Elliot Road Corridor Improvement Study: Power Road to the Central Arizona Project Canal

Contract No.: 2006-026
Work Order TT005

Final Report Technical Appendix

Prepared by:

Kimley-Horn
and Associates, Inc.

June 2008
091337101

Kimley-Horn
and Associates, Inc.

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Kimley-Horn
and Associates, Inc.

STAKEHOLDER AND TECHNICAL ADVISORY COMMITTEE DOCUMENTS

Kimley-Horn and Associates, Inc.

ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY
POWER ROAD TO THE CENTRAL ARIZONA PROJECT CANAL

Work Order TT005
Contract No. 2006-026

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING # 1

DATE: JUNE 28, 2007
TIME: 10:00 AM
LOCATION: TOWN OF GILBERT
90 EAST CIVIC CENTER DRIVE, ROOM 100
GILBERT, AZ

ATTENDEES

Technical Advisory Committee Members

Jeffrey Herb, Town of Gilbert
Douglas Korinek, MCDOT – ROW
Giao Pham, City of Apache Junction
Andy Smith, Pinal County
Ross Renner, City of Mesa
Mark Venti, City of Mesa
Marc Ahlstrom, City of Mesa
Bobbie Ohler, FCDMC
Joe Warren (for Javier Gurrola), ADOT Pre-Design

Project Manager

Tim Oliver, MCDOT

Project Consultants (Kimley-Horn and Associates, Inc.)

Bryan Patterson
Dave Perkins
Bob Eichinger
Bruce Beenken
Michael Grandy

MEETING NOTES

1. The role of the Technical Advisory Committee (TAC) is to review consultant findings and recommendations and provide technical input. It is anticipated there will be six TAC meetings
2. There is also a Stakeholder Advisory Committee (SAC), which consists of the TAC members as well as other interested parties such as private utility companies, developers, and the Arizona State Land Department. The role of the SAC is to identify concerns, discuss relevant issues, gather input, and build consensus. It is anticipated there will be three SAC meetings.
3. It is anticipated there will be three public open houses to discuss project scoping, corridor alternatives, and preferred corridor recommendations, respectively. TAC and SAC meetings will occur prior to each open house.

4. The project team, scope, and schedule were discussed. Upcoming milestones include the first SAC meeting, anticipated to occur in mid-to-late July, and the first public open house, anticipated to occur in late July or early August.
5. Several potential issues were brought up and discussed by TAC members, including the following:
   - Typical cross-sections vary between agencies for principal arterials like Elliot Road, so there will need to be coordination and cooperation between agencies to develop the cross-section for Elliot Road because the road traverses through multiple jurisdictions. For example, Mesa uses a half-street right-of-way requirement of 65 feet while MCDOT uses a 70-foot half-street width. Mesa also indicated they want linear, detached sidewalks, not meandering sidewalks, and no median breaks within 660 feet of a major intersection. Mesa is also willing to consider a four-lane segment between major intersections with flares to six lanes at the intersections if it makes sense.
   - Development is occurring very rapidly in the vicinity of Elliot Road so it is critical to have a defined plan for Elliot Road so that the TAC member agencies know how to respond to requests from developers. For example, a housing development has been proposed adjacent to Elliot Road between Signal Butte Road and Mountain Road.
   - The alignment of Elliot Road west of Meridian Road is not anticipated to shift significantly from its current alignment. East of Meridian Road, however, it is unclear what the alignment of Elliot Road will be. It is anticipated that Elliot Road will intersect the proposed North/South freeway, but the alignment of this proposed freeway has not yet been set, although it is currently shown as being located just west of the Central Arizona Project (CAP) canal. It is also unclear if Elliot Road will cross the CAP canal at some point in the future. A recent policy change is that all future crossings of the CAP canal must be grade-separated. If Elliot Road is to cross the CAP canal, the alignment may have to shift to accommodate the grade separation.
   - The Maricopa County and Pinal County section lines do not line up. A reverse curve is likely needed on Elliot Road at the boundary of the two counties if Elliot Road stays on the section lines. Mesa likes to use superelevation on arterial reverse curves.
   - The Flood Control District of Maricopa County is working on a Siphon Draw drainage project that will impact the Elliot Road corridor near Meridian Road. Bobbie Ohler showed a graphic of the scope of the Siphon Draw project. She indicated that in conjunction with the project, the Arizona State Land Department (ASLD) will not require on-site retention for land south of Baseline Road and north of Elliot Road. ASLD is assuming that Elliot Road will follow the Pinal County section line east of Meridian Road and will require a half-street right-of-way requirement of 65 feet (130 feet total width). Lillian Moodey from ASLD should be invited to be part of the TAC.
   - Pinal County is conducting a study to identify regionally significant roads. This study should be completed in August. Right now, Elliot Road has been identified as a regionally significant road with a six-lane cross-section. Such a route typically has a 150-foot cross-section, which is larger than the 130-foot cross-section assumed by ASLD for Elliot Road east of Meridian Road. Further analysis and discussion throughout this study will need to take place to address this discrepancy.
   - The redevelopment of the former General Motors (GM) Mesa Proving Grounds is in the early stages and it is not currently known how it might impact the Elliot Road corridor. It is also unclear at this point if the land use assumptions in the MAG model for the former GM Proving Grounds match the land use envisioned by DMB, the developer of the GM Proving Grounds site. Gordon Sheffield from Mesa's Planning group is a good contact to provide more information on the redevelopment of the GM Proving Grounds.
   - The design to widen Power Road to six lanes in the vicinity of Elliot Road is underway by Jacobs for the City of Mesa. Power Road will have dual lefts, three through lanes, a bike lane, and a

right-turn lane in each direction. The widening will go to the radius returns on Elliot Road, at which point a transition section will be needed to join to the existing Elliot Road cross-section.

- Superstition Vistas is a large development (275 square miles) in Pinal County that could ultimately have a population of almost one million people. The eastern edge of the Elliot Road corridor is within the Superstition Vistas area. It is unclear at this time what impact Superstition Vistas will have on the Elliot Road corridor. This study should take into account any information available on the Superstition Vistas.
- A regional shopping center has been proposed for the northeast corner of Elliot Road/Hawes Road but many of the adjacent property owners are very opposed to the idea.
- MCDOT is looking at doing a corridor study on Signal Butte Road that would include the Elliot Road/Signal Butte Road intersection. It is unclear at this time how the redevelopment of the GM Proving Grounds might impact the alignment and functionality of Signal Butte Road.

6. Other pertinent comments made in the meeting included:
   - Marc Ahlstrom is the main point of contact for Mesa. Three hard copies of each deliverable should be sent to Marc so he can distribute them to Mark Venti and Ross Renner.
   - Mesa is acquiring right-of-way on the southwest corner of Elliot Road/Signal Butte Road to install a traffic signal there in the future.
   - A future bus route on Elliot Road is planned. Mesa is reserving right-of-way for bus pullouts on the far side of Elliot Road.
   - Mesa has preliminary plans for a turnout structure at the CAP canal and provided these to Michael Grandy of Kimley-Horn.
   - ASLD is currently conducting an Area Drainage Master Plan with the help of Carter & Burgess. Kimley-Horn should regularly get updates on the Area Drainage Master Plan from Wayne at Carter & Burgess and incorporate them into the study.
   - Representatives from the following should be invited to be part of the SAC:
     - Central Arizona Water Conservation District (CAWCD).
     - DMB.
     - APS.
     - SRP (Dan Hawkins is the contact).
     - Roosevelt Water Conservation District
7. There was discussion on future locations and times for the remainder of the TAC meetings. It was decided to continue meeting at the same location in the Town of Gilbert and to schedule meetings in the 9 am to 10 am timeframe on Thursdays.
8. Action Items:
   - Bobbie Ohler to send graphic of Siphon Draw Wash Project to Michael Grandy of Kimley-Horn.
   - Bobbie Ohler to provide Michael Grandy with a contact who can locate as-builts of the CAP canal from the CAWCD.
   - Marc Ahlstrom to provide Michael Grandy with Power Road/Elliot Road intersection reconstruction plans.
   - Michael Grandy to send copies of the presentation slides and meeting notes to all TAC members.
   - Tim Oliver to write a letter or e-mail to MAG requesting that MAG provide Michael Grandy with the latest MAG model outputs.
   - Dave Perkins and Tim Oliver to schedule a meeting with Roberta Crowe to discuss the public involvement plan.
   - Bryan Patterson to add to the TAC or SAC those people mentioned in the meeting as potential additions.

Kimley-Horn and Associates, Inc.

ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY
POWER ROAD TO THE CENTRAL ARIZONA PROJECT CANAL

Work Order TT005
Contract No. 2006-026

TECHNICAL ADVISORY COMMITTEE (TAC) MEETING # 2

DATE: OCTOBER 4, 2007
TIME: 8:30 AM
LOCATION: TOWN OF GILBERT
50 EAST CIVIC CENTER DRIVE, ROOM 302 A&B
GILBERT, AZ

ATTENDEES

Technical Advisory Committee Members

Andy Smith, Pinal County
Mark Venti, City of Mesa
Marc Ahlstrom, City of Mesa
Felicia Terry (for Bobbie Ohler), FCDMC
Tony Cabrera (for Duane Hunn), Carter-Burgess/ASLD

Project Manager

Tim Oliver, MCDOT

Project Consultants (Kimley-Horn and Associates, Inc.)

Bryan Patterson
Michael Grandy
Crystal Gerrity
Jennifer Newton

MEETING NOTES

1. The input received from the Stakeholder Advisory Committee (SAC) meeting held on August 8, 2007 and the public meeting held on August 29, 2007 was briefly summarized. In general, most of the comments received were in favor of improving Elliot Road and the major intersecting streets in the near future to alleviate the existing traffic and drainage issues. The Elliot Road/Signal Butte Road stop-controlled intersection experiences significant delay during the PM peak hour. The City of Mesa plans to complete design for signalizing that intersection by 2008. Most of the drainage issues relate to flooding at the existing dip crossings in the road.
2. The anticipated change in land use in the corridor, from mostly agricultural use in the existing condition to industrial, commercial, and mixed use by 2030, was also discussed. The question was raised as to what the anticipated land use is for the Lost Dutchman Heights area east of Meridian Road and Tony Cabrera said that it had not been finalized, but right now it is looking like it will be

mostly single-family residential with some higher density residential, commercial, and other employment land uses concentrated around Ironwood Drive, especially north of the Elliot Road alignment.

3. Related to the anticipated land use changes, the traffic volumes are projected to increase significantly in the future, although there is some discrepancy between the various available traffic projections as to how much volumes will increase. It was proposed that the MAG 2030 model output volumes be used as the 2030 baseline volumes for the Elliot Road Corridor Study, but that a sensitivity analysis also be conducted using volumes 37% higher than the MAG 2030 numbers. This 37% difference reflects the current average difference between existing traffic count data and MAG 2006 model output volumes, and results in traffic volumes that more closely match the projections from some of the other models. Also, Mesa is currently conducting a Williams-Gateway Southeast Area study that includes an updated future travel demand model. Results from that study will be shared with the Elliot Road TAC as they become available. The TAC approved of the proposed use of the MAG 2030 model output volumes as the 2030 baseline volumes, with the sensitivity analysis utilizing volumes that were a 37% increase on top of the MAG 2030 numbers.
4. Tables were handed out that compare the roadway, access, and drainage standards for the various agencies with jurisdiction over portions of the corridor study area. There was quite a bit of discussion among TAC members about which standards should be used where (and what the process is for getting buy-in on those standards from others within their respective agencies), including the following:
    - Tim Oliver from MCDOT proposed using City of Mesa roadway, on-site drainage, and access standards along Elliot Road west of Meridian Road as the road and its adjacent land will likely be annexed into Mesa in the near future. Tim mentioned, however, that there have been issues in the past with MCDOT reviewers accepting designs by developers for roads that meet Mesa standards but not MCDOT standards. MCDOT's attorneys have had concerns about potential liability issues that could arise if MCDOT accepts a design that meets some other agency's standards but does not meet adopted MCDOT standards.
    - Marc Ahlstrom from City of Mesa mentioned that Mesa typically doesn't annex individual road segments, preferring instead to annex packages of parcels, and that annexation usually does not occur until after the necessary roadway improvements are made.
    - Tim Oliver suggested that Mesa and MCDOT look for a way to get some kind of agreement in place between the two agencies related to future improvements on Elliot Road, such as an inter-governmental agreement (IGA).
    - Andy Smith from Pinal County proposed using Apache Junction roadway, on-site drainage, and access standards along Elliot Road east of Meridian Road as the road and its adjacent land will likely be annexed into Apache Junction ultimately. Andy noted the need for Pinal County and Apache Junction to work together on any future design and construction along the Elliot Road alignment.
    - Both Mesa and MCDOT representatives agreed it was appropriate to use Flood Control District of Maricopa County standards for off-site drainage in Maricopa County. Similarly, it was suggested that Pinal County Flood Control District standards be used for off-site drainage in Pinal County.
    - Tony Cabrera from Carter-Burgess raised the question of what the design speed of Elliot Road would be. Mesa representatives said design speeds are typically 5 mph over the speed limit, so they thought the design speed would be 50 mph west of Meridian Road. MCDOT said design speeds are typically 10 mph over the speed limit, or 55 mph for Elliot Road west of Meridian

Road. Andy Smith said he would verify the typical design speeds used by Pinal County and Apache Junction, but that he thought it would be 55 mph east of Meridian Road.

5. The environmental overview indicated that there are some areas along the corridor where the percentage of certain minorities is more the double the percentage within Maricopa County, so care must be taken to ensure these minority groups are not discriminated against. No special status species or designated critical habitats have been documented in the corridor study area. The Roosevelt Canal, CAP Canal, and ephemeral washes are considered Waters of the US that require a jurisdictional delineation if impacted. The area of the corridor containing the Roosevelt Canal and the East Maricopa Floodway (EMF) are within the 100-year floodplain. No sole source aquifers, unique waters, or wetlands have been documented in the study area. The entire study area is within the non-attainment area for ozone and for PM10 and within the maintenance area for CO2. No hazardous material incidents, sites, or other concerns were identified. There are at least 40 known cultural sites within one mile of the study area but it is unknown at this time if any of those would be impacted by improvements on Elliot Road. Additional environmental research, surveying, coordination, and/or permitting will likely be required if improvements are made to Elliot Road. Comments from TAC members on the environmental overview included:
   - Felicia Terry of FCDMC mentioned that there has been a recent Supreme Court decision involving the Army Corps of Engineers related to guidelines for navigable ephemeral washes, but that it is not entirely clear yet what the ramifications of that court decision are.
   - There was some question as to what future environmental research, surveying, coordination, and permits are required and which are only recommended. Crystal Gerrity from Kimley-Horn said she would get some clarification on that and include it in the Environmental Overview technical memorandum.
   - The City of Mesa representatives were unsure if there are requirements that apply to developers related to dealing with historical properties but said they would follow up with their staff to get more information.
6. The drainage overview indicated that there are several potential discharge locations for drainage in the study area, including the EMF, Santan Freeway Channel, Elliot Road Detention Basins, and the proposed Siphon Draw Detention Basins. Felicia Terry raised the point that there may be issues with the quality of the stormwater that would prevent runoff from Elliot Road being discharged in some or all of these facilities, and that this needs to be considered as the design moves forward. Mesa representatives indicated that they make developers retain all drainage on-site, even from internal streets, for a 100-year, 2-hour event. There are several existing dip crossings, and it is recommended that cross culverts/extensions be constructed at these locations as the road is improved. If the EMF bridge is widened, a hydraulic analysis will be needed to ensure there are no impacts to the floodplain. The existing drainage pipes that discharge into the Elliot Road detention basins may need to be relocated if the road is widened. There was some discussion about the existing 108" storm drain pipes on the south side of Elliot Road by the Proving Grounds, and it was unknown if DMB is accounting for those large pipes in their plans. If the road is widened, it is possible the 108" pipe could ultimately have to relocated if it is not designed to take such loads, although it was surmised that the pipes likely were designed for road loads. Tony Cabrera mentioned that the Lost Dutchman Heights development is currently assuming Elliot Road will have a reverse curve just east of Meridian Road, and that they are planning their drainage under that assumption. If the road does not follow that alignment, the drainage system will have to be re-evaluated.
7. The utilities overview indicated that there are existing water, sewer, storm drain, power, gas, and communications utilities in the corridor. Mesa is constructing a 10 MGD water treatment plant in 2008 on the northeast corner of Elliot Road and Signal Butte Road and several new water lines on the

north side of Elliot Road. SRP is considering adding more 230 kV lines along Elliot Road east of Signal Butte Road to the CAP Canal, with a potential future power substation on the northeast corner of Elliot Road and Ironwood Drive. Some of the potential utility constraints in the study area for consideration in future improvements are the 230 kV tower on the north side of Elliot Road at Mountain Road, the narrow bridge crossing of the Roosevelt Canal and EMF and the gate structure just south of Elliot Road in the Roosevelt Canal, overhead power pole relocations, and vertical separation requirements for a future crossing of the CAP Canal. Marc Ahlstrom of Mesa indicated he would check to see if the design of the Power Road/Elliot Road intersection improvement project has accounted for the Roosevelt Canal gate structure. It was mentioned that additional right-of-way may be needed at any future CAP Canal crossing.

8. There was discussion on the next steps of the project, which include the submittal of the first six draft technical memoranda (October 2007), corridor alternative identification and evaluation (December 2007), selection of a preferred alternative (March 2008), and a Final Report (May 2008).
9. Action Items:
   - Tim Oliver from MCDOT to talk to MCDOT staff about options for developing an agreement with Mesa regarding Elliot Road.
   - Andy Smith from Pinal County said he would verify the typical design speeds used by Pinal County and Apache Junction.
   - Crystal Gerrity from Kimley-Horn said she would get some clarification on that and include it in the Environmental Overview technical memorandum.
   - City of Mesa staff will follow up with other Mesa staff regarding the requirements that apply to developers related to dealing with historical properties.
   - Marc Ahlstrom from Mesa indicated he would check to see if the design of the Power Road/Elliot Road intersection improvement project has accounted for the Roosevelt Canal gate structure.

Maricopa County Department of Transportation
Elliot Road Corridor Improvement Study Stakeholder Advisory Committee Meeting
August 8, 2007

INTRODUCTION AND OPENING COMMENTS

Tim Oliver, Maricopa County Department of Transportation (MCDOT) Project Manager, welcomed everyone and introduced himself and corridor studies around the valley in the next 10-12 years. Typically we work with stakeholders so as they develop, we protect the right of way (ROW), uncover hidden fatal flaws, etc. (No surprises) ... set expectations in Corridor Improvement Study (CIS). Not engineering ... preliminary study and preliminary engineering.

Stakeholder Advisory Committee (SAC) is one of two groups. We also have a TAC. SAC works with us and also previews info prior to public meetings. There will be three meetings, this is the first. There is a public meeting in about 2 weeks. The SAC meetings will precede the public meetings each time.

Everyone introduced themselves and announced who they were and who they are with.

Tim then introduced Kimley-Horn and Associates and turned it over to Dave Perkins.

STUDY PURPOSE

Dave Perkins went through the meeting agenda. We want to get to know each other and collect as much information as possible from SAC.

The purpose of the study is to create a consensus-based vision for Elliot Rd and a plan to implement the vision. DY 2030, MAG and Pinal County will provide traffic data, and we will look at intersections, access management, mobility, roadway character, cross section, etc.

MEETING PURPOSE

Dave Perkins overviewed the issues we have identified and have to go through with the SAC. Also if there is a need to identify any other stakeholders.

The following are the purposes of the SAC meetings:

- Explain stakeholder role in the study
- Identify issues early in the study
- Gather information
- Expand initial list of challenges and needs
- Preview open house material

This presentation will be the info for the Open House on August 29, 2007.

STAKEHOLDERS ADVISTORY COMMITTEE ROLE

Dave Perkins talked again about the TAC and SAC, and also identified the Agency Partners. SAC adds to the TAC ... utilities, developers, etc. Agency partners share Responsibility to maintain the roadway.

There will be 3 SAC meetings, timed to coincide with the public meetings (which are timed to coincide with key project milestones) so that the stakeholders will have a chance to preview information and provide input. The first meeting will be "scoping", which is similar to what we will discuss today during the roundtable. The second meeting will focus on identification and evaluation of alternatives, and the third will focus on refining the evaluation and developing a recommendation.

PROJECT SCOPE AND OVERVIEW

Dave Perkins

"Project Identification" ... MCDOT is helping MAG to achieve their goals by identifying corridors and moving corridor studies together with partners. This corridor has been identified as a "regionally significant route".

Study area ... note east end terminus. The idea is that ADOT, MAG, and Pinal County have identified a need for a north-south freeway to connect AJ with Eloy. There is no alignment, but general CAP alignment is the starting point. The plan is for Elliot Road to terminate with the north-south freeway. This study will occur prior to the ADOT study.

<u>Need for Study</u>

Interagency Coordination, the need to consider each entity's goals (access, mobility, safety, etc.)

- Apache Junction
- Gilbert
- Mesa
- Maricopa County
- Pinal County
- Arizona State Land Department
- Arizona Department of Transportation

Road needs to be appropriate in 2030 and balance access, mobility, etc.

Study Objectives

MAG model and Pinal County model for traffic projections. Consistent cross section with differing design guidelines. It may need to be flexible.

Criteria
ROW cost, etc. will be reviewed with the help of the TAC, SAC, and public.

Study approach
Notice for public meeting notice is in the handout. Environmental Overview identifies fatal environmental flaws.

Engineering phase culminates in a final public meeting. This is a study. To set a footprint and a vision, it will need to be modified in the future but sets the basis.

Schedule

- 14-month project
- Began May 8, 2007
- Public Scoping Meeting: August 2007
- Planning and engineering studies: October 2007
- Alternatives evaluation: November 2007
- Public meeting on alternatives evaluation: December 2007
- Public meeting on findings and recommendations: February 2008
- Draft final report: March 2008
- Finish: July 1, 2008

Issues and challenges
Teasers to get people thinking listed are (covered by Michael):

- Regional/local travel
- Mobility/access balance
- Current/future development
- Potential regional system improvements
- Jurisdictional interests
- Engineering challenges (canals, floodplains, drainage structures, power lines, etc.)
- The environment (eastern end environmental ... untouched land)
- Loop 202 traffic interchange as Elliot Road changes character.
- Proposed shopping center around Hawes intersection (driveways, Speeds on Elliot, etc)
- Undeveloped land - former GM proving grounds is in our study area (DMB is here)
- Detached linear sidewalks (Mesa). An example of differences between agencies.
- To avoid big drastic changes

STAKEHOLDER ROUND TABLE

The stakeholders in attendance discussed various issues that should be taken into consideration for the Elliot Road CIS. The conversation focused on future plans of the stakeholders, from development, to the transportation plans and standards of the various entities, to utilities and flood control structures.

Land Planning and Development

- 275 square miles—Superstition Vistas
- Guadalupe plans?
    - Baseline (Lost Dutchman)
    - 12 square miles or 1,000 acres were sold in December 2006
    - 2 year planning process has just begun
- Large planning areas (State Land in Apache Junction)
- Need to consider timing of the planning studies versus timing of this study
- Traffic projections (Pinal County working with CAG and Apache Junction)
- Lost Dutchman Heights – planning Elliot Road as a major route to the airport
- Ellsworth DMB – Signal Butte
    - DMJM is working for DMB – J. Bixby
    - Interested in:
        - Access management
        - Signals
            - City of Mesa has specific guidelines for good signal timing etc.
        - Landscape character
    - Application to City of Mesa by the end of 2007 and open houses later this month
    - Looking at Crismon connecting to Elliot Road

- Annexation
    - AJ staff sees it as a future possibility, but not sure for right now
    - Development drives annexation
- City of Mesa has 4 parcels – annex application to Arizona State Land Department

Transportation Planning

- Land planning is focused on ensuring parallel routes while commuter routes remain available

- Mesa TP shows Elliot Road as an arterial (3 lanes in each direction), they are starting another study
- So what do we do until the north-south corridor is studied?
- AJ SATS anticipates Elliot going east of the CAP and connecting to the US 60 reroute.
    - It may be an arterial north of SR 802
- AJ has cross-sections

Flood Control

- Flood Control District – drainage easement east of Meridian
    - 100 year design
    - 65 feet north of the section line
    - needs to avoid fissures
- Flood Control District – planned storm drain along Elliot from Meridian to 104th Street
- FEMA has updated flood plain maps (FEMA and Pinal Co websites)
- FCD project will improve flooding conditions

CAP

- Are we crossing the CAP?
    - The preliminary alignment of the north-south freeway west of the CAP/SRP500K/
    - This is only preliminary, ADOT still needs to identify
- This study will not look in detail at crossing the CAP but it may be necessary
- Crossing the CAP, there is a 14"6' clearance for a bridge and O & M roads

Utilities

- City of Mesa applying for a 30 foot easement on the north side of Elliot Road for waterline from Treatment Plant at Signal Butte.
- Wet and dry utilities to be separated
- Review the City of Mesa water and sewer master plans on the website

SUMMARY/NEXT MEETING

Thank you from Tim. Announced that additional stakeholders who need to be added can do so at any time. Let your organization know about the open houses. Next meeting will be prior to Open Houses in December.

Maricopa County Department of Transportation
Elliot Road Corridor Improvement Study
Stakeholder and Technical Advisory Committee Group
Meeting November 29, 2007

Meeting Summary

Bryan Patterson began the meeting with brief introductions from the stakeholders, TAC and project team members. He then continued with a PowerPoint presentation explaining the project scope, public meeting input, existing and future traffic projections, potential cross sections, alignment alternatives, and evaluation criteria. He allowed time for the group to view the three alternatives and discuss potential concerns and issues. The meeting ended with a brief round-table session led by Marsha Miller to further discuss concerns and issues with the alignment alternatives. Bryan Patterson invited everyone to attend the public meeting on the corridor that is scheduled for January 14, 2008 at 5:00 pm at Highland High School in Gilbert.

The general consensus of attendees was that the symmetrical widening seemed the most likely alternative to be implemented because of the many existing constraints and the fact that the City of Mesa is currently requiring developers to dedicate 65' of right-of-way from the section line to the City of Mesa and build that portion of the ultimate 6-lane road. The only places where the north widening alternative appears appropriate is between the Roosevelt Canal and Loop 202, and that is only if development does not occur before the roadway widening is needed from a traffic standpoint. The south widening alternative was not deemed appropriate by most attendees, and it was decided that the south widening alternative should not be shown on Elliot east of Signal Butte Road as part of the upcoming public meeting.

Participants

See sign in sheet

Questions and Concerns

Area	Comments/Concerns/Questions
Power Road and Elliot	City of Mesa (COM) informed the team that there is development that will be built in 2008 on the southeast corner of Elliot Road and Power Road.
Roosevelt Canal Bridge and Irrigation Gate	There is concern about how widening the bridge might impact the irrigation gate.
Mobile homes on the south side of Elliot Road	The concern with any of the alternatives is the close proximity of the 14 mobile homes and 5 homes to the south of Elliot Road. Those homes may or may not be there in the future when the road is built. The land belongs to the County and if annexed by COM, homes will not be allowed to be built there due to the close proximity of the airport.
Dairy Farms to the south of Elliot Road	The dairy farmers are anticipating redevelopment at their farms. As currently shown, the alignment would go through some of their buildings. Is there a possibility of an interim modified cross-section? The intersection at 80th Street and Elliot Road could phase a build-out, based upon the demand.

Structure at NW corner of 80th Street and Elliot Road	Not sure what this structure is, it could be part of the dairy farms, a single family dwelling, or a barn. It falls within the Right of Way. Subsequent investigation determined that the structure is vacant and in poor condition
North of Elliot between just west and east of 80th Street	The COM has seen many proposals for development in the area.
Santan Freeway	The COM saw a proposal approximately six months ago for retail development on the northwest corner. The COM has also seen plans for the northeast corner. Those plans are moving forward.
Santan Freeway east to Ellsworth Road	This segment of road is locked in as symmetrical widening. ASLD requests that Michelle Green of ASLD be contacted to discuss access requirements for the State Land on the south side of Elliot on either side of the Santan Freeway.
Drainage Structure west of Signal Butte Road	Will be affected by all three alternatives.
Signal Butte Road to Mountain Road	The community would like a traffic signal at Signal Butte Road and Elliot Road. COM is in the process of installing one at that location. The COM owns the land on the north side and plans on building a water treatment plant and residential housing. COM will develop plans to avoid or move the electrical tower. There are plans to develop the south side, which will be complete before this study is over. This segment of Elliot Road would have to follow the symmetrical alignment due to development and future development on the north and south sides.
Ironwood Drive	Is it possible to end the study at Ironwood Drive as opposed to taking it all the way to the CAP Canal? If the study does go past Ironwood Drive, can the roadway curve before it gets to the CAP Canal? According to ASLD, the projected land use for the State Land east of Meridian should be something more intense than low-density residential – like mixed use. The projected 2030 traffic volumes on Ironwood Drive seem lower than existing 2006 traffic counts. Is this right?
CAP Canal	Andy Smith with Pinal County will talk with his staff and let MCDOT know what Pinal County would like shown in the vicinity of the CAP Canal.
Access	The proposed access management features show the wrong dimensions for the median gap spacing. See City of Mesa standards.
Drainage	Is road drainage being considered in this study? There is no system wide drainage in the study. The Development will decide/take care of drainage.
Utilities	If SRP has future plans, this study will consider them. However, utility planning will occur in the DCR.

