0.0	114.2	0.0	306.7	0.0
Upstream Filter Factor (I)	0.249	0.000	1.000	0.000	0.982	0.000	1.000	0.000
Uniform Delay (d1), s/veh	42.1	0.0	38.2	0.0	47.5	0.0	35.1	0.0
Incremental Delay (d2), s/veh	1.9	0.0	7.7	0.0	3.0	0.0	0.3	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	43.9	0.0	45.9	0.0	50.5	0.0	35.4	0.0
First-Term Queue (Q1), veh/ln	9.6	0.0	3.6	0.0	1.4	0.0	1.3	0.0
Second-Term Queue (Q2), veh/ln	0.2	0.0	0.5	0.0	0.1	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	9.8	0.0	4.0	0.0	1.5	0.0	1.3	0.0
Percentile Storage Ratio (RQ%)	1.66	0.00	0.41	0.00	0.25	0.00	0.11	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T				T		T
Lanes in Group	0	1	0	0	0	1	0	1
Group Volume (v), veh/h	0.0	338.6	0.0	0.0	0.0	799.9	0.0	76.1
Group Sat. Flow (s), veh/h/ln	0.0	1862.7	0.0	0.0	0.0	1862.7	0.0	1862.7
Queue Serve Time (g_s), s	0.0	17.5	0.0	0.0	0.0	43.0	0.0	3.8
Cycle Queue Clear Time (g_c), s	0.0	17.5	0.0	0.0	0.0	43.0	0.0	3.8
Lane Group Capacity (c), veh/h	0.0	599.7	0.0	0.0	0.0	980.8	0.0	266.3
Volume-to-Capacity Ratio (X)	0.000	0.565	0.000	0.000	0.000	0.816	0.000	0.286
Available Capacity (c_a), veh/h	0.0	599.7	0.0	0.0	0.0	991.4	0.0	277.4
Upstream Filter Factor (I)	0.000	0.982	0.000	0.000	0.000	0.249	0.000	1.000
Uniform Delay (d1), s/veh	0.0	37.2	0.0	0.0	0.0	37.9	0.0	39.9
Incremental Delay (d2), s/veh	0.0	1.2	0.0	0.0	0.0	1.4	0.0	0.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	38.4	0.0	0.0	0.0	39.2	0.0	40.4
First-Term Queue (Q1), veh/ln	0.0	8.5	0.0	0.0	0.0	21.2	0.0	1.7
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	8.7	0.0	0.0	0.0	21.6	0.0	1.8
Percentile Storage Ratio (RQ%)	0.00	0.17	0.00	0.00	0.00	0.45	0.00	0.11

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	329.9	0.0	184.8	0.0	792.5	0.0	233.7
Group Sat. Flow (s), veh/h/ln	0.0	1810.1	0.0	1671.8	0.0	1833.9	0.0	1583.3
Queue Serve Time (g_s), s	0.0	17.6	0.0	11.1	0.0	43.3	0.0	1.9
Cycle Queue Clear Time (g_c), s	0.0	17.6	0.0	11.1	0.0	43.3	0.0	1.9
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1583.3
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.0
Proportion RT Outside Lane (P_R)	0.000	0.165	0.000	0.647	0.000	0.089	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	582.7	0.0	231.0	0.0	965.6	0.0	652.3
Volume-to-Capacity Ratio (X)	0.000	0.566	0.000	0.800	0.000	0.821	0.000	0.358
Available Capacity (c_a), veh/h	0.0	582.7	0.0	231.0	0.0	976.0	0.0	661.7
Upstream Filter Factor (I)	0.000	0.982	0.000	1.000	0.000	0.249	0.000	1.000
Uniform Delay (d1), s/veh	0.0	37.2	0.0	43.5	0.0	38.0	0.0	9.4
Incremental Delay (d2), s/veh	0.0	1.3	0.0	17.8	0.0	1.5	0.0	0.3
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	38.5	0.0	61.3	0.0	39.5	0.0	9.8
First-Term Queue (Q1), veh/ln	0.0	8.3	0.0	4.5	0.0	21.1	0.0	2.2
Second-Term Queue (Q2), veh/ln	0.0	0.2	0.0	1.1	0.0	0.4	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	8.5	0.0	5.7	0.0	21.5	0.0	2.2
Percentile Storage Ratio (RQ%)	0.00	0.17	0.00	0.09	0.00	0.44	0.00	0.14
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	39.2
HCM Level of Service	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	55	130	155	25	240	100	540	195	370	1515	10
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Lane Assignment												
Capacity, veh/h	161	77	181	255	30	283	211	1098	396	440	1732	11
Proportion Arriving On Green	0.04	0.16	0.16	0.08	0.19	0.19	0.09	0.27	0.27	0.12	0.47	0.47
Movement Delay, s/veh	36.4	0.0	55.6	37.4	0.0	71.6	24.1	29.6	29.7	41.4	45.1	45.3
Movement LOS	D		E	D		E	C	C	C	D	D	D
Approach Volume, veh/h		255			457			908			2060	
Approach Delay, s/veh		51.5			59.0			29.0			44.5	
Approach LOS		D			E			C			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	1.1	4.0	1.1	4.0	1.1	4.0	1.1	4.0
Phase Duration (G+Y+Rc), s	17.40	48.86	14.00	21.90	12.40	53.86	10.00	25.90
Change Period (Y+Rc), s	5.00	6.00	6.00	6.00	5.00	6.00	6.00	6.00
Max. Allowable Headway (MAH), s	3.77	5.14	3.77	5.39	3.77	5.14	3.77	5.39
Maximum Green Setting (Gmax), s	12.40	35.00	8.00	11.30	7.40	48.70	4.00	19.90
Max. Queue Clearance Time (g_c+I1), s	13.70	21.67	9.79	13.91	5.38	45.66	4.60	19.98
Green Extension Time (g_e), s	0.00	11.26	0.00	0.00	0.04	1.99	0.00	0.00
Probability of Phase Call (p_c)	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Probability of Max Out (p_x)	1.000	0.892	1.000	1.000	1.000	1.000	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	1774.04	1774.04	1774.04	1774.04

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	2616.27	492.69	3696.80	151.52

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	942.84	1164.55	24.39	1454.55

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)		L (Pr/Pm)	
Lanes in Group	1	0	1	0	1	0	1	0
Group Volume (v), veh/h	402.2	0.0	168.5	0.0	108.7	0.0	54.3	0.0
Group Sat. Flow (s), veh/h/ln	1774.0	0.0	1774.0	0.0	1774.0	0.0	1774.0	0.0
Queue Serve Time (g_s), s	11.7	0.0	7.8	0.0	3.4	0.0	2.6	0.0
Cycle Queue Clear Time (g_c), s	11.7	0.0	7.8	0.0	3.4	0.0	2.6	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	677.6	0.0	1176.4	0.0	299.3	0.0	1086.7	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	49.9	0.0	19.9	0.0	42.9	0.0	15.9	0.0
Perm LT Serve Time (g_u), s	23.2	0.0	4.0	0.0	4.2	0.0	2.0	0.0
Perm LT Que Serve Time (g_ps), s	23.2	0.0	2.7	0.0	4.2	0.0	0.7	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	439.6	0.0	255.3	0.0	211.3	0.0	161.2	0.0
Volume-to-Capacity Ratio (X)	0.915	0.000	0.660	0.000	0.514	0.000	0.337	0.000
Available Capacity (c_a), veh/h	439.6	0.0	255.3	0.0	211.3	0.0	161.2	0.0
Upstream Filter Factor (I)	1.000	0.000	1.000	0.000	0.859	0.000	1.000	0.000
Uniform Delay (d1), s/veh	17.8	0.0	31.3	0.0	22.3	0.0	35.2	0.0
Incremental Delay (d2), s/veh	23.6	0.0	6.1	0.0	1.8	0.0	1.2	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	41.4	0.0	37.4	0.0	24.1	0.0	36.4	0.0
First-Term Queue (Q1), veh/ln	5.5	0.0	3.3	0.0	1.3	0.0	1.1	0.0
Second-Term Queue (Q2), veh/ln	2.9	0.0	0.4	0.0	0.1	0.0	0.1	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	8.4	0.0	3.7	0.0	1.4	0.0	1.2	0.0
Percentile Storage Ratio (RQ%)	0.85	0.00	0.22	0.00	0.14	0.00	0.59	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T				T		
Lanes in Group	0	1	0	0	0	1	0	0
Group Volume (v), veh/h	0.0	417.6	0.0	0.0	0.0	829.3	0.0	0.0
Group Sat. Flow (s), veh/h/ln	0.0	1862.7	0.0	0.0	0.0	1862.7	0.0	0.0
Queue Serve Time (g_s), s	0.0	19.6	0.0	0.0	0.0	43.6	0.0	0.0
Cycle Queue Clear Time (g_c), s	0.0	19.6	0.0	0.0	0.0	43.6	0.0	0.0
Lane Group Capacity (c), veh/h	0.0	781.5	0.0	0.0	0.0	872.7	0.0	0.0
Volume-to-Capacity Ratio (X)	0.000	0.534	0.000	0.000	0.000	0.950	0.000	0.000
Available Capacity (c_a), veh/h	0.0	781.5	0.0	0.0	0.0	888.0	0.0	0.0
Upstream Filter Factor (I)	0.000	0.859	0.000	0.000	0.000	1.000	0.000	0.000
Uniform Delay (d1), s/veh	0.0	29.0	0.0	0.0	0.0	26.0	0.0	0.0
Incremental Delay (d2), s/veh	0.0	0.6	0.0	0.0	0.0	19.1	0.0	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.6	0.0	0.0	0.0	45.1	0.0	0.0
First-Term Queue (Q1), veh/ln	0.0	9.2	0.0	0.0	0.0	17.9	0.0	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.0	0.0	4.6	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	9.3	0.0	0.0	0.0	22.5	0.0	0.0
Percentile Storage Ratio (RQ%)	0.00	0.19	0.00	0.00	0.00	0.76	0.00	0.00

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		T+R		T+R		T+R		T+R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	381.4	0.0	201.1	0.0	828.3	0.0	288.0
Group Sat. Flow (s), veh/h/ln	0.0	1696.4	0.0	1657.2	0.0	1858.4	0.0	1606.1
Queue Serve Time (g_s), s	0.0	19.7	0.0	11.9	0.0	43.7	0.0	18.0
Cycle Queue Clear Time (g_c), s	0.0	19.7	0.0	11.9	0.0	43.7	0.0	18.0
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	0.556	0.000	0.703	0.000	0.013	0.000	0.906
Lane Group Capacity (c), veh/h	0.0	711.7	0.0	257.9	0.0	870.7	0.0	312.8
Volume-to-Capacity Ratio (X)	0.000	0.536	0.000	0.780	0.000	0.951	0.000	0.921
Available Capacity (c_a), veh/h	0.0	711.7	0.0	257.9	0.0	885.9	0.0	312.8
Upstream Filter Factor (I)	0.000	0.859	0.000	1.000	0.000	1.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	29.0	0.0	41.4	0.0	26.0	0.0	40.4
Incremental Delay (d2), s/veh	0.0	0.7	0.0	14.1	0.0	19.3	0.0	31.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	29.7	0.0	55.6	0.0	45.3	0.0	71.6
First-Term Queue (Q1), veh/ln	0.0	8.4	0.0	4.8	0.0	17.9	0.0	6.9
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	1.0	0.0	4.7	0.0	2.7
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	8.5	0.0	5.8	0.0	22.6	0.0	9.6
Percentile Storage Ratio (RQ%)	0.00	0.18	0.00	0.23	0.00	0.76	0.00	0.32
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	42.9
HCM Level of Service	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	270	280	0	205	325	90	240	320	60	65	1285	325
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1900	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	2	2	1	2	2	1	2	2	1	2	2	1
Lane Assignment												
Capacity, veh/h	367	541	247	329	503	225	312	1728	773	158	1570	702
Proportion Arriving On Green	0.11	0.15	0.00	0.10	0.14	0.14	0.09	0.49	0.49	0.03	0.24	0.17
Movement Delay, s/veh	56.2	41.1	0.0	49.7	45.8	41.1	62.8	15.0	5.2	49.3	42.5	13.9
Movement LOS	E	D		D	D	D	E	B	A	D	D	B
Approach Volume, veh/h		598			674			674			1821	
Approach Delay, s/veh		48.5			46.4			32.6			37.2	
Approach LOS		D			D			C			D	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase	1	2	3	4	5	6	7	8
Case No	2.0	3.0	2.0	3.0	2.0	3.0	2.0	3.0
Phase Duration (G+Y+Rc), s	9.66	55.50	14.70	21.50	14.20	50.96	15.80	20.40
Change Period (Y+Rc), s	5.00	6.00	5.00	6.00	5.00	6.00	5.00	6.00
Max. Allowable Headway (MAH), s	3.70	4.72	3.77	4.93	3.70	4.72	3.73	4.93
Maximum Green Setting (Gmax), s	5.40	49.50	9.70	15.50	9.20	43.60	10.80	14.40
Max. Queue Clearance Time (g_c+I1), s	4.04	7.65	8.35	10.08	9.56	40.66	10.44	11.64
Green Extension Time (g_e), s	0.02	20.33	0.10	2.09	0.00	2.56	0.04	1.20
Probability of Phase Call (p_c)	0.863	1.000	1.000	1.000	0.999	1.000	1.000	1.000
Probability of Max Out (p_x)	1.000	0.273	1.000	0.904	1.000	1.000	1.000	1.000

Left-Turn Movement Data				
Assigned Movement	1	3	5	7
Mvmt. Sat Flow, veh/h	3441.64	3441.64	3441.64	3441.64

Through Movement Data				
Assigned Movement	2	4	6	8
Mvmt. Sat Flow, veh/h	3539.22	3539.22	3539.22	3539.22

Right-Turn Movement Data				
Assigned Movement	12	14	16	18
Mvmt. Sat Flow, veh/h	1583.33	1615.00	1583.33	1583.33

Left Lane Group Data								
Assigned Movement	1	0	3	0	5	0	7	0
Lane Assignment	L (Prot)		L (Prot)		L (Prot)		L (Prot)	
Lanes in Group	2	0	2	0	2	0	2	0
Group Volume (v), veh/h	70.7	0.0	222.8	0.0	260.9	0.0	293.5	0.0
Group Sat. Flow (s), veh/h/ln	1720.8	0.0	1720.8	0.0	1720.8	0.0	1720.8	0.0
Queue Serve Time (g_s), s	2.0	0.0	6.3	0.0	7.6	0.0	8.4	0.0
Cycle Queue Clear Time (g_c), s	2.0	0.0	6.3	0.0	7.6	0.0	8.4	0.0

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Lane Group Capacity (c), veh/h	158.3	0.0	329.4	0.0	312.4	0.0	366.6	0.0
Volume-to-Capacity Ratio (X)	0.446	0.000	0.677	0.000	0.835	0.000	0.801	0.000
Available Capacity (c_a), veh/h	183.4	0.0	329.4	0.0	312.4	0.0	366.7	0.0
Upstream Filter Factor (I)	0.773	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Uniform Delay (d1), s/veh	47.8	0.0	44.3	0.0	45.3	0.0	44.2	0.0
Incremental Delay (d2), s/veh	1.5	0.0	5.4	0.0	17.5	0.0	11.9	0.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	49.3	0.0	49.7	0.0	62.8	0.0	56.2	0.0
First-Term Queue (Q1), veh/ln	0.9	0.0	2.7	0.0	3.1	0.0	3.5	0.0
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.2	0.0	0.8	0.0	0.6	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Percentile Back of Queue (Q%), veh/ln	0.9	0.0	2.9	0.0	3.9	0.0	4.1	0.0
Percentile Storage Ratio (RQ%)	0.15	0.00	0.31	0.00	0.22	0.00	0.35	0.00
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	2	0	2	0	2
Group Volume (v), veh/h	0.0	347.8	0.0	304.3	0.0	1396.7	0.0	353.3
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1769.6	0.0	1769.6	0.0	1769.6
Queue Serve Time (g_s), s	0.0	5.7	0.0	8.1	0.0	38.7	0.0	9.6
Cycle Queue Clear Time (g_c), s	0.0	5.7	0.0	8.1	0.0	38.7	0.0	9.6
Lane Group Capacity (c), veh/h	0.0	1728.4	0.0	541.2	0.0	1569.9	0.0	502.8
Volume-to-Capacity Ratio (X)	0.000	0.201	0.000	0.562	0.000	0.890	0.000	0.703
Available Capacity (c_a), veh/h	0.0	1728.4	0.0	541.2	0.0	1569.9	0.0	502.8
Upstream Filter Factor (I)	0.000	1.000	0.000	1.000	0.000	0.773	0.000	1.000
Uniform Delay (d1), s/veh	0.0	14.7	0.0	39.8	0.0	36.2	0.0	41.4
Incremental Delay (d2), s/veh	0.0	0.3	0.0	1.3	0.0	6.3	0.0	4.4
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	15.0	0.0	41.1	0.0	42.5	0.0	45.8
First-Term Queue (Q1), veh/ln	0.0	2.1	0.0	3.4	0.0	17.3	0.0	4.1
Second-Term Queue (Q2), veh/ln	0.0	0.1	0.0	0.1	0.0	1.4	0.0	0.3
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	2.2	0.0	3.5	0.0	18.7	0.0	4.4
Percentile Storage Ratio (RQ%)	0.00	0.06	0.00	0.05	0.00	0.30	0.00	0.09

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	65.2	0.0	0.0	0.0	353.3	0.0	97.8
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1615.0	0.0	1583.3	0.0	1583.3
Queue Serve Time (g_s), s	0.0	1.3	0.0	0.0	0.0	12.6	0.0	5.7
Cycle Queue Clear Time (g_c), s	0.0	1.3	0.0	0.0	0.0	12.6	0.0	5.7
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	773.2	0.0	246.9	0.0	702.3	0.0	225.0
Volume-to-Capacity Ratio (X)	0.000	0.084	0.000	0.000	0.000	0.503	0.000	0.435
Available Capacity (c_a), veh/h	0.0	773.2	0.0	247.0	0.0	702.3	0.0	225.0
Upstream Filter Factor (I)	0.000	1.000	0.000	0.000	0.000	0.773	0.000	1.000
Uniform Delay (d1), s/veh	0.0	5.0	0.0	0.0	0.0	11.9	0.0	39.8
Incremental Delay (d2), s/veh	0.0	0.2	0.0	0.0	0.0	2.0	0.0	1.3
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	5.2	0.0	0.0	0.0	13.9	0.0	41.1
First-Term Queue (Q1), veh/ln	0.0	0.4	0.0	0.0	0.0	5.0	0.0	2.3
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.4	0.0	0.0	0.0	5.4	0.0	2.4
Percentile Storage Ratio (RQ%)	0.00	0.07	0.00	0.00	0.00	0.46	0.00	0.31
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	39.8
HCM Level of Service	D

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	55	55	40	65	10	40	625	15	10	1580	50
Movement Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Queue, veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj. Factor (A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking, Bus Adj. Factors	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Sat. Flow Rate, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863	1863
Lanes	1	1	1	1	1	1	1	2	1	1	2	1
Lane Assignment												
Capacity, veh/h	144	169	144	153	169	144	175	2937	1314	0	2786	1246
Proportion Arriving On Green	0.09	0.09	0.09	0.09	0.09	0.09	0.00	0.38	0.08	0.00	0.29	0.04
Movement Delay, s/veh	46.9	44.3	45.2	47.0	44.9	42.2	25.7	9.4	8.3	0.0	22.7	12.0
Movement LOS	D	D	D	D	D	D	C	A	A		C	B
Approach Volume, veh/h		152			125			739			1772	
Approach Delay, s/veh		45.2			45.4			10.4			22.3	
Approach LOS		D			D			B			C	

Timer:	1	2	3	4	5	6	7	8
Assigned Phase		2		4	5	6		8
Case No		3.0		5.0	1.3	3.0		5.0
Phase Duration (G+Y+Rc), s		87.60		13.14	4.30	83.30		13.14
Change Period (Y+Rc), s		4.00		4.00	4.00	4.00		4.00
Max. Allowable Headway (MAH), s		5.03		4.49	3.70	5.03		4.49
Maximum Green Setting (Gmax), s		83.60		9.10	0.30	79.30		9.20
Max. Queue Clearance Time (g_c+I1), s		15.16		8.01	2.00	44.16		8.22
Green Extension Time (g_e), s		38.27		0.13	0.00	25.21		0.06
Probability of Phase Call (p_c)		1.000		1.000	0.704	1.000		1.000
Probability of Max Out (p_x)		0.332		1.000	1.000	0.592		1.000

Left-Turn Movement Data								
Assigned Movement				7	5			3
Mvmt. Sat Flow, veh/h				1324.40	1774.04			1337.49

Through Movement Data								
Assigned Movement		2		4		6		8
Mvmt. Sat Flow, veh/h		3539.22		1862.75		3539.22		1862.75

Right-Turn Movement Data								
Assigned Movement		12		14		16		18
Mvmt. Sat Flow, veh/h		1583.33		1583.33		1583.33		1583.33

Left Lane Group Data								
Assigned Movement	0	0	0	7	5	0	0	3
Lane Assignment				LL (Pr/Pm)				L
Lanes in Group	0	0	0	1	1	0	0	1
Group Volume (v), veh/h	0.0	0.0	0.0	32.6	43.5	0.0	0.0	43.5
Group Sat. Flow (s), veh/h/ln	0.0	0.0	0.0	1324.4	1774.0	0.0	0.0	1337.5
Queue Serve Time (g_s), s	0.0	0.0	0.0	2.4	0.0	0.0	0.0	3.2
Cycle Queue Clear Time (g_c), s	0.0	0.0	0.0	6.0	0.0	0.0	0.0	6.2