Maricopa County Department of Transportation
Elliot Road Corridor Improvement Study
Stakeholder and Technical Advisory Committee Group
Meeting January 31, 2008

Meeting Summary

Bryan Patterson began the meeting with brief introductions from the stakeholders, TAC and project team members.

Tim Oliver briefly summarized the public open house held on January 14. He said it was lightly attended and that the comments received reflected the symmetrical widening was preferred. There is a need to coordinate with State Lands on the water line easement; there was a concern about speeding on eastern extension; the storm drain west of Signal Butte on the south is not traffic-rated; there is a current need for improvements to accommodate Queen Creek traffic heading to Loop 202; there is a need to extend Meridian Road to the north; and there was opposition to the SRP power line project.

Bryan Patterson said there would be a final public meeting late February/ early March to present the final study plans. He then continued with a PowerPoint presentation explaining the alignment alternative and evaluation for the symmetrical widening and extension. Michael Grandy explained the recommended cross-sections, access control and intersection improvements along the study corridor. Bryan handed out the technical memo with responses to comments received.

The meeting ended with a brief round-table session led by Marsha Miller to further discuss concerns and issues with the alignment alternative.

The next TAC meeting will be in March and the report will be published in April.

Participants

See sign in sheet

Questions and Concerns

Comments/Concerns/Questions
AZ State Land (ASL) asked if there have been discussions with Carter-Burgess and Apache Junction with regard to the current Apache Junction cross-section not having bike lanes. Tim Oliver mentioned MCDOT's policy of working with the agencies and the community to find an acceptable solution and Bryan Patterson said this warrants further discussion in the detailed design stage.
Michael Grandy discussed the traffic volumes with a 6-lane arterial necessary east of Loop 202 and a projected bottleneck point at Loop 202 and Ellsworth where 8-lanes may be needed. ASL had commented previously on the intersections of Meridian and Ironwood that the traffic volumes may be low for future land use. In response to that comment, the Pinal County model was used for higher numbers for future development on Meridian and Ironwood. ASL wants to be sure that the intersection numbers accurately reflect future growth plans.
COM commented on the future Williams Gateway freeway (WGF) and the finding that the intersection at Ellsworth may need triple NB left turn lanes by 2015 (prior to the WGF being built), but after the WGF is built, there may only be a need for 2 NB lefts (2030). The COM is looking to advance the WGF from Loop 202 to Ellsworth by five years to 2017. The COM recommends only showing current arterial standard layout (dual lefts, three throughs, one right) for this corridor study – any need for additional left-turn or right-turn lanes will be addressed later in detailed design. Tim

Oliver would like a note in the study to recommend that turn lanes are dependant upon the WGF and development.
There was a concern from the COM that the volumes projected for the intersection of Ellsworth and Elliot may not fully account for traffic coming from the south on the future north/south route through Pinal County.
Jenny Bixby asked about access control at 1/3 mile – the study showed Mountain Road at ½ mile and Signal Butte and Ellsworth would be at 1/3 mile. Mark Venti said there is a lot of flexibility for access; signals will be spaced for timing.
Bryan Patterson stated that the curve at the east end of the project would be at a 10,000' radius curve.
Tim Oliver mentioned the draft of the MOU for design guidelines – the study will use the COM guidelines.
Michael Grandy stated that Sossaman and Elliot currently has a 4-way stop – is there a potential for signal to be put in by developers? If development is going in, the COM may have them put in a signal as the needs warrant. MCDOT has a signal budget and they could put in a signal if the needs warrant.
ASL said to get specific land use plans for Meridian and Ironwood; discuss the bike lane issue east of Meridian.
Apache Junction said the bike lanes are ok for lower speed lanes and the ROW is wide enough for future bike lanes – coordinating with Carter-Burgess land use planning. There is a concern with safety and maintenance.
A question was asked if there was money budgeted for future improvements. The answer was no, there are only developer driven improvements. Prop 400 money is long term to fill in the gaps.
This study ends at the west side of the CAP – which means it effectively goes just past Ironwood. ASL is planning beyond the CAP. MCDOT wanted to stop at Ironwood. Apache Junction wants to show cross sections beyond the CAP for future ROW requirements for development. NOTE: the same cross section will be used further east.
Mark Venti said he would talk to COM management about additional ROW at Ellsworth.

Maricopa County Department of Transportation
Elliot Road Corridor Improvement Study
Stakeholder and Technical Advisory Committee Group
Meeting April 29, 2008

Meeting Summary

Bryan Patterson from KHA began the meeting with brief introductions from the TAC/SAC and project team members. Bryan also briefly summarized the public open house input held on April 14. He said it was lightly attended and that the comments received reflected general acceptance of the proposed recommendations.

Michael Grandy from KHA led a brief round-table session to discuss comments, concerns, and questions related to Technical Memorandum No. 8 and the upcoming Draft Final Report. A summary of the round-table discussion is provided below. A discussion of the future design standards for Meridian Road where it intersects Elliot Road was included in the round-table discussion.

Bryan Patterson indicated that no additional TAC/SAC meetings will be held but the TAC/SAC will have the opportunity to review and provide comments on the Draft Final Report in May with the Final Report anticipated to be published in June.

Participants

See sign in sheet

Round-Table Discussion

Comments/Concerns/Questions
Mark Venti from City of Mesa (COM) indicated the Crismon Road/Elliot Road intersection may be built before 2015.
Jenny Bixby from DMJM-Harris, representing DMB, said the preliminary DMB plans show Crismon Road being a collector rather than a principal arterial south of Elliot Road.
Giao Pham from Apache Junction said there is a need to look at Ironwood connectivity to the south of Elliot Road. Tony Cabrera from Jacobs-CB, representing ASLD, said Ironwood may become an expressway with 200' of right-of-way.
Michael Grandy asked if the Meridian/Elliot intersection should use the City of Mesa design standards on all four legs or just on portions of the intersection. COM indicated they have no plans to annex Meridian and do not have a strong preference on which design standards are used on it. The MCDOT Meridian Road corridor study envisions a 6-lane arterial. COM may get MAG and MCDOT to accelerate construction of Meridian Road improvements. Andy Smith from Pinal County suggested that 150' of right-of-way be provided on Meridian in case it becomes a parkway. Apache Junction said Meridian may become an expressway south of SR 802. Bobbie Ohler from FCDMC said the Siphon Draw Channel design has already started under the assumption of 130' of right-of-way on Meridian, so if 150' are required instead of 130', the channel alignment may need to shift by 10'.
Jenny Bixby asked about LOS E being acceptable in 2030 at some locations instead of LOS D. COM said would likely accept LOS E at some locations because not interested in committing to 8 through lanes or triple lefts anywhere. Apache Junction suggested that LOS D or better always be the goal. COM said really wide intersections might be created if LOS D is always the requirement and that these wide intersections are not good for bikes and pedestrians. To balance modes, LOS E should be acceptable under certain circumstances.
Manny Patel from ASLD asked if the Mesa waterline easement will follow the reverse curves or not.

COM indicated it likely would.
DMB suggested the Final Report note that access management will be decided on a case-by-case basis while Pinal County suggested the TRB access management guidelines be utilized.
FCDMC indicated the storm drain option on Elliot Road that had been under consideration has now been eliminated from further consideration.
Mark Venti said COM and MCDOT are working on an MOU for design standards of Elliot Road – this study drove the creation of this MOU.
Bryan Patterson asked if anyone had any final comments about what went well with the study, or what could have been done differently to make things go better. All who spoke indicated they thought the study has been beneficial and has gone relatively well.

Elliot Road Corridor Improvement Study Review of Submitted Documents
Technical Advisory Committee Comments (with KHA response in bold)

TM 1 – Purpose and Need

City of Mesa

1. Page 6 Update the COM Engineering and Design Standards to the 2007 version
Response: Done.

2. Page 6 Also include the following COM documents a) Standard Details, b) Public Street Access Guidelines c) Upcoming Southeast Mesa Transportation Planning study.
Response: Done.

3. Exhibit 3 Remove reference to the 10' TWLTL under median divider
Response: Done.

4. Exhibit 4 Update the COM Engineering and Design Standards to the Feb. 2007 version
Response: Done.

5. Exhibit 4 we need to identify if the 10 year event will be retained or where the point of discharge is. As discussed, these frontages will be built with development that well be required to retain their on and off site flows. The City will not be installing any storm drain trunk-line facilities. This should also be mentioned where appropriate in TM No. 5.
Response: Added recommendations to second footnote that developers should design for and retain pavement drainage on their property per City of Mesa requirements. The City of Mesa requirements are that the roadway should be designed to convey flows from the 10-year peak storm, and detain runoff for the 100-year, 2-hour storm. This is also discussed in Section 13 of TM 5.

FCDMC

6. Section 3.1 – Who has jurisdiction over Elliot Road west of Power Road?
Response: Gilbert does, as noted in the text.

7. FCD requirements on tables – I did not check these but assume you took them right out of our H/H manuals.
Response: Yes.

Pinal County

8. Overall information is informative. Pinal County would like to see more coordination with Queen Creek and the development of the General Motors Proving Grounds. Page 3 Exhibit – Can the study area be extended east just beyond the CAP canal to ensure the issues identified around the CAP will be included?
Response: Added reference to Queen Creek and DMB. After discussions with the TAC, it was decided that there are currently too many unknowns about what will happen east of

the CAP canal to be able to do a worthwhile study of the opportunities and constraints there.

TM 2 – Existing and Future Corridor Features

Arizona State Land Department

9. Access requirements for the State land south of Elliot Rd. should be discussed with Michelle Green from ASLD.

Response: Noted. She has been sent an e-mail containing the proposed access management features for the corridor and making her aware that the developer on the north side of Elliot Road between Loop 202 and Ellsworth Road is currently negotiating detailed access management treatments on Elliot Road with the City of Mesa.

10. For the land use east of Meridian Road, show higher intensity use than residential – like mixed use.

Response: Land use shown is what is in the data provided by FCDMC in June 2007.

City of Mesa

11. Page 2 Note that our transportation planning group is working on a SE Mesa/ WGA study.

Response: Done. Added section summarizing findings to date of the Mesa Gateway Strategic Development Plan.

12. Page 7 Change Power Rd. improvement project to be constructed by 2010

Response: Done.

13. Page 7 Update reference to new 2007-2012 CIP

Response: Done.

14. Page 7 Delete reference to Hawes Rd. project. This is more than 5 years out

Response: Done.

15. Page 21 Show right of way from Signal Butte to Meridian as 130'. This is based on the recorded plats.

Response: Done.

16. Page 29 Clarify the first sentence of the second paragraph.

Response: Done.

17. Page 33 In the first paragraph, the basins for the residential community on the north side bleed off into a 24" pipe and channel on the south side of Elliot Rd. and should be factored into the drainage plan.

Response: Discussion added about existing 8-in. bleed-off pipe crossing Elliot Road and 24-in. pipe conveying discharge to detention basin south of Elliot Road and west of Mountain Road. Discussion added that the existing system should not be impacted by the proposed roadway improvements.

18. Page 34 Under the Sanitary Sewer section, the pipe size from the L202 to Sossaman is 42" not 48"
Response: Corrected.

19. Page 35 The 230kV line that crosses Elliot Rd. at Mountain is not SRP, it is owned and operated by WAPA.
Response: Clarified

20. Page 36 Delete the reference to the well water being treated at the water treatment plant. The new plant is for CAP treatment only.
Response: Done.

21. Page 36 Add a reference that the City requires new development to bury any overhead telco or 12kv power lines along the roadway.
Response: Done.

22. Tech Memo #2 - Exhibit 11, and Tech Memo #3 - Exhibit 2: Please show conditions for the intersection of Elliot Road and Ellsworth Road.
Response: Done.

23. Section 3.13.3 Mention that the area north and west of the L202 is within the City of Mesa gas service area. http://www.cityofmesa.org/maps/pdf/gas_service_area_map.pdf
Response: Done.

24. Section 3.13.7 Add a paragraph that the City of Mesa has developed master plans for water, wastewater, storm drain, and gas that are periodically updated. Any new projects should consult the latest version of these master plans. This should also be mentioned where appropriate in TM No. 6.
Response: Done.

25. The new study that the City of Mesa is performing is called the "Mesa Gateway Strategic Development Plan".
Response: Included.

FCDMC
26. Page 8 – "Maricopa County has jurisdiction over the remainder of the south side of Elliot Road east of Signal Butte Road" – is this correct? Needs some clarification.
Response: Corrected to say "west of Signal Butte Road".

27. Add a small section on the Siphon Draw Drainage Improvement Project as a future corridor feature, and possibility of draining roadway to it.
Response: Added Future Drainage Features section discussing the Siphon Draw Drainage improvements and that the detention system should be considered during the design phase as an appropriate discharge point for roadway drainage.

28. Section 3.12 – Not sure you discuss the inlet structure to the Elliot system? This is an open concrete structure that accepts overland drainage and will be impacted by the Elliot Road improvements. The overland drainage to this structure will need to be addressed and probably more r/w obtained for a drainage easement, when the road improvements are made.

Response: Discussion about the inlet structure has been added to Section 3.12.

29. Section 3.12 – I am going to ask Cathy Regester to review this since she is more familiar with these features than I am.

Response: Next four comments are from Cathy Regester.

30. I believe there is also a 90-in. storm drain under Elliot Road – picking up flows on the NEC of Elliot and Ellsworth and discharging them into the Elliot Drain, south of Elliot Road. This would have been installed by MCDOT under its Ellsworth Road Project No. 68927-2. You should verify this with MCDOT, though, if you want to include this in the report.

Response: A paragraph has been added to Section 3.12 discussing this storm drain.

31. You may want to note that the Elliot Road Detention Basins and the associated storm drain were designed based on the ultimate build-out of the contributing watershed, including 100-year, 2-hour on-site retention (The watershed is not yet fully "built out").

Response: A sentence has been added to Section 3.12 describing the design.

32. In regard to the FEMA maps (page 33, 3rd paragraph) and Siphon Draw Wash, to explain it simply: The floodplain for Siphon Draw Wash has been studied and delineated in Pinal County but not in Maricopa County. Also, I'm not sure what additional verification (?) is possible for the FIRM panel which would show the Santan Freeway Channel – if it were printed.

Response: The paragraph has been revised to explain the delineation. This was also revised in TM 5, Section 5.

33. In the last paragraph of section 3.12, I would recommend removing the sentence, "The regulatory limit is usually an increase of one (1) foot, if encroaching equally on both sides of the floodplain." This is the simple definition of a floodway. Floodway elevations would be used in setting finished floor elevations but I don't think this would really apply to the road. Also, I don't believe there are currently any floodways delineated in this area. I'm thinking the sentence may give the reader the idea that it's okay for the road improvements to increase the water surface by a foot, which is not the case.

Response: This sentence has been removed. This was also removed from TM 5, Section 5.

MCDOT

34. Section 2.2.9, 3rd bullet – Change "A principal arterial is four to six lanes" to "An urban principal arterial is six lanes".

Response: Done.

35. Section 3.1, 2nd paragraph, 4th line – Change "study corridor" to "corridor under study".

Response: Done.

36. Page 8, Exhibit 4 – Cannot read text.
Response: Enlarged to full page size.

37. Section 3.3.1 – Need to add text about existing County zoning.
Response: Done.

38. Page 10, Exhibit 5 – Need to add County zoning information where appropriate.
Response: Done.

39. Page 12, Exhibit 6 – Clear up text that is blurred.
Response: Enlarged to full page size.

40. Page 16, 1st bullet – Do we mention DMB here?
Response: Included.

41. Page 18, 2nd paragraph, 2nd line – Change "have flooded several times" to "currently flood regularly".
Response: Done.

42. Section 3.5.1 – Change "According to the *Maricopa County Transportation System Plan*, Elliot Road is currently classified" to "According to the existing Maricopa County functional classification database, Elliot Road is classified".
Response: Done.

43. Section 3.11.2, 3rd paragraph – What is LEP?
Response: Added "Limited English Proficiency"

Pinal County
44. Plans and studies – 2.2.4; What is the Northern Pinal County Area Transportation Study September 2003? Is this Southeast Maricopa Northern Pinal County Transportation Study? This was funded through a variety of agencies not just MAG.
Response: Corrected to say SEMNPTS.

45. 2.2.13 – Principle Arterials in the Pinal County SATs suggested a 150' ROW on these roads. Not a 110' ROW as depicted under this third bullet.
Response: Corrected.

46. The TAZ structure provided by MAG does not appear to be the most recent and we believe does not reflect a relevant scenario. There have been three separate studies conducted; Queen Creek SATs (2006), ADOT Corridor Definition Studies (Jan 2007 adopted) and the Pinal County SATs (Aug 2006 adopted) that have utilized different TAZ boundaries. Pinal County's RSRSM study has created a 1 mile TAZ structure for the entire area depicted as TAZ zones 1974, 2008, and 1979. This one mile grid (TAZ) structure is to be incorporated by CAAG and then presented to MAG for the Hidden Valley Framework Study.
Response: The TAZ structure matches what was provided to Kimley-Horn by MAG in July 2007.

47. Exhibit 19 – The volumes at Ironwood Road and Elliot Road appear low. The County recommends that the projections be looked at specifically going north and south on Ironwood Road.
Response: Utilized Pinal County RSRSM model 2030 ADTs for Ironwood and Meridian that were provided to Kimley-Horn by Lima & Associates in December 2007.

48. 3.11.2 Socioeconomic Conditions, the Block Group definitions are a little confusing to the reader. Is probably me but a narrative would be advantageous. (The CT BG etc…)
Response: Provided more explanation on Block Group definitions.

49. 3.11.4 Biotic Community and Wildlife, last paragraph explains that field investigation may reveal previously unrecorded….. Is this study going to conduct this investigation or recommend further investigation? Further explanation may prove beneficial.
Response: Provided more explanation on when more investigation will likely be needed.

TM 3 – Traffic Analysis

MCDOT
50. Page 2, Exhibit 1 – Improve map.
Response: Enlarged to full page size.

51. Page 6, Exhibit 5 – Can we increase the text size in this table?
Response: Enlarged to full page size.

Pinal County
52. While reviewing the traffic information we were unable to determine when, where, and how this data was obtained. MAG?
Response: The MAG model data was obtained via e-mailed PDFs from Baloka Belezamo of MAG in August 2007. The MAG data should reflect the most current version of the MAG model available at that time. Increased text to this effect in TM# 3.

53. Exhibit 10 – Are these the MAG Regional Council approved daily counts 2006?
Response: Data received from MAG in August 2007 was supposedly from the most current version of the MAG model available at that time.

54. 3.3 Future (2030) Traffic Volume Projections, First bullet states that the updated early 2007 model?
Response: Updated to say August 2007.

55. There is no mention of the ADOT Corridor Definition studies for any of the three corridors. US 60 will have impact on the volume for Elliot Road, on an existing alignment or rerouted freeway.
Response: Added text on Pinal County Corridors Definition Study

56. First Paragraph Page 15, Have concern with the MAG model if it does not include the North/South Corridor. The ADOT Corridor Definition Studies, Queen Creek SATs, and Pinal County SATs have all identified the need for such a corridor and the movement of traffic between Coolidge, Florence, and Queen Creek.

Response: North-south corridor accounted for in sensitivity analysis, which uses Pinal County RSRSM model volumes for Ironwood and Meridian.

57. Although the MAG model covers more of the Elliot Road corridor the external trips will have a large impact on the volumes (existing and projected) on both sides of the county(s) line.

Response: Accounted for in sensitivity analysis, which uses Pinal County RSRSM model volumes for Ironwood and Meridian. Volumes on Elliot Road are higher in the MAG model than in the Pinal County model.

58. 3.3.2 Future Daily Traffic Sensitivity Analysis, Central Arizona Association of Governments (CAAG) has developed with input from the Pinal County's RSRSM study a 1 mile grid TAZ structure for most of Pinal County.

Response: Accounted for in the sensitivity analysis, which uses Pinal County RSRSM model volumes for Ironwood and Meridian provided by Lima & Associates in December 2007.

TM 4 – Environmental Overview

City of Mesa

59. Page 6 The eighth bullet point should be changed to state that this parcel on the NE corner of Signal Butte is City of Mesa land for the planned water treatment plant.

Response: Done.

60. Page 6 Under the planned projects section, first bullet, the Morrison Ranch development will have commercial zoning on the southern half adjacent to Elliot Rd. There will be no residential development south of the SRP high voltage power lines. This is reflected in the Morrison Ranch plat.

Response: Corrected.

61. Page 7 Under the MAG general plan, the seventh bullet, add a reference to the City water treatment plant planned for this area.

Response: Done.

62. Page 7 Under the MAG general plan, the last three bullet points, the residential developments between Signal Butte and Meridian are existing, not planned.

Response: Corrected.

63. Page 32 Under the Environmental Overview Conclusion, first paragraph, first sentence, clarify that most of the environmental requirements will only need to be met if Federal funding is used for the improvements to Elliot Rd.

Response: Done.

MCDOT

64. Section 1.1, last sentence – Put a phase and timeframe for the Prop. 400 funding.
Response: Added "in fiscal years 2021-2025"

65. Section 2.2.1, last sentence – What about CAWCD?
Response: Added text to clarify relationship between Bureau of Reclamation and CAWCD.

TM 5 – Conceptual Drainage Report

Arizona State Land Department

66. ASLD Engineering recommends that culverts crossing Elliot Rd., a principal arterial, be sized to accommodate the 100 yr. storm without overtopping of the roadway.
Response: We acknowledge the recommendation from ASLD – however, the Technical Advisory Committee has determined that culverts will be designed to accommodate the 50-year storm per Maricopa County requirements.

67. ASLD Engineering does not recommend any dip crossings on Elliot Rd. that cross State Land.
Response: Acknowledged. Dip crossings are not recommended in TM 5.

68. The road design should not increase the footprint of any existing floodplains that would be on State Land. In addition, the road design shall not create a new floodplain on State Land.
Response: Acknowledged. If Elliot Road is extended to the CAP Canal, the roadway will potentially cross FEMA delineated floodplains, and the roadway should be designed to minimize impacts to FEMA floodplains.

69. Connectivity of existing JDs on state land shall be maintained. No new JDs shall be created on state land. In addition, to the greatest extent practicable, minimize impacts to the JDs on state land.
Response: Acknowledged.

City of Mesa

70. Page 5 First paragraph, the basins for the neighborhoods east of Mountain bleed off to a 24" pipe that flows west on the south side of Elliott. This pipe empties into a ditch that parallels Elliott.
Response: Discussion added about existing 8-in. bleed-off pipe crossing Elliot Road and 24-in. pipe conveying discharge to detention basin south of Elliot Road and west of Mountain Road. Discussion added that the existing system should not be impacted by the proposed roadway improvements.

71. Page 5 Second paragraph, change the reference from a highway corridor to a roadway corridor.
Response: Done.

72. We need to identify if the 10 year event will be retained or where the point of discharge is. As discussed, these frontages will be built with development that well be required to retain their on and off site flows. The City will not be installing any storm drain trunk-line facilities.

Response: Added recommendations that developers should design and retain for the 10-year storm event in Section 13 of TM 5.

FCDMC

73. Same comments as for Tech. Memo 2.

Response: See responses to FCDMC comments on TM 2.

Revised TM 5 – Drainage Concept Report

FCDMC

74. Page 6, last paragraph: Says that "The EMF, Santan Channel, and Elliot Road detention basins have capacity for the 100-year event or greater, and therefore could accept discharges from improvements to Elliot Road if required." Please be aware that there are currently capacity issues along portions of the EMF. The Elliot Basins were constructed to attenuate downstream peak flows and, as such, provide benefit to the EMF. The District is also constructing the Rittenhouse and Chandler Heights Basins along the EMF specifically to address these EMF capacity issues. In the design of these basins, the District has assumed that on-site 100-year, 2 hour retention will be provided for all new development within Maricopa County. Within Pinal County, the District has assumed that post-development peak discharges and runoff volumes will not exceed those of the pre-development conditions. It cannot be assumed that the District's structures have the capacity to accept runoff from the Elliot Road improvements. Analyses will be required. And, as always, "first flush" requirements must be met prior to discharge into a District facility.

Response: Incorporated into Technical Memorandum 8.

75. Page 7, first paragraph: This paragraph discusses discharging Elliot Road flows to the future District basin(s) on Siphon Draw Wash. Please see the comments under #1 above. Additionally, please note that under one alternative currently under evaluation by the District and the City of Mesa, the Elliot Road corridor is, in no part, within the drainage watershed to the Siphon Draw basin facility.

Response: Incorporated into Technical Memorandum 8.

76. Exhibit 5: The areas north of the US 60 and the CAP are not included on the exhibit. The note on this exhibit states that "only sub-basins contributing to Elliot Road are included in this graphic." The watersheds upstream of the US 60 and the CAP contribute to both the Elliot Basins and the future Siphon Draw Basin. If this was understood and the intent was not to include these areas on the map, then please, disregard this comment.

Response: Incorporated into Technical Memorandum 8.

77. On page 8, Section 7.2 discusses the Siphon Draw Drainage Improvements Concept Letter Report. I recommend adding a paragraph at the end:

"The Flood Control District is in the process of revising the hydrology model for this area for the final design for the Siphon Draw Drainage Improvements Project."
Response: Incorporated into Technical Memorandum 8.

TM 6 – Utilities Overview

City of Mesa
78. Page 2 Add WAPA as a power facility to Exhibit 2.
Response: Done.

79. Page 3 See previous comments relating to the existing sewer facilities.
Response: Corrected pipe size from 48" to 42".

80. Page 4 See previous comments relating to the existing power facilities. Add reference to WAPA. WAPA does not show up on bluestake because they do not operate any underground facilities. WAPA also has specific requirements relating to how close a roadway can be to their towers. I will send you a copy of a recent license agreement the City entered into with WAPA on a similar project.
Response: Done.

81. Page 5 The first photo shows the WAPA tower on the north side of Elliott.
Response: Clarified.

82. Existing Utility Map, Sheet 2 of 3 Add reference to WAPA line.
Response: Done.

83. City of Mesa Water Master Plan Include the 2007 updated master plan map
Response: In discussion with Marc Ahlstrom of City of Mesa, agreed to provide paragraph indicating new developments should consult the latest version of the master plans rather than including the master plan maps in this document.

84. Add a paragraph that the City of Mesa has developed master plans for water, wastewater, storm drain, and gas that are periodically updated. Any new projects should consult the latest version of these master plans.
Response: See response to previous comments.

85. Section 3.13.3 Mention that the area north and west of the L202 is within the City of Mesa gas service area. http://www.cityofmesa.org/maps/pdf/gas_service_area_map.pdf
Response: Updated Existing Utility Map, Sheet 1 of 3, accordingly.

86. Existing Utility Facility Map 1 of 3 - some of the utilities near the L202 do not show up.
Response: Confirmed location of utilities and reprinted exhibit.

87. It would probably be best to not show any of the master plans in the report, just reference the latest version. As far as the utilities, the comment was for the area west of the freeway on Elliot where it appears that there are callouts that don't point to anything.

Response: Noted.

TM 7 – Alternatives Evaluation

Arizona State Land Department

88. The reverse curve on Elliot Road east of Meridian Road does not match the preliminary drawing we gave you previously.

Response: Incorporated into Technical Memorandum 8.

MCDOT

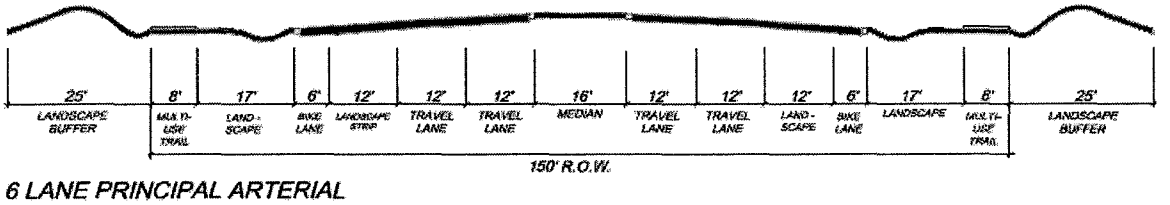
89. Page 4, Section 4, Recommendation of Preferred Alternatives – Drop "s" from "Alternatives" in title and then add some text explaining why alternative A was chosen. I think that there is considerable explanation that can be made and needs to be added.

Response: Incorporated into Draft Final Report.

TM 8 – Major Design Features

Arizona State Land Department

90. The typical section shown for Elliot Road between Meridian Road and the CAP Canal does not match the typical section developed for LDH. It lacks bike lanes and has narrower sidewalks, which are also not at the correct offset. See below.



6 LANE PRINCIPAL ARTERIAL

Response: We recognize that in the future there may be changes to Apache Junction's standard arterial street cross sections and access control guidelines. Until revisions are approved by Apache Junction, we have been advised to use the current design standards as shown in TM 8. We will reference the Lost Dutchman Heights project in our Draft Final Report and indicate that amendments to the current design guidelines may be required to accommodate this project.

91. The configuration of the Elliot Road/Ironwood Drive intersections is of a conventional signalized intersection. Because Ironwood Drive has been designated as a parkway, this intersection should be shown as a Michigan Left Turn intersection.

Response: We recognize that in the future there may be changes to Apache Junction's standard arterial street cross sections and access control guidelines. Until revisions are approved by Apache Junction, we have been advised to use the current design standards as shown in TM 8. We will reference the Lost Dutchman Heights project in our Draft Final

Report and indicate that amendments to the current design guidelines may be required to accommodate this project.

92. In Exhibit 3, under Minimum Median Spacing, they say that full access median breaks should be at 1/6 mile spacing, which is unusual but equates to 880 feet. I question if that might be a typo and might be 1/4 mile spacing.

Response: The 1/6 mile spacing is per the currently adopted Apache Junction standards that the TAC determined would be used for the design criteria in this study.

93. For everything east of Meridian Road, match the following development standards:

"Intermediate intersections (along arterials) with collector and local roadways and major driveways should be limited to a maximum of five per mile. Intermediate intersections may be located a minimum of one-eighth mile from the nearest major intersection. Desirable intersection spacing is at quarter-mile intervals. Intersections should be located at consistent intervals to allow for two-way traffic-signal progression.

Direct land access should be controlled, and new residential developments shall not front an arterial street. Right-in, right-out access points may be allowed based on travel demand.

Median openings are provided at all signalized at-grade intersections. They are also generally provided at unsignalized junctions of arterial and collector streets. They may be provided at driveways only where they will have minimum impact on roadway flow. Minimum desired spacing of unsignalized median openings at driveways as functions of speed are given in Table 3."

Table 3 – Median Opening Spacing

Speed Limit (mph)	Minimum Spacing (Feet)
30	370
35	460
40	530
45	670
50	780
55	910

"Arterial street access to any parcel with less than 200 feet of arterial street frontage shall be limited to one two-way driveway or one pair of one-way driveways on that frontage.

Access points should conform to Figure 1, which shows recommended minimum spacing between driveways and adjacent intersections, driveways and median ends along arterial and collector streets. Location of major driveways (serving a major generator, with no restriction of turning movements) is controlled by distances needed for provision of left turn storage lanes and approach tapers.

Major driveways on opposite sides of the street should be aligned to accommodate cross travel and to avoid conflicts between left-turning vehicles. Where a flush median design is

used (two-way left turn lane), minor driveways on opposite sides of the street should either be aligned or offset a minimum of 200 feet along arterial streets and 100 feet along collector streets. All driveways, including minor driveways restricted to right turn movements, should be spaced at least 100 feet apart along arterial streets and 50 feet apart along collector streets.

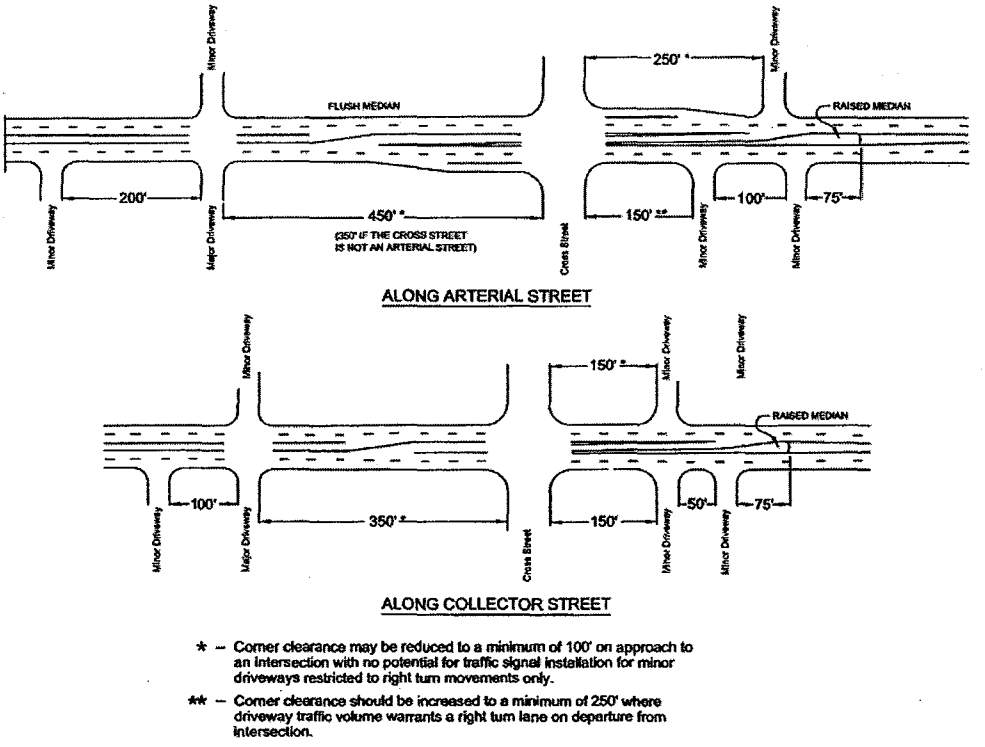
Additional driveways may be permitted if the following conditions are met:

1. Driveway two-way volume exceeds 1,500 vehicles per day with build-out of site.

2. Traffic volumes exiting the site under build-out conditions exceed capacity of stop-sign controlled intersections during peak hour of street or peak hour of site.
3. Traffic impact analysis determines that two driveways are required to safely and efficiently accommodate demand.

Developers of large sites or abutting sites along arterial streets should seek to consolidate major driveways at the appropriate intermediate intersection/median break points. Such consolidation may assist in meeting traffic signal warrants and in providing for acceptable signal progression on the through street.

Additional minor driveways along arterial street frontages should meet spacing guidelines of Sections 3.a.



* – Corner clearance may be reduced to a minimum of 100' on approach to an intersection with no potential for traffic signal installation for minor driveways restricted to right turn movements only.

** – Corner clearance should be increased to a minimum of 250' where driveway traffic volume warrants a right turn lane on departure from intersection.

Figure 1 – Driveway Spacing Requirements

Residential developments should have at least one access per 200 single family residential units, one access per 350 multi-family units, or one access per 350 mobile homes.

Developers proposing fewer accesses for their project must provide a traffic study showing acceptable levels of service."

Response: We recognize that in the future there may be changes to Apache Junction's standard arterial street cross sections and access control guidelines. Until revisions are approved by Apache Junction, we have been advised to use the current design standards as shown in TM 8. We will reference the Lost Dutchman Heights project in our Draft Final Report and indicate that amendments to the current design guidelines may be required to accommodate this project.

City of Mesa

94. Page 1 – Reference that the shift in the lanes between the Mesa section and the Apache Junction section will take place on the east side of the Meridian Rd. intersection.

Response: Incorporated into Draft Final Report.

95. Exhibit 8 – What is the note "1" above 2015 No-Build referring to?

Response: The "1" should not have been there and has been removed in the Draft Final Report.

96. Pages 10 and 11 – We would prefer to keep bike lanes at the intersection of Elliot and Ellsworth in future scenarios.

Response: Incorporated into Draft Final Report.

97. Page 11 – It is unlikely that the City would build an intersection beyond the standard lane configuration including double left-turn lanes and exclusive right-turn lanes. We would possibly consider an eight lane road in the future through either restriping or widening within the given right-of-way. We also will take our current planning study in the area into consideration. Any lane additions at the L202 ramps would require agreement from ADOT.

Response: Modified Elliot/Ellsworth intersection to show with single right-turn lane with LOS E. Added text to Draft Final Report to discuss shared through/right lane as an option and to indicate non-standard layouts would need approval from the appropriate jurisdiction.

98. Page 17 – Will the County participate in the cost to widen the bridges of the RWCD canal and Maricopa Floodway? How are the costs for the improvements divided up?

Response: Text added in Draft Final Report to indicate funding partnerships will have to be negotiated on a case-by-case basis.

99. Pages 17 and 18 – If it is determined that Elliot Road from Power Road to L202 only requires 4 lanes, bridge widening would be reduced. Also, we prefer 8' sidewalks on bridges. Also, on page 21, 10' lanes are recommended. We typically prefer lanes to be 10.5' minimum.

Response: Incorporated into Draft Final Report.

100. Page 18, 2nd bullet of Section 3.6 – I believe the City allows signals at 1/3 mile intervals.

Response: Yes, that is correct. The text says to start with signals at the mile and half-mile locations and then add other signals as needed. This does not preclude signals at the 1/3 mile intervals.

101. Page 18 – Access management would be carried out per COM standard procedures.
Response: Incorporated into Draft Final Report.

102. Page 19, Section 3.7 – Fiber optic interconnect shall be constructed according to Mesa standard details M-93.3, M-93.4, and M-93.5.
Response: Incorporated into Draft Final Report that Mesa ITS standards should be followed.

103. It is likely that the intersection of Crismon Road and Elliot Road will be built out before 2015.
Response: Added text in the Draft Final Report about the possibility of the intersection being built before 2015.

104. Page 20 – Do the roadway and right of way costs reflect construction and dedication by development?
Response: Added text to clarify what is included in costs in Draft Final Report.

DMB

105. Crismon Road within Mesa Proving Grounds will be a collector roadway – not an arterial roadway. Therefore, at most, we will have only 2 through lanes NB and SB through the intersection.
Response: Incorporated into Draft Final Report as a possible future change.

106. As stated in the meeting, the 8-lane arterial will fit within the R/W for a 6-lane arterial – additional r/w or easements are not required.
Response: Added text in Draft Final Report indicating may not need additional right-of-way if use narrower cross-section than the agreed upon standard.

107. At the urbanized intersections within the corridor, a desirable LOS D is unlikely be achieved at year 2030. It is more realistic for the design criteria to include LOS E as a guideline for urbanized areas, which reflects City of Mesa Transportation Plan.
Response: Added discussion in Draft Final Report about option of LOS E being considered acceptable in 2030.

108. The access management guidelines recommend no direct access to Elliot Road. Some commercial direct access may be necessary along the corridor and should be addressed on a case by case basis with the City of Mesa, or governing agency.
Response: Incorporated into Draft Final Report.

109. In general, it is understood that the City (or governing agency) will have final determination regarding the roadway design and access. This should be stated in the final report.

Response: Incorporated into Draft Final Report.

FCDMC

110. Page 16, 5th paragraph: Change "will" to "may" in last sentence of paragraph.

Response: Incorporated into Draft Final Report.

Roosevelt Water Conservation District

111. Based on your proposed improvements, the following are our key features in the area may need to be realigned or removed and relocated:

- Our lateral ditch along the south side of Elliot Rd. from our main canal west to Power Rd. (which includes some pipe, mostly ditch, the delivery gate in the main canal, and our turnout structure along with any associated private irrigation tie-ins to the south).
- Our radial gate in our main canal on the south side of Elliot Rd.
- Our well site on the south side of Elliot Rd. on the west bank of our main canal (hopefully you can avoid having to move that particular feature).
- And, obviously widen the bridge crossing our main canal.

I believe your report would be complete with regard to our facilities if it includes these items as conflicts that will need to be addressed.

Response: Incorporated into Draft Final Report.

Draft Final Report

City of Mesa

112. Page 2, third paragraph under the mid-term improvements section: References "an interchange with US 60". This should be changed to say "a future interchange with US 60".

Response: Incorporated into Final Report.

113. Page 4: Add a statement that the costs listed include dedications and work performed by developers that is not typically reimbursed by the City.

Response: Incorporated into Final Report.

114. Page 5: The second bullet point states to provide two lanes rather than three lanes on Elliot Road. This should be clarified to say two or three lanes per direction.

Response: Incorporated into Final Report.

115. Page 6, second to the last paragraph: Second sentence ends with a comma and a period.

Response: Corrected in Final Report.

116. Page 30, 4th and 5th paragraphs under Section 2.9: Have references to future tense using the word "will" to describe current conditions.

Response: Corrected in Final Report.

117. Page 31, second paragraph on the page, last sentence: Clarify that the location of the ADOT channel discharge is west of Ellsworth and south of Elliot.

Response: Incorporated into Final Report.

118. Page 31, last paragraph under Section 2.10: Change "detained" to "retained".

Response: Incorporated into Final Report.

119. Page 32, Section 2.11.2: Change all references to "standard" sewers to "gravity" sewers.

Response: Incorporated into Final Report.

120. Page 32, Section 2.11.7: Change the beginning of the first sentence to read "Utility lines and telecommunication networks ...".

Response: Incorporated into Final Report.

121. Page 36: Clarify what is required environmentally for this project. If the City does the work without federal funds. I think that many of the requirements listed are only if federal funds are utilized or if the work is done on private property.

Response: Clarified environmental requirements in Final Report.

122. Page 43, 1st paragraph: references a need for an "on-site" drainage system. A clarification needs to be made as to what is "on-site" and "off-site". Typically with developments the on-site is the development land and off-site is the public roadway. Also, along this entire project, there are no plans for any drainage system to be installed in the right of way. Each developer will be required to provide storage on their property for their on-site requirements as well as the half street drainage. Also the first two sentences of the last paragraph on the page contradict each other. The first sentence states that a storm drain system will be required for the street and the second sentence states that the developers will be responsible for the half-street drainage.

Response: Clarified in Final Report.

123. Page 61, Section 8.5: Last two paragraphs on the page refer to improvements on the bridges. Add a sentence that the roadway centerline bay be shifted to minimize the need for improvements on the bridges and that the clearances over the canal and channel will need to be evaluated with any future bridge widening.

Response: Incorporated into Final Report.

East Valley Partnership

124. We are concerned about providing some estimate of funding should Elliot Rd. need to cross the CAP canal. Although there are still many variables to sort through, we would request that you add verbiage to the report that states that there may be a need for Elliot Rd. to cross the canal and to add a preliminary cost figure. We'll leave it to your best judgment regarding what type of bridge design would best serve the needs in this section of the corridor.

Response: Incorporated into Final Report.

MCDOT

125. Page 1, 1st and 2nd paragraphs of Study Process Section: Add "preliminary" before "design phase".

Response: Incorporated into Final Report.

126. Page 1, 1st paragraph of Preferred Alternative Section: Remove evaluation matrix and add text about existing developments set the alignment already in some segments.

Response: Incorporated into Final Report.

127. Page 2, 4th bullet: add "identified" after "City of Mesa has".

Response: Incorporated into Final Report.

128. Page 4, 1st paragraph: Mention regional ITS criteria.

Response: Incorporated into Final Report.

129. Page 6, 1st paragraph in Section 1.1: Delete last sentence that starts with "In 2001".

Response: Incorporated into Final Report.

130. Page 6, 3rd paragraph in Section 1.1: Change "addressed the need" to "addressed that need".

Response: Incorporated into Final Report.

131. Page 6, 1st paragraph in Section 1.3: Discuss that alignment is set only to Ironwood.

Response: Incorporated into Final Report.

132. All Exhibits: Change exhibit title size, border to be consistent throughout report.

Response: Incorporated into Final Report.

133. Page 8, 1st paragraph in Section 1.6: Add "preliminary" before "design phase".

Response: Incorporated into Final Report.

134. Page 12, last paragraph: Add text about the latest gateway study that the airport and Mesa have done, as well as the DMB plans, that could change a few of the future land uses adjacent to Elliot Road.

Response: Incorporated into Final Report.

135. Page 20, 1st paragraph: Remove "According to the existing Maricopa County functional classification database".

Response: Done.

136. Page 20, 2nd paragraph: Spell out acronyms.

Response: Added list of acronyms at front of Final Report.

137. Page 29, 1st paragraph in Section 2.8.2: Add comma after "roadway improvements".

Response: Incorporated into Final Report.

138. Pages 48-50, Exhibits 41a, 41b, and 41c: Remove from report and put in technical appendix.

Response: Done.

Kimley-Horn
and Associates, Inc.

TRAFFIC DATA

MAG Socioeconomic Data by TAZ

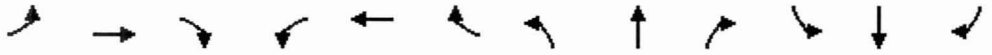
Year	TAZ	Res PopHH	Trans Pop	Seas Pop	Total Pop	Other Emp	Public Emp	Retail Emp	Office Emp	Indust Emp	Home Emp	Const Emp	Total Emp	Res HH_ODU
2006	561	1,975	34	3	2,012	0	0	6	0	0	19	5	30	737
2006	1493	10	0	0	10	0	102	0	0	0	0	1	103	3
2006	1494	223	2	1	226	99	0	18	0	0	3	3	123	50
2006	1498	3,960	58	6	4,024	30	122	293	0	0	55	51	551	1,284
2006	1499	90	1	1	92	85	0	19	0	3	2	38	147	27
2006	1501	1,179	18	2	1,199	25	0	2	24	0	22	54	127	460
2006	1502	15	0	0	15	4	0	40	0	25	0	43	112	4
2006	1507	2,500	38	5	2,543	0	171	77	154	0	21	13	436	841
2006	1617	1,204	17	2	1,223	0	0	0	0	0	19	69	88	448
2006	1908	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	1909	2,034	34	3	2,071	0	0	2	95	0	29	63	189	759
2006	1910	0	0	0	0	0	0	0	0	0	0	0	0	0
2006	1974	2546	102	910	3,558	44	45	230	113	481	40	33	986	991
2006	1979	291	8	31	330	0	0	1	0	0	7	8	16	112
2006	2088	304	9	32	345	0	0	1	0	0	7	9	17	118
Total		**16,331**	**321**	**996**	**17,648**	**287**	**440**	**689**	**386**	**509**	**224**	**390**	**2,925**	**5,834**

Year	TAZ	Res PopHH	Trans Pop	Seas Pop	Total Pop	Other Emp	Public Emp	Retail Emp	Office Emp	Indust Emp	Home Emp	Const Emp	Total Emp	Res HH_ODU
2015	561	2021	37	18	2076	167	0	152	0	0	21	35	375	758
2015	1493	548	0	5	553	0	102	120	615	0	14	108	959	208
2015	1494	223	2	1	226	99	0	152	29	32	3	21	336	50
2015	1498	4159	63	9	4231	205	567	1043	580	11	61	237	2704	1360
2015	1499	94	1	1	96	95	0	212	0	110	2	40	459	28
2015	1501	1959	20	13	1992	123	0	565	586	0	42	139	1455	802
2015	1502	15	0	0	15	14	0	653	33	88	0	71	859	5
2015	1507	2746	41	24	2811	35	356	328	828	0	28	130	1705	948

MAG Socioeconomic Data by TAZ (continued)

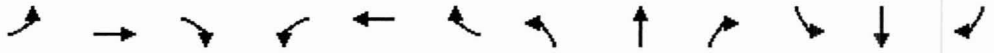
Year	TAZ	Res PopHH	Trans Pop	Seas Pop	Total Pop	Other Emp	Public Emp	Retail Emp	Office Emp	Indust Emp	Home Emp	Const Emp	Total Emp	Res HH_ODU
2015	1617	2615	20	18	2653	0	0	0	0	0	56	65	121	994
2015	1908	0	0	0	0	0	0	40	222	1751	0	217	2230	0
2015	1909	2269	37	20	2326	0	0	2	95	0	35	10	142	854
2015	1910	0	0	0	0	70	0	206	251	0	0	57	584	0
2015	1974	7409	208	1113	8730	75	227	787	336	922	148	113	2608	2664
2015	1979	1696	48	179	1923	2	4	17	2	0	38	43	106	657
2015	2088	1780	50	187	2017	2	4	16	2	0	39	45	108	690
Total		**27,534**	**527**	**1,588**	**29,649**	**887**	**1,260**	**4,293**	**3,579**	**2,914**	**1,331**	**1,130**	**14,751**	**10,018**

Year	TAZ	Res PopHH	Trans Pop	Seas Pop	Total Pop	Other Emp	Public Emp	Retail Emp	Office Emp	Indust Emp	Home Emp	Const Emp	Total Emp	Res HH_ODU
2030	561	2236	41	43	2320	374	0	297	730	0	26	104	1531	852
2030	1493	1549	3	27	1579	0	373	254	2510	0	39	213	3389	610
2030	1494	223	2	1	226	99	0	249	57	269	3	25	702	50
2030	1498	4199	70	12	4281	385	1516	1897	2814	44	62	248	6966	1385
2030	1499	94	1	1	96	108	0	408	0	204	2	3	725	28
2030	1501	2344	25	33	2402	167	0	1168	1068	0	53	37	2493	978
2030	1502	15	0	0	15	14	0	1244	333	88	0	40	1719	5
2030	1507	2821	46	56	2923	79	1605	585	3301	0	30	347	5947	987
2030	1617	3868	27	57	3952	0	0	0	0	0	88	21	109	1496
2030	1908	0	0	0	0	0	0	86	2372	3434	0	223	6115	0
2030	1909	3406	43	58	3507	0	0	2	95	0	61	61	219	1334
2030	1910	0	0	0	0	157	0	436	1479	66	0	127	2265	0
2030	1974	19011	476	1706	21193	114	454	1431	598	1278	406	149	4430	6837
2030	1979	6785	192	718	7695	20	38	121	22	0	151	116	468	2629
2030	2088	7118	201	752	8071	21	39	119	23	0	158	121	481	2758
Total		**53,669**	**1,127**	**3,464**	**58,260**	**1,538**	**4,025**	**8,297**	**15,402**	**5,383**	**1,079**	**1,835**	**37,559**	**19,949**



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	103	36	109	217	31	49	1054	58	12	762	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1723		1703	1759		1703	3379		1703	3359	
Flt Permitted	0.51	1.00		0.66	1.00		0.27	1.00		0.16	1.00	
Satd. Flow (perm)	906	1723		1185	1759		478	3379		293	3359	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	112	39	118	236	34	53	1146	63	13	828	84
RTOR Reduction (vph)	0	14	0	0	6	0	0	5	0	0	10	0
Lane Group Flow (vph)	89	137	0	118	264	0	53	1204	0	13	902	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.5	13.5		13.5	13.5		26.0	26.0		26.0	26.0	
Effective Green, g (s)	13.5	13.5		13.5	13.5		26.0	26.0		26.0	26.0	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.55	0.55		0.55	0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	257	490		337	500		262	1850		160	1839	
v/s Ratio Prot		0.08			c0.15			c0.36			0.27	
v/s Ratio Perm	0.10			0.10			0.11			0.04		
v/c Ratio	0.35	0.28		0.35	0.53		0.20	0.65		0.08	0.49	
Uniform Delay, d1	13.5	13.2		13.5	14.3		5.5	7.6		5.1	6.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.3		0.6	1.0		0.4	0.8		0.2	0.2	
Delay (s)	14.3	13.5		14.1	15.3		5.9	8.4		5.3	6.9	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		13.8			15.0			8.3			6.8	
Approach LOS		B			B			A			A	

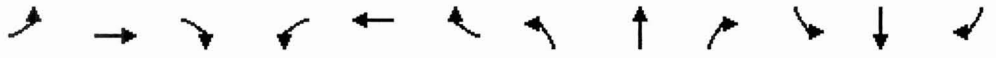
Intersection Summary			
HCM Average Control Delay	9.2	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	47.5	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	38	103	51	13	198	49	54	47	6	22	29	86
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	41	112	55	14	215	53	59	51	7	24	32	93

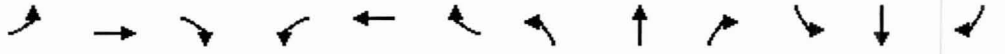
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	209	283	116	149
Volume Left (vph)	41	14	59	24
Volume Right (vph)	55	53	7	93
Hadj (s)	-0.02	0.00	0.17	-0.24
Departure Headway (s)	5.0	4.9	5.6	5.1
Degree Utilization, x	0.29	0.39	0.18	0.21
Capacity (veh/h)	668	692	575	635
Control Delay (s)	10.1	11.0	9.8	9.5
Approach Delay (s)	10.1	11.0	9.8	9.5
Approach LOS	B	B	A	A

Intersection Summary				
Delay	10.3			
HCM Level of Service	B			
Intersection Capacity Utilization	42.8%	ICU Level of Service	A	
Analysis Period (min)	15			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	✣	↱
Volume (vph)	0	96	14	166	205	0	0	0	0	398	0	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5549	1371	2973	3065					1456	1395	1303
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5549	1371	2973	3065					1456	1395	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	104	15	180	223	0	0	0	0	433	0	45
RTOR Reduction (vph)	0	0	11	0	0	0	0	0	0	0	1	20
Lane Group Flow (vph)	0	104	4	180	223	0	0	0	0	221	216	20
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		25.5	25.5	10.1	34.0					46.4	46.4	46.4
Effective Green, g (s)		25.5	25.5	10.1	34.0					46.4	46.4	46.4
Actuated g/C Ratio		0.27	0.27	0.11	0.36					0.49	0.49	0.49
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1505	372	319	1109					719	689	643
v/s Ratio Prot		0.02		c0.06	c0.07							
v/s Ratio Perm			0.00							0.15	0.16	0.02
v/c Ratio		0.07	0.01	0.56	0.20					0.31	0.31	0.03
Uniform Delay, d1		25.4	25.0	39.9	20.7					14.2	14.3	12.2
Progression Factor		1.00	1.00	1.32	0.36					1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0	2.3	0.1					1.1	1.2	0.1
Delay (s)		25.5	25.0	54.9	7.6					15.3	15.5	12.3
Level of Service		C	C	D	A					B	B	B
Approach Delay (s)		25.4			28.7			0.0			15.1	
Approach LOS		C			C			A			B	

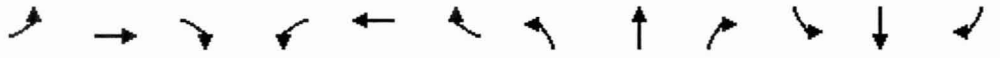
Intersection Summary			
HCM Average Control Delay	21.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	18	478	0	0	337	928	18	0	94	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3303	4893			6166	1524	1618	1393	1447			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3303	4893			6166	1524	1618	1393	1447			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	520	0	0	366	1009	20	0	102	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	644	0	25	26	0	0	0
Lane Group Flow (vph)	20	520	0	0	366	365	18	27	26	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	1.6	25.5			34.0	34.0	46.4	46.4	46.4			
Effective Green, g (s)	1.6	25.5			34.0	34.0	46.4	46.4	46.4			
Actuated g/C Ratio	0.02	0.27			0.36	0.36	0.49	0.49	0.49			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	56	1327			2230	551	799	688	714			
v/s Ratio Prot	c0.01	0.11			0.06							
v/s Ratio Perm						c0.24	0.01	0.02	0.02			
v/c Ratio	0.36	0.39			0.16	0.66	0.02	0.04	0.04			
Uniform Delay, d1	45.7	27.9			20.4	25.2	12.2	12.3	12.3			
Progression Factor	1.50	1.39			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	3.9	0.2			0.0	3.0	0.1	0.1	0.1			
Delay (s)	72.6	38.9			20.4	28.2	12.2	12.4	12.4			
Level of Service	E	D			C	C	B	B	B			
Approach Delay (s)		40.2			26.1			12.4			0.0	
Approach LOS		D			C			B			A	