Perm LT Sat Flow Rate (s_l), veh/h/ln	0.0	0.0	0.0	1324.4	282.5	0.0	0.0	1337.5
Shared LT Sat Flow (s_sh), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Perm LT Eff. Green (g_p), s	0.0	0.0	0.0	9.1	77.3	0.0	0.0	9.1
Perm LT Serve Time (g_u), s	0.0	0.0	0.0	5.5	35.1	0.0	0.0	6.1
Perm LT Que Serve Time (g_ps), s	0.0	0.0	0.0	2.4	11.9	0.0	0.0	3.2
Time to First Blk (g_f), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Serve Time pre Blk (g_fs), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion LT Inside Lane (P_L)	0.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	0.0	0.0	144.2	175.3	0.0	0.0	152.5
Volume-to-Capacity Ratio (X)	0.000	0.000	0.000	0.226	0.248	0.000	0.000	0.285
Available Capacity (c_a), veh/h	0.0	0.0	0.0	144.2	175.3	0.0	0.0	153.3
Upstream Filter Factor (I)	0.000	0.000	0.000	1.000	0.894	0.000	0.000	1.000
Uniform Delay (d1), s/veh	0.0	0.0	0.0	46.1	25.0	0.0	0.0	45.9
Incremental Delay (d2), s/veh	0.0	0.0	0.0	0.8	0.7	0.0	0.0	1.0
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	0.0	0.0	46.9	25.7	0.0	0.0	47.0
First-Term Queue (Q1), veh/ln	0.0	0.0	0.0	0.8	0.6	0.0	0.0	1.1
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	0.000	0.000	1.000	1.000	0.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.0	0.0	0.8	0.7	0.0	0.0	1.1
Percentile Storage Ratio (RQ%)	0.00	0.00	0.00	0.14	0.08	0.00	0.00	0.19
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Middle Lane Group Data								
Assigned Movement	0	2	0	4	0	6	0	8
Lane Assignment		T		T		T		T
Lanes in Group	0	2	0	1	0	2	0	1
Group Volume (v), veh/h	0.0	679.3	0.0	59.8	0.0	1717.4	0.0	70.7
Group Sat. Flow (s), veh/h/ln	0.0	1769.6	0.0	1862.7	0.0	1769.6	0.0	1862.7
Queue Serve Time (g_s), s	0.0	13.2	0.0	3.0	0.0	42.2	0.0	3.6
Cycle Queue Clear Time (g_c), s	0.0	13.2	0.0	3.0	0.0	42.2	0.0	3.6
Lane Group Capacity (c), veh/h	0.0	2937.0	0.0	169.1	0.0	2785.9	0.0	169.1
Volume-to-Capacity Ratio (X)	0.000	0.231	0.000	0.354	0.000	0.616	0.000	0.418
Available Capacity (c_a), veh/h	0.0	2937.0	0.0	169.1	0.0	2785.9	0.0	170.1
Upstream Filter Factor (I)	0.000	0.894	0.000	1.000	0.000	0.493	0.000	1.000
Uniform Delay (d1), s/veh	0.0	9.4	0.0	43.0	0.0	22.5	0.0	43.3
Incremental Delay (d2), s/veh	0.0	0.0	0.0	1.3	0.0	0.2	0.0	1.6
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	9.4	0.0	44.3	0.0	22.7	0.0	44.9
First-Term Queue (Q1), veh/ln	0.0	4.9	0.0	1.4	0.0	19.5	0.0	1.6
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.1
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	5.0	0.0	1.4	0.0	19.6	0.0	1.7
Percentile Storage Ratio (RQ%)	0.00	0.08	0.00	0.04	0.00	0.39	0.00	0.04

Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Right Lane Group Data								
Assigned Movement	0	12	0	14	0	16	0	18
Lane Assignment		R		R		R		R
Lanes in Group	0	1	0	1	0	1	0	1
Group Volume (v), veh/h	0.0	16.3	0.0	59.8	0.0	54.3	0.0	10.9
Group Sat. Flow (s), veh/h/ln	0.0	1583.3	0.0	1583.3	0.0	1583.3	0.0	1583.3
Queue Serve Time (g_s), s	0.0	1.0	0.0	3.6	0.0	3.3	0.0	0.6
Cycle Queue Clear Time (g_c), s	0.0	1.0	0.0	3.6	0.0	3.3	0.0	0.6
Prot RT Sat Flow Rate (s_R), veh/h/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Prot RT Eff. Green (g_R), s	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proportion RT Outside Lane (P_R)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Lane Group Capacity (c), veh/h	0.0	1313.9	0.0	143.7	0.0	1246.3	0.0	143.7
Volume-to-Capacity Ratio (X)	0.000	0.012	0.000	0.416	0.000	0.044	0.000	0.076
Available Capacity (c_a), veh/h	0.0	1313.9	0.0	143.7	0.0	1246.3	0.0	144.6
Upstream Filter Factor (I)	0.000	0.894	0.000	1.000	0.000	0.493	0.000	1.000
Uniform Delay (d1), s/veh	0.0	8.3	0.0	43.3	0.0	11.9	0.0	41.9
Incremental Delay (d2), s/veh	0.0	0.0	0.0	1.9	0.0	0.0	0.0	0.2
Initial Queue Delay (d3), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	0.0	8.3	0.0	45.2	0.0	12.0	0.0	42.2
First-Term Queue (Q1), veh/ln	0.0	0.1	0.0	1.4	0.0	0.8	0.0	0.2
Second-Term Queue (Q2), veh/ln	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Third-Term Queue (Q3), veh/ln	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Percentile bk-of-que factor (f_B%)	0.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000
Percentile Back of Queue (Q%), veh/ln	0.0	0.1	0.0	1.5	0.0	0.8	0.0	0.3
Percentile Storage Ratio (RQ%)	0.00	0.01	0.00	0.19	0.00	0.08	0.00	0.03
Initial Queue (Qb), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Final (Residual) Queue (Qe), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Delay (ds), s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Queue (Qs), veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Saturated Capacity (cs), veh/h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Initial Queue Clear Time (tc), h	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Intersection Summary	
HCM Average Control Delay	21.5
HCM Level of Service	C

Arterial Level of Service: NB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Hospital Center Blvd	II	39	27.4	15.4	42.8	0.25	21.0	D
Proposed UDA Street	II	45	31.6	1.6	33.2	0.32	34.7	B
Courthouse Rd	II	35	31.0	18.0	49.0	0.26	19.1	D
Hope Rd	II	35	29.7	22.1	51.8	0.25	17.3	D
Total	II		119.7	57.1	176.8	1.08	22.0	D

Arterial Level of Service: SB Route 1

Cross Street	Arterial Class	Flow Speed	Running Time	Signal Delay	Travel Time (s)	Dist (mi)	Arterial Speed	Arterial LOS
Bells Hill Rd	II	35	19.0	40.9	59.9	0.15	9.1	F
Courthouse Rd	II	35	29.7	9.8	39.5	0.25	22.7	C
Proposed UDA Street	II	35	31.0	3.3	34.3	0.26	27.3	C
Route 630 Relocated	II	45	31.6	24.7	56.3	0.32	20.4	D
Total	II		111.3	78.7	190.0	0.98	18.6	D

1: Route 1 & Courthouse Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	2.7	2.7	6.2	15.8	27.5
Total Del/Veh (s)	42.3	24.7	33.6	31.1	31.6
Speed Delay (hr)	2.7	2.7	6.2	15.8	27.4
Speed Del/Veh (s)	41.3	24.7	33.6	31.1	31.6
Stop Delay (hr)	2.4	2.5	5.1	9.2	19.2
Stop Del/Veh (s)	37.4	22.6	27.6	18.0	22.1
Enter Delay (hr)	0.1	0.0	0.0	0.0	0.1
Enter Del/Veh (s)	1.0	0.0	0.0	0.0	0.1
Total Stops	215	284	384	1170	2053
Stop/Veh	0.92	0.71	0.58	0.64	0.66
Vehicles Entered	227	391	656	1807	3081
Vehicles Exited	228	393	653	1822	3096
Hourly Exit Rate	228	393	653	1822	3096
Input Volume	225	415	666	1800	3106
% of Volume	101	95	98	101	100

4: Route 1 & Bells Hill Rd/Hope Rd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	3.0	3.7	8.4	23.4	38.5
Total Del/Veh (s)	45.0	31.4	37.2	43.7	40.7
Speed Delay (hr)	3.0	3.4	8.4	17.4	32.1
Speed Del/Veh (s)	43.7	28.8	37.2	32.5	34.0
Stop Delay (hr)	2.6	3.0	6.7	11.9	24.3
Stop Del/Veh (s)	39.0	25.3	29.7	22.4	25.7
Enter Delay (hr)	0.1	0.3	0.0	6.0	6.4
Enter Del/Veh (s)	1.3	2.6	0.0	11.3	6.8
Total Stops	236	369	557	1547	2709
Stop/Veh	0.97	0.86	0.69	0.80	0.80
Vehicles Entered	239	425	794	1899	3357
Vehicles Exited	241	423	799	1895	3358
Hourly Exit Rate	241	423	799	1895	3358
Input Volume	235	420	835	1895	3385
% of Volume	103	101	96	100	99

8: Route 1 & Route 630 Relocated/Hospital Center Blvd Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	6.5	6.8	4.7	13.0	31.1
Total Del/Veh (s)	42.7	40.1	27.8	27.0	31.9
Speed Delay (hr)	6.2	6.4	4.7	13.0	30.3
Speed Del/Veh (s)	40.4	37.4	27.8	27.0	31.0
Stop Delay (hr)	5.4	5.6	4.2	7.1	22.2
Stop Del/Veh (s)	35.5	32.8	24.5	14.7	22.8
Enter Delay (hr)	0.3	0.5	0.0	0.0	0.8
Enter Del/Veh (s)	2.3	2.7	0.0	0.0	0.8
Total Stops	458	526	404	934	2322
Stop/Veh	0.84	0.86	0.66	0.54	0.66
Vehicles Entered	539	603	610	1697	3449
Vehicles Exited	539	606	610	1702	3457
Hourly Exit Rate	539	606	610	1702	3457
Input Volume	550	620	620	1676	3466
% of Volume	98	98	98	102	100

12: Route 1 & Proposed UDA Street Performance by approach

Approach	EB	WB	NB	SB	All
Total Delay (hr)	1.4	1.3	1.2	3.3	7.1
Total Del/Veh (s)	35.2	38.9	6.1	7.0	9.7
Speed Delay (hr)	1.3	1.2	1.2	3.3	6.9
Speed Del/Veh (s)	32.5	36.7	6.1	7.0	9.5
Stop Delay (hr)	1.2	1.1	0.5	0.7	3.4
Stop Del/Veh (s)	29.8	33.1	2.5	1.4	4.6
Enter Delay (hr)	0.1	0.1	0.0	0.0	0.2
Enter Del/Veh (s)	2.8	2.2	0.0	0.0	0.2
Total Stops	115	96	110	213	534
Stop/Veh	0.82	0.82	0.16	0.13	0.20
Vehicles Entered	137	115	670	1665	2587
Vehicles Exited	138	115	671	1666	2590
Hourly Exit Rate	138	115	671	1666	2590
Input Volume	140	115	680	1640	2576
% of Volume	99	100	99	102	101

Total Network Performance

Total Delay (hr)	109.0
Total Del/Veh (s)	72.3
Speed Delay (hr)	101.6
Speed Del/Veh (s)	67.4
Stop Delay (hr)	69.3
Stop Del/Veh (s)	46.0
Enter Delay (hr)	7.5
Enter Del/Veh (s)	5.2
Total Stops	7623
Stop/Veh	1.40
Vehicles Entered	5187
Vehicles Exited	5208
Hourly Exit Rate	5208
Input Volume	20738
% of Volume	25

Intersection: 1: Route 1 & Courthouse Rd

Movement	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	T	R	L	T	TR	L	T	TR
Maximum Queue (ft)	98	253	198	107	122	158	280	331	225	730	782
Average Queue (ft)	38	113	90	51	50	52	123	143	165	311	322
95th Queue (ft)	84	205	167	96	91	114	232	263	266	652	655
Link Distance (ft)		1694		396	396		1290	1290		1230	1230
Upstream Blk Time (%)											
Queuing Penalty (veh)											
Storage Bay Dist (ft)	300		250			150			150		
Storage Blk Time (%)		0	0			0	7		15	17	
Queuing Penalty (veh)		0	0			1	4		108	57	

Intersection: 4: Route 1 & Bells Hill Rd/Hope Rd

Movement	EB	EB	WB	WB	NB	NB	NB	SB	SB	SB
Directions Served	L	TR	L	TR	L	T	TR	L	T	TR
Maximum Queue (ft)	125	309	212	288	188	339	365	325	757	766
Average Queue (ft)	41	127	96	107	59	159	189	217	444	445
95th Queue (ft)	101	244	182	226	120	283	319	357	771	748
Link Distance (ft)		635		767		1230	1230		752	752
Upstream Blk Time (%)									2	1
Queuing Penalty (veh)									0	0
Storage Bay Dist (ft)	50		425		250			250		
Storage Blk Time (%)	11	51				2		4	16	
Queuing Penalty (veh)	21	26				2		28	60	

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Movement	EB	EB	EB	EB	WB	WB	WB	WB	WB	NB	NB	NB
Directions Served	L	L	T	T	L	L	T	T	R	L	L	T
Maximum Queue (ft)	140	158	129	150	114	124	174	188	66	155	179	106
Average Queue (ft)	74	83	58	70	59	74	96	108	35	82	86	47
95th Queue (ft)	125	135	106	119	101	113	150	166	60	140	148	91
Link Distance (ft)			1753	1753			1298	1298				858
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	300	300			240	240			200	450	450	
Storage Blk Time (%)								0				
Queuing Penalty (veh)								0				

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Movement	NB	NB	SB	SB	SB	SB	SB
Directions Served	T	R	L	L	T	T	R
Maximum Queue (ft)	106	53	62	161	546	623	347
Average Queue (ft)	50	15	18	41	212	242	95
95th Queue (ft)	92	40	48	116	396	447	235
Link Distance (ft)	858				1569	1569	
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)		150	150	150			300
Storage Blk Time (%)					16	3	0
Queuing Penalty (veh)					10	8	1

Intersection: 12: Route 1 & Proposed UDA Street

Movement	EB	EB	EB	WB	WB	WB	NB	NB	NB	NB	SB	SB
Directions Served	L	T	R	L	T	R	L	T	T	R	L	T
Maximum Queue (ft)	71	97	72	88	107	31	62	99	113	17	33	225
Average Queue (ft)	22	39	26	29	40	6	22	19	28	1	5	52
95th Queue (ft)	56	83	59	65	86	22	53	63	79	9	22	150
Link Distance (ft)		882			975			1569	1569			1290
Upstream Blk Time (%)												
Queuing Penalty (veh)												
Storage Bay Dist (ft)	150		200	150		200	200			250	200	
Storage Blk Time (%)												0
Queuing Penalty (veh)												0

Intersection: 12: Route 1 & Proposed UDA Street

Movement	SB	SB
Directions Served	T	R
Maximum Queue (ft)	280	22
Average Queue (ft)	80	3
95th Queue (ft)	194	14
Link Distance (ft)	1290	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		250
Storage Blk Time (%)	0	
Queuing Penalty (veh)	0	

Network Summary

Network wide Queuing Penalty: 327

Intersection: 1: Route 1 & Courthouse Rd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBTL	NBL	SBT	EBL	WBTL
Maximum Green (s)	25.0	31.0	6.0	16.0	5.0	51.0	4.0	18.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	None	C-Min	None	None
Avg. Green (s)	27.0	0.6	7.3	14.3	6.4	59.0	8.8	17.6
g/C Ratio	0.27	0.01	0.07	0.13	0.04	0.59	0.06	0.15
Cycles Skipped (%)	0	0	6	12	32	0	32	18
Cycles @ Minimum (%)	0	0	0	0	0	0	48	0
Cycles Maxed Out (%)	94	100	78	48	37	100	65	41
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 100.0
Number of Complete Cycles : 32

Intersection: 4: Route 1 & Bells Hill Rd/Hope Rd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBTL	WBL	EBTL	NBL	SBTL	EBL	WBTL
Maximum Green (s)	21.0	29.0	11.0	16.0	4.0	46.0	4.0	23.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	None	C-Min	None	None
Avg. Green (s)	20.2	42.1	12.1	16.4	6.0	60.4	14.4	26.3
g/C Ratio	0.17	0.38	0.11	0.14	0.04	0.55	0.09	0.18
Cycles Skipped (%)	16	9	12	16	32	9	39	31
Cycles @ Minimum (%)	0	0	0	0	35	0	33	0
Cycles Maxed Out (%)	32	91	62	41	47	91	55	31
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): 100.0
Number of Complete Cycles : 32

Intersection: 8: Route 1 & Route 630 Relocated/Hospital Center Blvd

Phase	1	2	3	4	5	6	7	8
Movement(s) Served	SBL	NBT	WBL	EBT	NBL	SBT	EBL	WBT
Maximum Green (s)	5.4	46.6	10.0	16.0	9.0	43.0	10.0	16.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Max	None	None	None	C-Max	None	None
Avg. Green (s)	5.4	48.8	9.4	16.7	8.8	43.4	11.5	14.8
g/C Ratio	0.05	0.49	0.09	0.17	0.09	0.43	0.11	0.15
Cycles Skipped (%)	17	0	0	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0	0	0	0
Cycles Maxed Out (%)	83	100	69	89	78	100	89	57
Cycles with Peds (%)	0	0	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 100.0
Number of Complete Cycles : 32

Intersection: 12: Route 1 & Proposed UDA Street

Phase	1	2	4	5	6	8
Movement(s) Served	SBL	NBTL	EBTL	NBL	SBTL	WBTL
Maximum Green (s)	4.0	68.0	16.0	5.0	67.0	16.0
Minimum Green (s)	4.0	4.0	4.0	4.0	4.0	4.0
Recall	None	C-Min	None	None	C-Min	None
Avg. Green (s)	8.2	69.3	12.9	5.1	67.2	12.9
g/C Ratio	0.00	0.69	0.13	0.02	0.67	0.13
Cycles Skipped (%)	97	0	0	69	0	0
Cycles @ Minimum (%)	0	0	0	19	0	0
Cycles Maxed Out (%)	0	100	3	3	100	3
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): 100.0
Number of Complete Cycles : 32

Appendix C - Form Based Code Powerpoint Presentation:

What is a Form Based Code?

IMPLEMENTATION AND FORM-BASED CODE

UDA GRANT REQUIREMENTS

- UDA Grant from VDOT Requires:
  - Comprehensive plan designating UDA areas
  - Pedestrian-friendly, connected, mixed use, mixed housing type, affordable, reduced lot size, reduced street width
  - Zoning and subdivision regulations
  - “By-right” approval process for development
- Minimum Density + Intensity of UDA Areas
  - Based on population threshold: above or below 130,000

UDA DENSITY REQUIREMENTS

UDA Density Requirements:

For jurisdictions with populations under 130,000:

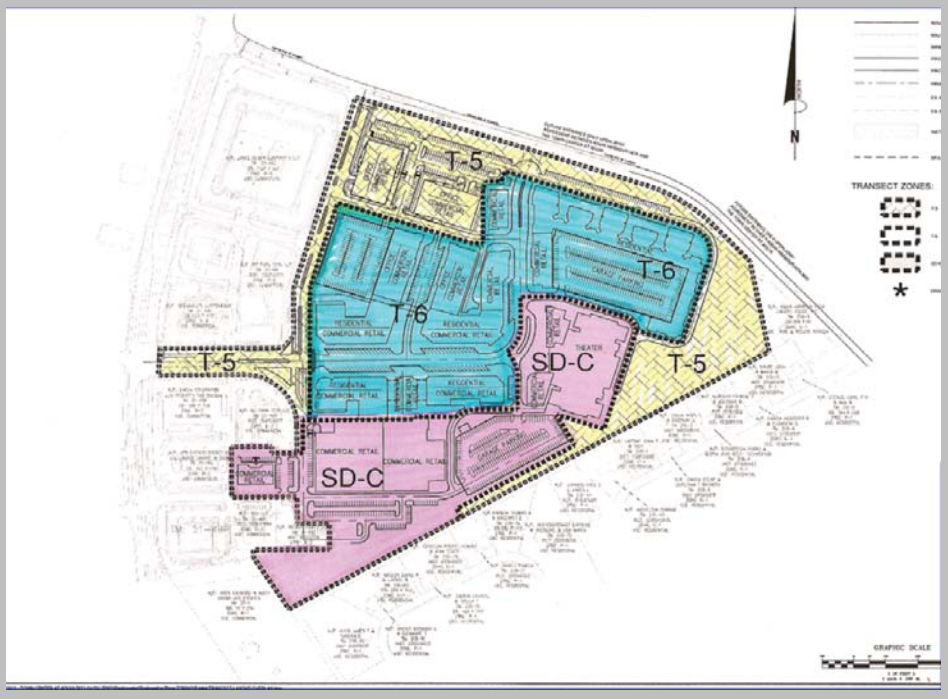
- 4 single-family residences per acre
- 6 townhouses per acre
- 12 apartment/condo units per acre
- Floor area ratio of at least 0.4 for commercial development

EXISTING DISTRICTS THAT SATISFY REQUIREMENTS

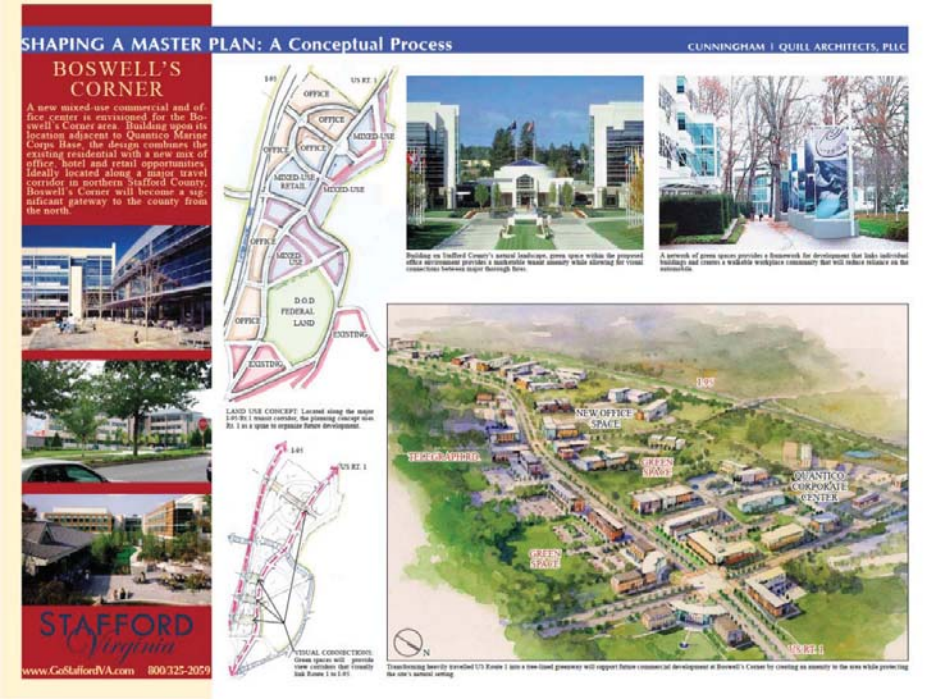
- No general district satisfies the UDA requirements of 4 residential units per acre AND a floor area ratio of 0.4 for commercial development
- The PD-1 & PD-2 districts meet the density and use requirements; however, minimum size thresholds (75 or 250 acres) favor large tracts of land under single ownership and lack the appropriate walkable, pedestrian-friendly development standards
- Only the P–TND District includes the mix of uses, types of development standards, and appropriate densities

ARE THE BUILT RESULTS GOOD ENOUGH?

THE TOWN CENTER AT AQUIA



BOSWELL'S CORNER



FOCUS ON THE PUBLIC REALM

Conventional Code

Form-Based Code

Streets Are Ignored

Streets Part of Equation

FORM VS. USE

CLARITY

Conventional Code

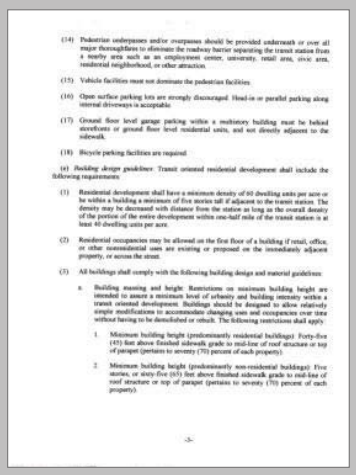
Standards Hard to Understand

Form-Based Code

Standards Clear and Understandable

AUDIENCE

Conventional Code



(14) Pedestrian underpasses and/or overpasses should be provided underneath or over all major thoroughfares to eliminate the roadway barrier separating the transit station from a nearby area such as an employment center, university, retail area, civic area, residential neighborhood, or other attraction.

(15) Vehicle facilities must not dominate the pedestrian facilities.

(16) Open surface parking lots are strongly discouraged. Head-in or parallel parking along internal driveways is acceptable.

(17) Ground floor level garage parking within a multistory building must be behind storefronts or ground floor level residential units, and not directly adjacent to the sidewalk.

(18) Bicycle parking facilities are required.

(e) *Building design guidelines*: Transit oriented residential development shall include the following requirements:

(1) Residential development shall have a minimum density of 60 dwelling units per acre or be within a building a minimum of five stories tall if adjacent to the transit station. The density may be decreased with distance from the station as long as the overall density of the portion of the entire development within one-half mile of the transit station is at least 40 dwelling units per acre.

(2) Residential occupancies may be allowed on the first floor of a building if retail, office, or other nonresidential uses are existing or proposed on the immediately adjacent property, or across the street.

(3) All buildings shall comply with the following building design and material guidelines:

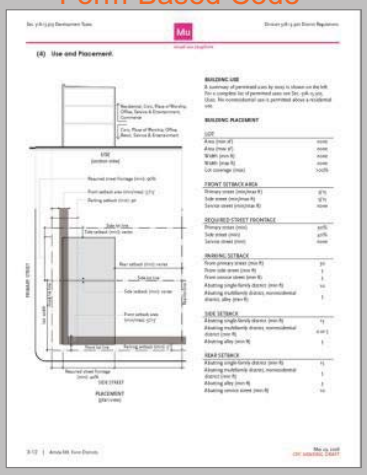
a. Building massing and height: Restrictions on minimum building height are intended to assure a minimum level of urbanity and building intensity within a transit oriented development. Buildings should be designed to allow relatively simple modifications to accommodate changing uses and occupancies over time without having to be demolished or rebuilt. The following restrictions shall apply:

1. Minimum building height (predominantly residential buildings): Forty-five (45) feet above finished sidewalk grade to mid-line of roof structure or top of parapet (pertains to seventy (70) percent of each property).

2. Minimum building height (predominantly non-residential buildings): Five stories, or sixty-five (65) feet above finished sidewalk grade to mid-line of roof structure or top of parapet (pertains to seventy (70) percent of each property).

LAWYERS
Too Much Text

Form-Based Code



DESIGNERS
Graphically-Oriented

CODE STRUCTURE: BALANCING ELEMENTS

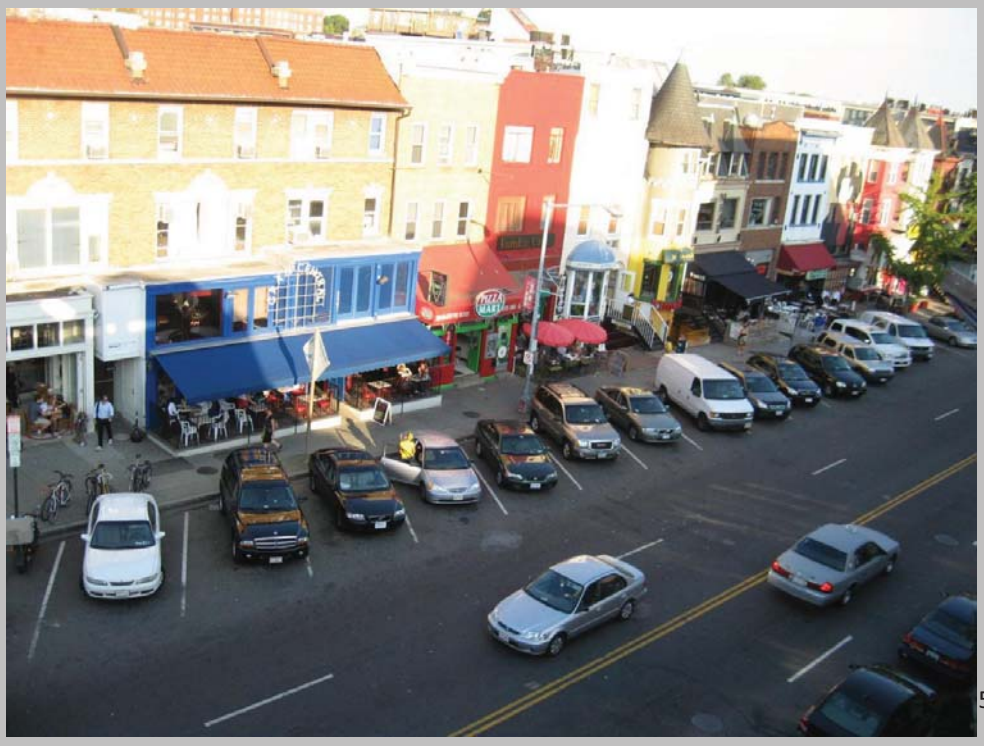
Form

Use/Density

Management

FORM BASICS: BUILDING PLACEMENT

FORM BASICS: PARKING PLACEMENT

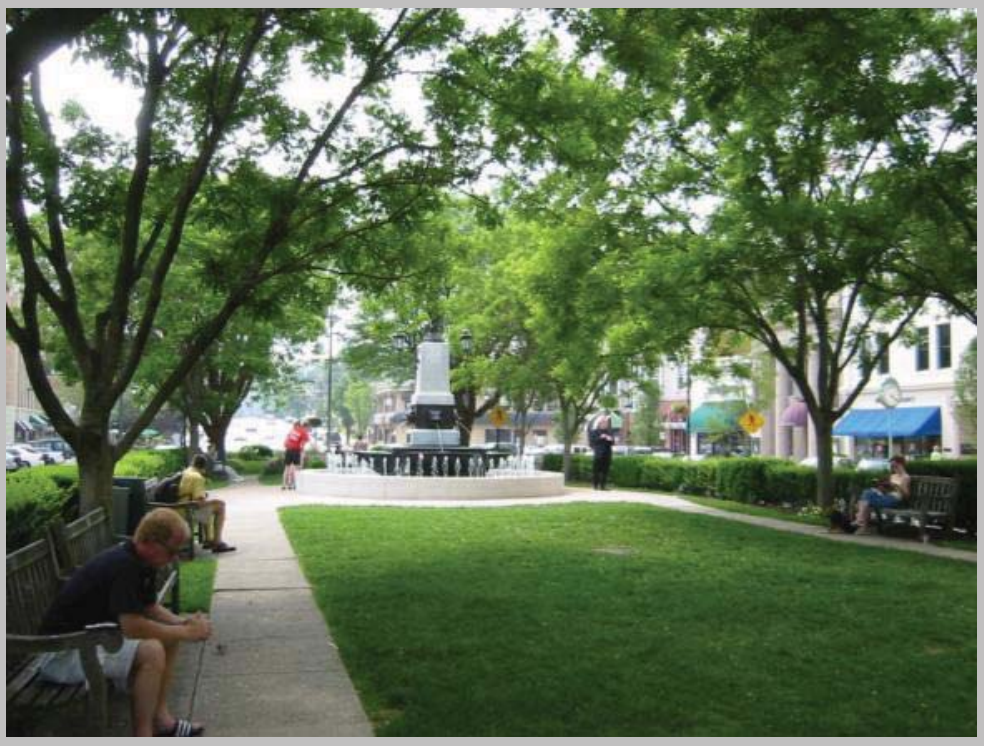


FORM BASICS: BUILDING HEIGHT

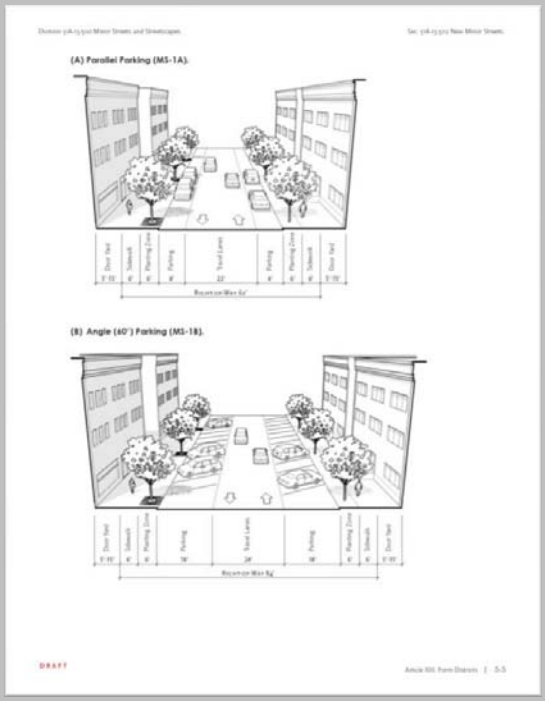
FORM BASICS: WINDOWS & DOORS

FORM BASICS: USE

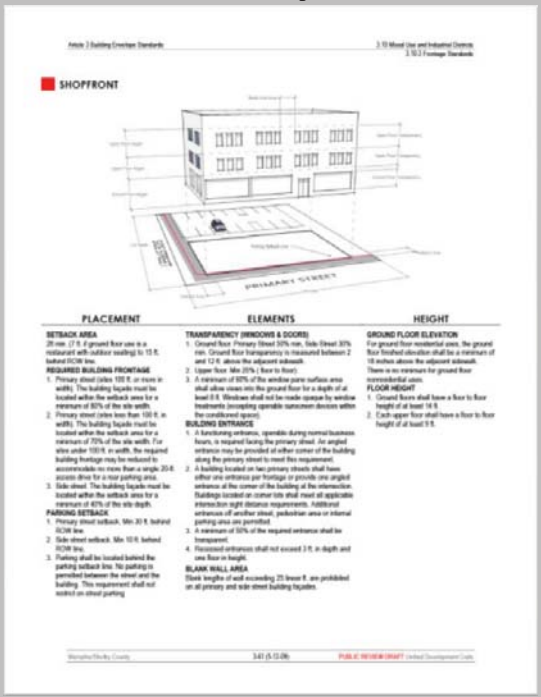
FORM BASICS: PUBLIC SPACE



= CLEAR, PREDICTABLE RESULTS



= CLEAR, PREDICTABLE RESULTS



Article 2 Building Envelope Standards

3.10 Mixed Use and Industrial Districts
3.10.3 Frontage Standards

SHOPFRONT

PRIMARY STREET

PLACEMENT	ELEMENTS	HEIGHT
SETBACK AREA 20' min. (7' if ground floor use is a restaurant with outdoor seating) to 10' ft. behind ROW line. **REQUIRED BUILDING FRONTAGE** 1. Primary street (sites 100' ft. or more in width): The building façade must be located within the setback area for a minimum of 80% of the site width. 2. Primary street (sites less than 100' ft. in width): The building façade must be located within the setback area for a minimum of 70% of the site width. For sites under 100' ft. in width, the required building frontage may be reduced to accommodate no more than a single 20-ft. access drive for a rear parking area. 3. Side street: The building façade must be located within the setback area for a minimum of 40% of the site depth. **PARKING SETBACK** 1. Primary street setback: Min 30' ft. behind ROW line. 2. Side street setback: Min 10' ft. behind ROW line. 3. Parking shall be located behind the parking setback line. No parking is permitted between the street and the building. This requirement shall not restrict on street parking	**TRANSPARENCY (WINDOWS & DOORS)** 1. Ground floor: Primary Street 50% min. Side Street 30% min. Ground floor transparency is measured between 2 and 12 ft. above the adjacent sidewalk. 2. Upper floor: Min 20% (floor to floor). 3. A minimum of 80% of the window pane surface area shall allow views into the ground floor for a depth of at least 5 ft. Windows shall not be made opaque by window treatments (excepting operable sunscreen devices within the conditioned space). **BUILDING ENTRANCE** 1. A functioning entrance, operable during normal business hours, is required facing the primary street. An angled entrance may be provided at either corner of the building along the primary street to meet this requirement. 2. A building located on two primary streets shall have either one entrance per frontage or provide one angled entrance at the corner of the building at the intersection. Buildings located on corner lots shall meet all applicable intersection sight distance requirements. Additional entrances off another street, pedestrian area or internal parking area are permitted. 3. A minimum of 50% of the required entrance shall be transparent. 4. Recessed entrances shall not exceed 3 ft. in depth and one floor in height. **BLANK WALL AREA** Blank lengths of wall exceeding 25 linear ft. are prohibited on all primary and side street building façades.	**GROUND FLOOR ELEVATION** For ground floor residential uses, the ground floor finished elevation shall be a minimum of 18 inches above the adjacent sidewalk. There is no minimum for ground floor nonresidential uses. **FLOOR HEIGHT** 1. Ground floors shall have a floor to floor height of at least 14 ft. 2. Each upper floor shall have a floor to floor height of at least 9 ft.

Memphis/Shelby County 3.41 (5-13-08) PUBLIC REVIEW DRAFT Unified Development Code

Appendix D - Draft Urban Development District Zoning

Stafford County Urban Development (UD) District

County Code Amendments

Amend **Sec. 28-33. – Districts generally**, to add the following new district:

UD Urban Development

Amend **Sec. 28-34.- Purpose of districts**, to add the following new district:

UD Urban Development. The purpose of the UD District is to provide for areas of the county that are suitable for an urban approach to land-use planning and urban design that promotes the development or redevelopment of pedestrian-friendly, walkable neighborhoods with a mix of uses and housing types served by an interconnected network of streets. The UD District shall only be applied to property located within an urban development area designated on the Future Land Use Map in the Comprehensive Plan. To meet the intent and purpose of the district, each UD District is comprised of one or more of the following subdistricts.

(1) *Residential Attached (UD-1)* . The UD-1 Subdistrict allows detached and attached houses at a density of at least four units per acre. Allowed nonresidential uses include places of worship, schools and other civic uses.

(2) *Residential Townhouse (UD-2)*. In addition to detached houses and attached houses, the UD-2 Subdistrict allows townhouses at a density of at least six units per acre. Allowed nonresidential uses also include places of worship, schools and other civic uses.

(3) *Residential Mixed Use (UD-3)*. In addition to detached houses, attached houses and townhouses, the UD-3 Subdistrict allows apartments at a density of least 12 units per acre. The subdistrict allows limited retail and services subject to use standards that limit the size, scale and location.

(4) *Mixed Use Village Center (UD-4)*. The UD-4 Subdistrict is a mixed use district allowing retail, office and residential uses in a variety of building types up to three stories in height. Residential configurations include townhouses, apartments and upper floors of mixed use buildings. The subdistrict accommodates a floor area ratio (FAR) of at least 0.4.

(5) *Mixed Use Urban Center (UD-5)*. The UD-5 Subdistrict is a mixed use district allowing retail, office and residential uses in a variety of building types up to five stories in height. Residential configurations include townhouses, apartments and upper floors of mixed use buildings. The subdistrict accommodates a floor area ratio (FAR) of at least 0.4.

Amend **Sec. 28-35. – Table of Uses and Standards**, as follows:

UD Urban Development

(a) *Uses permitted by right:* see Sec. 28-39(u) for detailed uses allowed by subdistrict.

(b) *Conditional use permit:* see Sec. 28-39(u) for conditional uses allowed by subdistrict.

(c) *Special exception:* see Sec. 28-39(u) for special exception uses allowed by subdistrict.

(d) *Requirements:*

(1) *Intensity:*

Single-family detached and duplex density . . . . . 4 dwelling units/gross acre

Townhouse minimum density . . . . . 6 dwelling units/gross acre

Multifamily minimum density . . . . . 12 dwelling units/gross acre

Commercial and mixed use development minimum floor area ratio 0.4

(2) Refer to Sec. 28-39(u) for additional intensity regulations.

Amend **Sec. 28-39. – Special regulations,** to add the following new paragraph (u):

[*See following pages*]

Amend **Sec. 28-25. – Definitions of specific terms,** to revise the definition of Dwelling, Carriage House, as follows:

Dwelling, carriage house. A dwelling unit with no more than two (2) bedrooms located above a detached garage on the same lot as a principal dwelling with access by an alley. The carriage house shall have a different address from the principal dwelling. For the purposes of the UD District, a carriage house may be located at grade to the rear of the principal dwelling, and may be accessed via a driveway from the front street.

Sec. 28-39(u) UD Urban Development

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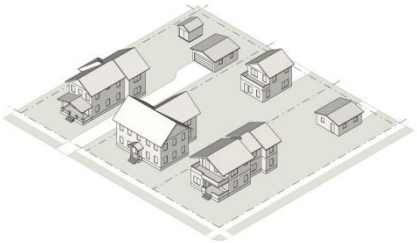
(1) Siting and Configuration

(a) Building Types Established

This section establishes and defines each building type to ensure that proposed development is consistent with the district goals for building form, physical character, land use and quality.

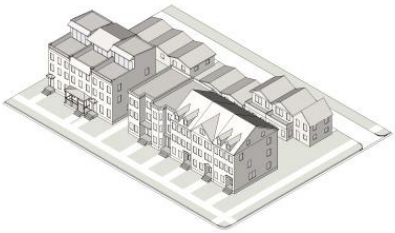


(1) Detached House

A detached single-family residential building type that is developed with open yards on all sides of the structure.

(2) Duplex Building

A two-family residential building type, where the residential units may be arranged one above the other or semidetached by common footing.

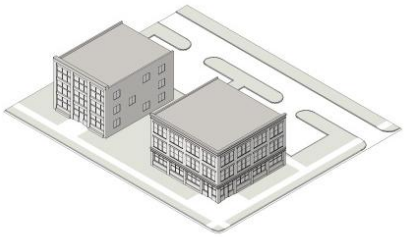


(3) Townhouse Building

A single-family residential building type consisting of three or more attached units, each their own front and rear access to the outside, located on a separate lot owned individually, and not located over another unit.

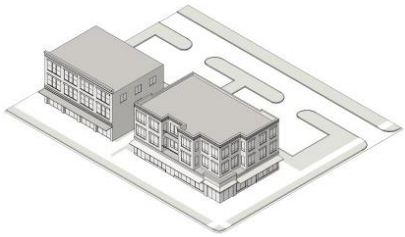
(4) Apartment Building

A building type containing more than two dwelling units on the same lot in which the units, buildings, common areas and facilities are owned by an individual person or entity.



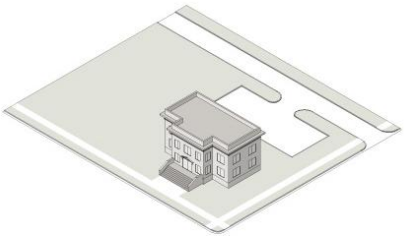
(5) General Building

A building type intended primarily for commercial, office, manufacturing and employment uses.



(6) Mixed Use Building

A building type intended primarily for ground floor commercial uses with upper-story residential or offices uses.

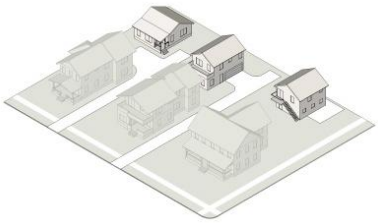


(7) Civic Building

A building type intended primarily for providing education, entertainment, fraternalism, worship, or community services to the public.

(8) Cottage Court

A group of small detached or attached houses centered around a common open space or courtyard.