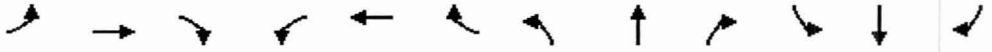
Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	30	159	393	26	527	70	663	618	18	18	193	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	3406	1524	1703	3346		1703	3406	1524	1703	3406	1524
Flt Permitted	0.20	1.00	1.00	0.64	1.00		0.45	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	353	3406	1524	1152	3346		808	3406	1524	710	3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	173	427	28	573	76	721	672	20	20	210	60
RTOR Reduction (vph)	0	0	324	0	11	0	0	0	9	0	0	51
Lane Group Flow (vph)	33	173	103	28	638	0	721	672	11	20	210	9
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	22.5	20.3	20.3	20.9	19.5		50.2	44.8	44.8	14.4	13.0	13.0
Effective Green, g (s)	22.5	20.3	20.3	20.9	19.5		50.2	44.8	44.8	14.4	13.0	13.0
Actuated g/C Ratio	0.27	0.24	0.24	0.25	0.23		0.60	0.53	0.53	0.17	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	130	824	369	296	778		838	1819	814	138	528	236
v/s Ratio Prot	c0.01	0.05		0.00	c0.19		c0.34	0.20		0.00	0.06	
v/s Ratio Perm	0.06		0.07	0.02			c0.17		0.01	0.02		0.01
v/c Ratio	0.25	0.21	0.28	0.09	0.82		0.86	0.37	0.01	0.14	0.40	0.04
Uniform Delay, d1	23.8	25.4	25.9	24.0	30.5		12.1	11.3	9.2	29.6	31.9	30.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.4	0.1	6.9		9.0	0.1	0.0	0.5	0.5	0.1
Delay (s)	24.8	25.5	26.3	24.2	37.5		21.1	11.5	9.2	30.1	32.4	30.2
Level of Service	C	C	C	C	D		C	B	A	C	C	C
Approach Delay (s)		26.0			36.9			16.3			31.8	
Approach LOS		C			D			B			C	

Intersection Summary			
HCM Average Control Delay	24.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	83.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



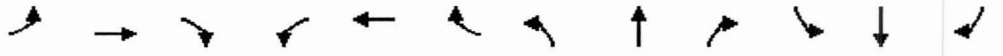
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	14	182	0	0	593	375	2	0	1	212	0	35
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	15	198	0	0	645	408	2	0	1	230	0	38

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	213	1052	3	268
Volume Left (vph)	15	0	2	230
Volume Right (vph)	0	408	1	38
Hadj (s)	0.12	-0.13	0.04	0.19
Departure Headway (s)	5.9	5.1	7.0	6.4
Degree Utilization, x	0.35	1.48	0.01	0.48
Capacity (veh/h)	586	712	468	547
Control Delay (s)	12.1	238.2	10.1	15.1
Approach Delay (s)	12.1	238.2	10.1	15.1
Approach LOS	B	F	B	C

Intersection Summary				
Delay		167.4		
HCM Level of Service		F		
Intersection Capacity Utilization		78.5%	ICU Level of Service	D
Analysis Period (min)		15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	65	192	52	55	94	14	34	744	68	17	1066	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	0.97		1.00	0.98		1.00	0.99		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1735		1703	1758		1703	3363		1703	3371	
Flt Permitted	0.68	1.00		0.51	1.00		0.16	1.00		0.28	1.00	
Satd. Flow (perm)	1222	1735		909	1758		278	3363		502	3371	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	71	209	57	60	102	15	37	809	74	18	1159	84
RTOR Reduction (vph)	0	11	0	0	6	0	0	8	0	0	7	0
Lane Group Flow (vph)	71	255	0	60	111	0	37	875	0	18	1236	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	13.3	13.3		13.3	13.3		26.4	26.4		26.4	26.4	
Effective Green, g (s)	13.3	13.3		13.3	13.3		26.4	26.4		26.4	26.4	
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.55	0.55		0.55	0.55	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	341	484		253	490		154	1861		278	1866	
v/s Ratio Prot		c0.15			0.06			0.26			c0.37	
v/s Ratio Perm	0.06			0.07			0.13			0.04		
v/c Ratio	0.21	0.53		0.24	0.23		0.24	0.47		0.06	0.66	
Uniform Delay, d1	13.2	14.5		13.3	13.2		5.5	6.4		4.9	7.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.0		0.5	0.2		0.8	0.2		0.1	0.9	
Delay (s)	13.5	15.6		13.8	13.5		6.3	6.6		5.0	8.4	
Level of Service	B	B		B	B		A	A		A	A	
Approach Delay (s)		15.1			13.6			6.6			8.4	
Approach LOS		B			B			A			A	

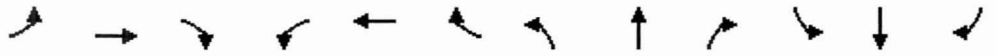
Intersection Summary			
HCM Average Control Delay	8.9	HCM Level of Service	A
HCM Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	47.7	Sum of lost time (s)	8.0
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	79	185	20	5	93	15	23	32	4	34	47	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	86	201	22	5	101	16	25	35	4	37	51	60

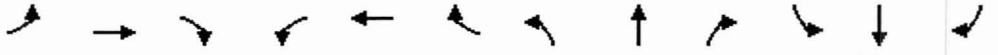
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	309	123	64	148
Volume Left (vph)	86	5	25	37
Volume Right (vph)	22	16	4	60
Hadj (s)	0.12	0.03	0.14	-0.09
Departure Headway (s)	4.7	4.9	5.3	5.0
Degree Utilization, x	0.41	0.17	0.09	0.20
Capacity (veh/h)	724	688	610	661
Control Delay (s)	10.9	8.9	8.9	9.2
Approach Delay (s)	10.9	8.9	8.9	9.2
Approach LOS	B	A	A	A

Intersection Summary			
Delay	9.9		
HCM Level of Service	A		
Intersection Capacity Utilization	37.5%	ICU Level of Service	A
Analysis Period (min)	15		



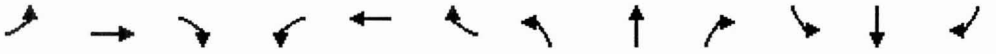
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	✣	↱
Volume (vph)	0	213	20	102	121	0	0	0	0	964	2	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5549	1371	2973	3065					1456	1398	1303
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5549	1371	2973	3065					1456	1398	1303
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	232	22	111	132	0	0	0	0	1048	2	23
RTOR Reduction (vph)	0	0	15	0	0	0	0	0	0	0	0	11
Lane Group Flow (vph)	0	232	7	111	132	0	0	0	0	524	528	10
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		30.2	30.2	5.0	32.8					46.8	46.8	46.8
Effective Green, g (s)		30.2	30.2	5.0	32.8					46.8	46.8	46.8
Actuated g/C Ratio		0.32	0.32	0.05	0.35					0.50	0.50	0.50
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1783	440	158	1069					725	696	649
v/s Ratio Prot		0.04		c0.04	c0.04							
v/s Ratio Perm			0.01							0.36	0.38	0.01
v/c Ratio		0.13	0.02	0.70	0.12					0.72	0.76	0.02
Uniform Delay, d1		22.6	21.8	43.8	20.8					18.5	19.0	11.9
Progression Factor		1.00	1.00	1.74	0.50					1.00	1.00	1.00
Incremental Delay, d2		0.0	0.0	13.2	0.1					6.2	7.6	0.0
Delay (s)		22.6	21.8	89.4	10.5					24.7	26.6	12.0
Level of Service		C	C	F	B					C	C	B
Approach Delay (s)		22.6			46.6			0.0			25.4	
Approach LOS		C			D			A			C	

Intersection Summary			
HCM Average Control Delay	28.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	29	1149	0	0	200	428	26	0	122	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3303	4893			6166	1524	1618	1394	1447			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3303	4893			6166	1524	1618	1394	1447			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	1249	0	0	217	465	28	0	133	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	303	0	33	34	0	0	0
Lane Group Flow (vph)	32	1249	0	0	217	162	25	35	34	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	2.4	30.2			32.8	32.8	46.8	46.8	46.8			
Effective Green, g (s)	2.4	30.2			32.8	32.8	46.8	46.8	46.8			
Actuated g/C Ratio	0.03	0.32			0.35	0.35	0.50	0.50	0.50			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	84	1572			2152	532	806	694	720			
v/s Ratio Prot	c0.01	c0.26			0.04							
v/s Ratio Perm						c0.11	0.02	0.03	0.02			
v/c Ratio	0.38	0.79			0.10	0.30	0.03	0.05	0.05			
Uniform Delay, d1	45.1	29.1			20.6	22.3	12.0	12.2	12.1			
Progression Factor	1.67	1.32			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.9	2.3			0.0	0.3	0.1	0.1	0.1			
Delay (s)	78.3	40.8			20.7	22.6	12.1	12.3	12.3			
Level of Service	E	D			C	C	B	B	B			
Approach Delay (s)		41.7			22.0			12.3			0.0	
Approach LOS		D			C			B			A	

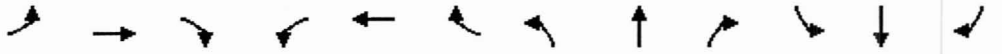
Intersection Summary			
HCM Average Control Delay	33.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	410	802	21	224	45	381	241	12	66	381	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1703	3406	1524	1703	3320		1703	3406	1524	1703	3406	1524
Flt Permitted	0.53	1.00	1.00	0.46	1.00		0.27	1.00	1.00	0.59	1.00	1.00
Satd. Flow (perm)	944	3406	1524	822	3320		483	3406	1524	1057	3406	1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	446	872	23	243	49	414	262	13	72	414	17
RTOR Reduction (vph)	0	0	348	0	19	0	0	0	8	0	0	14
Lane Group Flow (vph)	59	446	524	23	273	0	414	262	5	72	414	3
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	34.8	31.8	31.8	31.6	30.2		38.4	30.6	30.6	19.6	15.8	15.8
Effective Green, g (s)	34.8	31.8	31.8	31.6	30.2		38.4	30.6	30.6	19.6	15.8	15.8
Actuated g/C Ratio	0.42	0.38	0.38	0.38	0.36		0.46	0.37	0.37	0.23	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	420	1296	580	325	1199		493	1247	558	277	644	288
v/s Ratio Prot	c0.01	0.13		0.00	0.08		c0.19	0.08		0.01	0.12	
v/s Ratio Perm	0.05		c0.34	0.03			c0.20		0.00	0.05		0.00
v/c Ratio	0.14	0.34	0.90	0.07	0.23		0.84	0.21	0.01	0.26	0.64	0.01
Uniform Delay, d1	14.8	18.5	24.4	16.4	18.6		17.1	18.2	16.9	25.6	31.3	27.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	17.4	0.1	0.1		11.9	0.1	0.0	0.5	2.2	0.0
Delay (s)	15.0	18.6	41.8	16.5	18.7		29.0	18.3	16.9	26.1	33.5	27.6
Level of Service	B	B	D	B	B		C	B	B	C	C	C
Approach Delay (s)		33.2			18.5			24.7			32.2	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.5%	ICU Level of Service	D
Analysis Period (min)	15		

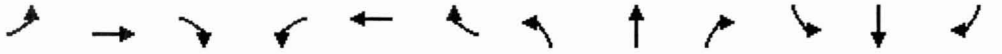
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	35	439	1	0	246	225	3	0	1	406	0	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	38	477	1	0	267	245	3	0	1	441	0	28

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	516	512	4	470
Volume Left (vph)	38	0	3	441
Volume Right (vph)	1	245	1	28
Hadj (s)	0.12	-0.18	0.10	0.25
Departure Headway (s)	7.1	6.7	9.5	7.2
Degree Utilization, x	1.02	0.96	0.01	0.94
Capacity (veh/h)	516	523	367	492
Control Delay (s)	71.4	54.7	12.6	53.7
Approach Delay (s)	71.4	54.7	12.6	53.7
Approach LOS	F	F	B	F

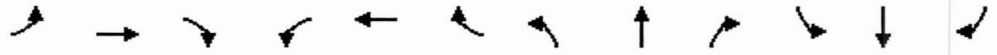
Intersection Summary			
Delay	60.0		
HCM Level of Service	F		
Intersection Capacity Utilization	87.6%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	300	75	250	500	180	120	1400	80	75	750	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1772		1736	1754		1736	4988	1553	1736	4988	1553
Flt Permitted	0.17	1.00		0.43	1.00		0.17	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	314	1772		778	1754		317	4988	1553	299	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	326	82	272	543	196	130	1522	87	82	815	109
RTOR Reduction (vph)	0	10	0	0	14	0	0	0	60	0	0	80
Lane Group Flow (vph)	163	398	0	272	725	0	130	1522	27	82	815	29
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.4	48.4		48.4	48.4		36.2	29.1	29.1	27.5	24.4	24.4
Effective Green, g (s)	48.4	48.4		48.4	48.4		36.2	29.1	29.1	27.5	24.4	24.4
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.39	0.31	0.31	0.30	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	926		407	917		243	1568	488	137	1314	409
v/s Ratio Prot		0.22			0.41		c0.04	c0.31		0.02	0.16	
v/s Ratio Perm	c0.52			0.35			0.16		0.02	0.16		0.02
v/c Ratio	0.99	0.43		0.67	0.79		0.53	0.97	0.06	0.60	0.62	0.07
Uniform Delay, d1	22.0	13.6		16.2	18.0		19.8	31.3	22.2	26.8	30.0	25.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	68.1	0.3		4.1	4.7		2.3	16.2	0.0	6.9	0.9	0.1
Delay (s)	90.1	13.9		20.3	22.7		22.1	47.6	22.2	33.7	30.9	25.7
Level of Service	F	B		C	C		C	D	C	C	C	C
Approach Delay (s)		35.7			22.1			44.4			30.6	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	50	250	100	100	550	400	100	100	200	100	100	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	272	109	109	598	435	109	109	217	109	109	136

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	435	1141	435	353
Volume Left (vph)	54	109	109	109
Volume Right (vph)	109	435	217	136
Hadj (s)	-0.06	-0.14	-0.18	-0.10
Departure Headway (s)	9.3	9.2	9.2	9.5
Degree Utilization, x	1.13	2.93	1.11	0.93
Capacity (veh/h)	394	401	402	374
Control Delay (s)	115.1	894.5	109.5	61.3
Approach Delay (s)	115.1	894.5	109.5	61.3
Approach LOS	F	F	F	F

Intersection Summary				
Delay		482.3		
HCM Level of Service		F		
Intersection Capacity Utilization		108.4%	ICU Level of Service	G
Analysis Period (min)		15		

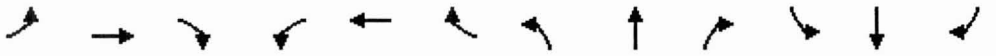
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	✣	↱
Volume (vph)	0	350	75	950	450	0	0	0	0	675	0	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5656	1398	3030	3124					1484	1422	1328
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5656	1398	3030	3124					1484	1422	1328
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	380	82	1033	489	0	0	0	0	734	0	82
RTOR Reduction (vph)	0	0	62	0	0	0	0	0	0	0	1	53
Lane Group Flow (vph)	0	380	20	1033	489	0	0	0	0	374	367	21
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		22.8	22.8	33.0	52.6					26.2	26.2	26.2
Effective Green, g (s)		22.8	22.8	33.0	52.6					26.2	26.2	26.2
Actuated g/C Ratio		0.24	0.24	0.35	0.56					0.28	0.28	0.28
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1372	339	1064	1748					414	396	370
v/s Ratio Prot		0.07		c0.34	c0.16							
v/s Ratio Perm			0.01							0.25	0.26	0.02
v/c Ratio		0.28	0.06	0.97	0.28					0.90	0.93	0.06
Uniform Delay, d1		28.9	27.4	30.0	10.8					32.7	33.0	24.8
Progression Factor		1.00	1.00	0.81	0.71					1.00	1.00	1.00
Incremental Delay, d2		0.1	0.1	19.9	0.1					25.6	30.2	0.3
Delay (s)		29.0	27.4	44.2	7.7					58.3	63.2	25.1
Level of Service		C	C	D	A					E	E	C
Approach Delay (s)		28.7			32.5			0.0			57.5	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM Average Control Delay	39.2	HCM Level of Service	D
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	950	0	0	1300	1200	100	0	500	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3367	4988			6285	1553	1649	1420	1475			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3367	4988			6285	1553	1649	1420	1475			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1033	0	0	1413	1304	109	0	543	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	423	0	192	200	0	0	0
Lane Group Flow (vph)	82	1033	0	0	1413	881	98	85	77	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	3.2	22.8			52.6	52.6	26.2	26.2	26.2			
Effective Green, g (s)	3.2	22.8			52.6	52.6	26.2	26.2	26.2			
Actuated g/C Ratio	0.03	0.24			0.56	0.56	0.28	0.28	0.28			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	115	1210			3517	869	460	396	411			
v/s Ratio Prot	c0.02	0.21			0.22							
v/s Ratio Perm						c0.57	0.06	0.06	0.05			
v/c Ratio	0.71	0.85			0.40	1.01	0.21	0.22	0.19			
Uniform Delay, d1	44.9	34.0			11.8	20.7	26.0	26.0	25.8			
Progression Factor	1.05	1.25			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	18.4	4.2			0.1	33.9	1.1	1.2	1.0			
Delay (s)	65.7	46.9			11.8	54.6	27.1	27.3	26.8			
Level of Service	E	D			B	D	C	C	C			
Approach Delay (s)		48.2			32.4			27.0			0.0	
Approach LOS		D			C			C			A	

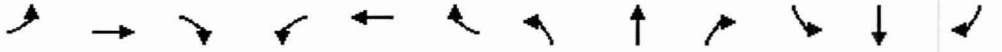
Intersection Summary			
HCM Average Control Delay	35.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



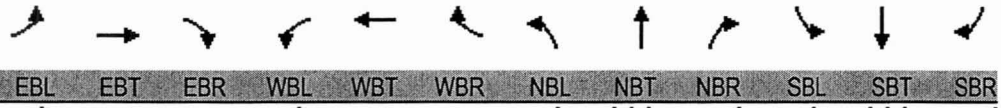
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	750	600	150	1400	125	1250	750	50	75	250	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3428		1736	3471	1553	1736	3471	1553
Flt Permitted	0.16	1.00	1.00	0.14	1.00		0.36	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	288	3471	1553	250	3428		655	3471	1553	629	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	815	652	163	1522	136	1359	815	54	82	272	109
RTOR Reduction (vph)	0	0	469	0	7	0	0	0	32	0	0	73
Lane Group Flow (vph)	82	815	183	163	1651	0	1359	815	22	82	272	36
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	28.6	25.4	25.4	36.2	29.2		46.3	37.6	37.6	18.0	13.3	13.3
Effective Green, g (s)	28.6	25.4	25.4	36.2	29.2		46.3	37.6	37.6	18.0	13.3	13.3
Actuated g/C Ratio	0.32	0.28	0.28	0.40	0.32		0.51	0.41	0.41	0.20	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	142	972	435	214	1104		680	1439	644	182	509	228
v/s Ratio Prot	0.02	0.23		c0.06	c0.48		c0.64	0.23		0.02	0.08	
v/s Ratio Perm	0.16		0.12	0.24			c0.38		0.01	0.07		0.02
v/c Ratio	0.58	0.84	0.42	0.76	1.50		2.00	0.57	0.03	0.45	0.53	0.16
Uniform Delay, d1	25.9	30.7	26.6	20.9	30.8		19.1	20.3	15.8	30.6	35.8	33.8
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.6	6.4	0.7	14.7	227.9		454.6	0.5	0.0	1.8	1.1	0.3
Delay (s)	31.5	37.1	27.3	35.6	258.6		473.6	20.8	15.8	32.4	36.9	34.1
Level of Service	C	D	C	D	F		F	C	B	C	D	C
Approach Delay (s)		32.7			238.7			296.9			35.5	
Approach LOS		C			F			F			D	

Intersection Summary			
HCM Average Control Delay	191.9	HCM Level of Service	F
HCM Volume to Capacity ratio	1.75		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	136.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	450	150	175	1050	250	455	500	150	80	250	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1827	1553	1736	1827	1553	1736	1827	1553	1736	1827	1553
Flt Permitted	0.08	1.00	1.00	0.38	1.00	1.00	0.48	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	141	1827	1553	687	1827	1553	869	1827	1553	300	1827	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	489	163	190	1141	272	495	543	163	87	272	61
RTOR Reduction (vph)	0	0	38	0	0	67	0	0	104	0	0	26
Lane Group Flow (vph)	136	489	125	190	1141	205	495	543	59	87	272	35
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	52.0	52.0	52.0	52.0	52.0	52.0	34.0	34.0	34.0	34.0	34.0	34.0
Effective Green, g (s)	52.0	52.0	52.0	52.0	52.0	52.0	34.0	34.0	34.0	34.0	34.0	34.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	78	1011	859	380	1011	859	314	661	562	109	661	562
v/s Ratio Prot		0.27			0.62			0.30			0.15	
v/s Ratio Perm	c0.97		0.08	0.28		0.13	c0.57		0.04	0.29		0.02
v/c Ratio	1.74	0.48	0.15	0.50	1.13	0.24	1.58	0.82	0.10	0.80	0.41	0.06
Uniform Delay, d1	21.0	12.8	10.2	13.0	21.0	10.8	30.0	27.2	19.9	26.9	22.5	19.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	382.0	0.4	0.1	1.0	70.7	0.1	274.2	8.1	0.1	32.1	0.4	0.0
Delay (s)	403.0	13.2	10.3	14.0	91.7	11.0	304.2	35.3	20.0	59.0	22.9	19.6
Level of Service	F	B	B	B	F	B	F	D	B	E	C	B
Approach Delay (s)		79.9			68.8			144.1			29.9	
Approach LOS		E			E			F			C	

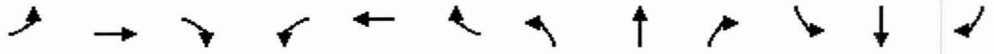
Intersection Summary			
HCM Average Control Delay	89.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.68		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	500	150	125	325	100	100	775	150	175	1320	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1764		1736	1762		1736	4988	1553	1736	4988	1553
Flt Permitted	0.37	1.00		0.19	1.00		0.16	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	685	1764		339	1762		283	4988	1553	312	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	543	163	136	353	109	109	842	163	190	1435	136
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	118	0	0	93
Lane Group Flow (vph)	109	695	0	136	450	0	109	842	45	190	1435	43
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.0	48.0		48.0	48.0		29.8	25.8	25.8	37.8	29.8	29.8
Effective Green, g (s)	48.0	48.0		48.0	48.0		29.8	25.8	25.8	37.8	29.8	29.8
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.32	0.28	0.28	0.40	0.32	0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	351	903		173	902		152	1372	427	247	1585	493
v/s Ratio Prot		0.39			0.26		0.03	0.17		c0.07	c0.29	
v/s Ratio Perm	0.16			c0.40			0.20		0.03	0.24		0.03
v/c Ratio	0.31	0.77		0.79	0.50		0.72	0.61	0.10	0.77	0.91	0.09
Uniform Delay, d1	13.3	18.4		18.7	15.0		26.3	29.7	25.4	20.3	30.6	22.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	4.0		20.5	0.4		14.9	0.8	0.1	13.4	7.7	0.1
Delay (s)	13.8	22.4		39.3	15.5		41.2	30.5	25.5	33.7	38.4	22.5
Level of Service	B	C		D	B		D	C	C	C	D	C
Approach Delay (s)		21.3			20.9			30.8			36.7	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

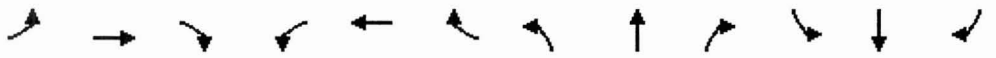
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	100	525	50	250	300	175	75	100	100	300	100	100
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	109	571	54	272	326	190	82	109	109	326	109	109

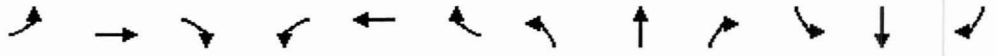
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	734	788	299	543
Volume Left (vph)	109	272	82	326
Volume Right (vph)	54	190	109	109
Hadj (s)	0.05	-0.01	-0.10	0.07
Departure Headway (s)	9.1	9.0	9.5	9.1
Degree Utilization, x	1.85	1.97	0.79	1.37
Capacity (veh/h)	402	406	375	402
Control Delay (s)	412.5	466.8	39.6	207.8
Approach Delay (s)	412.5	466.8	39.6	207.8
Approach LOS	F	F	E	F

Intersection Summary				
Delay	336.4			
HCM Level of Service	F			
Intersection Capacity Utilization	133.2%	ICU Level of Service	H	
Analysis Period (min)	15			



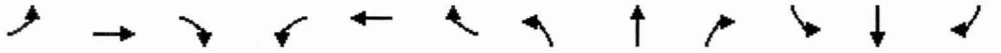
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	✣	↱
Volume (vph)	0	475	50	400	380	0	0	0	0	1100	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5656	1398	3030	3124					1484	1424	1328
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5656	1398	3030	3124					1484	1424	1328
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	54	435	413	0	0	0	0	1196	0	54
RTOR Reduction (vph)	0	0	36	0	0	0	0	0	0	0	1	29
Lane Group Flow (vph)	0	516	18	435	413	0	0	0	0	598	602	20
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		30.8	30.8	13.0	40.6					38.2	38.2	38.2
Effective Green, g (s)		30.8	30.8	13.0	40.6					38.2	38.2	38.2
Actuated g/C Ratio		0.33	0.33	0.14	0.43					0.41	0.41	0.41
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1853	458	419	1349					603	579	540
v/s Ratio Prot		0.09		c0.14	c0.13							
v/s Ratio Perm			0.01							0.40	0.42	0.01
v/c Ratio		0.28	0.04	1.04	0.31					0.99	1.04	0.04
Uniform Delay, d1		23.4	21.5	40.5	17.5					27.7	27.9	16.8
Progression Factor		1.00	1.00	1.70	0.66					1.00	1.00	1.00
Incremental Delay, d2		0.1	0.0	53.7	0.1					34.7	48.3	0.1
Delay (s)		23.5	21.6	122.7	11.6					62.4	76.2	16.9
Level of Service		C	C	F	B					E	E	B
Approach Delay (s)		23.3			68.6			0.0			67.3	
Approach LOS		C			E			A			E	

Intersection Summary			
HCM Average Control Delay	58.3	HCM Level of Service	E
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	127.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	80	1500	0	0	675	750	100	0	900	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3367	4988			6285	1553	1649	1417	1475			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3367	4988			6285	1553	1649	1417	1475			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1630	0	0	734	815	109	0	978	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	463	0	150	150	0	0	0
Lane Group Flow (vph)	87	1630	0	0	734	352	98	340	349	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	3.2	30.8			40.6	40.6	38.2	38.2	38.2			
Effective Green, g (s)	3.2	30.8			40.6	40.6	38.2	38.2	38.2			
Actuated g/C Ratio	0.03	0.33			0.43	0.43	0.41	0.41	0.41			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	115	1634			2715	671	670	576	599			
v/s Ratio Prot	c0.03	c0.33			0.12							
v/s Ratio Perm						c0.23	0.06	0.24	0.24			
v/c Ratio	0.76	1.00			0.27	0.52	0.15	0.59	0.58			
Uniform Delay, d1	45.0	31.6			17.2	19.6	17.6	21.8	21.7			
Progression Factor	1.45	1.22			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	23.7	16.1			0.1	0.7	0.5	4.4	4.1			
Delay (s)	88.9	54.7			17.2	20.4	18.1	26.2	25.8			
Level of Service	F	D			B	C	B	C	C			
Approach Delay (s)		56.4			18.9			25.3			0.0	
Approach LOS		E			B			C			A	

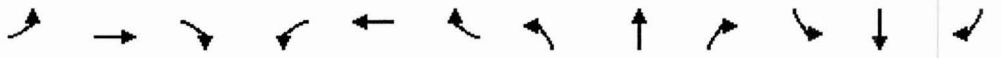
Intersection Summary			
HCM Average Control Delay	35.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	127.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	1100	1300	74	800	63	700	200	128	180	700	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3433		1736	3471	1553	1736	3471	1553
Flt Permitted	0.12	1.00	1.00	0.12	1.00		0.17	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	217	3471	1553	221	3433		304	3471	1553	1125	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	1196	1413	80	870	68	761	217	139	196	761	83
RTOR Reduction (vph)	0	0	255	0	6	0	0	0	98	0	0	65
Lane Group Flow (vph)	146	1196	1158	80	932	0	761	217	41	196	761	18
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	44.0	37.0	37.0	36.2	33.1		41.0	27.5	27.5	29.5	20.0	20.0
Effective Green, g (s)	44.0	37.0	37.0	36.2	33.1		41.0	27.5	27.5	29.5	20.0	20.0
Actuated g/C Ratio	0.47	0.40	0.40	0.39	0.36		0.44	0.30	0.30	0.32	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	217	1379	617	136	1221		395	1025	459	419	746	334
v/s Ratio Prot	c0.05	0.34		0.02	0.27		c0.35	0.06		0.05	0.22	
v/s Ratio Perm	0.27		c0.75	0.21			c0.50		0.03	0.10		0.01
v/c Ratio	0.67	0.87	1.88	0.59	0.76		1.93	0.21	0.09	0.47	1.02	0.05
Uniform Delay, d1	17.8	25.8	28.0	21.2	26.5		25.7	24.7	23.7	24.5	36.5	29.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.0	6.0	400.4	6.4	2.9		426.2	0.1	0.1	0.8	38.1	0.1
Delay (s)	25.8	31.8	428.4	27.6	29.4		451.9	24.8	23.8	25.3	74.7	29.1
Level of Service	C	C	F	C	C		F	C	C	C	E	C
Approach Delay (s)		234.9			29.3			315.7			61.7	
Approach LOS		F			C			F			E	