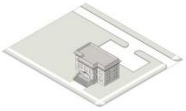


(9) Carriage House

A smaller dwelling located on the same lot as a detached house. May be located above a garage.

(b) Building Types Allowed by Subdistrict

Building types are allowed by subdistrict as set forth below. Shaded cells indicate allowed building types.

	UD-1 Residential Attached	UD-2 Residential Townhouse	UD-3 Residential Mixed Use	UD-4 Mixed Use Village Center	UD-5 Mixed Use Urban Center
Detached House					
Duplex Building					
Townhouse Building					
Apartment Building					
General Building					
Mixed Use Building					
 Civic Building					
Cottage Court					
Carriage House					

(c) Requirements for All Building Types

(1) Site

a. Defined

A site is any lot or group of contiguous lots owned or functionally controlled by the same person or entity, assembled for the purpose of development.

b. Site Area

Site area is the area included within the rear, side and front lot lines of the site. Does not include existing or proposed right-of-way, whether dedicated or not dedicated to public use.

c. Site Width

Site width is the distance between the side lot lines of the site (generally running perpendicular to a street) measured at the primary street property line along a straight line or along the chord of the property line.

(2) Lot

a. Defined

i. A parcel of land either vacant or occupied intended as a unit for the purpose, whether immediate or for the future, of transfer of ownership, or possession, or for the purpose of development.

ii. Except for a cottage court that meets the requirements of Sec. 28-39(u)(1)(l), all lots must front on a street.

b. Lot Standards

In the UD-1 District only one principal structure is permitted per lot.

c. Lot Area

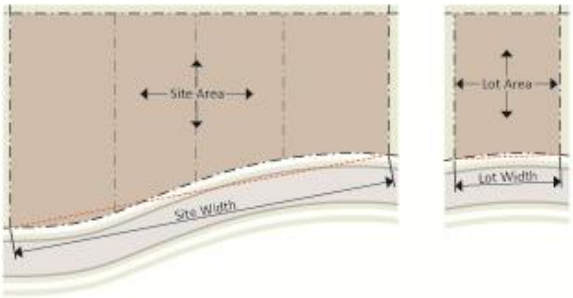
Lot area is the area included within the rear, side and front lot lines. Lot area does not include existing or proposed right-of-way, whether dedicated or not dedicated to public use.

d. Lot Width

Lot width is the distance between the side lot lines (generally running perpendicular to a street) measured at the primary street property line along a straight line or along the chord of the property line.

e. Lot Depth

Lot depth is the distance between the front and rear property lines measured along a line midway between the side property lines.



(3) Building Setbacks

a. Setback Types

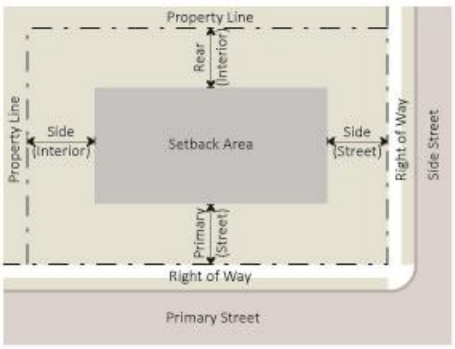
There are four types of setbacks – primary street setback, side street setback, side setback and rear setback. Through lots are considered to have two primary street setbacks.

b. Measurement of Building Setbacks

i. Primary and side street setbacks are measured from the edge of the right-of-way.

ii. Side setbacks are measured from the side property line.

iii. Rear setbacks are measured from the rear property line or the edge of the right-of-way where there is an alley.



c. Corner Lots

A corner lot must designate at least one primary street. A lot may have more than one primary street. In determining the primary street, the following conditions must be considered:

i. The street with the highest street classification;

ii. The established orientation of the block, if any;

iii. The street abutting the longest face of the block;

iv. The street parallel to an alley within the block; and

v. The street that the lot takes its address from.

(4) Setback Encroachments

All buildings and structures must be located at or behind required setback lines, except as listed below. Structures below and covered by the ground may encroach into a required setback.

a. Building Features

i. Porches, stoops, balconies, galleries and awnings.

ii. Chimneys or flues may encroach up to four feet, provided that such extension is at least two feet from the vertical plane of any lot line.

iii. Building eaves, roof overhangs and light shelves may encroach up to five feet, provided that such extension is at least two feet from the vertical plane of any lot line.

iv. Bay windows, entrances and similar features that are less than ten feet wide may encroach up to four feet, provided that such extension is at least two feet from the vertical plane of any lot line.

v. Unenclosed fire escapes or stairways may encroach up to four feet into a required side or rear setback, provided that such extension is at least five feet from the vertical plane of any lot line.

vi. Unenclosed patios, decks or terraces may encroach up to four feet into a required side setback, or up to eight feet into a required rear setback, provided that such extension is at least five feet from the vertical plane of any lot line.

vii. Cornices, eaves, belt courses, sills, buttresses or other similar architectural features may encroach up to 1½ feet.

viii. Handicap ramps may encroach to the extent necessary to perform their proper function.

b. Mechanical Equipment and Utility Lines

i. Mechanical equipment associated with residential uses, such as HVAC units and security lighting, may encroach into a required rear or side setback, provided that such extension is at least five feet from the vertical plane of any lot line.

ii. Sustainable energy systems, including solar panels and wind turbines, may extend into a required rear or side setback, provided that such extension is at least three feet from the vertical plane of any lot line.

iii. Rainwater collection or harvesting systems may extend into a required rear or side setback, provided that such extension is at least three feet from the vertical plane of any lot line.

iv. Utility lines located underground and minor structures accessory to utility lines (such as hydrants, manholes, and transformers and

other cabinet structures) may extend into a required rear or side setback.

c. Other Encroachments

i. Fences and walls.

ii. Signs.

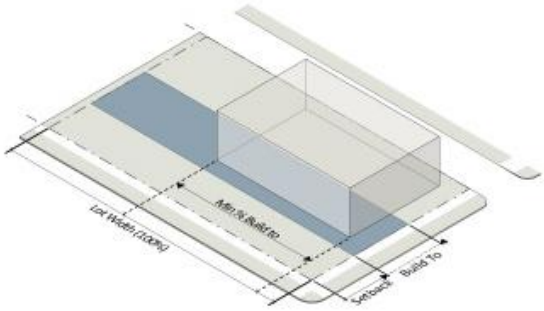
iii. Driveways.

(5) Build-to Zone

a. Defined

i. The build-to zone is the area on the lot where a certain percentage of the front building facade must be located, measured as a minimum and maximum setback range from the edge of the right-of-way.

ii. The required percentage specifies the amount of the front building facade that must be located in the build-to area, measured based on the width of the building divided by the width of the site or lot.



iii. A forecourt meeting the standards of Sec. 28-39(u)(1)(d) Building Elements, is counted as part of the building width in the build-to zone.

b. Corner Lots

On corner lots, a building facade must be placed within the build-to area for the first 30 feet along the street extending from the block corner. No other build-to zone requirements apply on side streets that are not primary streets. A forecourt meeting the requirements of Sec. 28-39(u)(1)(d) Building Elements, is allowed at the corner.

c. Encroachments

With the exception of parking areas, all structures and uses customarily allowed on the lot are permitted in the build-to area.

(6) Parking Setbacks

a. Parking Setback Types

There are four types of parking setbacks – primary street setback, side street setback, side setback and rear setback. Through lots are considered to have two primary street setbacks.

b. Measurement of Parking Setbacks

i. Primary and side street setbacks are measured from the edge of the right-of-way.

ii. Side setbacks are measured from the side property line.

iii. Rear setbacks are measured from the rear property line or the edge of the right-of-way if there is an alley.

c. Parking Not Allowed

On-site surface and structured parking must be located behind the parking setback line. This requirement is not intended to restrict on-street parking.

d. Parking in the Front Setback

For a detached or attached house, combined parking and driveway area shall not constitute more than 40% of the area between front building facade and the front property line.

(7) Open Area

a. Defined

For the purposes of this Division, open area must be provided on-site and must be available for use by, or as an amenity for, the occupants of the development.

b. Standards

i. Open area may be met in one contiguous open area or in multiple open areas on the site; however, to receive credit the area must be at least five feet in width and length.

ii. Open area must be located at grade, and cannot be built, parked or driven upon, except for emergency access and permitted temporary events.

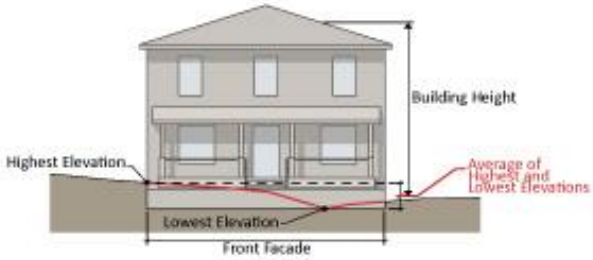
iii. Open area may be provided above ground for a general or mixed use building type. Examples include an outside roof deck, roof top garden, pool area or similar type of outdoor common area.

(8) Height

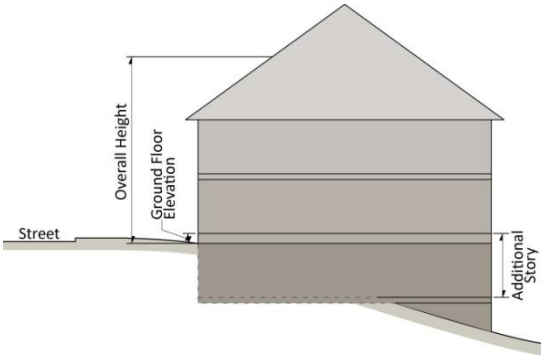
a. Building Height

i. Building height is measured in both the number of stories and in feet to the top of the highest point of a flat roof or the midpoint of a pitched roof.

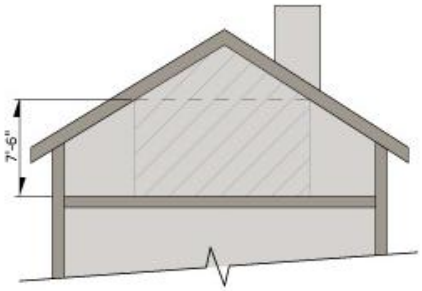
ii. Average grade is determined by calculating the average of the highest and lowest elevation along natural or improved grade (whichever is more restrictive) along the front of the building parallel to the primary street setback line.



iii. Where a lot slopes downward from the front property line, one story that is additional to the specified maximum number of stories may be built on the lower, rear portion of the lot.



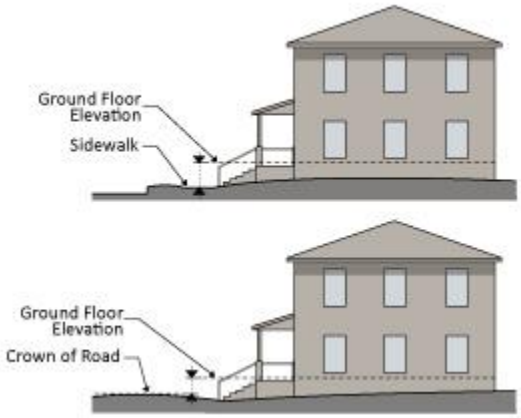
iv. An attic does not count as a story where 50% or more of the attic floor area has a clear height of less than 7½ feet; measured from the finished floor to the finished ceiling.



v. A basement with 50% or more of its perimeter wall area surrounded by natural grade is not considered a story.

b. Ground Floor Elevation

Ground floor elevation is measured from the average curb level of the adjoining street to the top of the finished ground floor.

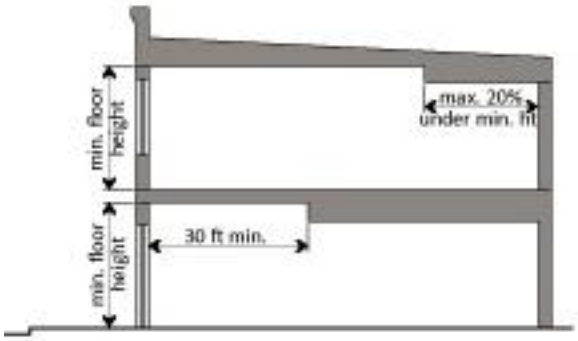


c. Floor Height

i. Floor height is measured from the top of the finished floor to the ceiling above.

ii. Minimum ground story height applies to the first 30 feet of the building measured inward from the street facing facade.

iii. At least 80% of each upper story must meet the minimum upper story height provisions.



(9) Height Encroachments

Any height encroachment not specifically listed is expressly prohibited except where the Zoning Administrator determines that the encroachment is similar to a permitted encroachment listed below.

a. The maximum height limits of the district do not apply to spires, belfries, cupolas, domes not intended for human occupancy; monuments, water tanks, water towers or other similar structures which, by design or function, must exceed the established height limits.

b. The following accessory structures may exceed the established height limits, provided they do not exceed the maximum building height by more than 12 feet:

i. Chimney, flue or vent stack;

ii. Deck, patio, shade structure;

iii. Flagpole;

iv. Garden, landscaping;

v. Parapet wall, limited to a height of four feet;

vi. Rainwater collection or harvesting systems (rain barrels); and

vii. Sustainable energy systems, including but not limited to solar panels and wind energy generation systems, that generate power primarily to be used on-site.

c. The following accessory structures may exceed the established height limits, provided they do not exceed the maximum building height by more than 12 feet, do not occupy more than 25% of the roof area, and are set back at least ten feet from the edge of the roof:

i. Amateur communications tower;

ii. Cooling tower;

iii. Elevator penthouse or bulkhead;

iv. Greenhouse;

v. Mechanical equipment;

vi. Skylights;

vii. Elevator or stairway access to roof; and

viii. Tank designed to hold liquids.

d. An accessory structure located on the roof must not be used for any purpose other than a use incidental to the principal use of the building.

(10) Pedestrian Access

a. An entrance providing both ingress and egress, operable to residents or customers at all times, is required to meet the street facing entrance requirements. Additional entrances off another street, pedestrian area or internal parking area are permitted.

b. An angled entrance may be provided at either corner of a building along the street to meet the street facing entrance requirements.

(11) Transparency

a. The minimum percentage of windows and doors that must cover a ground story facade is measured between 0 and 12 feet above the adjacent sidewalk. The standard applies only on street-facing facades, and not interior or rear-facing facades (including the sides of mid-block buildings where no corner buildings have been constructed).

b. The minimum percentage of windows and doors that must cover an upper story facade is measured from top of the finished floor to the top of the finished floor above. When there is no floor above, upper story transparency is measured from the top of the finished floor to the top of the wall plate.

c. In a mixed use building, a minimum of 60% of the street-fronting, street-level window pane surface area must allow views into the ground story use for a depth of at least eight feet. Windows shall not be made opaque by window treatments (except operable sunscreen devices within the conditioned space).

(12) Blank Wall Area

a. Blank wall area means a portion of the exterior facade of the building that does not include a substantial material change (paint color is not considered a substantial change); windows or doors; or columns, pilasters or other articulation greater than 12 inches in depth.

b. Blank wall area applies in both a vertical and horizontal direction.

c. Blank wall width applies to both ground and upper story primary and side street-facing facades.

(d) Building Elements

(1) Porch

A raised structure attached to a building, forming a covered entrance to a doorway.

a. A porch must be at least six feet deep (not including the steps).

b. A porch must be contiguous with a width not less than 50% of the building facade from which it projects.

c. A porch must be roofed but cannot be fully enclosed. Screening for protection from insects is not considered enclosure.

d. A porch may extend up to nine feet, including the steps, into a required setback, provided that such extension is at least two feet from the vertical plane of any lot line.

e. A porch may not encroach into the public right-of-way.

(2) Stoop

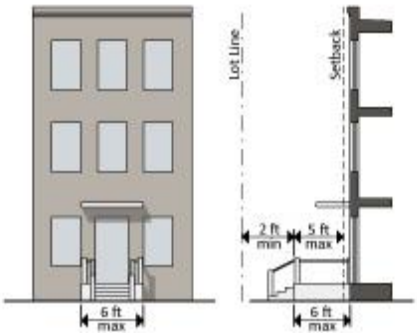
A small raised platform that serves as an entrance to a building.

a. A stoop must be no more than six feet deep (not including the steps) and six feet wide.

b. A stoop may be covered but cannot be fully enclosed.

c. A stoop may extend a up to six feet into a required setback, provided that the landing is at least two feet from the vertical plane of any lot line.

d. A stoop may not encroach into the public right-of-way.



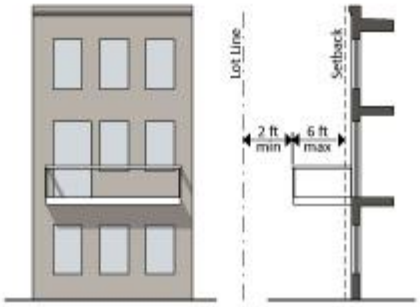
(3) Balcony

A platform projecting from the wall of a building with a railing along its outer edge, often with access from a door or window.

a. A balcony may extend up to six feet into a required setback, provided that such extension is at least two feet from the vertical plane of any lot line.

b. A balcony may be covered but cannot be fully enclosed.

c. A balcony may not encroach into the public right-of-way without a license for the use of public right-of-way.



(4) Gallery

A covered passage extending along the outside wall of a building supported by arches or columns that is open on one side.

a. A gallery must have a clear depth from the support columns to the building's facade of at least eight feet and a clear height above the sidewalk of at least ten feet.

b. A gallery must be contiguous and extend over at least 50% of the width of the building facade from which it projects.

c. A gallery may extend into a required street setback.

d. A galley may not encroach into the public right-of-way without a license for the use of public right-of-way.

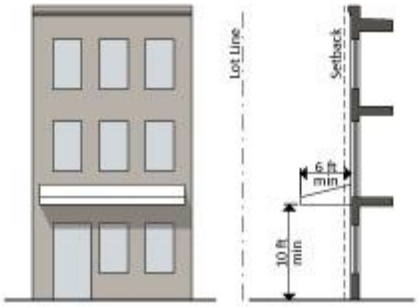
(5) Awning

A wall-mounted, cantilevered structure providing shade and cover from the weather for a sidewalk.

a. An awning must be a minimum of ten feet clear height above the sidewalk and must have a minimum depth of six feet.

b. An awning may extend into a required street setback.

c. An awning may not encroach into the public right-of-way without a license for the use of public right-of-way.



(6) Forecourt

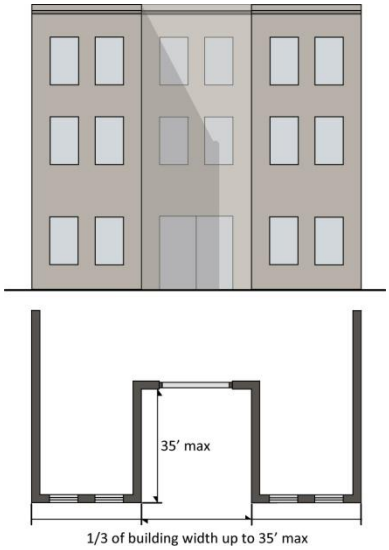
An open area at grade, or within 30 inches of grade, that serves as an open space, plaza or outdoor dining area.

a. A forecourt must be no more than one-third of the length of the building face, and in no case longer than 35 feet in width.

b. A forecourt may be no more than 35 feet in depth.

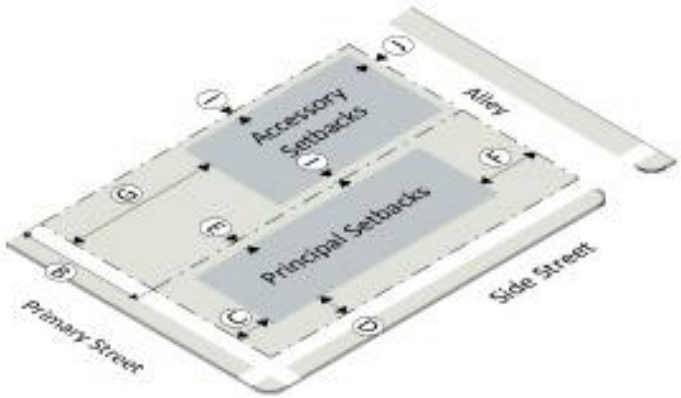
c. A maximum of one forecourt is permitted per site.

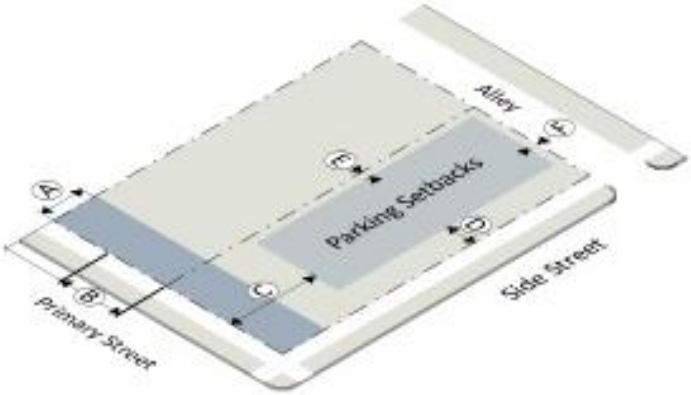
d. A forecourt is considered as part of the building for the purpose of measuring the build-to zone.



(e) Detached House

▪	UD-1
▪	UD-2
	UD-3
	UD-4
	UD-5



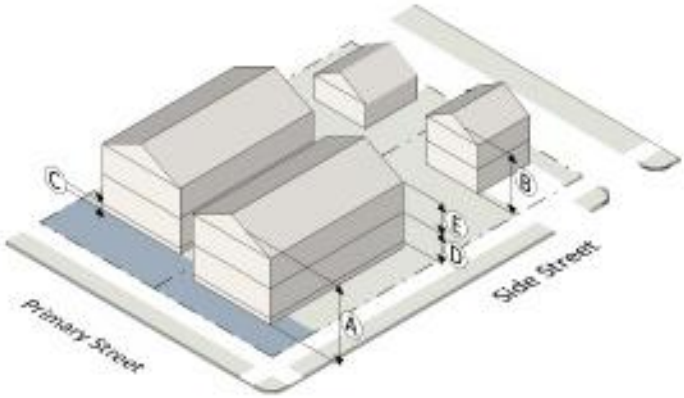


(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot area (min/max)	5,000 sf / 10,000 sf
Ⓑ	Lot width (min/max)	40′ / 65′
Principal Building Setbacks		
Ⓒ	Primary street (min)	15′
Ⓓ	Side street (min)	10′
Ⓔ	Side, common lot line (min)	4′
Ⓕ	Rear, common lot line/alley (min)	20′
Accessory Building Setbacks		
Ⓖ	Primary street (min)	50′
Ⓗ	Side street (min)	10′
Ⓘ	Side, common lot line (min)	3′
Ⓙ	Rear, common lot line (min)	3′
Ⓙ	Rear, alley (min)	4′ or 20′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	15′ / 25′
Ⓑ	% of building in primary street BTZ (min)	70%
Parking Setbacks		
Ⓒ	Primary street (min)	30′
Ⓓ	Side street (min)	5′
Ⓔ	Side, common lot line (min)	5′
Ⓕ	Rear, common lot line (min)	5′
Ⓖ	Rear, alley (min)	4′
Open Space		
Ⓗ	% of open area on the lot (min)	25%



(3) Height

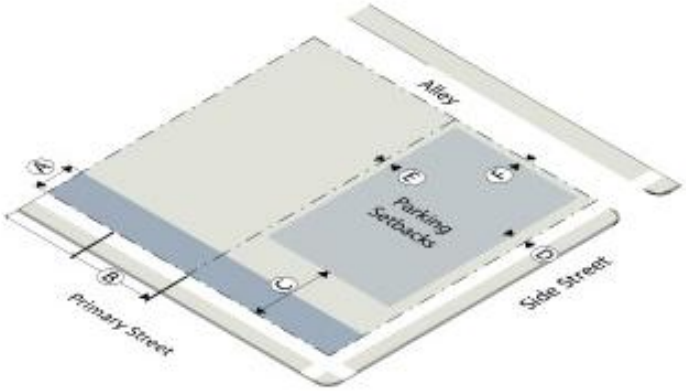
Building Height	
Ⓐ Principal building (max)	3 stories / 40′
Ⓑ Accessory building (max)	25′
Story Height	
Ⓒ Ground story finished floor elevation (min)	2′
Ⓓ Ground story height, floor to ceiling (min)	9′
Ⓔ Upper story height, floor to ceiling (min)	9′

(4) Façade Activation

Transparency	
Ⓐ Ground story (min)	20%
Ⓑ Upper story (min)	15%
Ⓒ Blank wall area (max)	30′
Entrances	
Ⓓ Street-facing entrance	Required
Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	No
Awning	No
Forecourt	No

(f) Attached House

▪	UD-1
▪	UD-2
	UD-3
	UD-4
	UD-5

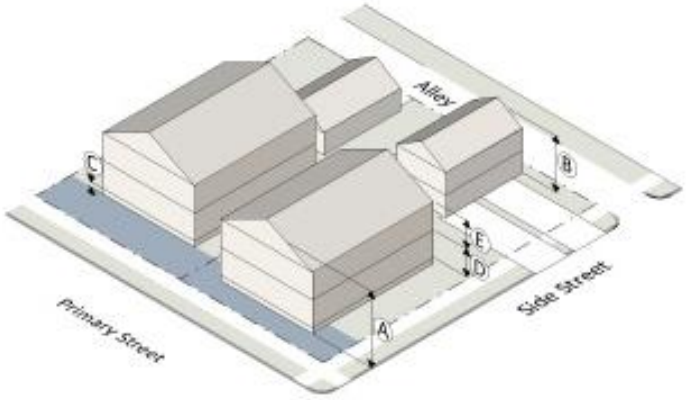


(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot area (min/max)	7,500 sf / 15,000 sf
Ⓑ	Lot width (min/max)	60′ / 80′
Principal Building Setbacks		
Ⓒ	Primary street (min)	15′
Ⓓ	Side street (min)	10′
Ⓔ	Side, common lot line (min)	4′
Ⓕ	Rear, common lot line/alley (min)	20′
Accessory Building Setbacks		
Ⓖ	Primary street (min)	50′
Ⓗ	Side street (min)	10′
Ⓘ	Side, common lot line (min)	3′
Ⓙ	Rear, common lot line (min)	3′
Ⓙ	Rear, alley (min)	4′ or 20′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	15′ / 25′
Ⓑ	% of building in primary street BTZ (min)	70%
Parking Setbacks		
Ⓒ	Primary street (min)	30′
Ⓓ	Side street (min)	5′
Ⓔ	Side, common lot line (min)	5′
Ⓕ	Rear, common lot line (min)	5′
Ⓖ	Rear, alley (min)	4′
Open Space		
Ⓗ	% of open area on the lot (min)	25%



(3) Height

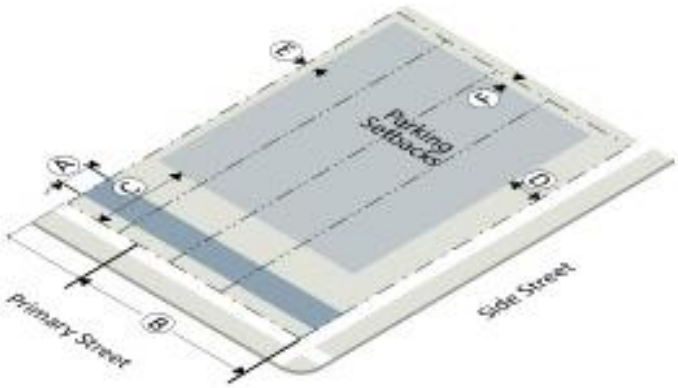
Building Height	
Ⓐ Principal building (max)	3 stories / 40′
Ⓑ Accessory building (max)	25′
Story Height	
Ⓒ Ground story finished floor elevation (min)	2′
Ⓓ Ground story height, floor to ceiling (min)	9′
Ⓔ Upper story height, floor to ceiling (min)	9′

(4) Façade Activation

Transparency	
Ⓐ Ground story (min)	20%
Ⓑ Upper story (min)	15%
Ⓒ Blank wall area (max)	30′
Entrances	
Ⓓ Street-facing entrance	Required
Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	No
Awning	No
Forecourt	No

(g) Townhouse Building

	UD-1
▪	UD-2
▪	UD-3
▪	UD-4
▪	UD-5



(1) Lot Standards

Lot Dimensions		
Ⓐ	Site area (min)	4,800 sf
Ⓑ	Site width (min)	48′

Principal Building Setbacks		
Ⓒ	Lot area (min/max)	2,400 sf / 4,500 sf
Ⓓ	Lot width (min/max)	24′ / 36′

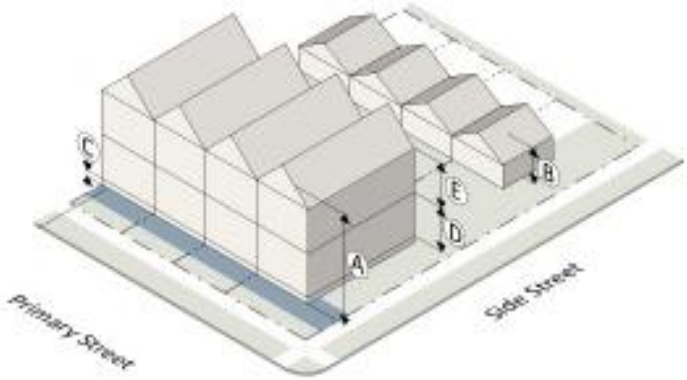
Building Setbacks		
Ⓔ	Primary street (min)	10′
Ⓕ	Side street (min)	10′
Ⓖ	Side, common lot line (min)	0′ or 10′
Ⓗ	Rear, common lot line (min)	20′
Ⓗ	Rear, alley (min)	4′ or 20′

(2) Building Placement

Build-to Zone, Site (BTZ)		
Ⓐ	Primary street (min/max)	10′ / 15′
Ⓑ	% of building in primary street BTZ (min)	70%

Parking Setbacks		
Ⓒ	Primary street (min)	30′
Ⓓ	Side street (min)	10′
Ⓔ	Side, common lot line (min)	0′ or 5′
Ⓕ	Rear, common lot line (min)	0′ or 5′
Ⓖ	Rear, alley (min)	4′

Open Space		
Ⓗ	% of open area on the lot (min)	25%



(3) Height

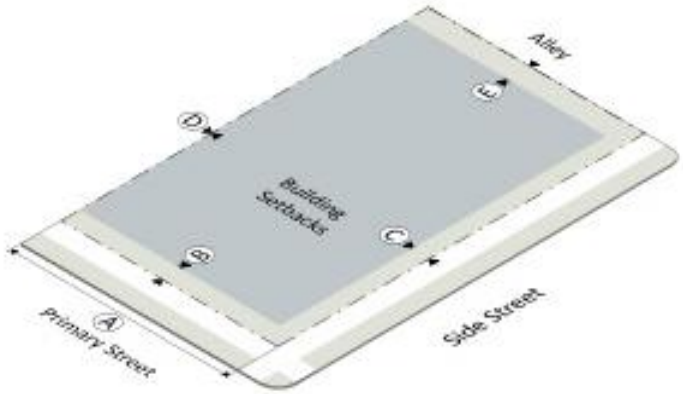
Building Height	
Ⓐ Principal building (max)	3 stories / 45′
Ⓑ Accessory building (max)	25′
Story Height	
Ⓒ Ground story finished floor elevation (min)	2′
Ⓓ Ground story height, floor to ceiling (min)	9′
Ⓔ Upper story height, floor to ceiling (min)	9′

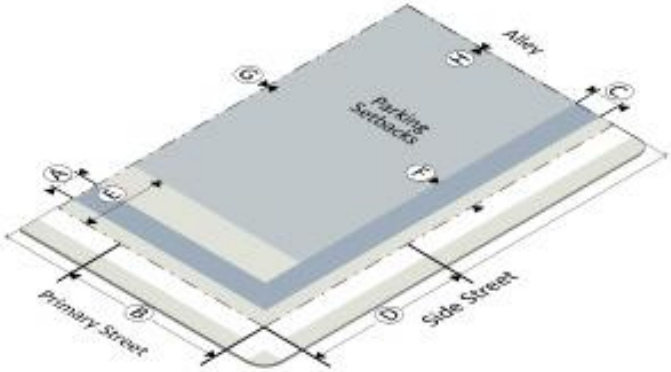
(4) Façade Activation

Transparency	
Ⓐ Ground story (min)	20%
Ⓑ Upper story (min)	15%
Ⓒ Blank wall area (max)	30′
Entrances	
Ⓓ Street-facing entrance	Required
Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	No
Awning	No
Forecourt	No

(h) Apartment Building

	UD-1
	UD-2
▪	UD-3
▪	UD-4
▪	UD-5



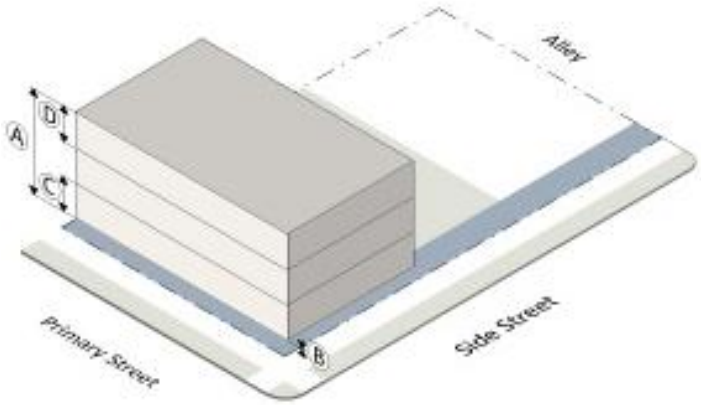


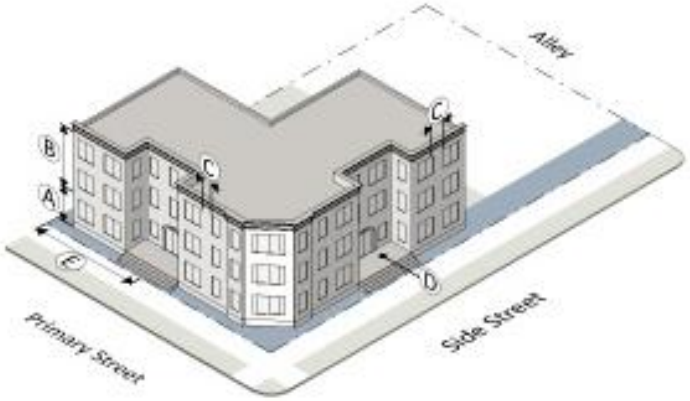
(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot width (min)	65′
Building Setbacks		
Ⓑ	Primary street (min)	5′
Ⓒ	Side street (min)	5′
Ⓓ	Side, common lot line (min)	0′ or 10′
Ⓔ	Rear, common lot line/alley (min)	0′ or 10′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	15′ / 25′
Ⓑ	% of building in primary street BTZ (min)	70%
Ⓒ	Side street (min/max)	5′ / 15′
Ⓓ	% of building in side street BTZ (min)	35%
Parking Setbacks		
Ⓔ	Primary street (min)	30′
Ⓕ	Side street (min)	15′
Ⓖ	Side, common lot line (min)	5′
Ⓗ	Rear, common lot line/alley (min)	5′
Open Space		
Ⓘ	% of open area on the lot (min)	25%





(3) Height

Building Height	
Ⓐ Principal building in UD-3, UD-4 (max)	3 stories / 50′
Ⓐ Principal building in UD-5 (max)	5 stories / 65′

Story Height	
Ⓑ Ground story finished floor elevation (min)	2′
Ⓒ Ground story height, floor to ceiling (min)	9′
Ⓓ Upper story height, floor to ceiling (min)	9′

(4) Façade Activation

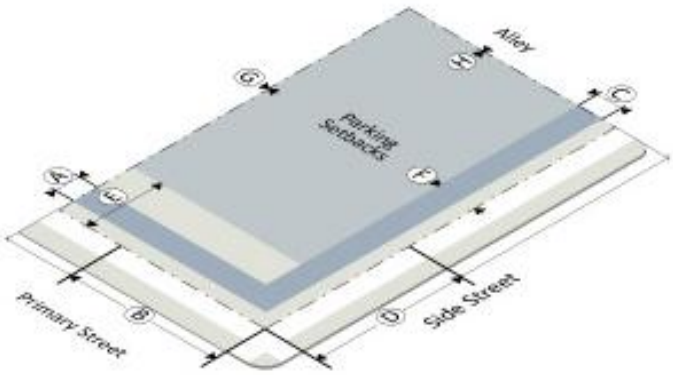
Transparency	
Ⓐ Ground story (min)	20%
Ⓑ Upper story (min)	15%
Ⓒ Blank wall area (max)	25′

Entrances	
Ⓓ Street-facing entrance	Required

Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	No
Awning	Yes
Forecourt	Yes

(i) General Building

	UD-1
	UD-2
	UD-3
▪	UD-4
▪	UD-5

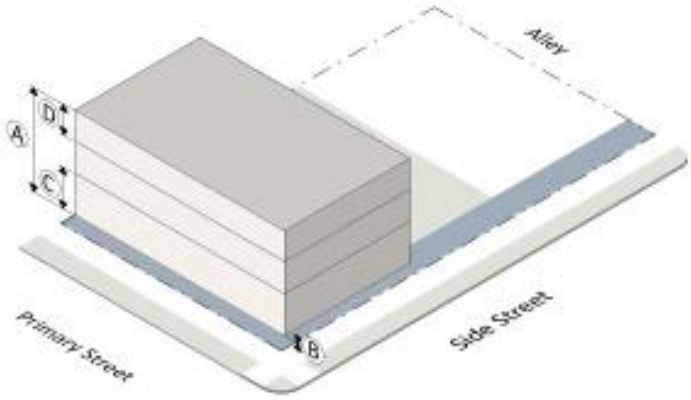


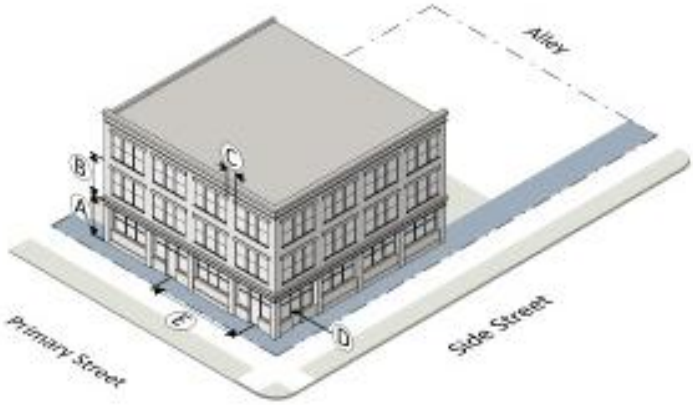
(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot width (min)	50′
Building Setbacks		
Ⓑ	Primary street (min)	5′
Ⓒ	Side street (min)	5′
Ⓓ	Side, common lot line (min)	0′ or 10′
Ⓔ	Rear, common lot line/alley (min)	0′ or 10′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	5′ / 10′
Ⓑ	% of building in primary street BTZ (min)	70%
Ⓒ	Side street (min/max)	5′ / 10′
Ⓓ	% of building in side street BTZ (min)	35%
Parking Setbacks		
Ⓔ	Primary street (min)	30′
Ⓕ	Side street (min)	10′
Ⓖ	Side, common lot line (min)	0′ or 5′
Ⓗ	Rear, common lot line/alley (min)	0′ or 5′
Open Space		
Ⓘ	% of open area on the lot (min)	20%





(3) Height

Building Height	
Ⓐ Principal building in UD-4 (max)	3 stories / 40′
Ⓐ Principal building in UD-5 (max)	5 stories / 65′

Story Height	
Ⓑ Ground story finished floor elevation (min)	0′
Ⓒ Ground story height, floor to ceiling (min)	11′
Ⓓ Upper story height, floor to ceiling (min)	9′

(4) Façade Activation

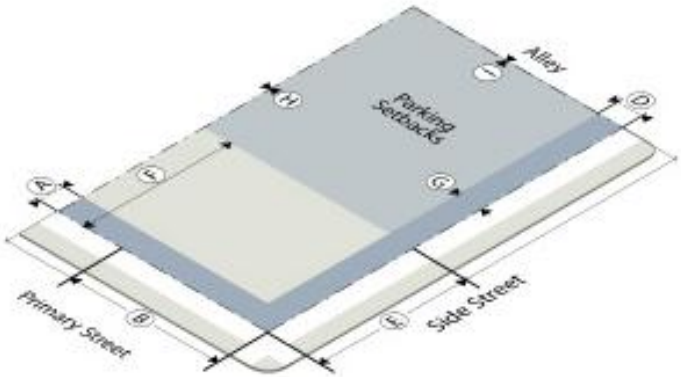
Transparency	
Ⓐ Ground story (min)	40%
Ⓑ Upper story (min)	20%
Ⓒ Blank wall area (max)	20′

Entrances	
Ⓓ Street-facing entrance	Required

Allowed Building Elements	
Porch	No
Stoop	No
Balcony	Yes
Gallery	Yes
Awning	Yes
Forecourt	Yes

(j) Mixed Use Building

	UD-1
	UD-2
	UD-3
▪	UD-4
▪	UD-5

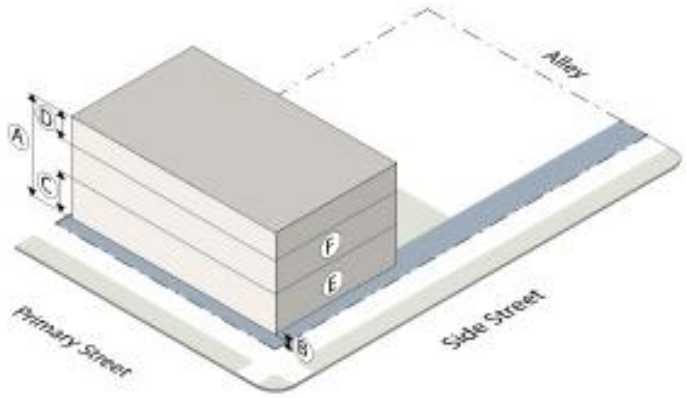


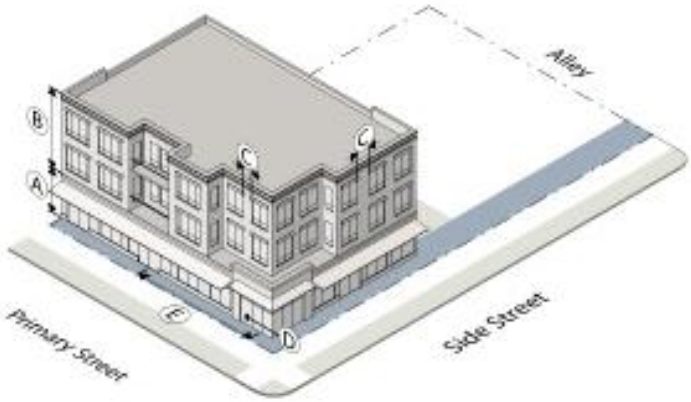
(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot width (min)	50′
Building Setbacks		
Ⓑ	Primary street (min)	5′
Ⓒ	Side street (min)	5′
Ⓓ	Side, common lot line (min)	0′ or 10′
Ⓔ	Rear, common lot line/alley (min)	0′ or 10′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	5′ / 10′
Ⓑ	% of building in primary street BTZ (min)	80%
Ⓒ	Side street (min/max)	5′ / 10′
Ⓓ	% of building in side street BTZ (min)	40%
Parking Setbacks		
Ⓔ	Primary street (min)	30′
Ⓕ	Side street (min)	10′
Ⓖ	Side, common lot line (min)	0′ or 5′
Ⓗ	Rear, common lot line/alley (min)	0′ or 5′
Open Space		
Ⓘ	% of open area on the lot (min)	15%