Intersection Summary			
HCM Average Control Delay	184.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.84		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	113.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1100	400	150	500	94	135	275	121	225	525	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1827	1553	1736	1827	1553	1736	1827	1553	1736	1827	1553
Flt Permitted	0.34	1.00	1.00	0.08	1.00	1.00	0.13	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	614	1827	1553	141	1827	1553	245	1827	1553	808	1827	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1196	435	163	543	102	147	299	132	245	571	30
RTOR Reduction (vph)	0	0	42	0	0	46	0	0	39	0	0	6
Lane Group Flow (vph)	43	1196	393	163	543	56	147	299	93	245	571	24
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	52.0	52.0	52.0	52.0	52.0	52.0	34.0	34.0	34.0	34.0	34.0	34.0
Effective Green, g (s)	52.0	52.0	52.0	52.0	52.0	52.0	34.0	34.0	34.0	34.0	34.0	34.0
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.55	0.55	0.36	0.36	0.36	0.36	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	340	1011	859	78	1011	859	89	661	562	292	661	562
v/s Ratio Prot		0.65			0.30			0.16			0.31	
v/s Ratio Perm	0.07		0.25	c1.16		0.04	c0.60		0.06	0.30		0.02
v/c Ratio	0.13	1.18	0.46	2.09	0.54	0.07	1.65	0.45	0.17	0.84	0.86	0.04
Uniform Delay, d1	10.1	21.0	12.6	21.0	13.3	9.7	30.0	22.9	20.4	27.5	27.9	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	92.6	0.4	531.2	0.6	0.0	337.8	0.5	0.1	18.6	11.3	0.0
Delay (s)	10.3	113.6	13.0	552.2	13.9	9.8	367.8	23.4	20.5	46.1	39.2	19.5
Level of Service	B	F	B	F	B	A	F	C	C	D	D	B
Approach Delay (s)		84.8			122.0			110.3			40.5	
Approach LOS		F			F			F			D	

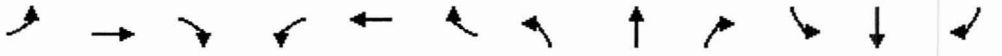
Intersection Summary			
HCM Average Control Delay	86.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.92		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	114.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	300	75	250	500	180	120	1400	80	75	750	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1772		1736	1754		1736	4988	1553	1736	4988	1553
Flt Permitted	0.17	1.00		0.43	1.00		0.17	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	314	1772		778	1754		317	4988	1553	299	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	326	82	272	543	196	130	1522	87	82	815	109
RTOR Reduction (vph)	0	10	0	0	14	0	0	0	60	0	0	80
Lane Group Flow (vph)	163	398	0	272	725	0	130	1522	27	82	815	29
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.4	48.4		48.4	48.4		36.2	29.1	29.1	27.5	24.4	24.4
Effective Green, g (s)	48.4	48.4		48.4	48.4		36.2	29.1	29.1	27.5	24.4	24.4
Actuated g/C Ratio	0.52	0.52		0.52	0.52		0.39	0.31	0.31	0.30	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	926		407	917		243	1568	488	137	1314	409
v/s Ratio Prot		0.22			0.41		c0.04	c0.31		0.02	0.16	
v/s Ratio Perm	c0.52			0.35			0.16		0.02	0.16		0.02
v/c Ratio	0.99	0.43		0.67	0.79		0.53	0.97	0.06	0.60	0.62	0.07
Uniform Delay, d1	22.0	13.6		16.2	18.0		19.8	31.3	22.2	26.8	30.0	25.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	68.1	0.3		4.1	4.7		2.3	16.2	0.0	6.9	0.9	0.1
Delay (s)	90.1	13.9		20.3	22.7		22.1	47.6	22.2	33.7	30.9	25.7
Level of Service	F	B		C	C		C	D	C	C	C	C
Approach Delay (s)		35.7			22.1			44.4			30.6	
Approach LOS		D			C			D			C	

Intersection Summary			
HCM Average Control Delay	34.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group



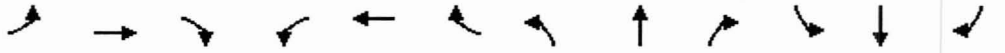
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	250	100	100	550	400	100	100	200	100	100	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.43	1.00	1.00	0.58	1.00	1.00	0.68	1.00	1.00	0.68	1.00	1.00
Satd. Flow (perm)	778	3471	1553	1067	3471	1553	1248	3471	1553	1248	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	272	109	109	598	435	109	109	217	109	109	136
RTOR Reduction (vph)	0	0	59	0	0	234	0	0	156	0	0	98
Lane Group Flow (vph)	54	272	50	109	598	201	109	109	61	109	109	38
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	14.3	14.3	14.3	14.3	14.3	14.3	8.7	8.7	8.7	8.7	8.7	8.7
Effective Green, g (s)	14.3	14.3	14.3	14.3	14.3	14.3	8.7	8.7	8.7	8.7	8.7	8.7
Actuated g/C Ratio	0.46	0.46	0.46	0.46	0.46	0.46	0.28	0.28	0.28	0.28	0.28	0.28
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	359	1601	716	492	1601	716	350	974	436	350	974	436
v/s Ratio Prot		0.08			c0.17			0.03			0.03	
v/s Ratio Perm	0.07		0.03	0.10		0.13	c0.09		0.04	0.09		0.02
v/c Ratio	0.15	0.17	0.07	0.22	0.37	0.28	0.31	0.11	0.14	0.31	0.11	0.09
Uniform Delay, d1	4.8	4.9	4.6	5.0	5.4	5.2	8.8	8.3	8.3	8.8	8.3	8.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.0	0.2	0.1	0.2	0.5	0.1	0.1	0.5	0.1	0.1
Delay (s)	5.0	4.9	4.7	5.2	5.6	5.4	9.3	8.3	8.5	9.3	8.3	8.3
Level of Service	A	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)		4.9			5.5			8.7			8.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	6.4	HCM Level of Service	A
HCM Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	31.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	41.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	250	100	101	350	75	250	650	100	75	300	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.53	1.00	1.00	0.58	1.00	1.00	0.55	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	962	3471	1553	1067	3471	1553	1013	3471	1553	637	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	272	109	110	380	82	272	707	109	82	326	136
RTOR Reduction (vph)	0	0	73	0	0	55	0	0	55	0	0	69
Lane Group Flow (vph)	163	272	36	110	380	27	272	707	54	82	326	67
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.0	15.0	15.0	15.0	15.0	15.0	22.3	22.3	22.3	22.3	22.3	22.3
Effective Green, g (s)	15.0	15.0	15.0	15.0	15.0	15.0	22.3	22.3	22.3	22.3	22.3	22.3
Actuated g/C Ratio	0.33	0.33	0.33	0.33	0.33	0.33	0.49	0.49	0.49	0.49	0.49	0.49
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	1149	514	353	1149	514	499	1709	765	314	1709	765
v/s Ratio Prot		0.08			0.11			0.20			0.09	
v/s Ratio Perm	c0.17		0.02	0.10		0.02	c0.27		0.03	0.13		0.04
v/c Ratio	0.51	0.24	0.07	0.31	0.33	0.05	0.55	0.41	0.07	0.26	0.19	0.09
Uniform Delay, d1	12.2	11.0	10.4	11.3	11.4	10.3	8.0	7.3	6.0	6.7	6.4	6.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.4	0.1	0.1	0.5	0.2	0.0	1.2	0.2	0.0	0.4	0.1	0.0
Delay (s)	13.6	11.1	10.4	11.8	11.5	10.4	9.2	7.5	6.1	7.1	6.5	6.2
Level of Service	B	B	B	B	B	B	A	A	A	A	A	A
Approach Delay (s)		11.7			11.4			7.8			6.5	
Approach LOS		B			B			A			A	

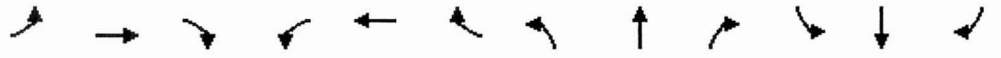
Intersection Summary			
HCM Average Control Delay	9.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	45.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	350	75	950	450	0	0	0	0	675	0	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.95	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		6659	1398	3030	4489					2843	1379	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (perm)		6659	1398	3030	4489					2843	1379	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	380	82	1033	489	0	0	0	0	734	0	82
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	0	0	17	0
Lane Group Flow (vph)	0	380	23	1033	489	0	0	0	0	550	249	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		26.9	26.9	34.9	58.6					20.2	20.2	
Effective Green, g (s)		26.9	26.9	34.9	58.6					20.2	20.2	
Actuated g/C Ratio		0.29	0.29	0.37	0.62					0.21	0.21	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1906	400	1125	2798					611	296	
v/s Ratio Prot		c0.06		c0.34	0.11							
v/s Ratio Perm			0.02							c0.19	0.18	
v/c Ratio		0.20	0.06	0.92	0.17					0.90	0.84	
Uniform Delay, d1		25.4	24.4	28.2	7.5					35.9	35.4	
Progression Factor		1.00	1.00	0.76	0.83					1.00	1.00	
Incremental Delay, d2		0.1	0.1	11.4	0.0					18.7	24.0	
Delay (s)		25.4	24.4	32.7	6.2					54.7	59.3	
Level of Service		C	C	C	A					D	E	
Approach Delay (s)		25.3			24.2			0.0			56.2	
Approach LOS		C			C			A			E	

Intersection Summary			
HCM Average Control Delay	33.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			



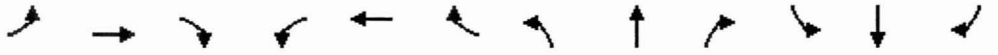
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑				↱	↰		↱			
Volume (vph)	75	950	0	0	1300	1200	100	0	500	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3367	4988			7399	1553	1649	1420	1475			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3367	4988			7399	1553	1649	1420	1475			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	1033	0	0	1413	1304	109	0	543	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	350	0	209	217	0	0	0
Lane Group Flow (vph)	82	1033	0	0	1413	954	98	68	60	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	3.2	26.9			58.6	58.6	20.2	20.2	20.2			
Effective Green, g (s)	3.2	26.9			58.6	58.6	20.2	20.2	20.2			
Actuated g/C Ratio	0.03	0.29			0.62	0.62	0.21	0.21	0.21			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	115	1427			4613	968	354	305	317			
v/s Ratio Prot	c0.02	0.21			0.19							
v/s Ratio Perm						c0.61	c0.06	0.05	0.04			
v/c Ratio	0.71	0.72			0.31	0.99	0.28	0.22	0.19			
Uniform Delay, d1	44.9	30.2			8.2	17.3	30.8	30.4	30.2			
Progression Factor	0.98	1.35			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	18.6	1.4			0.0	25.1	1.9	1.7	1.3			
Delay (s)	62.9	42.2			8.3	42.4	32.7	32.1	31.5			
Level of Service	E	D			A	D	C	C	C			
Approach Delay (s)		43.7			24.7			31.9			0.0	
Approach LOS		D			C			C			A	

Intersection Summary			
HCM Average Control Delay	30.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	750	600	150	1400	125	1250	750	50	75	250	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	3367	4988	1553	3367	4988	1553
Flt Permitted	0.19	1.00	1.00	0.16	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	345	4988	1553	292	4988	1553	3367	4988	1553	3367	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	815	652	163	1522	136	1359	815	54	82	272	109
RTOR Reduction (vph)	0	0	495	0	0	97	0	0	29	0	0	74
Lane Group Flow (vph)	82	815	157	163	1522	39	1359	815	25	82	272	35
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	24.4	21.2	21.2	32.0	25.0	25.0	33.0	40.1	40.1	3.9	11.0	11.0
Effective Green, g (s)	24.4	21.2	21.2	32.0	25.0	25.0	33.0	40.1	40.1	3.9	11.0	11.0
Actuated g/C Ratio	0.28	0.24	0.24	0.36	0.28	0.28	0.37	0.45	0.45	0.04	0.12	0.12
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1199	373	221	1414	440	1260	2268	706	149	622	194
v/s Ratio Prot	0.02	0.16		c0.06	c0.31		c0.40	c0.16		0.02	0.05	
v/s Ratio Perm	0.14		0.10	0.21		0.02			0.02			0.02
v/c Ratio	0.56	0.68	0.42	0.74	1.08	0.09	1.08	0.36	0.03	0.55	0.44	0.18
Uniform Delay, d1	26.6	30.4	28.3	21.1	31.6	23.2	27.6	15.7	13.3	41.3	35.7	34.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	1.6	0.8	12.1	47.4	0.1	49.4	0.1	0.0	4.3	0.5	0.5
Delay (s)	31.5	32.0	29.1	33.2	79.0	23.3	77.0	15.8	13.3	45.6	36.2	35.0
Level of Service	C	C	C	C	E	C	E	B	B	D	D	D
Approach Delay (s)		30.7			70.7			53.1			37.6	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM Average Control Delay	51.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	88.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



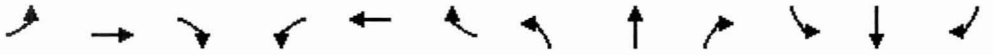
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	450	150	175	1050	250	455	500	150	80	250	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	1736	4988	1553	1736	4988	1553
Flt Permitted	0.17	1.00	1.00	0.39	1.00	1.00	0.41	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	314	4988	1553	703	4988	1553	757	4988	1553	802	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	489	163	190	1141	272	495	543	163	87	272	61
RTOR Reduction (vph)	0	0	117	0	0	191	0	0	104	0	0	53
Lane Group Flow (vph)	136	489	46	190	1141	81	495	543	59	87	272	8
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	31.1	23.3	23.3	34.3	24.9	24.9	38.6	30.0	30.0	15.6	11.0	11.0
Effective Green, g (s)	31.1	23.3	23.3	34.3	24.9	24.9	38.6	30.0	30.0	15.6	11.0	11.0
Actuated g/C Ratio	0.37	0.28	0.28	0.41	0.30	0.30	0.46	0.36	0.36	0.19	0.13	0.13
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	250	1395	434	406	1491	464	628	1796	559	202	659	205
v/s Ratio Prot	0.05	0.10		c0.05	c0.23		c0.22	0.11		0.02	0.05	
v/s Ratio Perm	0.15		0.03	0.14		0.05	c0.14		0.04	0.06		0.01
v/c Ratio	0.54	0.35	0.11	0.47	0.77	0.18	0.79	0.30	0.11	0.43	0.41	0.04
Uniform Delay, d1	18.9	24.0	22.3	16.3	26.5	21.6	17.0	19.1	17.7	29.0	33.2	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.2	0.1	0.9	2.4	0.2	6.5	0.1	0.1	1.5	0.4	0.1
Delay (s)	21.3	24.1	22.4	17.2	28.9	21.8	23.5	19.2	17.8	30.4	33.6	31.6
Level of Service	C	C	C	B	C	C	C	B	B	C	C	C
Approach Delay (s)		23.3			26.3			20.8			32.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	24.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	83.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	400	75	175	600	554	400	900	270	125	520	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	3367	4988	1553	3367	4988	1553
Flt Permitted	0.37	1.00	1.00	0.42	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	679	4988	1553	770	4988	1553	3367	4988	1553	3367	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	435	82	190	652	602	435	978	293	136	565	217
RTOR Reduction (vph)	0	0	56	0	0	163	0	0	206	0	0	172
Lane Group Flow (vph)	163	435	26	190	652	439	435	978	87	136	565	45
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	31.7	25.5	25.5	36.9	28.1	28.1	14.4	23.8	23.8	6.2	15.6	15.6
Effective Green, g (s)	31.7	25.5	25.5	36.9	28.1	28.1	14.4	23.8	23.8	6.2	15.6	15.6
Actuated g/C Ratio	0.39	0.32	0.32	0.46	0.35	0.35	0.18	0.30	0.30	0.08	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	350	1584	493	460	1745	543	604	1478	460	260	969	302
v/s Ratio Prot	0.04	0.09		c0.05	0.13		c0.13	c0.20		0.04	0.11	
v/s Ratio Perm	0.15		0.02	0.14		c0.28			0.06			0.03
v/c Ratio	0.47	0.27	0.05	0.41	0.37	0.81	0.72	0.66	0.19	0.52	0.58	0.15
Uniform Delay, d1	16.2	20.5	19.0	13.3	19.5	23.7	31.1	24.7	21.1	35.6	29.4	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.0	0.6	0.1	8.7	4.2	1.1	0.2	1.9	0.9	0.2
Delay (s)	17.2	20.6	19.1	13.9	19.7	32.4	35.3	25.9	21.3	37.5	30.3	27.1
Level of Service	B	C	B	B	B	C	D	C	C	D	C	C
Approach Delay (s)		19.6			24.2			27.5			30.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	80.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	500	150	125	325	100	100	775	150	175	1320	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	1764		1736	1762		1736	4988	1553	1736	4988	1553
Flt Permitted	0.37	1.00		0.19	1.00		0.16	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	685	1764		339	1762		283	4988	1553	312	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	543	163	136	353	109	109	842	163	190	1435	136
RTOR Reduction (vph)	0	11	0	0	12	0	0	0	118	0	0	93
Lane Group Flow (vph)	109	695	0	136	450	0	109	842	45	190	1435	43
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.0	48.0		48.0	48.0		29.8	25.8	25.8	37.8	29.8	29.8
Effective Green, g (s)	48.0	48.0		48.0	48.0		29.8	25.8	25.8	37.8	29.8	29.8
Actuated g/C Ratio	0.51	0.51		0.51	0.51		0.32	0.28	0.28	0.40	0.32	0.32
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	351	903		173	902		152	1372	427	247	1585	493
v/s Ratio Prot		0.39			0.26		0.03	0.17		c0.07	c0.29	
v/s Ratio Perm	0.16			c0.40			0.20		0.03	0.24		0.03
v/c Ratio	0.31	0.77		0.79	0.50		0.72	0.61	0.10	0.77	0.91	0.09
Uniform Delay, d1	13.3	18.4		18.7	15.0		26.3	29.7	25.4	20.3	30.6	22.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	4.0		20.5	0.4		14.9	0.8	0.1	13.4	7.7	0.1
Delay (s)	13.8	22.4		39.3	15.5		41.2	30.5	25.5	33.7	38.4	22.5
Level of Service	B	C		D	B		D	C	C	C	D	C
Approach Delay (s)		21.3			20.9			30.8			36.7	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	30.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	93.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	525	50	250	300	175	75	100	100	300	100	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.55	1.00	1.00	0.41	1.00	1.00	0.68	1.00	1.00	0.68	1.00	1.00
Satd. Flow (perm)	1013	3471	1553	743	3471	1553	1248	3471	1553	1248	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	571	54	272	326	190	82	109	109	326	109	109
RTOR Reduction (vph)	0	0	27	0	0	96	0	0	68	0	0	68
Lane Group Flow (vph)	109	571	27	272	326	94	82	109	41	326	109	41
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	29.8	29.8	29.8	29.8	29.8	29.8	22.4	22.4	22.4	22.4	22.4	22.4
Effective Green, g (s)	29.8	29.8	29.8	29.8	29.8	29.8	22.4	22.4	22.4	22.4	22.4	22.4
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.50	0.50	0.37	0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	501	1718	769	368	1718	769	464	1292	578	464	1292	578
v/s Ratio Prot		0.16			0.09			0.03			0.03	
v/s Ratio Perm	0.11		0.02	c0.37		0.06	0.07		0.03	c0.26		0.03
v/c Ratio	0.22	0.33	0.03	0.74	0.19	0.12	0.18	0.08	0.07	0.70	0.08	0.07
Uniform Delay, d1	8.6	9.2	7.8	12.1	8.5	8.2	12.7	12.3	12.2	16.1	12.3	12.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	0.0	7.6	0.1	0.1	0.2	0.0	0.1	4.8	0.0	0.1
Delay (s)	8.8	9.3	7.8	19.7	8.5	8.2	12.9	12.3	12.2	20.8	12.3	12.2
Level of Service	A	A	A	B	A	A	B	B	B	C	B	B
Approach Delay (s)		9.1			12.3			12.4			17.4	
Approach LOS		A			B			B			B	

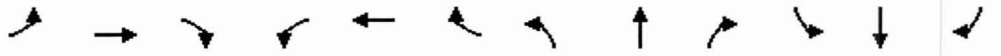
Intersection Summary			
HCM Average Control Delay	12.5	HCM Level of Service	B
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	60.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	330	280	57	280	80	100	290	113	90	620	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	1736	3471	1553	1736	3471	1553	1736	3471	1553
Flt Permitted	0.57	1.00	1.00	0.54	1.00	1.00	0.36	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	1035	3471	1553	982	3471	1553	664	3471	1553	1024	3471	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	359	304	62	304	87	109	315	123	98	674	133
RTOR Reduction (vph)	0	0	124	0	0	56	0	0	70	0	0	76
Lane Group Flow (vph)	163	359	180	62	304	31	109	315	53	98	674	57
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	13.6	13.6	13.6	13.6	13.6	13.6	16.2	16.2	16.2	16.2	16.2	16.2
Effective Green, g (s)	13.6	13.6	13.6	13.6	13.6	13.6	16.2	16.2	16.2	16.2	16.2	16.2
Actuated g/C Ratio	0.36	0.36	0.36	0.36	0.36	0.36	0.43	0.43	0.43	0.43	0.43	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	372	1249	559	353	1249	559	285	1488	666	439	1488	666
v/s Ratio Prot		0.10			0.09			0.09			c0.19	
v/s Ratio Perm	c0.16		0.12	0.06		0.02	0.16		0.03	0.10		0.04
v/c Ratio	0.44	0.29	0.32	0.18	0.24	0.06	0.38	0.21	0.08	0.22	0.45	0.09
Uniform Delay, d1	9.2	8.6	8.8	8.3	8.5	7.9	7.4	6.8	6.4	6.8	7.7	6.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.3	0.2	0.1	0.0	0.9	0.1	0.1	0.3	0.2	0.1
Delay (s)	10.0	8.8	9.1	8.5	8.6	7.9	8.2	6.9	6.4	7.1	7.9	6.5
Level of Service	B	A	A	A	A	A	A	A	A	A	A	A
Approach Delay (s)		9.1			8.5			7.0			7.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM Average Control Delay	8.1	HCM Level of Service	A
HCM Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	37.8	Sum of lost time (s)	8.0
Intersection Capacity Utilization	52.1%	ICU Level of Service	A
Analysis Period (min)	15		

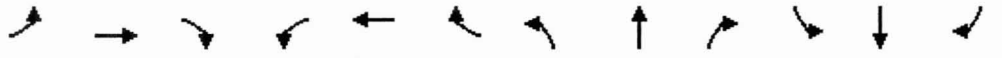
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	475	50	400	380	0	0	0	0	1100	0	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.96	
Satd. Flow (prot)		6659	1398	3030	4489					2843	1406	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.96	
Satd. Flow (perm)		6659	1398	3030	4489					2843	1406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	516	54	435	413	0	0	0	0	1196	0	54
RTOR Reduction (vph)	0	0	34	0	0	0	0	0	0	0	6	0
Lane Group Flow (vph)	0	516	20	435	413	0	0	0	0	837	407	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		35.1	35.1	15.7	46.8					31.2	31.2	
Effective Green, g (s)		35.1	35.1	15.7	46.8					31.2	31.2	
Actuated g/C Ratio		0.37	0.37	0.17	0.50					0.33	0.33	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2486	522	506	2235					944	467	
v/s Ratio Prot		c0.08		c0.14	0.09							
v/s Ratio Perm			0.01							c0.29	0.29	
v/c Ratio		0.21	0.04	0.86	0.18					0.89	0.87	
Uniform Delay, d1		20.0	18.7	38.1	13.1					29.7	29.5	
Progression Factor		1.00	1.00	1.72	0.76					1.00	1.00	
Incremental Delay, d2		0.0	0.0	13.5	0.0					12.1	19.5	
Delay (s)		20.0	18.8	79.0	10.0					41.8	49.1	
Level of Service		C	B	E	A					D	D	
Approach Delay (s)		19.9			45.4			0.0			44.2	
Approach LOS		B			D			A			D	

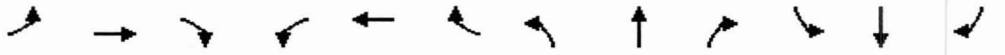
Intersection Summary				
HCM Average Control Delay	39.4	HCM Level of Service	D	
HCM Volume to Capacity ratio	0.59			
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0	
Intersection Capacity Utilization	115.6%	ICU Level of Service	H	
Analysis Period (min)	15			

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑				↱	↰		↱			
Volume (vph)	80	1500	0	0	675	750	100	0	900	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3367	4988			7399	1553	1649	1417	1475			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3367	4988			7399	1553	1649	1417	1475			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1630	0	0	734	815	109	0	978	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	409	0	191	191	0	0	0
Lane Group Flow (vph)	87	1630	0	0	734	406	98	299	308	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	4.0	35.1			46.8	46.8	31.2	31.2	31.2			
Effective Green, g (s)	4.0	35.1			46.8	46.8	31.2	31.2	31.2			
Actuated g/C Ratio	0.04	0.37			0.50	0.50	0.33	0.33	0.33			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	143	1863			3684	773	547	470	490			
v/s Ratio Prot	c0.03	c0.33			0.10							
v/s Ratio Perm						c0.26	0.06	0.21	0.21			
v/c Ratio	0.61	0.87			0.20	0.52	0.18	0.64	0.63			
Uniform Delay, d1	44.2	27.4			13.2	16.0	22.3	26.6	26.5			
Progression Factor	1.40	1.38			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	7.1	3.6			0.0	0.6	0.7	6.4	6.0			
Delay (s)	68.8	41.4			13.2	16.7	23.0	33.0	32.5			
Level of Service	E	D			B	B	C	C	C			
Approach Delay (s)		42.8			15.0			31.9			0.0	
Approach LOS		D			B			C			A	

Intersection Summary			
HCM Average Control Delay	30.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	115.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	1100	1300	74	800	63	700	200	128	180	700	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	3367	4988	1553	3367	4988	1553
Flt Permitted	0.22	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	411	4988	1553	335	4988	1553	3367	4988	1553	3367	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	1196	1413	80	870	68	761	217	139	196	761	83
RTOR Reduction (vph)	0	0	222	0	0	40	0	0	95	0	0	68
Lane Group Flow (vph)	146	1196	1191	80	870	28	761	217	44	196	761	15
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	50.2	43.1	43.1	40.9	37.8	37.8	14.0	21.4	21.4	9.4	16.8	16.8
Effective Green, g (s)	50.2	43.1	43.1	40.9	37.8	37.8	14.0	21.4	21.4	9.4	16.8	16.8
Actuated g/C Ratio	0.54	0.46	0.46	0.44	0.41	0.41	0.15	0.23	0.23	0.10	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	342	2312	720	194	2027	631	507	1148	357	340	901	281
v/s Ratio Prot	c0.04	0.24		0.01	0.17		c0.23	0.04		0.06	c0.15	
v/s Ratio Perm	0.19		c0.77	0.17		0.02			0.03			0.01
v/c Ratio	0.43	0.52	1.65	0.41	0.43	0.04	1.50	0.19	0.12	0.58	0.84	0.05
Uniform Delay, d1	11.8	17.6	25.0	15.6	19.8	16.7	39.5	28.8	28.4	39.9	36.8	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.2	300.5	1.4	0.1	0.0	235.6	0.1	0.2	2.4	7.3	0.1
Delay (s)	12.6	17.8	325.4	17.0	20.0	16.7	275.1	28.9	28.5	42.3	44.2	31.6
Level of Service	B	B	F	B	B	B	F	C	C	D	D	C
Approach Delay (s)		175.3			19.5			196.6			42.8	
Approach LOS		F			B			F			D	