(3) Height

Building Height	
Ⓐ Principal building in UD-4 (max)	3 stories / 50′
Ⓐ Principal building in UD-5 (max)	5 stories / 75′

Story Height	
Ⓑ Ground story finished floor elevation (min)	0′
Ⓒ Ground story height, floor to ceiling (min)	13′
Ⓓ Upper story height, floor to ceiling (min)	9′

(4) Façade Activation

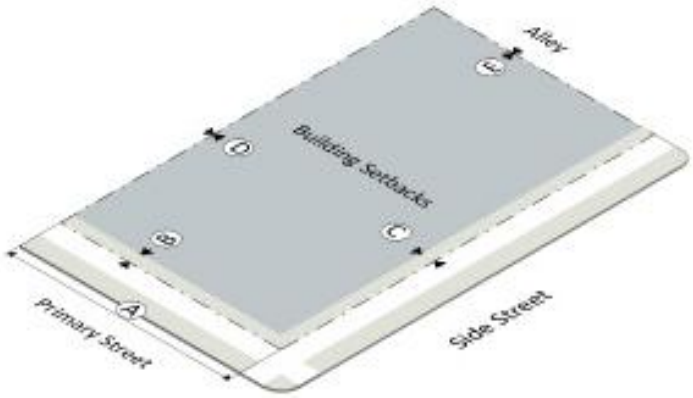
Transparency	
Ⓐ Ground story (min)	60%
Ⓑ Upper story (min)	20%
Ⓒ Blank wall area (max)	20′

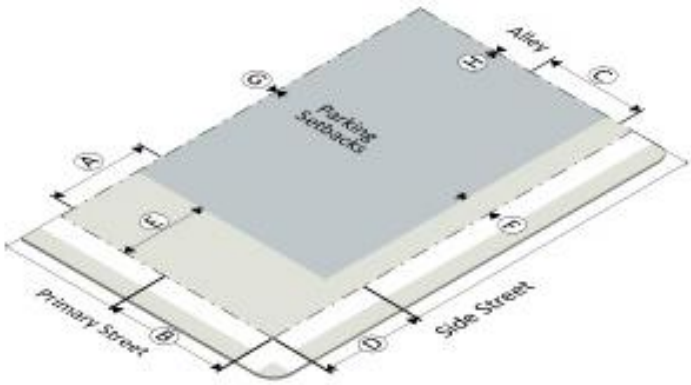
Entrances	
Ⓓ Street-facing entrance	Required
Ⓔ Entrance spacing (max)	75′

Allowed Building Elements	
Porch	No
Stoop	No
Balcony	Yes
Gallery	Yes
Awning	Yes
Forecourt	Yes

(k) Civic Building

▪	UD-1
▪	UD-2
▪	UD-3
▪	UD-4
▪	UD-5



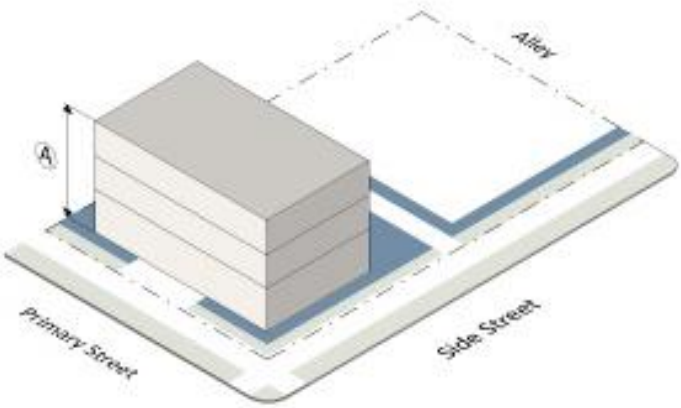


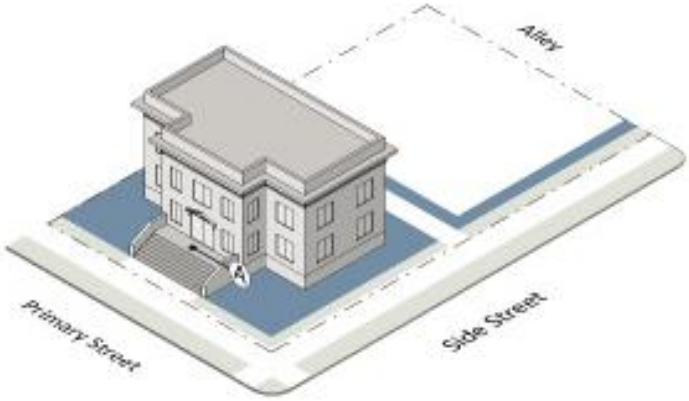
(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot width (min/max)	30′ / 180′
Building Setbacks		
Ⓑ	Primary street (min)	5′
Ⓒ	Side street (min)	5′
Ⓓ	Side, common lot line (min)	0′ or 10′
Ⓔ	Rear, common lot line/alley (min)	0′ or 10′

(2) Building Placement

Build-to Zone (BTZ)		
Ⓐ	Primary street (min/max)	5′ / 40′
Ⓑ	% of building in primary street BTZ (min)	50%
Ⓒ	Side street (min/max)	5′ / 40′
Ⓓ	% of building in side street BTZ (min)	25%
Parking Setbacks		
Ⓔ	Primary street (min)	30′
Ⓕ	Side street (min)	10′
Ⓖ	Side, common lot line (min)	0′ or 5′
Ⓗ	Rear, common lot line/alley (min)	0′ or 5′
Open Space		
Ⓘ	% of open area on the lot (min)	20%





(3) Height

Building Height	
Ⓐ Principal building in UD-1, -2, -3, -4 (max)	3 stories / 45′
Ⓐ Principal building in UD-5 (max)	5 stories / 75′

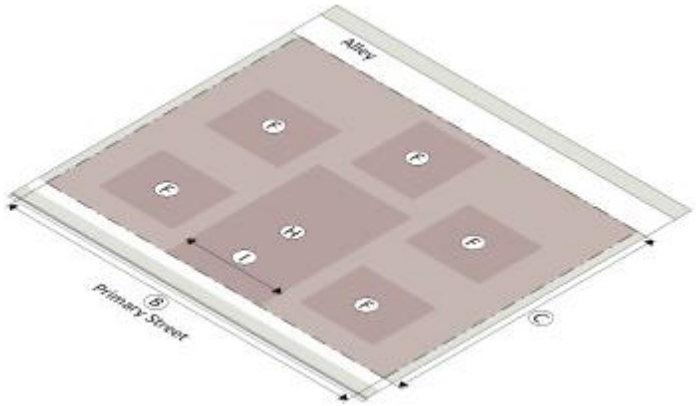
(4) Façade Activation

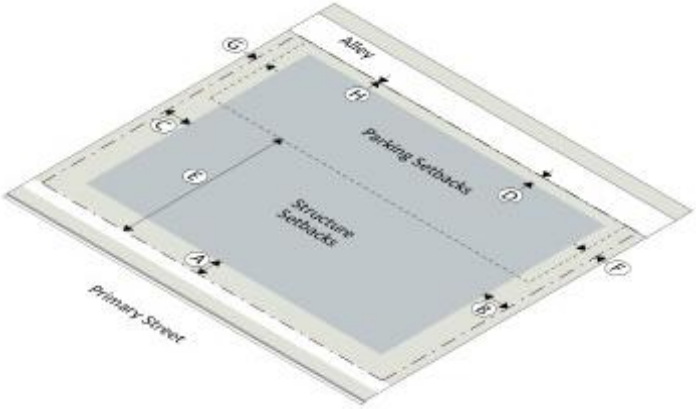
Entrances	
Ⓐ Street-facing entrance	Required

Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	Yes
Awning	Yes
Forecourt	Yes

(I) Cottage Court

	UD-1
▪	UD-2
▪	UD-3
	UD-4
	UD-5





(1) Lot Standards

Site Dimensions		
Ⓐ	Lot Area (min/max)	18,000 / 24,000 sf
Ⓑ	Lot width (min/max)	150′ / 200′
Ⓒ	Lot depth (min)	120′
Ⓓ	Dwelling units per min. lot area	5
Ⓔ	Area per dwelling unit (min)	3,600 sf
Ⓕ	Building footprint (max)	1,000 sf
Ⓖ	Accessory structure footprint (max)	450 sf

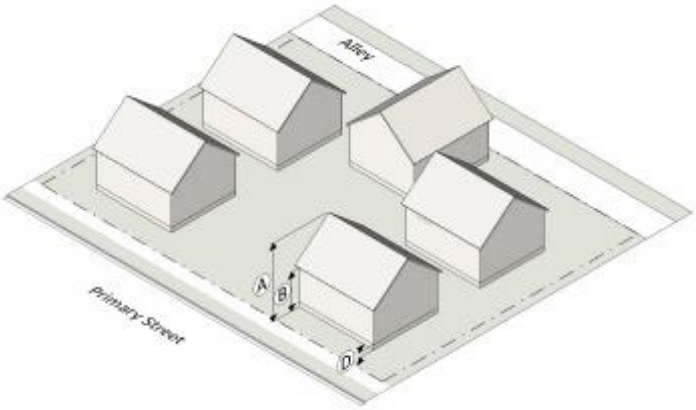
Courtyard Dimensions		
Ⓗ	Area (min)	3,000 sf
Ⓘ	Width (min)	40′
Ⓙ	Area per unit (min)	600 sf

(2) Building Placement

Structure Setbacks		
Ⓐ	Primary street (min/max)	15′ / 25′
Ⓑ	Side street (min)	
Ⓒ	Side, common lot line (min)	
Ⓓ	% of building in primary street BTZ (min)	70%

Parking Setbacks		
Ⓔ	Primary street (min)	30′
Ⓕ	Side street (min)	5′
Ⓖ	Side, common lot line (min)	5′
Ⓗ	Rear, common lot line/alley (min)	5′

Open Space		
Ⓘ	% of open area on the lot (min)	20%



(3) Height

Building Height	
Ⓐ Principal building (max)	3 stories / 40′
Ⓑ Principal building wall plate (max)	17′
Ⓒ Accessory building (max)	17′
Ⓓ Ground floor elevation (min)	2′

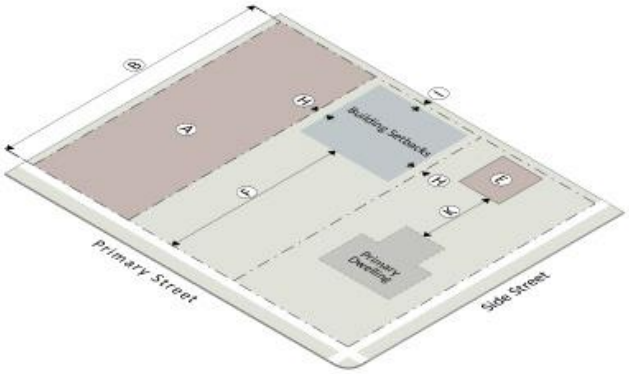
(4) Façade Activation

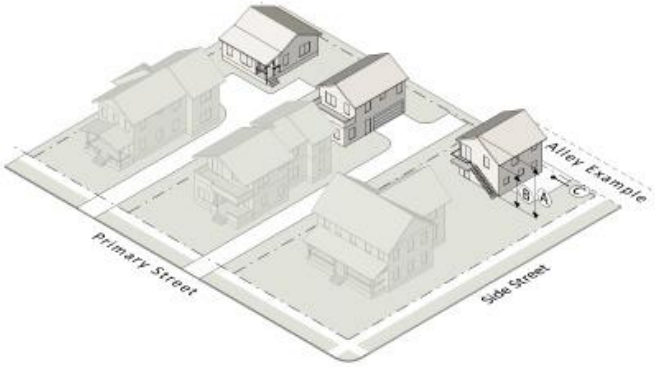
Entrances	
Ⓐ Street-facing entrance (end units)	Required

Allowed Building Elements	
Porch	Yes
Stoop	Yes
Balcony	Yes
Gallery	No
Awning	No
Forecourt	No

(m) Carriage House

▪	UD-1
▪	UD-2
	UD-3
	UD-4
	UD-5





(1) Lot Standards

Lot Dimensions		
Ⓐ	Lot area (min)	5,000 sf
Ⓑ	Lot depth (min)	120′
Ⓒ	Dwelling units per lot (max)	2
Ⓓ	Additional on-site parking	1 space
Ⓔ	Building footprint	450 sf

(2) Building Placement

Building Setbacks		
Ⓕ	Primary street (min)	50′
Ⓖ	Side street (min)	10′
Ⓗ	Side, common lot line (min)	5′
Ⓘ	Rear, common lot line (min)	5′
Ⓙ	Rear, alley (min)	4′ or 20′
	Building separation (min)	16′

(3) Height

Building Height		
Ⓐ	Building height (max)	25′
Ⓑ	Building wall plate height (max)	17′

(4) Access

Vehicular	
Ⓒ	From alley; or from street when no alley present

(2) Land Use

(a) Permitted Land Uses

(1) This section establishes the land uses allowed in each subdistrict. A lot or building shall be occupied with only the land uses allowed in Sec. 28-39(u)(2).

(2) Any one or more land uses identified in Sec. 28-39(u)(2) as being allowed within a specific subdistrict may be established on any parcel within that subdistrict, subject to the Allowed Use Table, and in compliance with all applicable requirements of this district.

(b) Use Standards

(1) Ground Story Uses in All Districts

Allowed ground story uses may extend into upper stories without regard for the upper story allowed uses listed on the use table below.

(2) Civic Buildings

Only Public/Institutional uses listed on the use table below are allowed in a civic building type.

(3) Limited Uses in UD-3 District

Nonresidential uses listed as Limited in the UD-3 District are subject to the following additional standards:

a. The use can only be located on the ground floor in a corner unit of an Apartment building type.

b. The unit cannot exceed 2,500 square feet in gross floor area.

c. Drive-thru facilities are not permitted.

(c) Allowed Use Table

	UD-1	UD-2	UD-3	UD-4, UD-5		
	All Floors	All Floors	All Floors	Ground Story	Upper Stories	Use Standards
RESIDENTIAL						
Dwelling, single-family, detached	P	P	—	—	—	
Dwelling, duplex	P	P	—	—	—	
Dwelling, townhouse	—	P	P	P	P	
Dwelling, multifamily	—	—	P	P	P	
Home occupation	P	P	P	P	P	
Home business	S	S	S	P	P	
GROUP LIVING						
Assisted living facility, nursing home	—	—	P	P	P	
Convent, monastery, seminary and nunnery	—	—	C	P	P	
Dormitory, fraternity or sorority house, rooming / boardinghouse or other residence hall	—	—	C	P	P	
PUBLIC/INSTITUTIONAL						
Club, lodge, fraternal organization	C	C	C	P	P	
College or university, vocational school	—	—	—	C	C	
Community use	P	P	P	P	P	
Conference, convention center	—	—	—	C	C	
Cultural center, library, museum	—	—	—	C	C	
Hospital	—	—	—	P	P	
Place of worship	C	C	C	P	P	
School	C	C	C	P	P	
Park, playground	P	P	P	P	—	
Public utility	P	P	P	P	—	
Public works	C	C	C	C	C	
Recreational facility	C	C	C	C	C	
Telecommunications antenna	C	C	C	C	C	
RETAIL SALES, SERVICE, ENTERTAINMENT						
Amusement arcade	—	—	—	P	—	
Auction establishment	—	—	—	P	—	
Bank, lending institution	—	—	—	P	P	
Billiard, pool hall	—	—	—	P	—	
Day care center, group family day care home	C	C	L	P	—	28-39(u)(2)(b)(3)
Day care facility, small	P	P	P	P	P	
Convenience center, drug store	—	—	L	P	—	28-39(u)(2)(b)(3)
Eating establishment	—	—	L	P	—	28-39(u)(2)(b)(3)
Farmers market, open	—	—	L	P	—	28-39(u)(2)(b)(3)
Funeral home	—	—	—	C	—	

Key: P = Permitted by Right L = Permitted Subject to Use Standards
S = Special Exception Required C = Conditional Use Permit Required — = Not Permitted

	UD-1	UD-2	UD-3	UD-4, UD-5		
	All Floors	All Floors	All Floors	Ground Story	Upper Stories	Use Standards
RETAIL SALES, SERVICE, ENTERTAINMENT						
Indoor athletic facility, dance studio	—	—	—	P	—	
Live entertainment	—	—	—	P	—	
Medical, dental office or clinic	—	—	—	P	P	
Nightclub	—	—	—	P	—	
Personal service, barber, beauty shop	—	—	L	P	—	28-39(u)(2)(b)(3)
Retail sales establishment	—	—	L	P	—	28-39(u)(2)(b)(3)
Shopping center	—	—	—	P	—	
Theater	—	—	—	P	—	
Veterinary hospital/service	—	—	—	P	—	
GENERAL BUSINESS						
Business service or supply establishment	—	—	—	P	—	
Contractor's office and shop	—	—	—	P	—	
Industrial/flex	—	—	—	P	—	
Laboratory research and testing facility	—	—	—	P	P	
Office	—	—	L	P	P	28-39(u)(2)(b)(3)
Warehouse	—	—	—	C	C	
Wholesale trade establishment	—	—	—	P	—	
VISITOR ACCOMMODATIONS						
Bed and breakfast inn	—	C	C	P	P	
Hotel, motel	—	—	—	P	P	
OUTDOOR RECREATION						
Golf course, country club and clubhouse	P	P	P	—	—	
Outdoor sports and recreation, commercial	C	C	C	C	—	
VEHICLE ACCOMMODATIONS						
Bus or railroad station	—	—	—	P	—	
Fuel sales	—	—	—	C	—	
Helistop	—	—	—	C	C	
Parking, commercial off-street surface parking	—	—	—	C	C	
Parking, structure off-street facility	—	—	—	C	—	
Repair service	—	—	—	C	—	
Service station	—	—	—	C	—	
Vehicle service	—	—	—	P	—	
Vehicle repair	—	—	—	C	—	
Vehicle sales, rental	—	—	—	P	P	

Key: P = Permitted by Right L = Permitted Subject to Use Standards
S = Special Exception Required C = Conditional Use Permit Required — = Not Permitted

(3) Parking

(a) Parking in the UD District

The requirements of Chapter 28, Article VII apply in the Urban Development (UD) District, as specifically modified in this section.

(b) Required Parking Credits

(1) Credit for On-Street Parking

One legal on-street parking space may be substituted for every required parking space, provided the on-street space is located on a public right-of-way immediately abutting the subject property.

(2) Proximity to Transit

A 15% reduction in the number of required parking spaces for is allowed for uses with a main entrance within a walking distance of 1,320 feet of a operating transit stop, with service from 6 AM to 10 PM where service intervals are no longer than 15 minutes during peak commute hours.

(3) Employer Transportation Demand Management (TDM)

a. Defined

Employer transportation demand management has a variety of options, including, but not limited to, employer provision of a transportation coordinator, preferential parking for car and van pools, shuttle services, financial incentives and telecommuting.

b. Reduction Allowed

The Planning Director may approve up to a 25 percent reduction in the number of spaces for uses that institute and commit to maintain a transportation demand management (TDM) program, considering information the applicant submits that clearly indicates the types of TDM activities and measures proposed.

(4) Private Car Sharing Program

a. A reduction in the number of required parking spaces for residential units is allowed where an active on-site car-sharing program is made available for the exclusive use of residents.

b. The parking requirements for all dwelling units may be reduced by five spaces for each car-share vehicle provided. If required, visitor spaces cannot be substituted.

(5) Valet Parking

Valet parking may be permitted where all of the following standards have been met:

a. An attendant is provided to park vehicles during all business hours of the use utilizing the valet parking.

b. An equivalent number of valet spaces are available to replace the number required on-site parking spaces.

c. Valet spaces do not require individual striping, and may take into account the mass parking of vehicles.

(c) Tandem Parking

(1) Tandem parking is allowed for single-family, two-family and multi-family living.

(2) Two parking spaces in tandem must have a combined minimum dimension of 8.5 feet in width by 36 feet in length.

(3) Both parking spaces in tandem must be assigned to the same dwelling unit.

(4) Tandem parking may not be used to provide guest parking.

(d) Reserved Parking

Parking spaces may be reserved for a specific tenant or unit, provided that the following standards are not exceeded:

(1) Residential

a. One space per efficiency or one-bedroom multi-living dwelling unit.

b. Two spaces per two-bedroom or greater multi-living dwelling unit.

(2) Nonresidential

No more than one-third of the total provided spaces may be reserved.

(e) Required Bicycle Parking

(1) The following bicycle parking spaces are required for each nonresidential building or mixed use project. For mixed use projects, only the nonresidential portion of the project is required to provide bicycle parking.

Up to 25,000 of gross floor area	2 spaces
25,000 - 50,000 of gross floor area	4 spaces
50,000+ of gross floor area	8 spaces

(2) Bicycle parking racks must be high-quality, inverted "U"- type construction. Alternative high-quality bicycle parking racks may be approved by the Planning Director if they can be shown to provide adequate theft protection and security, and support the bicycle at two points of contact to prevent damage to the bicycle wheels and frame.

(3) All bicycle racks must be publicly accessible and be placed on private property or within the public right-of-way with the approval of the Planning Director.

(4) Bicycle racks must be located within 100 feet of the primary building entrance and in a location that is visible and easily accessible.

(5) Where a bicycle rack allows bicycles to be locked on both sides of the rack without conflict, each side may be counted as one required space.

(f) Parking Spaces Required

The following table defines the number of parking spaces required for each use in the use table. The ratios in this table may be modified during special use review.