Intersection Summary			
HCM Average Control Delay	129.3	HCM Level of Service	F
HCM Volume to Capacity ratio	1.41		
Actuated Cycle Length (s)	93.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	108.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1100	400	150	500	94	135	275	121	225	525	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	1736	4988	1553	1736	4988	1553
Flt Permitted	0.44	1.00	1.00	0.12	1.00	1.00	0.39	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	802	4988	1553	219	4988	1553	715	4988	1553	781	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1196	435	163	543	102	147	299	132	245	571	30
RTOR Reduction (vph)	0	0	233	0	0	55	0	0	112	0	0	24
Lane Group Flow (vph)	43	1196	202	163	543	47	147	299	20	245	571	6
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	31.6	29.4	29.4	42.4	36.2	36.2	20.2	11.7	11.7	26.8	15.0	15.0
Effective Green, g (s)	31.6	29.4	29.4	42.4	36.2	36.2	20.2	11.7	11.7	26.8	15.0	15.0
Actuated g/C Ratio	0.41	0.38	0.38	0.54	0.46	0.46	0.26	0.15	0.15	0.34	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	1883	586	294	2318	722	297	749	233	413	960	299
v/s Ratio Prot	0.00	c0.24		c0.06	0.11		0.05	0.06		c0.09	c0.11	
v/s Ratio Perm	0.05		0.13	0.24		0.03	0.07		0.01	0.11		0.00
v/c Ratio	0.12	0.64	0.34	0.55	0.23	0.07	0.49	0.40	0.09	0.59	0.59	0.02
Uniform Delay, d1	14.1	19.9	17.4	11.5	12.5	11.5	23.4	29.9	28.5	19.6	28.7	25.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.7	0.4	2.3	0.1	0.0	1.3	0.4	0.2	2.3	1.0	0.0
Delay (s)	14.3	20.6	17.7	13.8	12.6	11.6	24.7	30.3	28.7	21.9	29.7	25.5
Level of Service	B	C	B	B	B	B	C	C	C	C	C	C
Approach Delay (s)		19.7			12.7			28.5			27.3	
Approach LOS		B			B			C			C	

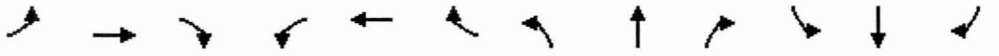
Intersection Summary			
HCM Average Control Delay	21.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	77.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	650	500	120	475	105	125	550	58	644	975	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	4988	1553	1736	4988	1553	3367	4988	1553	3367	4988	1553
Flt Permitted	0.36	1.00	1.00	0.32	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	650	4988	1553	589	4988	1553	3367	4988	1553	3367	4988	1553
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	707	543	130	516	114	136	598	63	700	1060	62
RTOR Reduction (vph)	0	0	171	0	0	82	0	0	51	0	0	40
Lane Group Flow (vph)	130	707	372	130	516	32	136	598	12	700	1060	22
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	32.4	25.8	25.8	27.4	23.3	23.3	7.7	15.5	15.5	21.3	29.1	29.1
Effective Green, g (s)	32.4	25.8	25.8	27.4	23.3	23.3	7.7	15.5	15.5	21.3	29.1	29.1
Actuated g/C Ratio	0.39	0.31	0.31	0.33	0.28	0.28	0.09	0.19	0.19	0.26	0.35	0.35
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	341	1556	484	252	1405	438	313	935	291	867	1755	546
v/s Ratio Prot	c0.03	0.14		0.03	0.10		0.04	0.12		c0.21	c0.21	
v/s Ratio Perm	0.12		c0.24	0.15		0.02			0.01			0.01
v/c Ratio	0.38	0.45	0.77	0.52	0.37	0.07	0.43	0.64	0.04	0.81	0.60	0.04
Uniform Delay, d1	16.8	22.8	25.7	20.3	23.8	21.8	35.4	31.0	27.5	28.8	22.1	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.2	7.2	1.8	0.2	0.1	1.0	1.4	0.1	5.6	0.6	0.0
Delay (s)	17.5	23.0	32.9	22.1	24.0	21.9	36.4	32.5	27.6	34.3	22.7	17.6
Level of Service	B	C	C	C	C	C	D	C	C	C	C	B
Approach Delay (s)		26.4			23.3			32.8			27.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	82.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

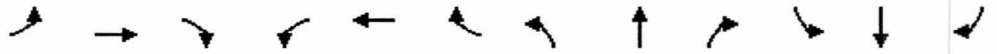
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	350	110	282	800	162	150	1700	159	108	825	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.96		1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1796		1770	1816		1770	5085	1583	1770	5085	1583
Flt Permitted	0.08	1.00		0.37	1.00		0.15	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	143	1796		685	1816		287	5085	1583	339	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	380	120	307	870	176	163	1848	173	117	897	196
RTOR Reduction (vph)	0	12	0	0	8	0	0	0	108	0	0	110
Lane Group Flow (vph)	132	488	0	307	1038	0	163	1848	65	117	897	86
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	52.0	52.0		52.0	52.0		34.0	26.0	26.0	26.0	22.0	22.0
Effective Green, g (s)	52.0	52.0		52.0	52.0		34.0	26.0	26.0	26.0	22.0	22.0
Actuated g/C Ratio	0.55	0.55		0.55	0.55		0.36	0.28	0.28	0.28	0.23	0.23
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	79	994		379	1005		230	1406	438	155	1190	370
v/s Ratio Prot		0.27			0.57		c0.06	c0.36		0.03	0.18	
v/s Ratio Perm	c0.92			0.45			0.20		0.04	0.18		0.05
v/c Ratio	1.67	0.49		0.81	1.03		0.71	1.31	0.15	0.75	0.75	0.23
Uniform Delay, d1	21.0	12.9		17.0	21.0		22.8	34.0	25.7	46.1	33.5	29.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	350.7	0.4		12.3	37.3		9.6	146.6	0.2	18.7	2.8	0.3
Delay (s)	371.7	13.3		29.3	58.3		32.4	180.6	25.8	64.8	36.2	29.5
Level of Service	F	B		C	E		C	F	C	E	D	C
Approach Delay (s)		88.1			51.7			157.3			37.9	
Approach LOS		F			D			F			D	

Intersection Summary			
HCM Average Control Delay	95.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.52		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	50	319	100	150	575	400	275	550	200	87	300	125
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	347	109	163	625	435	299	598	217	95	326	136

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	510	1223	1114	557
Volume Left (vph)	54	163	299	95
Volume Right (vph)	109	435	217	136
Hadj (s)	-0.07	-0.15	-0.03	-0.08
Departure Headway (s)	9.5	9.4	9.5	9.5
Degree Utilization, x	1.34	3.20	2.95	1.47
Capacity (veh/h)	387	396	389	391
Control Delay (s)	198.3	1014.6	904.7	248.9
Approach Delay (s)	198.3	1014.6	904.7	248.9
Approach LOS	F	F	F	F

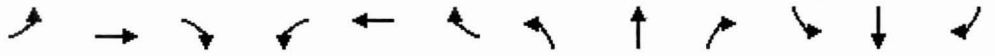
Intersection Summary			
Delay	731.1		
HCM Level of Service	F		
Intersection Capacity Utilization	184.1%	ICU Level of Service	H
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	↕	↱
Volume (vph)	0	575	78	950	775	0	0	0	0	600	0	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	0.99	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5767	1425	3090	3185					1513	1447	1354
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5767	1425	3090	3185					1513	1447	1354
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	625	85	1033	842	0	0	0	0	652	0	132
RTOR Reduction (vph)	0	0	65	0	0	0	0	0	0	0	1	86
Lane Group Flow (vph)	0	625	20	1033	842	0	0	0	0	333	331	33
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		22.5	22.5	33.5	52.0					26.0	26.0	26.0
Effective Green, g (s)		22.5	22.5	33.5	52.0					26.0	26.0	26.0
Actuated g/C Ratio		0.24	0.24	0.36	0.55					0.28	0.28	0.28
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1380	341	1101	1762					418	400	375
v/s Ratio Prot		0.11		c0.33	c0.26							
v/s Ratio Perm			0.01							0.22	0.23	0.02
v/c Ratio		0.45	0.06	0.94	0.48					0.80	0.83	0.09
Uniform Delay, d1		30.5	27.6	29.2	12.8					31.5	31.9	25.2
Progression Factor		1.00	1.00	0.74	0.46					1.00	1.00	1.00
Incremental Delay, d2		0.2	0.1	13.2	0.2					14.6	17.5	0.5
Delay (s)		30.7	27.7	35.0	6.1					46.1	49.4	25.7
Level of Service		C	C	C	A					D	D	C
Approach Delay (s)		30.4			22.0			0.0			44.4	
Approach LOS		C			C			A			D	

Intersection Summary			
HCM Average Control Delay	29.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1050	0	0	1625	1079	100	0	500	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			6408	1583	1681	1448	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			6408	1583	1681	1448	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1141	0	0	1766	1173	109	0	543	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	423	0	192	200	0	0	0
Lane Group Flow (vph)	136	1141	0	0	1766	750	98	85	77	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	4.0	22.5			52.0	52.0	26.0	26.0	26.0			
Effective Green, g (s)	4.0	22.5			52.0	52.0	26.0	26.0	26.0			
Actuated g/C Ratio	0.04	0.24			0.55	0.55	0.28	0.28	0.28			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	146	1217			3545	876	465	401	416			
v/s Ratio Prot	c0.04	0.22			0.28							
v/s Ratio Perm						c0.47	0.06	0.06	0.05			
v/c Ratio	0.93	0.94			0.50	0.86	0.21	0.21	0.18			
Uniform Delay, d1	44.9	35.1			13.0	17.8	26.1	26.1	25.9			
Progression Factor	1.01	1.04			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	51.1	10.7			0.1	8.2	1.0	1.2	1.0			
Delay (s)	96.2	47.1			13.1	26.1	27.1	27.3	26.9			
Level of Service	F	D			B	C	C	C	C			
Approach Delay (s)		52.3			18.3			27.1			0.0	
Approach LOS		D			B			C			A	

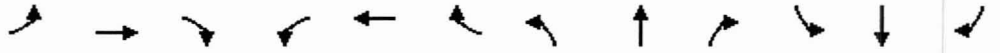
Intersection Summary			
HCM Average Control Delay	28.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	900	550	150	1850	178	717	475	90	75	250	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3493		1770	3539	1583	1770	3539	1583
Flt Permitted	0.12	1.00	1.00	0.13	1.00		0.36	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	216	3539	1583	233	3493		668	3539	1583	859	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	978	598	163	2011	193	779	516	98	82	272	143
RTOR Reduction (vph)	0	0	330	0	7	0	0	0	69	0	0	76
Lane Group Flow (vph)	82	978	268	163	2197	0	779	516	29	82	272	67
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	37.6	34.5	34.5	46.3	39.2		35.2	26.5	26.5	17.8	13.1	13.1
Effective Green, g (s)	37.6	34.5	34.5	46.3	39.2		35.2	26.5	26.5	17.8	13.1	13.1
Actuated g/C Ratio	0.42	0.39	0.39	0.52	0.44		0.39	0.30	0.30	0.20	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	145	1364	610	254	1530		486	1048	469	219	518	232
v/s Ratio Prot	0.02	0.28		c0.06	c0.63		c0.32	0.15		0.02	0.08	
v/s Ratio Perm	0.22		0.17	0.27			c0.31		0.02	0.05		0.04
v/c Ratio	0.57	0.72	0.44	0.64	1.44		1.60	0.49	0.06	0.37	0.53	0.29
Uniform Delay, d1	22.4	23.4	20.3	15.3	25.1		24.1	26.0	22.6	30.1	35.3	34.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.0	1.8	0.5	5.5	199.9		280.8	0.4	0.1	1.1	1.0	0.7
Delay (s)	27.4	25.2	20.9	20.8	225.0		304.9	26.3	22.6	31.2	36.3	34.7
Level of Service	C	C	C	C	F		F	C	C	C	D	C
Approach Delay (s)		23.7			211.0			181.9			35.0	
Approach LOS		C			F			F			D	

Intersection Summary			
HCM Average Control Delay	136.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.47		
Actuated Cycle Length (s)	89.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	120.9%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



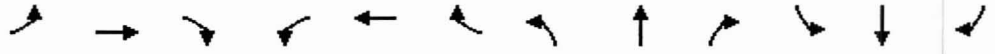
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	550	85	119	1475	450	455	875	75	80	380	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.09	1.00	1.00	0.24	1.00	1.00	0.37	1.00	1.00	0.10	1.00	1.00
Satd. Flow (perm)	166	1863	1583	447	1863	1583	691	1863	1583	182	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	598	92	129	1603	489	495	951	82	87	413	61
RTOR Reduction (vph)	0	0	18	0	0	31	0	0	36	0	0	6
Lane Group Flow (vph)	136	598	74	129	1603	458	495	951	46	87	413	55
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	45.0	45.0	45.0	45.0	45.0	45.0	41.0	41.0	41.0	41.0	41.0	41.0
Effective Green, g (s)	45.0	45.0	45.0	45.0	45.0	45.0	41.0	41.0	41.0	41.0	41.0	41.0
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.48	0.48	0.44	0.44	0.44	0.44	0.44	0.44
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	79	892	758	214	892	758	301	813	690	79	813	690
v/s Ratio Prot		0.32			c0.86			0.51			0.22	
v/s Ratio Perm	0.82		0.05	0.29		0.29	c0.72		0.03	0.48		0.03
v/c Ratio	1.72	0.67	0.10	0.60	1.80	0.60	1.64	1.17	0.07	1.10	0.51	0.08
Uniform Delay, d1	24.5	18.8	13.4	18.0	24.5	18.0	26.5	26.5	15.4	26.5	19.2	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	372.1	2.0	0.1	4.7	363.2	1.4	304.6	89.4	0.0	131.5	0.5	0.0
Delay (s)	396.6	20.8	13.5	22.7	387.7	19.3	331.1	115.9	15.4	158.0	19.7	15.5
Level of Service	F	C	B	C	F	B	F	F	B	F	B	B
Approach Delay (s)		81.9			285.4			180.2			40.7	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM Average Control Delay	194.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.72		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	148.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	800	160	250	400	123	100	900	230	125	1600	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.97		1.00	0.96		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1816		1770	1797		1770	5085	1583	1770	5085	1583
Flt Permitted	0.33	1.00		0.07	1.00		0.18	1.00	1.00	0.17	1.00	1.00
Satd. Flow (perm)	614	1816		138	1797		339	5085	1583	310	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	870	174	272	435	134	109	978	250	136	1739	239
RTOR Reduction (vph)	0	8	0	0	12	0	0	0	117	0	0	158
Lane Group Flow (vph)	95	1036	0	272	557	0	109	978	133	136	1739	81
Turn Type	Perm			Perm			pm+pt		Perm	pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	54.0	54.0		54.0	54.0		26.0	22.0	22.0	30.0	24.0	24.0
Effective Green, g (s)	54.0	54.0		54.0	54.0		26.0	22.0	22.0	30.0	24.0	24.0
Actuated g/C Ratio	0.57	0.57		0.57	0.57		0.28	0.23	0.23	0.32	0.26	0.26
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	353	1043		79	1032		155	1190	370	192	1298	404
v/s Ratio Prot		0.57			0.31		0.03	0.19		c0.05	c0.34	
v/s Ratio Perm	0.15			c1.97			0.17		0.08	0.18		0.05
v/c Ratio	0.27	0.99		3.44	0.54		0.70	0.82	0.36	0.71	1.34	0.20
Uniform Delay, d1	10.1	19.8		20.0	12.3		45.9	34.1	30.1	25.2	35.0	27.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	26.2		1130.6	0.5		13.5	4.7	0.6	11.3	158.2	0.2
Delay (s)	10.5	46.0		1150.6	12.9		59.4	38.8	30.7	36.5	193.2	27.7
Level of Service	B	D		F	B		E	D	C	D	F	C
Approach Delay (s)		43.0			380.8			39.0			164.4	
Approach LOS		D			F			D			F	

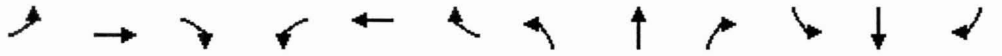
Intersection Summary			
HCM Average Control Delay	141.6	HCM Level of Service	F
HCM Volume to Capacity ratio	2.70		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Volume (vph)	150	650	150	160	375	143	75	321	175	300	636	64
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	163	707	163	174	408	155	82	349	190	326	691	70

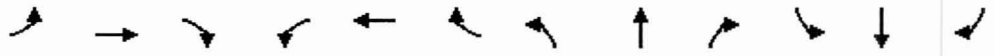
Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total (vph)	1033	737	621	1087
Volume Left (vph)	163	174	82	326
Volume Right (vph)	163	155	190	70
Hadj (s)	-0.03	-0.05	-0.12	0.06
Departure Headway (s)	9.5	9.5	9.4	9.6
Degree Utilization, x	2.74	1.95	1.63	2.90
Capacity (veh/h)	388	384	385	385
Control Delay (s)	808.1	458.2	317.6	884.1
Approach Delay (s)	808.1	458.2	317.6	884.1
Approach LOS	F	F	F	F

Intersection Summary			
Delay	670.1		
HCM Level of Service	F		
Intersection Capacity Utilization	157.5%	ICU Level of Service	H
Analysis Period (min)	15		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑↑	↱	↰↰	↑↑					↰	↔	↱
Volume (vph)	0	800	55	482	570	0	0	0	0	1200	0	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Lane Util. Factor		0.86	1.00	0.97	0.95					0.95	0.91	0.95
Frt		1.00	0.85	1.00	1.00					1.00	1.00	0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (prot)		5767	1425	3090	3185					1513	1450	1354
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.95	1.00
Satd. Flow (perm)		5767	1425	3090	3185					1513	1450	1354
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	870	60	524	620	0	0	0	0	1304	0	136
RTOR Reduction (vph)	0	0	40	0	0	0	0	0	0	0	1	73
Lane Group Flow (vph)	0	870	20	524	620	0	0	0	0	665	652	49
Turn Type			Perm	Prot						Perm		Perm
Protected Phases		4		3	8						6	
Permitted Phases			4							6		6
Actuated Green, G (s)		31.0	31.0	13.0	37.0					38.0	38.0	38.0
Effective Green, g (s)		31.0	31.0	13.0	37.0					38.0	38.0	38.0
Actuated g/C Ratio		0.33	0.33	0.14	0.39					0.40	0.40	0.40
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	3.0
Lane Grp Cap (vph)		1902	470	427	1254					612	586	547
v/s Ratio Prot		0.15		c0.17	c0.19							
v/s Ratio Perm			0.01							0.44	0.45	0.04
v/c Ratio		0.46	0.04	1.23	0.49					1.09	1.11	0.09
Uniform Delay, d1		24.9	21.4	40.5	21.5					28.0	28.0	17.3
Progression Factor		1.00	1.00	1.78	0.47					1.00	1.00	1.00
Incremental Delay, d2		0.2	0.0	120.2	0.3					62.1	72.3	0.3
Delay (s)		25.0	21.4	192.5	10.3					90.1	100.3	17.6
Level of Service		C	C	F	B					F	F	B
Approach Delay (s)		24.8			93.7			0.0			88.6	
Approach LOS		C			F			A			F	

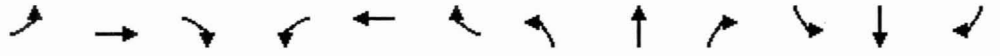
Intersection Summary			
HCM Average Control Delay	73.4	HCM Level of Service	E
HCM Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	133.3%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	1850	0	0	950	691	100	0	900	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.86	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			6408	1583	1681	1445	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			6408	1583	1681	1445	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	2011	0	0	1033	751	109	0	978	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	455	0	147	147	0	0	0
Lane Group Flow (vph)	163	2011	0	0	1033	296	98	343	352	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	7.0	31.0			37.0	37.0	38.0	38.0	38.0			
Effective Green, g (s)	7.0	31.0			37.0	37.0	38.0	38.0	38.0			
Actuated g/C Ratio	0.07	0.33			0.39	0.39	0.40	0.40	0.40			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	256	1677			2522	623	680	584	608			
v/s Ratio Prot	c0.05	c0.40			0.16							
v/s Ratio Perm						c0.19	0.06	0.24	0.23			
v/c Ratio	0.64	1.20			0.41	0.47	0.14	0.59	0.58			
Uniform Delay, d1	42.3	31.5			20.6	21.3	17.7	21.9	21.8			
Progression Factor	1.50	1.10			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	4.7	92.5			0.1	0.6	0.4	4.3	4.0			
Delay (s)	67.9	127.0			20.7	21.8	18.2	26.2	25.8			
Level of Service	E	F			C	C	B	C	C			
Approach Delay (s)		122.6			21.2			25.3			0.0	
Approach LOS		F			C			C			A	

Intersection Summary			
HCM Average Control Delay	65.8	HCM Level of Service	E
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	133.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	1800	800	74	1064	63	475	200	128	180	490	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.10	1.00	1.00	0.11	1.00		0.20	1.00	1.00	0.62	1.00	1.00
Satd. Flow (perm)	181	3539	1583	200	3510		365	3539	1583	1147	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	1957	870	80	1157	68	516	217	139	196	533	83
RTOR Reduction (vph)	0	0	249	0	5	0	0	0	106	0	0	68
Lane Group Flow (vph)	146	1957	621	80	1220	0	516	217	33	196	533	15
Turn Type	pm+pt		Perm	pm+pt			pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	48.1	41.1	41.1	40.3	37.2		36.4	22.1	22.1	26.7	16.4	16.4
Effective Green, g (s)	48.1	41.1	41.1	40.3	37.2		36.4	22.1	22.1	26.7	16.4	16.4
Actuated g/C Ratio	0.52	0.44	0.44	0.44	0.40		0.39	0.24	0.24	0.29	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	214	1571	703	140	1410		386	845	378	400	627	280
v/s Ratio Prot	c0.05	c0.55		0.02	0.35		c0.23	0.06		0.05	0.15	
v/s Ratio Perm	0.30		0.39	0.23			c0.29		0.02	0.09		0.01
v/c Ratio	0.68	1.25	0.88	0.57	0.87		1.34	0.26	0.09	0.49	0.85	0.05
Uniform Delay, d1	18.1	25.7	23.6	22.9	25.4		24.3	28.6	27.4	26.4	36.9	31.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.7	116.1	12.6	5.5	5.8		168.2	0.2	0.1	0.9	10.7	0.1
Delay (s)	26.7	141.8	36.2	28.5	31.2		192.5	28.8	27.5	27.3	47.6	31.7
Level of Service	C	F	D	C	C		F	C	C	C	D	C
Approach Delay (s)		105.3			31.0			125.4			41.1	
Approach LOS		F			C			F			D	

Intersection Summary			
HCM Average Control Delay	83.2	HCM Level of Service	F
HCM Volume to Capacity ratio	1.26		
Actuated Cycle Length (s)	92.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1520	375	72	682	94	62	418	121	325	1010	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.17	1.00	1.00	0.08	1.00	1.00	0.11	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	314	1863	1583	152	1863	1583	201	1863	1583	549	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1652	408	78	741	102	67	454	132	353	1098	30
RTOR Reduction (vph)	0	0	12	0	0	49	0	0	8	0	0	3
Lane Group Flow (vph)	43	1652	396	78	741	53	67	454	124	353	1098	27
Turn Type	Perm		Perm	Perm		Perm	Perm		Perm	Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	49.0	49.0	49.0	49.0	49.0	49.0	37.0	37.0	37.0	37.0	37.0	37.0
Effective Green, g (s)	49.0	49.0	49.0	49.0	49.0	49.0	37.0	37.0	37.0	37.0	37.0	37.0
Actuated g/C Ratio	0.52	0.52	0.52	0.52	0.52	0.52	0.39	0.39	0.39	0.39	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	164	971	825	79	971	825	79	733	623	216	733	623
v/s Ratio Prot		c0.89			0.40			0.24			0.59	
v/s Ratio Perm	0.14		0.25	0.51		0.03	0.33		0.08	c0.64		0.02
v/c Ratio	0.26	1.70	0.48	0.99	0.76	0.06	0.85	0.62	0.20	1.63	1.50	0.04
Uniform Delay, d1	12.5	22.5	14.4	22.2	17.9	11.1	25.9	22.9	18.7	28.5	28.5	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	320.0	0.4	96.2	3.6	0.0	53.2	1.6	0.2	305.5	231.2	0.0
Delay (s)	13.3	342.5	14.8	118.4	21.5	11.2	79.2	24.4	18.9	334.0	259.7	17.6
Level of Service	B	F	B	F	C	B	E	C	B	F	F	B
Approach Delay (s)		272.2			28.6			28.9			272.5	
Approach LOS		F			C			C			F	

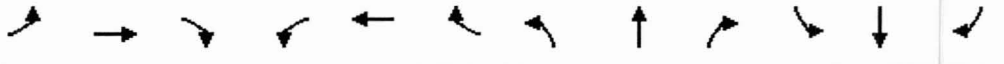
Intersection Summary			
HCM Average Control Delay	198.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.67		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	146.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	121	350	110	282	800	162	150	1700	159	108	825	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.27	1.00	1.00	0.35	1.00	1.00	0.23	1.00	1.00	0.11	1.00	1.00
Satd. Flow (perm)	497	5085	1583	643	5085	1583	422	5085	1583	198	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	132	380	120	307	870	176	163	1848	173	117	897	196
RTOR Reduction (vph)	0	0	100	0	0	137	0	0	96	0	0	115
Lane Group Flow (vph)	132	380	20	307	870	39	163	1848	77	117	897	81
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	23.5	15.0	15.0	32.5	20.0	20.0	48.7	40.2	40.2	43.7	37.7	37.7
Effective Green, g (s)	23.5	15.0	15.0	32.5	20.0	20.0	48.7	40.2	40.2	43.7	37.7	37.7
Actuated g/C Ratio	0.26	0.17	0.17	0.36	0.22	0.22	0.54	0.44	0.44	0.48	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	248	841	262	398	1121	349	353	2254	702	199	2114	658
v/s Ratio Prot	0.05	0.07		c0.11	c0.17		c0.04	c0.36		c0.04	0.18	
v/s Ratio Perm	0.09		0.01	0.16		0.02	0.20		0.05	0.24		0.05
v/c Ratio	0.53	0.45	0.08	0.77	0.78	0.11	0.46	0.82	0.11	0.59	0.42	0.12
Uniform Delay, d1	27.2	34.1	32.0	22.9	33.2	28.2	11.5	22.1	14.8	17.1	18.8	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.1	9.0	3.4	0.1	1.0	2.5	0.1	4.4	0.1	0.1
Delay (s)	29.3	34.5	32.1	31.9	36.7	28.4	12.5	24.5	14.8	21.5	18.9	16.4
Level of Service	C	C	C	C	D	C	B	C	B	C	B	B
Approach Delay (s)		33.0			34.5			22.9			18.8	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM Average Control Delay	26.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



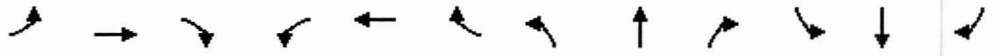
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	319	100	150	575	400	275	550	200	87	300	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.40	1.00	1.00	0.42	1.00	1.00	0.37	1.00	1.00	0.43	1.00	1.00
Satd. Flow (perm)	752	5085	1583	776	5085	1583	696	3539	1583	793	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	347	109	163	625	435	299	598	217	95	326	136
RTOR Reduction (vph)	0	0	86	0	0	227	0	0	144	0	0	109
Lane Group Flow (vph)	54	347	23	163	625	208	299	598	73	95	326	27
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	16.2	14.0	14.0	26.5	20.3	20.3	30.8	22.1	22.1	17.6	12.9	12.9
Effective Green, g (s)	16.2	14.0	14.0	26.5	20.3	20.3	30.8	22.1	22.1	17.6	12.9	12.9
Actuated g/C Ratio	0.25	0.21	0.21	0.41	0.31	0.31	0.47	0.34	0.34	0.27	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	221	1090	339	444	1581	492	557	1198	536	284	699	313
v/s Ratio Prot	0.01	0.07		c0.05	0.12		c0.11	0.17		0.02	0.09	
v/s Ratio Perm	0.05		0.01	0.10		c0.13	c0.14		0.05	0.07		0.02
v/c Ratio	0.24	0.32	0.07	0.37	0.40	0.42	0.54	0.50	0.14	0.33	0.47	0.09
Uniform Delay, d1	19.0	21.6	20.5	12.8	17.7	17.8	11.3	17.2	15.0	18.4	23.2	21.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.1	0.5	0.2	0.6	1.0	0.3	0.1	0.7	0.5	0.1
Delay (s)	19.6	21.8	20.5	13.4	17.8	18.4	12.3	17.5	15.1	19.1	23.7	21.5
Level of Service	B	C	C	B	B	B	B	B	B	B	C	C
Approach Delay (s)		21.3			17.5			15.6			22.4	
Approach LOS		C			B			B			C	