Land Use	Parking Ratio (spaces)
Residential	
Dwelling, single-family & two-family	2 per unit
Dwelling, multiple-family 0 - 1 bedroom 2 bedrooms 3+ bedrooms	.75 per unit + 1 visitor per 5 units 1.5 per unit + 1 visitor per 5 units 2.0 per unit + 1 visitor per 5 units
Group Living	
All group living	1 per bedroom
Public/Institutional	
Place of worship	1 per 4 seats main assembly room
All other public/institutional	1 per 300 sf of gross floor area
Retail Sales, Service, Entertainment	
Child care center	1 per employee + 1 per 12 children
All other retail sales, service, entertainment	1 per 300 sf of gross floor area
Visitor Accommodations	
All visitor accommodations	1 per guest room
Outdoor Recreation	
All outdoor recreation	1 per 300 sf of gross floor area
General Business	
All general business	1 per 300 sf of gross floor area
Vehicle Accommodations	
All vehicle accommodations	1 per 300 sf of gross floor area

(4) Transitions

(a) Transition Required

A transition is required where a UD District abuts an existing residential or commercial district, as set forth in the two options below. The transition is required whether or not the adjacent property is developed or vacant.

(1) Transition Using Adjacent Lot Requirements

Where lots in the UD District abut a residential district, and the lots meet the adjacent district minimum lot size requirement for a single-family detached lot, no additional transition is required.

(2) Transition Using Landscaping

Where no transition according to paragraph (1) above occurs, a landscaped buffer meeting the requirements of the Stafford County Design & Construction Standards Manual for Landscaping, Screening and Buffering is required, with a minimum width as set out in the table below.

District	Abutting Agricultural District	Abutting Residential District	Abutting Commercial District
UD-1	B	--	B
UD-2	B	A	B
UD-3	C	B	A
UD-4	C	B	--
UD-5	C	C	--

(5) Streets and Blocks

(a) Streets and Blocks in the UD District

The requirements of the Design Standards Manual apply in the Urban Development (UD) District, as specifically modified in this section. Sidewalks, streets, street trees and street lights must be installed and constructed for both new streets and existing streetscapes.

(b) Blocks

(1) Applicability

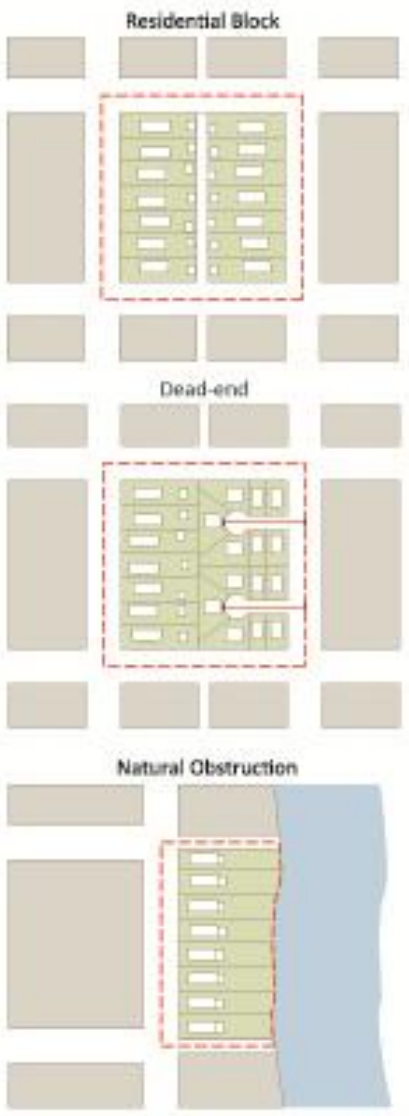
The block length and perimeter standards apply to all preliminary plans, final plats and site plans after the effective date of this amendment.

(2) Block Standards

a. Residential blocks must have sufficient width to provide for two tiers of residential lots, except where single tier lots are required to accommodate single-loaded streets where across from a public park or open space, to allow for unusual topographical conditions, or when adjacent to the outer perimeter of a subdivision.

b. The following table establishes the maximum block perimeter, maximum block lengths and a maximum length for a dead end street by zoning district. In the event that a single block contains more than one zoning district, the most restrictive requirement applies.

	Block Perimeter (max)	Block Length (max)	Dead End Street (max)
UD-1, UD-2, UD-3	2,000 feet	660 feet	300 feet
UD-4, UD-5	1,760 feet	440 feet	not allowed



(3) Block Measurement

a. A block is bounded by a street (not including an alley) that meets the requirements of this section.

b. Block perimeter is measured along the centerline of intersecting streets that encompass the block.

c. Block length is measured from centerline to centerline of intersecting streets.

d. The maximum block length or perimeter may be extended in the event that steep slopes in excess of 25%, freeways, waterways, railroad lines, preexisting development, tree conservation areas, stream buffers, cemeteries, open space, or easements make the maximum block length or perimeter unfeasible.

e. The maximum block length and perimeter may be extended by 25%, if the block includes a pedestrian passage that meets the requirements of this section.

f. A block may be broken by a civic building or open lot, provided the lot is at least 50 feet wide and provides a pedestrian passage meeting the requirements this section.

(c) Street Types

(1) This section describes guidelines for the construction of new streets in the UD District and is intended to provide a catalog of pre-approved street types that are appropriate to use. Additional streets types may be integrated into this code as they are approved by the Planning Director.

(2) Alternative parking angles other than shown may be approved by the Planning Director.

(3) Medians may be added to any of the street types shown. The dimensions for right-of-way and clear width shall be adjusted to add the width of the median. Center medians may be used to provide parallel or angle parking, where approved by the Planning Director.

(4) The Planning Director will make the final determination as to the appropriate street type based on the type, scale and intensity of the proposed development.

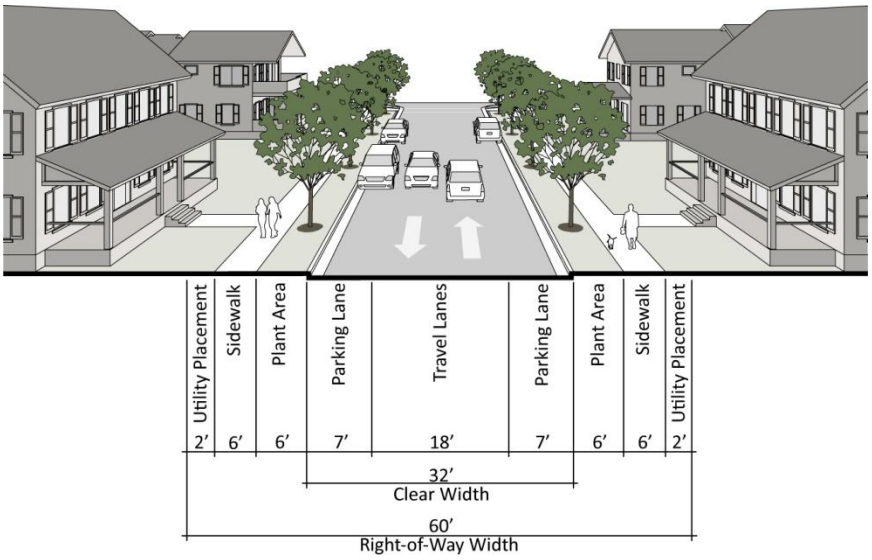
(5) Where development occurs adjacent to an existing street, the streetscape illustrated in the most closely matching street in this section shall be installed. The Planning Director shall determine which street is the closest match.

(d) Neighborhood Yield

The Neighborhood Yield street is a minor local street intended for use where the predominant character is residential. This street is used only rarely, where very low traffic volumes are anticipated (less than 250 vehicles per day).

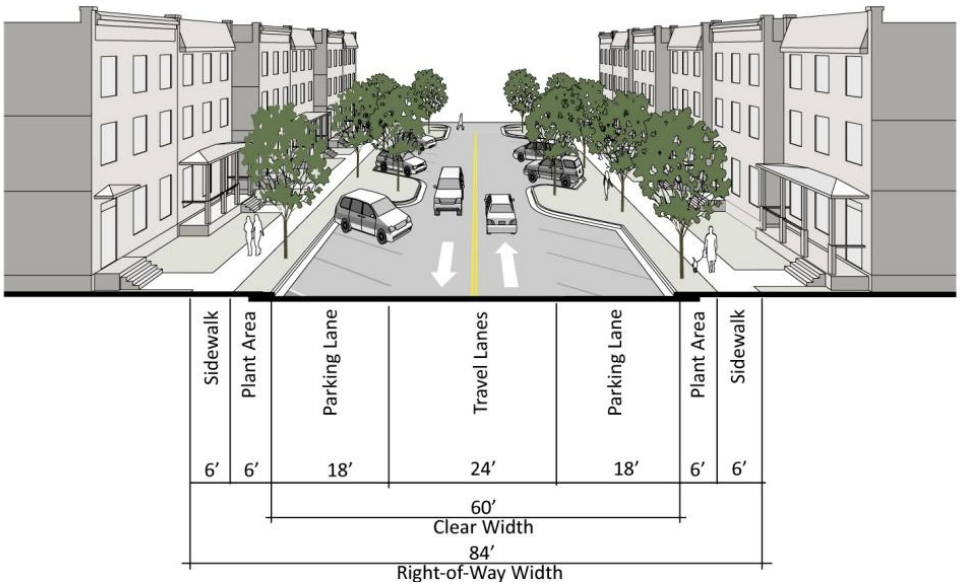
(e) Neighborhood Local

The Neighborhood Local street is a minor local street intended for use where the predominant character is residential. This street is the most common residential street.



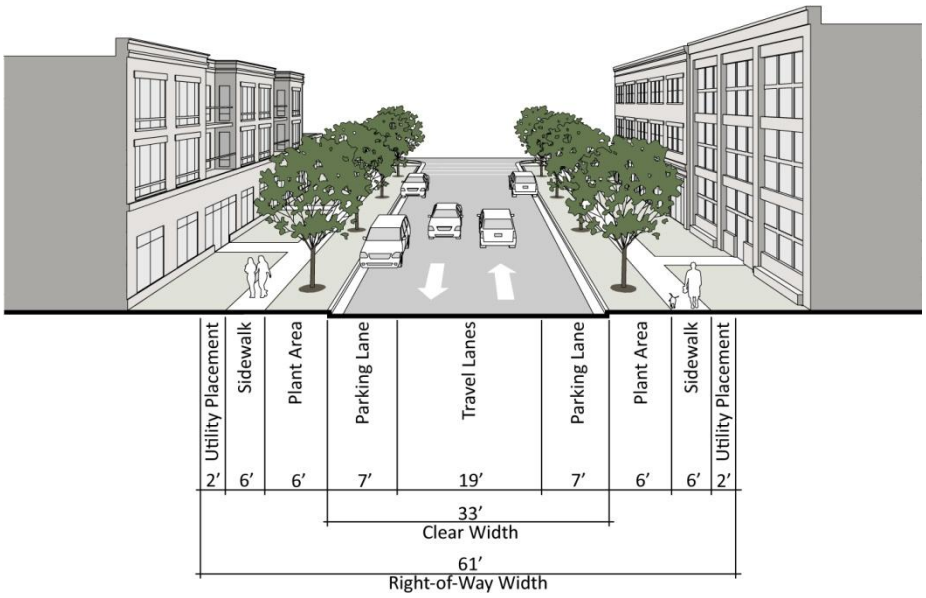
(f) Neighborhood Local - Angle

The Neighborhood Local - Angle is a local street intended for use where the predominant character is attached or multi-unit residential where additional parking is needed.



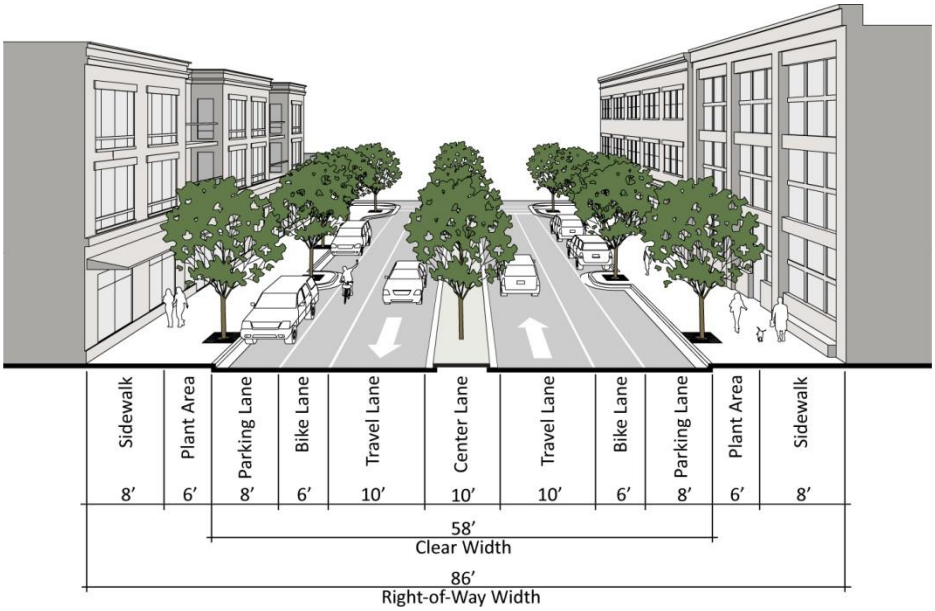
(g) Neighborhood Street

The Neighborhood Street is a major local street intended for use where the predominant character is residential. This street is used to connect residential neighborhoods.



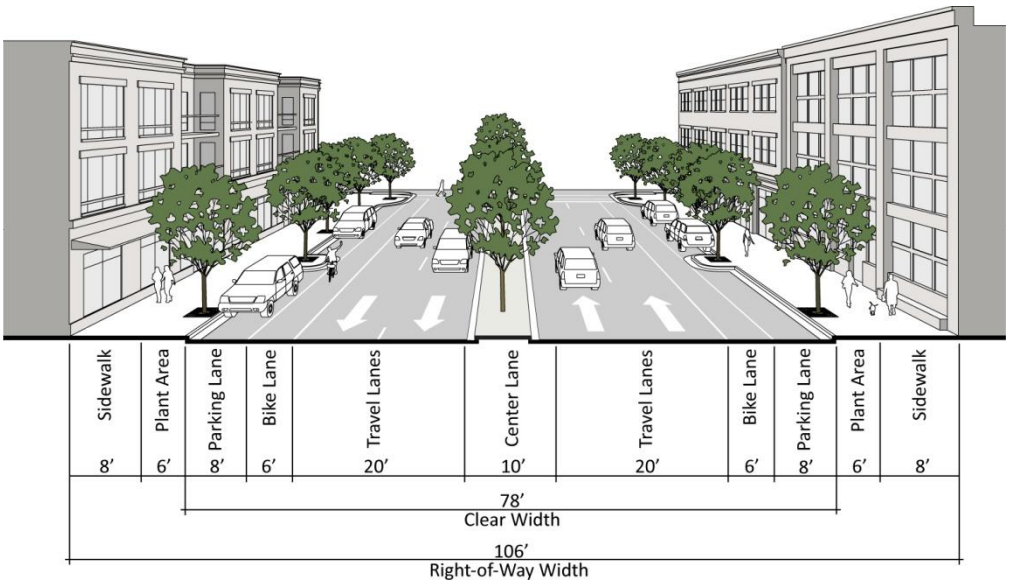
(h) Avenue - 3-Lane

The Avenue 3-Lane is a connector street used to connect residential and mixed use neighborhoods.



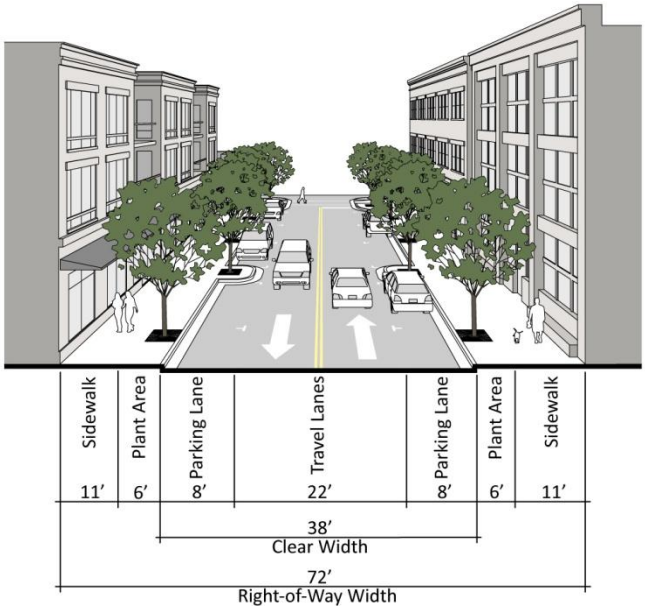
(i) Avenue - 5-Lane

The Avenue 5-Lane is a major thoroughfare used to connect residential and mixed use neighborhoods to the rest of the County. This street should not bisect a neighborhood.



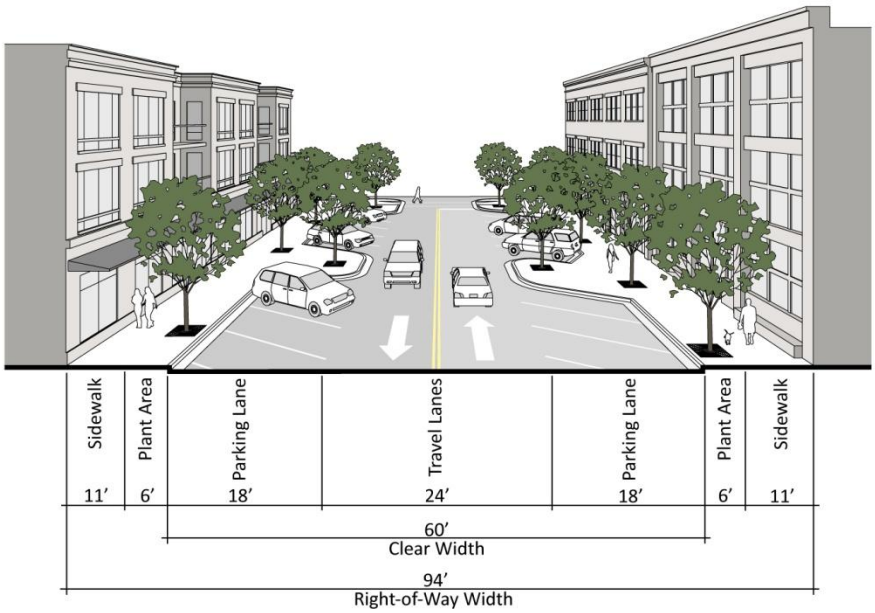
(j) Main Street - Parallel

The Main Street, Parallel, is a connector street with designated on-street parallel parking. It is intended for use in mixed use areas.



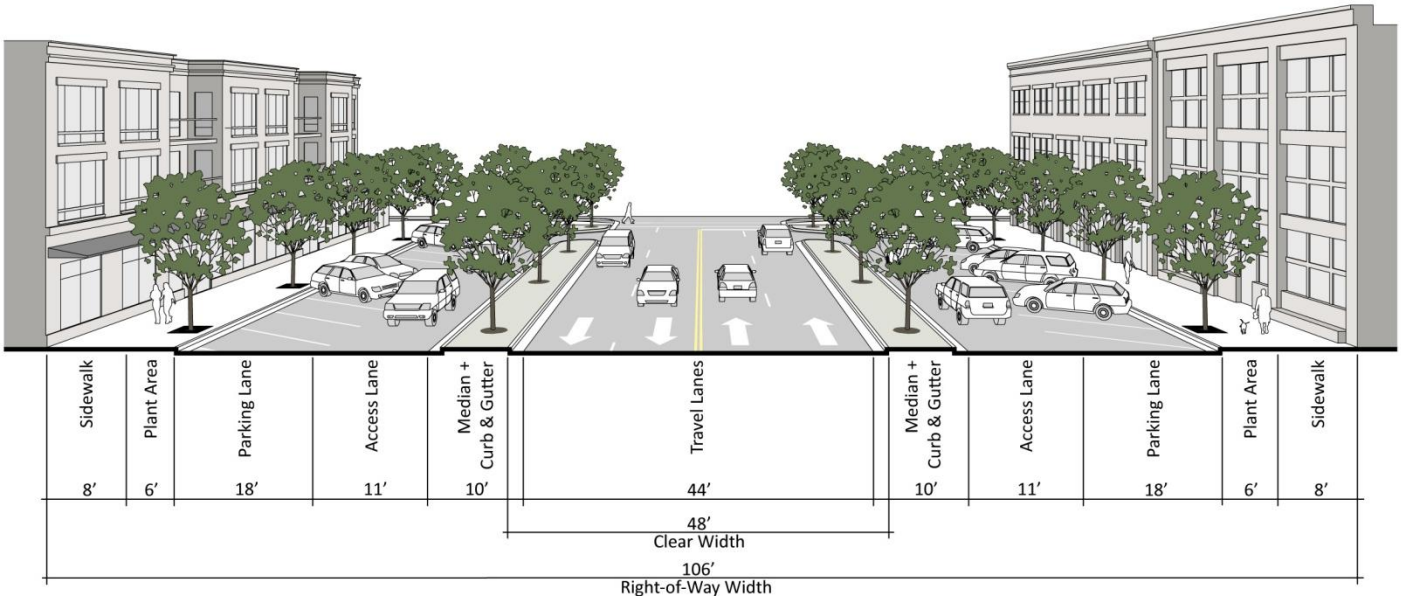
(k) Main Street - Angle

The Main Street - Angle, is a connector street with designated on-street angle parking. It is intended for use in mixed use areas.