Intersection Summary			
HCM Average Control Delay	18.2	HCM Level of Service	B
HCM Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.3	Sum of lost time (s)	8.0
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	275	50	101	445	200	88	900	75	250	400	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.47	1.00	1.00	0.47	1.00	1.00	0.49	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	868	5085	1583	867	5085	1583	913	5085	1583	307	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	299	54	110	484	217	96	978	82	272	435	176
RTOR Reduction (vph)	0	0	44	0	0	170	0	0	54	0	0	95
Lane Group Flow (vph)	54	299	10	110	484	47	96	978	28	272	435	81
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	15.1	12.5	12.5	20.3	15.1	15.1	27.1	23.4	23.4	39.3	31.6	31.6
Effective Green, g (s)	15.1	12.5	12.5	20.3	15.1	15.1	27.1	23.4	23.4	39.3	31.6	31.6
Actuated g/C Ratio	0.22	0.18	0.18	0.29	0.22	0.22	0.39	0.34	0.34	0.57	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	224	921	287	323	1113	346	405	1724	537	427	2329	725
v/s Ratio Prot	0.01	0.06		c0.03	c0.10		0.01	0.19		c0.11	0.09	
v/s Ratio Perm	0.04		0.01	0.07		0.03	0.08		0.02	c0.25		0.05
v/c Ratio	0.24	0.32	0.03	0.34	0.43	0.14	0.24	0.57	0.05	0.64	0.19	0.11
Uniform Delay, d1	21.7	24.6	23.3	18.4	23.3	21.7	13.5	18.7	15.3	9.5	11.1	10.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.0	0.6	0.3	0.2	0.3	0.4	0.0	3.1	0.0	0.1
Delay (s)	22.3	24.8	23.3	19.0	23.5	21.9	13.8	19.1	15.4	12.6	11.1	10.7
Level of Service	C	C	C	B	C	C	B	B	B	B	B	B
Approach Delay (s)		24.3			22.5			18.4			11.5	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM Average Control Delay	18.3	HCM Level of Service	B
HCM Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	575	78	950	775	0	0	0	0	600	0	121
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (prot)		6790	1425	3090	4577					2899	1372	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (perm)		6790	1425	3090	4577					2899	1372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	625	85	1033	842	0	0	0	0	652	0	132
RTOR Reduction (vph)	0	0	61	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	625	24	1033	842	0	0	0	0	535	206	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		26.4	26.4	34.6	56.0					21.0	21.0	
Effective Green, g (s)		26.4	26.4	34.6	56.0					21.0	21.0	
Actuated g/C Ratio		0.28	0.28	0.37	0.60					0.22	0.22	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1907	400	1137	2727					648	307	
v/s Ratio Prot		0.09		c0.33	c0.18							
v/s Ratio Perm			0.02							c0.18	0.15	
v/c Ratio		0.33	0.06	0.91	0.31					0.83	0.67	
Uniform Delay, d1		26.8	24.7	28.2	9.4					34.8	33.3	
Progression Factor		1.00	1.00	0.76	0.55					1.00	1.00	
Incremental Delay, d2		0.1	0.1	10.0	0.1					11.5	11.1	
Delay (s)		26.9	24.8	31.4	5.3					46.2	44.4	
Level of Service		C	C	C	A					D	D	
Approach Delay (s)		26.6			19.7			0.0			45.6	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM Average Control Delay	27.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	1050	0	0	1625	1079	100	0	500	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			7544	1583	1681	1448	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			7544	1583	1681	1448	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1141	0	0	1766	1173	109	0	543	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	359	0	207	215	0	0	0
Lane Group Flow (vph)	136	1141	0	0	1766	814	98	70	62	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	5.0	26.4			56.0	56.0	21.0	21.0	21.0			
Effective Green, g (s)	5.0	26.4			56.0	56.0	21.0	21.0	21.0			
Actuated g/C Ratio	0.05	0.28			0.60	0.60	0.22	0.22	0.22			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	183	1428			4494	943	376	323	336			
v/s Ratio Prot	c0.04	0.22			0.23							
v/s Ratio Perm						c0.51	c0.06	0.05	0.04			
v/c Ratio	0.74	0.80			0.39	0.86	0.26	0.22	0.18			
Uniform Delay, d1	43.9	31.3			10.0	15.8	30.1	29.8	29.6			
Progression Factor	0.99	1.10			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	14.5	2.6			0.1	8.2	1.7	1.5	1.2			
Delay (s)	57.9	37.2			10.1	24.1	31.8	31.3	30.8			
Level of Service	E	D			B	C	C	C	C			
Approach Delay (s)		39.4			15.7			31.2			0.0	
Approach LOS		D			B			C			A	

Intersection Summary			
HCM Average Control Delay	24.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	75	900	550	150	1850	178	717	475	90	75	250	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.12	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	224	5085	1583	330	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	978	598	163	2011	193	779	516	98	82	272	143
RTOR Reduction (vph)	0	0	368	0	0	106	0	0	76	0	0	73
Lane Group Flow (vph)	82	978	230	163	2011	87	779	516	22	82	272	70
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	36.3	33.2	33.2	44.1	37.1	37.1	22.0	19.8	19.8	12.8	10.6	10.6
Effective Green, g (s)	36.3	33.2	33.2	44.1	37.1	37.1	22.0	19.8	19.8	12.8	10.6	10.6
Actuated g/C Ratio	0.41	0.37	0.37	0.50	0.42	0.42	0.25	0.22	0.22	0.14	0.12	0.12
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	146	1901	592	277	2124	661	851	1134	353	495	607	189
v/s Ratio Prot	0.02	0.19		c0.05	c0.40		c0.23	c0.10		0.02	0.05	
v/s Ratio Perm	0.21		0.15	0.25		0.05			0.01			0.04
v/c Ratio	0.56	0.51	0.39	0.59	0.95	0.13	0.92	0.46	0.06	0.17	0.45	0.37
Uniform Delay, d1	20.9	21.6	20.4	13.9	24.9	15.9	32.5	29.8	27.2	33.3	36.4	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.9	0.2	0.4	3.2	9.7	0.1	14.3	0.3	0.1	0.2	0.5	1.2
Delay (s)	25.8	21.8	20.8	17.1	34.6	16.0	46.7	30.1	27.3	33.5	36.9	37.2
Level of Service	C	C	C	B	C	B	D	C	C	C	D	D
Approach Delay (s)		21.6			31.9			39.2			36.4	
Approach LOS		C			C			D			D	

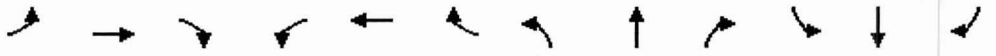
Intersection Summary			
HCM Average Control Delay	31.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	88.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	850	250	142	1400	447	568	900	34	29	589	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.16	1.00	1.00	0.15	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	289	5085	1583	288	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	924	272	154	1522	486	617	978	37	32	640	95
RTOR Reduction (vph)	0	0	192	0	0	133	0	0	22	0	0	76
Lane Group Flow (vph)	29	924	80	154	1522	353	617	978	15	32	640	19
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	27.9	25.8	25.8	38.3	32.2	32.2	19.3	35.1	35.1	2.1	17.9	17.9
Effective Green, g (s)	27.9	25.8	25.8	38.3	32.2	32.2	19.3	35.1	35.1	2.1	17.9	17.9
Actuated g/C Ratio	0.32	0.29	0.29	0.44	0.37	0.37	0.22	0.40	0.40	0.02	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	128	1499	467	270	1871	583	757	2040	635	82	1040	324
v/s Ratio Prot	0.01	0.18		c0.06	c0.30		c0.18	0.19		0.01	c0.13	
v/s Ratio Perm	0.07		0.05	0.19		0.22			0.01			0.01
v/c Ratio	0.23	0.62	0.17	0.57	0.81	0.61	0.82	0.48	0.02	0.39	0.62	0.06
Uniform Delay, d1	21.9	26.6	22.9	16.8	24.9	22.5	32.4	19.4	15.8	42.1	31.7	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.8	0.2	2.9	2.8	1.8	6.7	0.2	0.0	3.1	1.1	0.1
Delay (s)	22.8	27.3	23.1	19.7	27.8	24.3	39.2	19.6	15.9	45.1	32.8	28.1
Level of Service	C	C	C	B	C	C	D	B	B	D	C	C
Approach Delay (s)		26.3			26.4			26.9			32.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	27.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	87.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

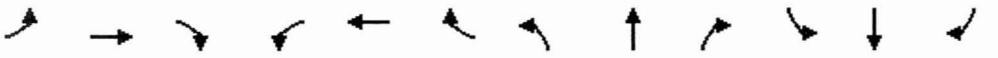
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	125	550	85	119	1475	450	455	875	75	80	380	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.11	1.00	1.00	0.39	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	211	5085	1583	723	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	598	92	129	1603	489	495	951	82	87	413	61
RTOR Reduction (vph)	0	0	55	0	0	120	0	0	57	0	0	51
Lane Group Flow (vph)	136	598	37	129	1603	369	495	951	25	87	413	10
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	42.3	35.3	35.3	40.3	34.3	34.3	16.4	26.4	26.4	3.9	13.9	13.9
Effective Green, g (s)	42.3	35.3	35.3	40.3	34.3	34.3	16.4	26.4	26.4	3.9	13.9	13.9
Actuated g/C Ratio	0.48	0.40	0.40	0.46	0.39	0.39	0.19	0.30	0.30	0.04	0.16	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	226	2049	638	404	1991	620	643	1532	477	153	807	251
v/s Ratio Prot	c0.05	0.12		0.02	c0.32		c0.14	c0.19		0.03	0.08	
v/s Ratio Perm	0.24		0.02	0.12		0.23			0.02			0.01
v/c Ratio	0.60	0.29	0.06	0.32	0.81	0.59	0.77	0.62	0.05	0.57	0.51	0.04
Uniform Delay, d1	16.5	17.7	16.0	13.8	23.7	21.1	33.8	26.3	21.7	41.0	33.7	31.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.5	0.1	0.0	0.5	2.5	1.5	5.5	0.8	0.0	4.8	0.6	0.1
Delay (s)	21.0	17.8	16.0	14.3	26.2	22.7	39.4	27.1	21.8	45.8	34.3	31.3
Level of Service	C	B	B	B	C	C	D	C	C	D	C	C
Approach Delay (s)		18.1			24.7			30.8			35.7	
Approach LOS		B			C			C			D	

Intersection Summary			
HCM Average Control Delay	26.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

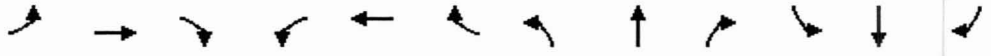
c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	500	130	200	1115	71	750	815	75	75	260	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.24	1.00	1.00	0.28	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	441	5085	1583	516	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	543	141	217	1212	77	815	886	82	82	283	120
RTOR Reduction (vph)	0	0	111	0	0	52	0	0	50	0	0	86
Lane Group Flow (vph)	77	543	30	217	1212	25	815	886	32	82	283	34
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	19.9	16.9	16.9	32.5	25.5	25.5	23.4	30.8	30.8	3.8	11.2	11.2
Effective Green, g (s)	19.9	16.9	16.9	32.5	25.5	25.5	23.4	30.8	30.8	3.8	11.2	11.2
Actuated g/C Ratio	0.25	0.21	0.21	0.41	0.32	0.32	0.30	0.39	0.39	0.05	0.14	0.14
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	161	1086	338	396	1639	510	1016	1980	616	165	720	224
v/s Ratio Prot	0.02	0.11		c0.08	c0.24		c0.24	c0.17		0.02	0.06	
v/s Ratio Perm	0.10		0.02	0.14		0.02			0.02			0.02
v/c Ratio	0.48	0.50	0.09	0.55	0.74	0.05	0.80	0.45	0.05	0.50	0.39	0.15
Uniform Delay, d1	23.3	27.4	24.9	16.2	23.8	18.4	25.7	17.9	15.1	36.7	30.9	29.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2	0.4	0.1	1.6	1.8	0.0	4.6	0.2	0.0	2.3	0.4	0.3
Delay (s)	25.6	27.7	25.0	17.7	25.6	18.5	30.4	18.0	15.1	39.1	31.2	30.1
Level of Service	C	C	C	B	C	B	C	B	B	D	C	C
Approach Delay (s)		27.0			24.1			23.5			32.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.2	HCM Level of Service	C
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	79.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	65.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	600	75	75	995	554	331	770	170	125	360	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.18	1.00	1.00	0.32	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	341	5085	1583	599	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	652	82	82	1082	602	360	837	185	136	391	163
RTOR Reduction (vph)	0	0	53	0	0	214	0	0	130	0	0	94
Lane Group Flow (vph)	49	652	29	82	1082	388	360	837	55	136	391	69
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	28.3	26.3	26.3	31.9	28.1	28.1	13.0	22.0	22.0	5.9	14.9	14.9
Effective Green, g (s)	28.3	26.3	26.3	31.9	28.1	28.1	13.0	22.0	22.0	5.9	14.9	14.9
Actuated g/C Ratio	0.38	0.36	0.36	0.43	0.38	0.38	0.18	0.30	0.30	0.08	0.20	0.20
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	1807	563	318	1931	601	603	1512	471	274	1024	319
v/s Ratio Prot	0.01	0.13		c0.01	0.21		c0.10	c0.16		0.04	0.08	
v/s Ratio Perm	0.10		0.02	0.10		c0.25			0.03			0.04
v/c Ratio	0.29	0.36	0.05	0.26	0.56	0.65	0.60	0.55	0.12	0.50	0.38	0.22
Uniform Delay, d1	14.9	17.6	15.7	12.8	18.1	18.9	28.1	21.9	18.9	32.6	25.6	24.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.1	0.0	0.4	0.4	2.4	1.6	0.4	0.1	1.4	0.2	0.3
Delay (s)	15.9	17.8	15.7	13.2	18.5	21.2	29.7	22.3	19.0	34.0	25.8	25.0
Level of Service	B	B	B	B	B	C	C	C	B	C	C	C
Approach Delay (s)		17.4			19.2			23.8			27.2	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	87	800	160	250	400	123	100	900	230	125	1600	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.49	1.00	1.00	0.17	1.00	1.00	0.12	1.00	1.00	0.18	1.00	1.00
Satd. Flow (perm)	913	5085	1583	317	5085	1583	220	5085	1583	331	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	870	174	272	435	134	109	978	250	136	1739	239
RTOR Reduction (vph)	0	0	121	0	0	93	0	0	156	0	0	139
Lane Group Flow (vph)	95	870	53	272	435	41	109	978	94	136	1739	100
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	24.0	19.5	19.5	36.0	27.5	27.5	38.3	33.8	33.8	45.9	37.6	37.6
Effective Green, g (s)	24.0	19.5	19.5	36.0	27.5	27.5	38.3	33.8	33.8	45.9	37.6	37.6
Actuated g/C Ratio	0.27	0.22	0.22	0.40	0.31	0.31	0.43	0.38	0.38	0.51	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	286	1101	343	328	1552	483	171	1908	594	301	2122	661
v/s Ratio Prot	0.02	0.17		c0.11	0.09		c0.03	0.19		c0.04	c0.34	
v/s Ratio Perm	0.07		0.03	c0.22		0.03	0.24		0.06	0.19		0.06
v/c Ratio	0.33	0.79	0.15	0.83	0.28	0.08	0.64	0.51	0.16	0.45	0.82	0.15
Uniform Delay, d1	25.6	33.4	28.6	21.0	23.8	22.3	18.9	21.8	18.7	13.2	23.2	16.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	3.9	0.2	15.7	0.1	0.1	7.6	0.2	0.1	1.1	2.6	0.1
Delay (s)	26.3	37.3	28.8	36.8	23.9	22.4	26.4	22.0	18.8	14.2	25.8	16.4
Level of Service	C	D	C	D	C	C	C	C	B	B	C	B
Approach Delay (s)		35.1			27.8			21.8			24.0	
Approach LOS		D			C			C			C	

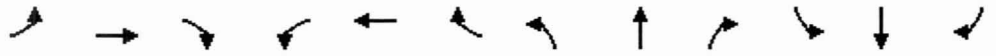
Intersection Summary			
HCM Average Control Delay	26.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	150	650	150	160	375	143	75	321	175	300	636	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.48	1.00	1.00	0.25	1.00	1.00	0.39	1.00	1.00	0.35	1.00	1.00
Satd. Flow (perm)	894	5085	1583	461	5085	1583	724	3539	1583	652	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	707	163	174	408	155	82	349	190	326	691	70
RTOR Reduction (vph)	0	0	126	0	0	119	0	0	152	0	0	46
Lane Group Flow (vph)	163	707	37	174	408	36	82	349	38	326	691	24
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	25.9	16.1	16.1	26.3	16.3	16.3	18.8	14.2	14.2	32.9	24.3	24.3
Effective Green, g (s)	25.9	16.1	16.1	26.3	16.3	16.3	18.8	14.2	14.2	32.9	24.3	24.3
Actuated g/C Ratio	0.36	0.23	0.23	0.37	0.23	0.23	0.26	0.20	0.20	0.46	0.34	0.34
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	447	1153	359	355	1167	363	259	708	317	534	1211	542
v/s Ratio Prot	0.05	c0.14		c0.07	0.08		0.02	0.10		c0.13	0.20	
v/s Ratio Perm	0.08		0.02	0.11		0.02	0.06		0.02	c0.16		0.02
v/c Ratio	0.36	0.61	0.10	0.49	0.35	0.10	0.32	0.49	0.12	0.61	0.57	0.04
Uniform Delay, d1	15.8	24.7	21.7	15.9	22.9	21.6	20.1	25.2	23.3	13.0	19.1	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.0	0.1	1.1	0.2	0.1	0.7	0.5	0.2	2.1	0.7	0.0
Delay (s)	16.3	25.6	21.9	16.9	23.1	21.7	20.8	25.7	23.4	15.0	19.7	15.6
Level of Service	B	C	C	B	C	C	C	C	C	B	B	B
Approach Delay (s)		23.6			21.3			24.4			18.1	
Approach LOS		C			C			C			B	

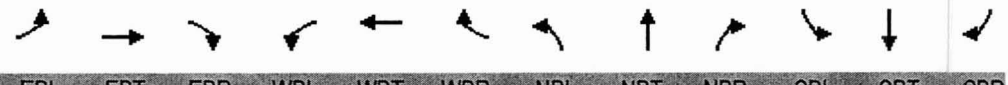
Intersection Summary			
HCM Average Control Delay	21.5	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	71.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group



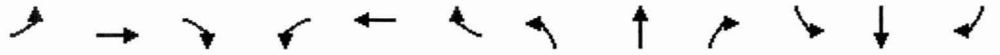
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	101	470	80	57	382	200	49	450	113	275	900	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	1770	5085	1583	1770	5085	1583
Flt Permitted	0.39	1.00	1.00	0.45	1.00	1.00	0.28	1.00	1.00	0.34	1.00	1.00
Satd. Flow (perm)	733	5085	1583	845	5085	1583	523	5085	1583	635	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	511	87	62	415	217	53	489	123	299	978	73
RTOR Reduction (vph)	0	0	66	0	0	174	0	0	92	0	0	45
Lane Group Flow (vph)	110	511	21	62	415	43	53	489	31	299	978	28
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm	pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)	21.3	15.1	15.1	16.1	12.5	12.5	19.1	15.6	15.6	31.9	24.4	24.4
Effective Green, g (s)	21.3	15.1	15.1	16.1	12.5	12.5	19.1	15.6	15.6	31.9	24.4	24.4
Actuated g/C Ratio	0.34	0.24	0.24	0.26	0.20	0.20	0.31	0.25	0.25	0.51	0.39	0.39
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	352	1227	382	271	1015	316	229	1267	394	547	1982	617
v/s Ratio Prot	c0.03	c0.10		0.01	0.08		0.01	0.10		c0.11	0.19	
v/s Ratio Perm	0.08		0.01	0.05		0.03	0.06		0.02	c0.17		0.02
v/c Ratio	0.31	0.42	0.05	0.23	0.41	0.14	0.23	0.39	0.08	0.55	0.49	0.05
Uniform Delay, d1	14.6	20.0	18.3	17.9	21.8	20.6	15.6	19.5	18.0	9.4	14.4	11.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.1	0.4	0.3	0.2	0.5	0.2	0.1	1.1	0.2	0.0
Delay (s)	15.1	20.3	18.3	18.3	22.1	20.8	16.1	19.7	18.1	10.5	14.6	11.9
Level of Service	B	C	B	B	C	C	B	B	B	B	B	B
Approach Delay (s)		19.2			21.4			19.1			13.6	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM Average Control Delay	17.4	HCM Level of Service	B
HCM Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	62.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	800	55	482	570	0	0	0	0	1200	0	125
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.96	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		6790	1425	3090	4577					2899	1410	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (perm)		6790	1425	3090	4577					2899	1410	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	870	60	524	620	0	0	0	0	1304	0	136
RTOR Reduction (vph)	0	0	37	0	0	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	870	23	524	620	0	0	0	0	965	459	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		36.0	36.0	16.0	44.2					30.0	30.0	
Effective Green, g (s)		36.0	36.0	16.0	44.2					30.0	30.0	
Actuated g/C Ratio		0.38	0.38	0.17	0.47					0.32	0.32	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2600	546	526	2152					925	450	
v/s Ratio Prot		c0.13		c0.17	0.14							
v/s Ratio Perm			0.02							c0.33	0.33	
v/c Ratio		0.33	0.04	1.00	0.29					1.04	1.02	
Uniform Delay, d1		20.5	18.2	39.0	15.3					32.0	32.0	
Progression Factor		1.00	1.00	1.83	0.56					1.00	1.00	
Incremental Delay, d2		0.1	0.0	37.5	0.1					41.5	47.8	
Delay (s)		20.6	18.2	108.7	8.6					73.5	79.8	
Level of Service		C	B	F	A					E	E	
Approach Delay (s)		20.4			54.4			0.0			75.6	
Approach LOS		C			D			A			E	

Intersection Summary			
HCM Average Control Delay	54.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	119.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

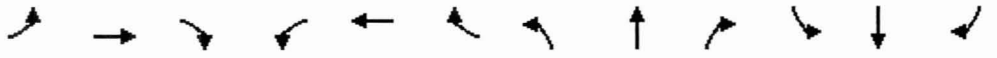


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑↑				↱	↰		↱			
Volume (vph)	150	1850	0	0	950	691	100	0	900	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			7544	1583	1681	1445	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			7544	1583	1681	1445	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	2011	0	0	1033	751	109	0	978	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	398	0	186	186	0	0	0
Lane Group Flow (vph)	163	2011	0	0	1033	353	98	304	313	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	7.8	36.0			44.2	44.2	30.0	30.0	30.0			
Effective Green, g (s)	7.8	36.0			44.2	44.2	30.0	30.0	30.0			
Actuated g/C Ratio	0.08	0.38			0.47	0.47	0.32	0.32	0.32			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	285	1947			3547	744	536	461	480			
v/s Ratio Prot	c0.05	c0.40			0.14							
v/s Ratio Perm						c0.22	0.06	0.21	0.21			
v/c Ratio	0.57	1.03			0.29	0.47	0.18	0.66	0.65			
Uniform Delay, d1	41.5	29.0			15.3	17.0	23.1	27.6	27.5			
Progression Factor	1.44	1.24			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	2.7	24.9			0.0	0.5	0.7	7.2	6.7			
Delay (s)	62.4	61.0			15.3	17.5	23.9	34.8	34.3			
Level of Service	E	E			B	B	C	C	C			
Approach Delay (s)		61.1			16.2			33.6			0.0	
Approach LOS		E			B			C			A	

Intersection Summary			
HCM Average Control Delay	39.3	HCM Level of Service	D
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	119.9%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	134	1800	800	74	1064	63	475	200	128	180	490	76
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.14	1.00	1.00	0.11	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	258	5085	1583	201	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	146	1957	870	80	1157	68	516	217	139	196	533	83
RTOR Reduction (vph)	0	0	229	0	0	40	0	0	81	0	0	70
Lane Group Flow (vph)	146	1957	641	80	1157	28	516	217	58	196	533	13
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	49.3	42.2	42.2	40.1	37.0	37.0	15.1	20.5	20.5	9.3	14.7	14.7
Effective Green, g (s)	49.3	42.2	42.2	40.1	37.0	37.0	15.1	20.5	20.5	9.3	14.7	14.7
Actuated g/C Ratio	0.54	0.46	0.46	0.44	0.41	0.41	0.17	0.23	0.23	0.10	0.16	0.16
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	277	2356	733	142	2065	643	569	1144	356	350	821	255
v/s Ratio Prot	c0.05	0.38		0.02	0.23		c0.15	0.04		0.06	c0.10	
v/s Ratio Perm	0.24		c0.40	0.23		0.02			0.04			0.01
v/c Ratio	0.53	0.83	0.87	0.56	0.56	0.04	0.91	0.19	0.16	0.56	0.65	0.05
Uniform Delay, d1	12.7	21.3	22.1	18.4	20.8	16.3	37.3	28.6	28.4	39.0	35.8	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	2.6	11.3	5.0	0.4	0.0	18.1	0.1	0.2	2.0	1.8	0.1
Delay (s)	14.6	24.0	33.3	23.4	21.1	16.4	55.4	28.7	28.6	41.0	37.6	32.4
Level of Service	B	C	C	C	C	B	E	C	C	D	D	C
Approach Delay (s)		26.2			21.0			44.5			37.9	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM Average Control Delay	29.4	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	91.1	Sum of lost time (s)	16.0
Intersection Capacity Utilization	75.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



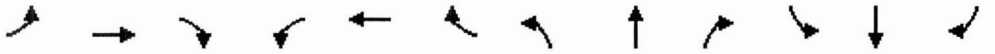
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	128	1375	650	52	726	56	252	490	191	554	850	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.22	1.00	1.00	0.14	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	415	5085	1583	265	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	1495	707	57	789	61	274	533	208	602	924	27
RTOR Reduction (vph)	0	0	246	0	0	41	0	0	78	0	0	20
Lane Group Flow (vph)	139	1495	461	57	789	20	274	533	130	602	924	7
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	40.6	33.6	33.6	31.1	28.1	28.1	11.1	15.1	15.1	18.6	22.6	22.6
Effective Green, g (s)	40.6	33.6	33.6	31.1	28.1	28.1	11.1	15.1	15.1	18.6	22.6	22.6
Actuated g/C Ratio	0.47	0.39	0.39	0.36	0.33	0.33	0.13	0.17	0.17	0.22	0.26	0.26
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	329	1980	616	148	1656	515	442	890	277	740	1332	415
v/s Ratio Prot	c0.04	c0.29		0.01	0.16		0.08	0.10		c0.18	c0.18	
v/s Ratio Perm	0.16		0.29	0.13		0.01			0.08			0.00
v/c Ratio	0.42	0.76	0.75	0.39	0.48	0.04	0.62	0.60	0.47	0.81	0.69	0.02
Uniform Delay, d1	14.1	22.8	22.7	19.4	23.2	19.9	35.6	32.8	32.0	32.2	28.7	23.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	1.7	5.0	1.7	0.2	0.0	2.6	1.1	1.3	6.8	1.6	0.0
Delay (s)	14.9	24.5	27.7	21.1	23.4	19.9	38.2	33.9	33.3	39.0	30.3	23.6
Level of Service	B	C	C	C	C	B	D	C	C	D	C	C
Approach Delay (s)		24.9			23.1			34.9			33.6	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.7	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	86.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	40	1520	375	72	682	94	62	418	121	325	1010	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.33	1.00	1.00	0.10	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	624	5085	1583	188	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	43	1652	408	78	741	102	67	454	132	353	1098	30
RTOR Reduction (vph)	0	0	129	0	0	56	0	0	76	0	0	21
Lane Group Flow (vph)	43	1652	279	78	741	46	67	454	56	353	1098	9
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	39.6	37.4	37.4	44.0	39.6	39.6	3.7	17.3	17.3	13.4	27.0	27.0
Effective Green, g (s)	39.6	37.4	37.4	44.0	39.6	39.6	3.7	17.3	17.3	13.4	27.0	27.0
Actuated g/C Ratio	0.45	0.42	0.42	0.50	0.45	0.45	0.04	0.20	0.20	0.15	0.31	0.31
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	308	2149	669	172	2275	708	144	994	309	520	1551	483
v/s Ratio Prot	0.00	c0.32		c0.02	0.15		0.02	0.09		c0.10	c0.22	
v/s Ratio Perm	0.06		0.18	0.20		0.03			0.04			0.01
v/c Ratio	0.14	0.77	0.42	0.45	0.33	0.06	0.47	0.46	0.18	0.68	0.71	0.02
Uniform Delay, d1	13.9	21.9	17.9	15.6	15.8	13.9	41.4	31.4	29.7	35.5	27.3	21.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.7	0.4	1.9	0.1	0.0	2.4	0.3	0.3	3.5	1.5	0.0
Delay (s)	14.1	23.6	18.3	17.5	15.9	13.9	43.8	31.8	30.0	39.0	28.8	21.5
Level of Service	B	C	B	B	B	B	D	C	C	D	C	C
Approach Delay (s)		22.4			15.8			32.6			31.1	
Approach LOS		C			B			C			C	