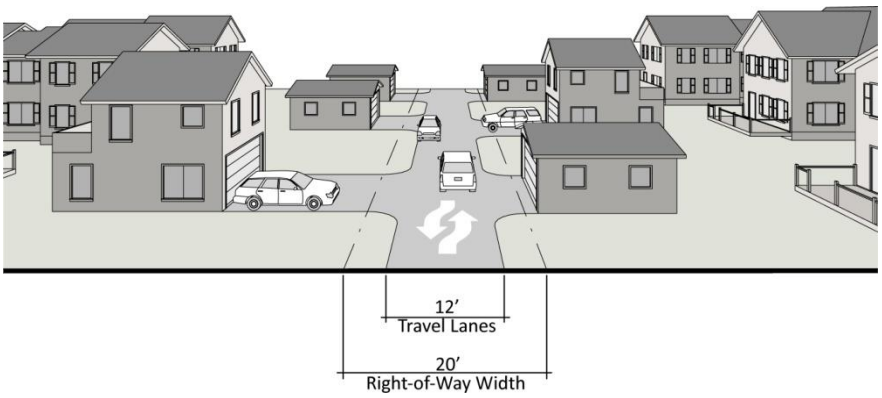
(l) Multi-Way Boulevard

The Multi-Way Boulevard is a major thoroughfare with designated on-street angle or parallel parking on a frontage road. It is intended for mixed use areas with large existing streets carrying high volumes of traffic.



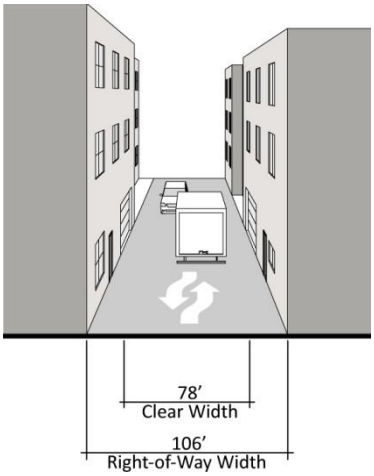
(m) Residential Alley

The Residential Alley is a right-of-way designed to provide access to the side or rear of residential building types whose principal frontage is on a street.



(n) Mixed Use Alley

The Mixed Use Alley is a right-of-way designed to provide access to the side or rear of mixed uses whose principal frontage is on a street.



(o) Pedestrian Passage

The Pedestrian Passage is used to break up long blocks where a street is impractical. A pedestrian passage must connect to a public street on both ends.

(6) Administration

(a) Zoning Map Amendments (Rezoning)

Article XII, Amendments to Zoning Maps shall apply to UD Districts, as modified below. The following master plan requirements shall be met at the time of any rezoning to a UD District.

(1) UD District Master Plan

The UD District shall include a Master Plan. The Master Plan shall include, at minimum, the following components:

a. Location of each proposed sub-district.

b. Pedestrian shed – ¼ mile radius from central civic building or use or commercial use.

c. Applicable street network, including street network hierarchy.

d. Location of civic buildings and uses.

e. Location of historic structures and sites, if any.

f. Location of special sites, including vista termination points.

g. Location of passive and active open spaces.

h. Tables identifying quantities associated with each use, including acreage, amount of development, and areas designated for civic uses, open space, and streets.

i. Description of how the proposal is consistent with the applicable UDA recommendations in the Comprehensive Plan.

(2) UD District Planning Principles

The Master Plan must illustrate the principles of new urbanism and traditional neighborhood design, including the following:

a. Each neighborhood is defined by an easy walking distance from edge to center of approximately ¼-mile.

b. The road network is well-connected, including connection of new local streets with existing local streets.

c. There are options for future transit.

d. Neighborhoods are mixed use, including variety of housing stock that serves a range of incomes and age groups.

e. Uses are well-integrated, rather than widely separated and buffered.

f. Special sites, such as those at a terminated vista, are reserved for civic buildings and spaces that serve as symbols of the community, enhancing community identity.

g. Historic structures are preserved and protected.

h. Formal and informal active and passive open spaces are a key component. A system of open spaces is connected by pedestrian and bicycle networks.

i. Residential densities per gross acre of developable land (excluding open space) demonstrate at least:

   i. 4 single-family units;

   ii. 6 townhouse units; and

   iii. 12 multifamily units.

j. Mixed use intensities of at least 0.4 FAR.

(b) Site Plan Review

Article XIV, Site Plans, shall apply within the UD Districts, as modified below.

Appendix E - Draft Urban Street Cross-Sections

(d) Neighborhood Yield

The Neighborhood Yield street is a minor local street intended for use where the predominant character is residential. This street is used only rarely, where very low traffic volumes are anticipated (less than 250 vehicles per day).

(e) Neighborhood Local

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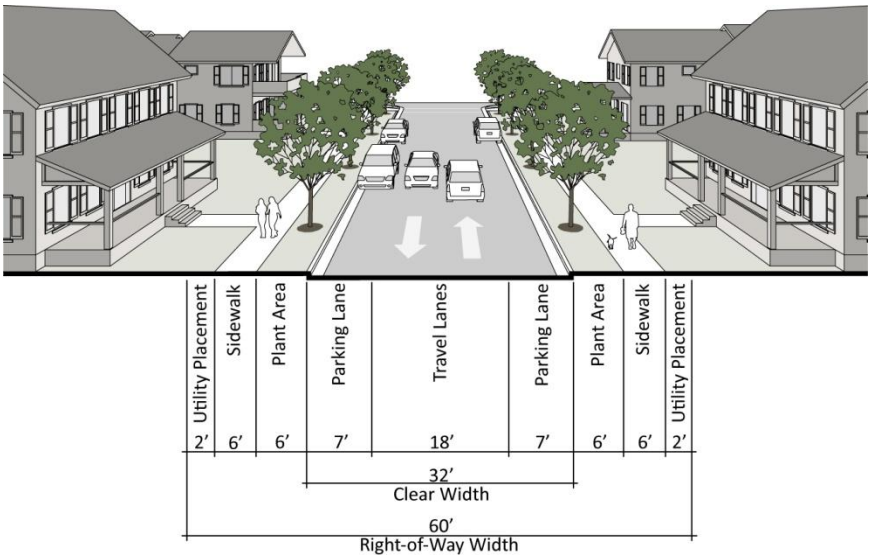

(f) Neighborhood Local - Angle

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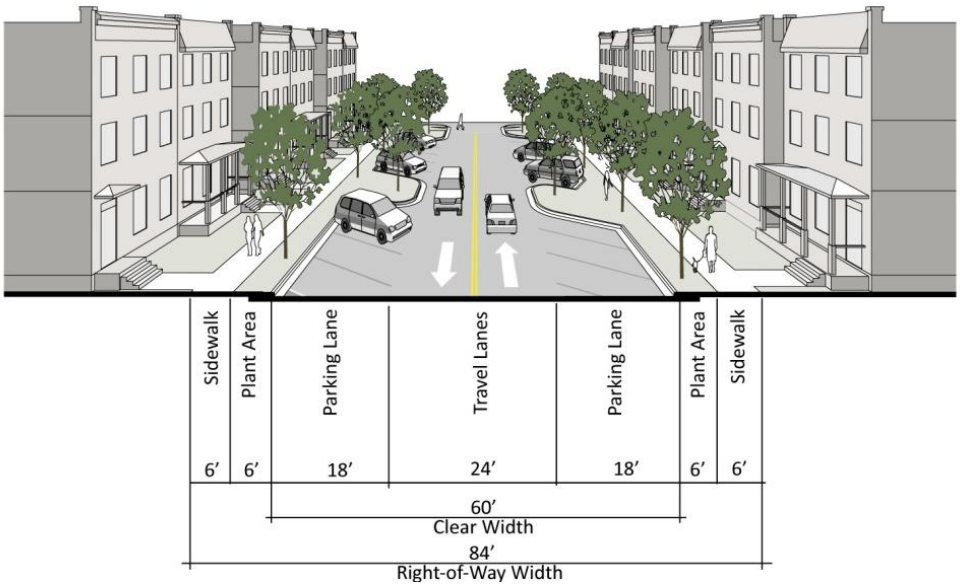
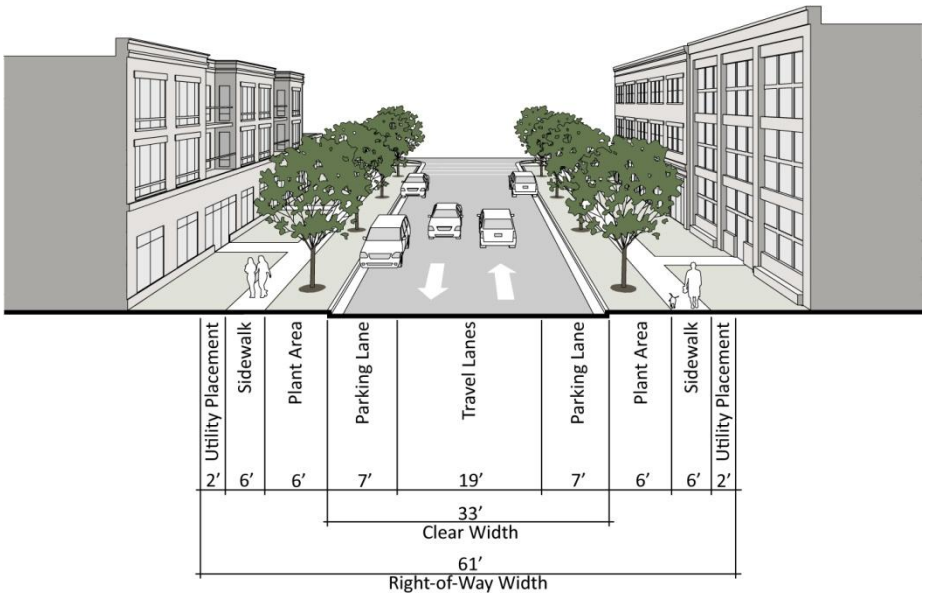


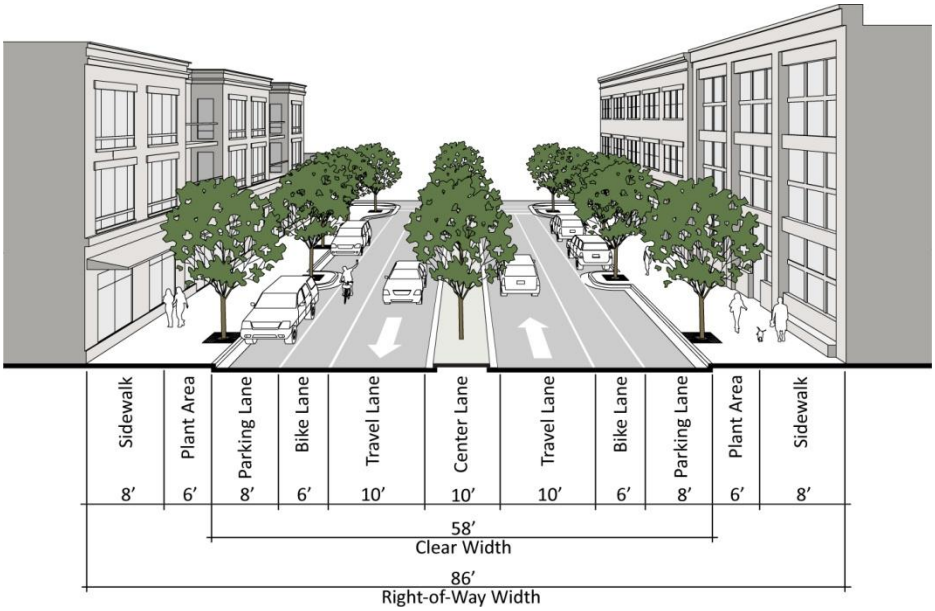
(g) Neighborhood Street

The Neighborhood Street is a major local street intended for use where the predominant character is residential. This street is used to connect residential neighborhoods.



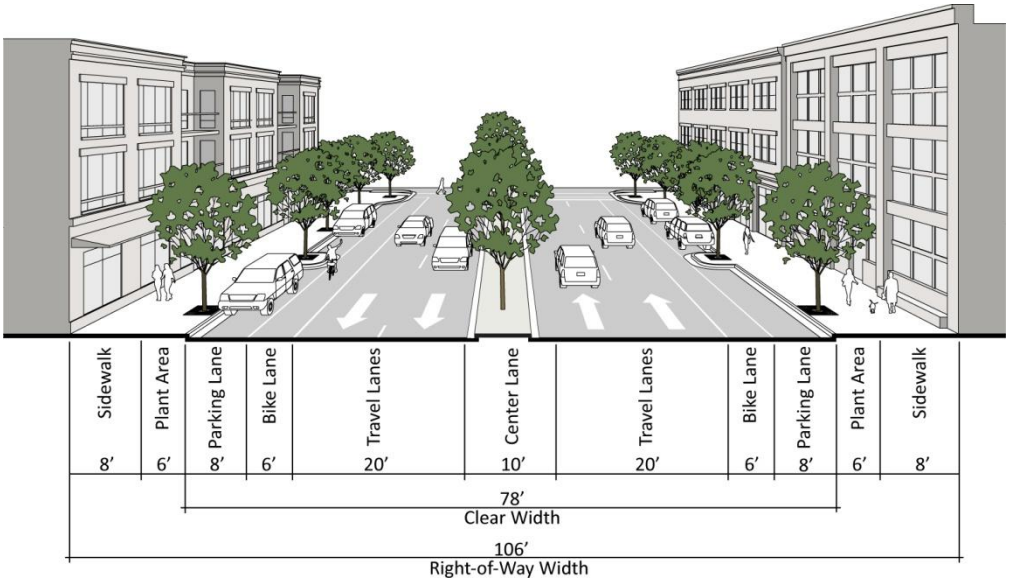
(h) Avenue - 3-Lane

The Avenue 3-Lane is a connector street used to connect residential and mixed use neighborhoods.



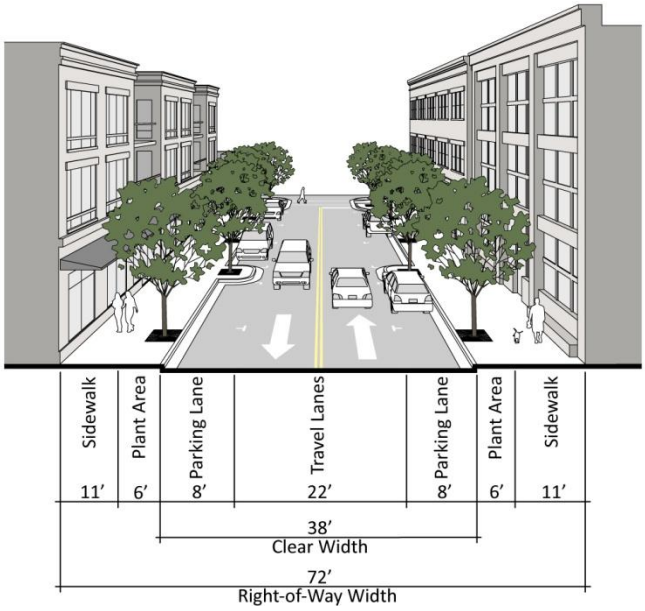
(i) Avenue - 5-Lane

The Avenue 5-Lane is a major thoroughfare used to connect residential and mixed use neighborhoods to the rest of the County. This street should not bisect a neighborhood.



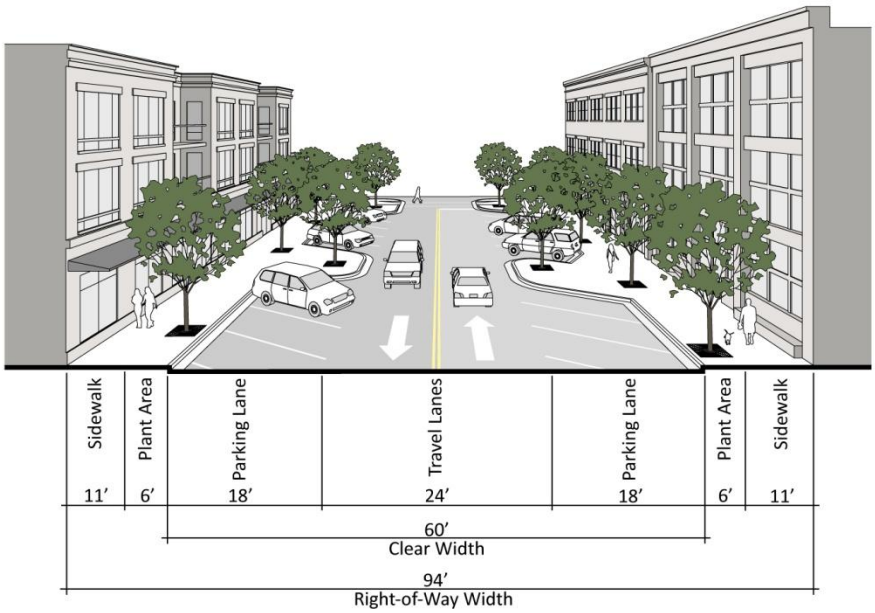
(j) Main Street - Parallel

The Main Street, Parallel, is a connector street with designated on-street parallel parking. It is intended for use in mixed use areas.



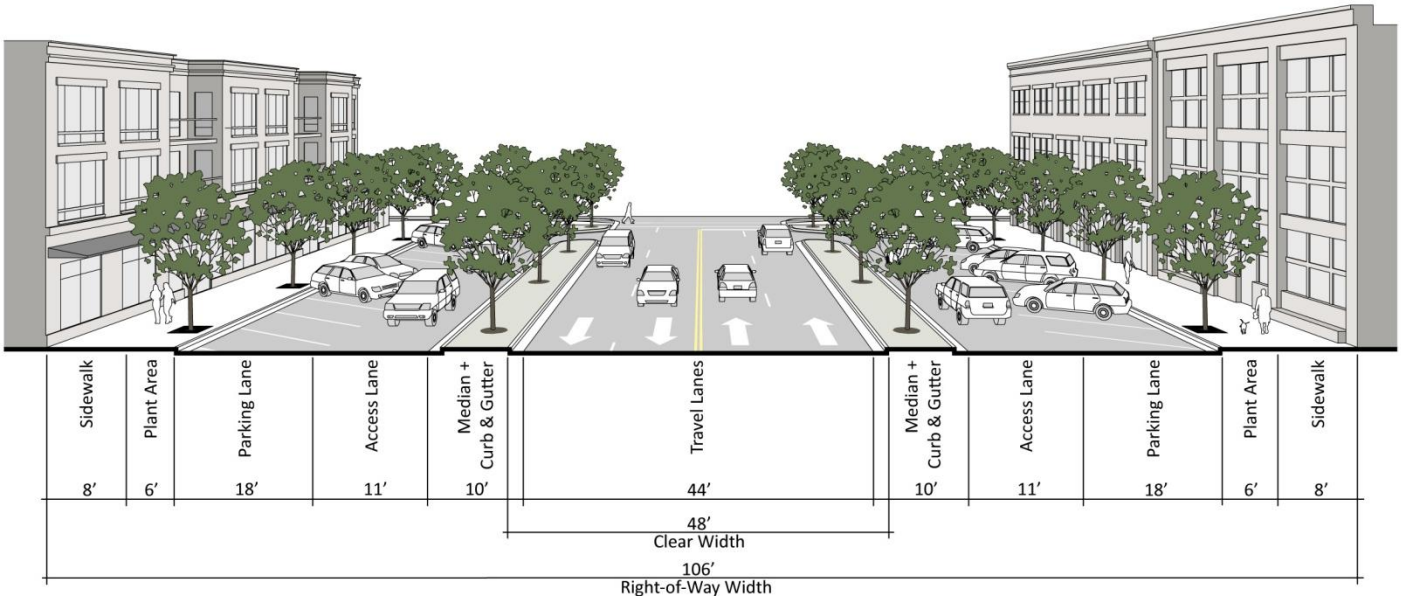
(k) Main Street - Angle

The Main Street - Angle, is a connector street with designated on-street angle parking. It is intended for use in mixed use areas.



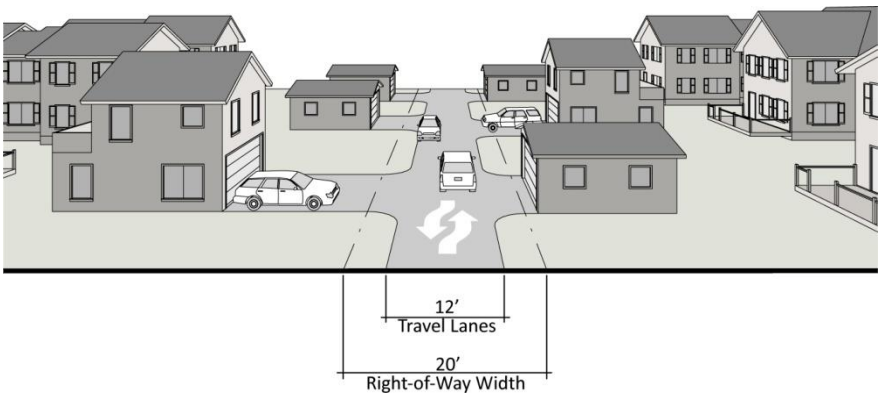
(l) Multi-Way Boulevard

The Multi-Way Boulevard is a major thoroughfare with designated on-street angle or parallel parking on a frontage road. It is intended for mixed use areas with large existing streets carrying high volumes of traffic.



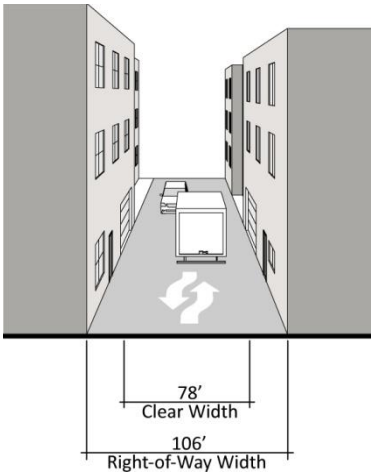
(m) Residential Alley

The Residential Alley is a right-of-way designed to provide access to the side or rear of residential building types whose principal frontage is on a street.



(n) Mixed Use Alley

The Mixed Use Alley is a right-of-way designed to provide access to the side or rear of mixed uses whose principal frontage is on a street.



(o) Pedestrian Passage

The Pedestrian Passage is used to break up long blocks where a street is impractical. A pedestrian passage must connect to a public street on both ends.