Intersection Summary			
HCM Average Control Delay	25.0	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	88.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	99	1000	762	180	472	80	180	270	160	100	750	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.45	1.00	1.00	0.19	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	843	5085	1583	346	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	108	1087	828	196	513	87	196	293	174	109	815	103
RTOR Reduction (vph)	0	0	131	0	0	43	0	0	118	0	0	81
Lane Group Flow (vph)	108	1087	697	196	513	44	196	293	57	109	815	22
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	47.6	43.8	43.8	52.2	46.1	46.1	6.1	21.3	21.3	4.6	19.8	19.8
Effective Green, g (s)	47.6	43.8	43.8	52.2	46.1	46.1	6.1	21.3	21.3	4.6	19.8	19.8
Actuated g/C Ratio	0.52	0.48	0.48	0.57	0.50	0.50	0.07	0.23	0.23	0.05	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	475	2426	755	291	2554	795	228	1180	367	172	1097	341
v/s Ratio Prot	0.01	0.21		c0.04	0.10		c0.06	0.06		0.03	c0.16	
v/s Ratio Perm	0.11		c0.44	0.34		0.03			0.04			0.01
v/c Ratio	0.23	0.45	0.92	0.67	0.20	0.05	0.86	0.25	0.15	0.63	0.74	0.07
Uniform Delay, d1	11.3	16.0	22.4	10.9	12.7	11.7	42.4	28.7	28.1	42.8	33.6	28.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1	16.8	6.0	0.0	0.0	26.0	0.1	0.2	7.4	2.8	0.1
Delay (s)	11.6	16.1	39.2	17.0	12.7	11.7	68.5	28.8	28.3	50.2	36.4	28.7
Level of Service	B	B	D	B	B	B	E	C	C	D	D	C
Approach Delay (s)		25.3			13.6			40.4			37.1	
Approach LOS		C			B			D			D	

Intersection Summary			
HCM Average Control Delay	28.1	HCM Level of Service	C
HCM Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	91.8	Sum of lost time (s)	20.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	120	925	405	120	581	105	90	315	58	644	690	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	5085	1583	1770	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.31	1.00	1.00	0.18	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	582	5085	1583	327	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	1005	440	130	632	114	98	342	63	700	750	62
RTOR Reduction (vph)	0	0	180	0	0	82	0	0	54	0	0	40
Lane Group Flow (vph)	130	1005	260	130	632	32	98	342	9	700	750	22
Turn Type	pm+pt		Perm	pm+pt		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8			2			6
Actuated Green, G (s)	31.8	23.5	23.5	30.4	22.8	22.8	4.6	12.1	12.1	21.2	28.7	28.7
Effective Green, g (s)	31.8	23.5	23.5	30.4	22.8	22.8	4.6	12.1	12.1	21.2	28.7	28.7
Actuated g/C Ratio	0.40	0.29	0.29	0.38	0.28	0.28	0.06	0.15	0.15	0.26	0.36	0.36
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	353	1486	463	260	1442	449	196	765	238	905	1815	565
v/s Ratio Prot	0.04	c0.20		c0.05	0.12		0.03	0.07		c0.20	c0.15	
v/s Ratio Perm	0.11		0.16	0.14		0.02			0.01			0.01
v/c Ratio	0.37	0.68	0.56	0.50	0.44	0.07	0.50	0.45	0.04	0.77	0.41	0.04
Uniform Delay, d1	16.1	25.1	24.1	17.6	23.6	21.1	36.8	31.1	29.2	27.4	19.5	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	1.2	1.6	1.5	0.2	0.1	2.0	0.4	0.1	4.2	0.2	0.0
Delay (s)	16.7	26.3	25.7	19.1	23.8	21.1	38.8	31.5	29.3	31.5	19.7	16.9
Level of Service	B	C	C	B	C	C	D	C	C	C	B	B
Approach Delay (s)		25.3			22.7			32.7			25.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	80.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	62.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	166	480	151	386	1096	222	206	2329	218	148	1130	247
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	180	522	164	420	1191	241	224	2532	237	161	1228	268
RTOR Reduction (vph)	0	0	131	0	0	81	0	0	108	0	0	115
Lane Group Flow (vph)	180	522	33	420	1191	160	224	2532	129	161	1228	153
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.0	16.0	16.0	11.0	22.0	22.0	10.3	46.0	46.0	5.0	40.7	40.7
Effective Green, g (s)	5.0	16.0	16.0	11.0	22.0	22.0	10.3	46.0	46.0	5.0	40.7	40.7
Actuated g/C Ratio	0.05	0.17	0.17	0.12	0.23	0.23	0.11	0.49	0.49	0.05	0.43	0.43
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	866	269	402	1190	370	376	2488	775	183	2202	685
v/s Ratio Prot	0.05	0.10		c0.12	c0.23		0.07	c0.50		c0.05	0.24	
v/s Ratio Perm			0.02			0.10			0.08			0.10
v/c Ratio	0.98	0.60	0.12	1.04	1.00	0.43	0.60	1.02	0.17	0.88	0.56	0.22
Uniform Delay, d1	44.5	36.1	33.0	41.5	36.0	30.7	39.9	24.0	13.3	44.2	19.9	16.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	61.3	1.2	0.2	57.0	26.3	0.8	2.5	22.6	0.1	34.7	0.3	0.2
Delay (s)	105.8	37.3	33.3	98.5	62.3	31.5	42.4	46.6	13.4	78.9	20.2	16.9
Level of Service	F	D	C	F	E	C	D	D	B	E	C	B
Approach Delay (s)		50.7			66.5			43.7			25.4	
Approach LOS		D			E			D			C	

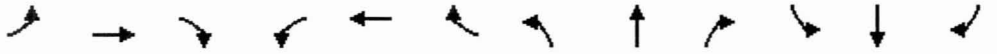
Intersection Summary			
HCM Average Control Delay	46.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	437	137	206	788	548	377	754	274	119	411	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	475	149	224	857	596	410	820	298	129	447	186
RTOR Reduction (vph)	0	0	103	0	0	117	0	0	206	0	0	113
Lane Group Flow (vph)	75	475	46	224	857	479	410	820	92	129	447	73
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.0	25.0	25.0	10.0	32.0	32.0	13.6	25.3	25.3	5.3	17.0	17.0
Effective Green, g (s)	3.0	25.0	25.0	10.0	32.0	32.0	13.6	25.3	25.3	5.3	17.0	17.0
Actuated g/C Ratio	0.04	0.31	0.31	0.12	0.39	0.39	0.17	0.31	0.31	0.06	0.21	0.21
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	126	1558	485	421	1994	621	572	1097	491	223	737	330
v/s Ratio Prot	0.02	0.09		c0.07	0.17		c0.12	c0.23		0.04	0.13	
v/s Ratio Perm			0.03			c0.30			0.06			0.05
v/c Ratio	0.60	0.30	0.09	0.53	0.43	0.77	0.72	0.75	0.19	0.58	0.61	0.22
Uniform Delay, d1	38.7	21.7	20.2	33.6	18.1	21.6	32.2	25.3	20.6	37.1	29.3	26.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.4	0.1	0.1	1.3	0.1	5.9	4.3	2.8	0.2	3.6	1.4	0.3
Delay (s)	46.1	21.8	20.3	34.9	18.3	27.5	36.4	28.1	20.8	40.7	30.7	27.1
Level of Service	D	C	C	C	B	C	D	C	C	D	C	C
Approach Delay (s)		24.1			23.8			28.9			31.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	26.8	HCM Level of Service	C
HCM Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



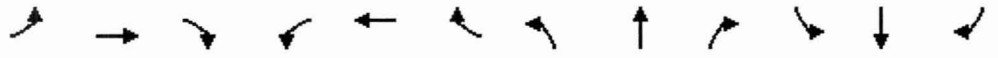
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	69	377	69	138	610	274	121	1233	103	343	548	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	410	75	150	663	298	132	1340	112	373	596	241
RTOR Reduction (vph)	0	0	61	0	0	204	0	0	70	0	0	121
Lane Group Flow (vph)	75	410	14	150	663	94	132	1340	42	373	596	120
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.8	15.4	15.4	7.8	19.4	19.4	7.0	31.9	31.9	13.8	38.7	38.7
Effective Green, g (s)	3.8	15.4	15.4	7.8	19.4	19.4	7.0	31.9	31.9	13.8	38.7	38.7
Actuated g/C Ratio	0.04	0.18	0.18	0.09	0.23	0.23	0.08	0.38	0.38	0.16	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	154	922	287	315	1162	362	283	1911	595	558	2318	722
v/s Ratio Prot	0.02	0.08		c0.04	c0.13		0.04	c0.26		c0.11	0.12	
v/s Ratio Perm			0.01			0.06			0.03			0.08
v/c Ratio	0.49	0.44	0.05	0.48	0.57	0.26	0.47	0.70	0.07	0.67	0.26	0.17
Uniform Delay, d1	39.6	30.9	28.7	36.6	29.1	26.9	37.2	22.5	17.0	33.4	14.2	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.4	0.3	0.1	1.1	0.7	0.4	1.2	1.2	0.1	3.0	0.1	0.1
Delay (s)	42.0	31.3	28.8	37.7	29.7	27.2	38.4	23.6	17.0	36.4	14.3	13.7
Level of Service	D	C	C	D	C	C	D	C	B	D	B	B
Approach Delay (s)		32.4			30.1			24.4			21.0	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	25.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	62.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	788	107	1302	1062	0	0	0	0	822	0	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.92	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (prot)		6790	1425	3090	4577					2899	1372	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.98	
Satd. Flow (perm)		6790	1425	3090	4577					2899	1372	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	857	116	1415	1154	0	0	0	0	893	0	180
RTOR Reduction (vph)	0	0	85	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	0	857	31	1415	1154	0	0	0	0	732	298	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		25.0	25.0	34.0	52.0					23.0	23.0	
Effective Green, g (s)		25.0	25.0	34.0	52.0					23.0	23.0	
Actuated g/C Ratio		0.27	0.27	0.36	0.55					0.24	0.24	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		1806	379	1118	2532					709	336	
v/s Ratio Prot		0.13		c0.46	c0.25							
v/s Ratio Perm			0.02							c0.25	0.22	
v/c Ratio		0.47	0.08	1.27	0.46					1.03	0.89	
Uniform Delay, d1		29.0	25.9	30.0	12.5					35.5	34.2	
Progression Factor		1.00	1.00	0.99	0.47					1.00	1.00	
Incremental Delay, d2		0.2	0.1	125.5	0.1					42.4	27.3	
Delay (s)		29.2	26.0	155.2	6.0					77.9	61.6	
Level of Service		C	C	F	A					E	E	
Approach Delay (s)		28.8			88.2			0.0			72.7	
Approach LOS		C			F			A			E	

Intersection Summary			
HCM Average Control Delay	72.1	HCM Level of Service	E
HCM Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	117.2%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	1439	0	0	2226	1478	137	0	685	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.86	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			7544	1583	1681	1448	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			7544	1583	1681	1448	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	1564	0	0	2420	1607	149	0	745	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	378	0	276	287	0	0	0
Lane Group Flow (vph)	186	1564	0	0	2420	1229	134	104	93	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	7.0	25.0			52.0	52.0	23.0	23.0	23.0			
Effective Green, g (s)	7.0	25.0			52.0	52.0	23.0	23.0	23.0			
Actuated g/C Ratio	0.07	0.27			0.55	0.55	0.24	0.24	0.24			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	256	1352			4173	876	411	354	368			
v/s Ratio Prot	c0.05	0.31			0.32							
v/s Ratio Perm						c0.78	c0.08	0.07	0.06			
v/c Ratio	0.73	1.16			0.58	1.40	0.33	0.29	0.25			
Uniform Delay, d1	42.6	34.5			13.8	21.0	29.1	28.9	28.6			
Progression Factor	1.05	1.05			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	8.9	76.0			0.2	188.5	2.1	2.1	1.6			
Delay (s)	53.5	112.3			14.0	209.5	31.2	31.0	30.2			
Level of Service	D	F			B	F	C	C	C			
Approach Delay (s)		106.0			92.0			30.7			0.0	
Approach LOS		F			F			C			A	

Intersection Summary			
HCM Average Control Delay	87.5	HCM Level of Service	F
HCM Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	117.2%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	103	1233	754	206	2535	244	982	651	123	103	343	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	1340	820	224	2755	265	1067	708	134	112	373	197
RTOR Reduction (vph)	0	0	317	0	0	108	0	0	81	0	0	69
Lane Group Flow (vph)	112	1340	503	224	2755	157	1067	708	53	112	373	128
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	34.0	34.0	7.0	37.0	37.0	20.0	29.2	29.2	4.7	13.9	13.9
Effective Green, g (s)	4.0	34.0	34.0	7.0	37.0	37.0	20.0	29.2	29.2	4.7	13.9	13.9
Actuated g/C Ratio	0.04	0.37	0.37	0.08	0.41	0.41	0.22	0.32	0.32	0.05	0.15	0.15
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	151	1902	592	264	2070	644	755	1633	509	178	778	242
v/s Ratio Prot	0.03	0.26		c0.07	c0.54		c0.31	0.14		0.03	0.07	
v/s Ratio Perm			0.32			0.10			0.03			c0.08
v/c Ratio	0.74	0.70	0.85	0.85	1.33	0.24	1.41	0.43	0.10	0.63	0.48	0.53
Uniform Delay, d1	42.9	24.2	26.1	41.4	27.0	17.7	35.5	24.3	21.7	42.2	35.2	35.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.7	1.2	11.2	21.6	152.3	0.2	193.8	0.2	0.1	6.8	0.5	2.2
Delay (s)	60.6	25.4	37.3	63.0	179.3	17.9	229.2	24.5	21.8	49.0	35.7	37.7
Level of Service	E	C	D	E	F	B	F	C	C	D	D	D
Approach Delay (s)		31.4			158.1			138.7			38.5	
Approach LOS		C			F			F			D	

Intersection Summary			
HCM Average Control Delay	108.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.20		
Actuated Cycle Length (s)	90.9	Sum of lost time (s)	16.0
Intersection Capacity Utilization	100.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

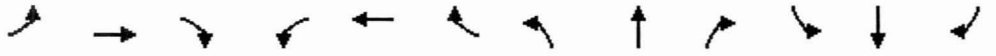
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	37	1165	343	195	1918	612	778	1233	47	40	807	119
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	40	1266	373	212	2085	665	846	1340	51	43	877	129
RTOR Reduction (vph)	0	0	255	0	0	94	0	0	31	0	0	68
Lane Group Flow (vph)	40	1266	118	212	2085	571	846	1340	20	43	877	61
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	2.4	30.3	30.3	9.5	37.4	37.4	22.0	37.3	37.3	2.4	17.7	17.7
Effective Green, g (s)	2.4	30.3	30.3	9.5	37.4	37.4	22.0	37.3	37.3	2.4	17.7	17.7
Actuated g/C Ratio	0.03	0.32	0.32	0.10	0.39	0.39	0.23	0.39	0.39	0.03	0.19	0.19
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	86	1613	502	342	1991	620	791	1986	618	86	942	293
v/s Ratio Prot	0.01	0.25		c0.06	c0.41		c0.25	0.26		0.01	c0.17	
v/s Ratio Perm			0.07			0.36			0.01			0.04
v/c Ratio	0.47	0.78	0.24	0.62	1.05	0.92	1.07	0.67	0.03	0.50	0.93	0.21
Uniform Delay, d1	45.9	29.6	24.1	41.3	29.1	27.7	36.8	24.1	18.0	46.0	38.3	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.9	2.6	0.2	3.3	33.8	19.2	52.3	0.9	0.0	4.5	15.3	0.4
Delay (s)	49.9	32.2	24.3	44.6	62.9	46.9	89.0	25.0	18.0	50.5	53.6	33.3
Level of Service	D	C	C	D	E	D	F	C	B	D	D	C
Approach Delay (s)		30.9			58.0			49.0			51.0	
Approach LOS		C			E			D			D	

Intersection Summary			
HCM Average Control Delay	48.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	754	116	163	2021	617	623	1199	103	110	521	77
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	186	820	126	177	2197	671	677	1303	112	120	566	84
RTOR Reduction (vph)	0	0	78	0	0	93	0	0	78	0	0	70
Lane Group Flow (vph)	186	820	48	177	2197	578	677	1303	34	120	566	14
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.0	35.4	35.4	8.7	39.1	39.1	18.0	28.5	28.5	5.0	15.5	15.5
Effective Green, g (s)	5.0	35.4	35.4	8.7	39.1	39.1	18.0	28.5	28.5	5.0	15.5	15.5
Actuated g/C Ratio	0.05	0.38	0.38	0.09	0.42	0.42	0.19	0.30	0.30	0.05	0.17	0.17
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	1923	599	319	2124	661	660	1548	482	183	842	262
v/s Ratio Prot	c0.05	0.16		0.05	c0.43		c0.20	c0.26		0.03	0.11	
v/s Ratio Perm			0.03			0.37			0.02			0.01
v/c Ratio	1.02	0.43	0.08	0.55	1.03	0.88	1.03	0.84	0.07	0.66	0.67	0.05
Uniform Delay, d1	44.3	21.6	18.7	40.6	27.2	25.0	37.8	30.4	23.1	43.5	36.7	32.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	70.9	0.2	0.1	2.1	29.0	12.4	41.7	4.3	0.1	8.2	2.1	0.1
Delay (s)	115.2	21.7	18.7	42.7	56.3	37.4	79.5	34.8	23.2	51.6	38.8	33.0
Level of Service	F	C	B	D	E	D	E	C	C	D	D	C
Approach Delay (s)		36.7			51.3			48.6			40.2	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM Average Control Delay	47.0	HCM Level of Service	D
HCM Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	93.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



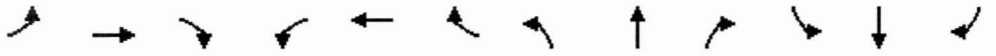
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	200	685	178	274	1400	300	1028	1775	103	103	1000	151
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	217	745	193	298	1522	326	1117	1929	112	112	1087	164
RTOR Reduction (vph)	0	0	152	0	0	84	0	0	61	0	0	89
Lane Group Flow (vph)	217	745	41	298	1522	242	1117	1929	51	112	1087	75
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	5.0	20.0	20.0	10.0	25.0	25.0	27.0	43.0	43.0	5.0	21.0	21.0
Effective Green, g (s)	5.0	20.0	20.0	10.0	25.0	25.0	27.0	43.0	43.0	5.0	21.0	21.0
Actuated g/C Ratio	0.05	0.21	0.21	0.11	0.27	0.27	0.29	0.46	0.46	0.05	0.22	0.22
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	183	1082	337	365	1352	421	986	2326	724	183	1136	354
v/s Ratio Prot	c0.06	0.15		c0.09	c0.30		c0.33	0.38		0.03	c0.21	
v/s Ratio Perm			0.03			0.15			0.03			0.05
v/c Ratio	1.19	0.69	0.12	0.82	1.13	0.58	1.13	0.83	0.07	0.61	0.96	0.21
Uniform Delay, d1	44.5	34.1	29.9	41.1	34.5	29.9	33.5	22.3	14.3	43.6	36.1	29.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	125.4	1.8	0.2	13.2	66.7	1.9	72.6	2.6	0.0	5.9	17.2	0.3
Delay (s)	169.9	36.0	30.1	54.3	101.2	31.8	106.1	24.9	14.3	49.5	53.2	30.1
Level of Service	F	D	C	D	F	C	F	C	B	D	D	C
Approach Delay (s)		60.2			84.1			53.2			50.1	
Approach LOS		E			F			D			D	

Intersection Summary			
HCM Average Control Delay	62.2	HCM Level of Service	E
HCM Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.7%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	700	300	350	1200	600	600	1200	400	171	493	206
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	761	326	380	1304	652	652	1304	435	186	536	224
RTOR Reduction (vph)	0	0	242	0	0	135	0	0	216	0	0	77
Lane Group Flow (vph)	67	761	84	380	1304	517	652	1304	219	186	536	147
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	3.0	23.3	23.3	14.2	34.5	34.5	19.8	29.3	29.3	7.1	16.6	16.6
Effective Green, g (s)	3.0	23.3	23.3	14.2	34.5	34.5	19.8	29.3	29.3	7.1	16.6	16.6
Actuated g/C Ratio	0.03	0.26	0.26	0.16	0.38	0.38	0.22	0.33	0.33	0.08	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	1318	410	542	1951	607	756	1657	516	271	939	292
v/s Ratio Prot	0.02	0.15		c0.11	0.26		c0.19	c0.26		0.05	0.11	
v/s Ratio Perm			0.05			c0.33			0.14			0.09
v/c Ratio	0.58	0.58	0.21	0.70	0.67	0.85	0.86	0.79	0.42	0.69	0.57	0.50
Uniform Delay, d1	42.8	29.0	26.1	35.8	23.0	25.4	33.7	27.5	23.7	40.3	33.4	32.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.3	0.6	0.3	4.1	0.9	11.1	10.0	2.5	0.6	7.0	0.8	1.4
Delay (s)	50.2	29.6	26.3	39.9	23.8	36.5	43.7	30.0	24.3	47.3	34.2	34.3
Level of Service	D	C	C	D	C	D	D	C	C	D	C	C
Approach Delay (s)		29.9			30.0			32.7			36.8	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM Average Control Delay	31.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	89.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	1096	219	343	548	169	137	1233	315	171	2192	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	1191	238	373	596	184	149	1340	342	186	2383	327
RTOR Reduction (vph)	0	0	69	0	0	99	0	0	145	0	0	147
Lane Group Flow (vph)	129	1191	169	373	596	85	149	1340	197	186	2383	180
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	6.9	21.0	21.0	10.0	24.1	24.1	4.0	38.3	38.3	8.7	43.0	43.0
Effective Green, g (s)	6.9	21.0	21.0	10.0	24.1	24.1	4.0	38.3	38.3	8.7	43.0	43.0
Actuated g/C Ratio	0.07	0.22	0.22	0.11	0.26	0.26	0.04	0.41	0.41	0.09	0.46	0.46
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	252	1136	354	365	1304	406	146	2072	645	318	2326	724
v/s Ratio Prot	0.04	c0.23		c0.11	c0.12		c0.04	0.26		0.05	c0.47	
v/s Ratio Perm			0.11			0.05			0.12			0.11
v/c Ratio	0.51	1.05	0.48	1.02	0.46	0.21	1.02	0.65	0.31	0.58	1.02	0.25
Uniform Delay, d1	41.9	36.5	31.7	42.0	29.4	27.5	45.0	22.4	18.9	40.9	25.5	15.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	40.3	1.0	52.8	0.3	0.3	80.0	0.7	0.3	2.7	25.2	0.2
Delay (s)	43.7	76.8	32.7	94.8	29.7	27.7	125.0	23.1	19.1	43.7	50.7	15.8
Level of Service	D	E	C	F	C	C	F	C	B	D	D	B
Approach Delay (s)		67.3			50.4			30.7			46.3	
Approach LOS		E			D			C			D	

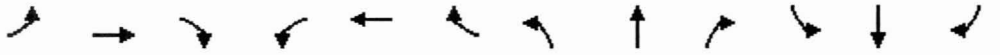
Intersection Summary			
HCM Average Control Delay	47.5	HCM Level of Service	D
HCM Volume to Capacity ratio	1.07		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	90.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	206	891	206	219	514	196	103	440	240	411	871	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	3539	1583	3433	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	968	224	238	559	213	112	478	261	447	947	96
RTOR Reduction (vph)	0	0	129	0	0	157	0	0	199	0	0	61
Lane Group Flow (vph)	224	968	95	238	559	56	112	478	62	447	947	35
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.0	21.8	21.8	10.1	21.9	21.9	4.5	19.6	19.6	15.6	30.7	30.7
Effective Green, g (s)	10.0	21.8	21.8	10.1	21.9	21.9	4.5	19.6	19.6	15.6	30.7	30.7
Actuated g/C Ratio	0.12	0.26	0.26	0.12	0.26	0.26	0.05	0.24	0.24	0.19	0.37	0.37
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	413	1334	415	417	1340	417	186	835	373	644	1307	585
v/s Ratio Prot	0.07	c0.19		c0.07	0.11		0.03	0.14		c0.13	c0.27	
v/s Ratio Perm			0.06			0.04			0.04			0.02
v/c Ratio	0.54	0.73	0.23	0.57	0.42	0.13	0.60	0.57	0.17	0.69	0.72	0.06
Uniform Delay, d1	34.4	27.9	24.1	34.5	25.3	23.4	38.4	28.0	25.3	31.5	22.6	16.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	2.0	0.3	1.9	0.2	0.1	5.4	1.0	0.2	3.2	2.0	0.0
Delay (s)	35.9	29.9	24.3	36.3	25.5	23.5	43.8	29.0	25.5	34.8	24.6	16.9
Level of Service	D	C	C	D	C	C	D	C	C	C	C	B
Approach Delay (s)		30.0			27.7			29.9			27.1	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	28.6	HCM Level of Service	C
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	83.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group



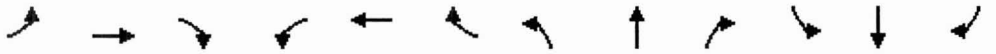
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	644	110	78	523	274	67	617	155	240	1233	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	150	700	120	85	568	298	73	671	168	261	1340	100
RTOR Reduction (vph)	0	0	86	0	0	234	0	0	114	0	0	58
Lane Group Flow (vph)	150	700	34	85	568	64	73	671	54	261	1340	42
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	21.7	21.7	3.7	16.7	16.7	3.7	24.7	24.7	11.1	32.1	32.1
Effective Green, g (s)	8.7	21.7	21.7	3.7	16.7	16.7	3.7	24.7	24.7	11.1	32.1	32.1
Actuated g/C Ratio	0.11	0.28	0.28	0.05	0.22	0.22	0.05	0.32	0.32	0.14	0.42	0.42
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	387	1429	445	165	1100	342	165	1627	506	494	2114	658
v/s Ratio Prot	c0.04	c0.14		0.02	0.11		0.02	0.13		c0.08	c0.26	
v/s Ratio Perm			0.02			0.04			0.03			0.03
v/c Ratio	0.39	0.49	0.08	0.52	0.52	0.19	0.44	0.41	0.11	0.53	0.63	0.06
Uniform Delay, d1	31.8	23.1	20.4	35.9	26.7	24.7	35.7	20.6	18.5	30.6	17.9	13.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.3	0.1	2.7	0.4	0.3	1.9	0.2	0.1	1.0	0.6	0.0
Delay (s)	32.4	23.4	20.5	38.6	27.1	25.0	37.6	20.7	18.6	31.6	18.5	13.6
Level of Service	C	C	C	D	C	C	D	C	B	C	B	B
Approach Delay (s)		24.4			27.5			21.7			20.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM Average Control Delay	22.9	HCM Level of Service	C
HCM Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	77.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	56.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1096	75	660	781	0	0	0	0	1644	0	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Lane Util. Factor		0.81	1.00	0.97	0.91					0.91	0.91	
Frt		1.00	0.85	1.00	1.00					1.00	0.96	
Flt Protected		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (prot)		6790	1425	3090	4577					2899	1410	
Flt Permitted		1.00	1.00	0.95	1.00					0.95	0.97	
Satd. Flow (perm)		6790	1425	3090	4577					2899	1410	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	1191	82	717	849	0	0	0	0	1787	0	186
RTOR Reduction (vph)	0	0	51	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	1191	31	717	849	0	0	0	0	1322	636	0
Turn Type			Perm	Prot						Perm		
Protected Phases		4		3	8						6	
Permitted Phases			4							6		
Actuated Green, G (s)		36.0	36.0	14.0	42.0					32.0	32.0	
Effective Green, g (s)		36.0	36.0	14.0	42.0					32.0	32.0	
Actuated g/C Ratio		0.38	0.38	0.15	0.45					0.34	0.34	
Clearance Time (s)		4.0	4.0	4.0	4.0					4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0					3.0	3.0	
Lane Grp Cap (vph)		2600	546	460	2045					987	480	
v/s Ratio Prot		c0.18		c0.23	0.19							
v/s Ratio Perm			0.02							c0.46	0.45	
v/c Ratio		0.46	0.06	1.56	0.42					1.34	1.32	
Uniform Delay, d1		21.7	18.3	40.0	17.7					31.0	31.0	
Progression Factor		1.00	1.00	1.74	0.51					1.00	1.00	
Incremental Delay, d2		0.1	0.0	261.1	0.1					159.6	160.1	
Delay (s)		21.8	18.3	330.7	9.1					190.6	191.1	
Level of Service		C	B	F	A					F	F	
Approach Delay (s)		21.6			156.3			0.0			190.8	
Approach LOS		C			F			A			F	

Intersection Summary			
HCM Average Control Delay	134.8	HCM Level of Service	F
HCM Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	163.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	206	2535	0	0	1302	947	137	0	1233	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Lane Util. Factor	0.97	0.91			0.81	1.00	0.95	0.91	0.95			
Frt	1.00	1.00			1.00	0.85	1.00	0.85	0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (prot)	3433	5085			7544	1583	1681	1445	1504			
Flt Permitted	0.95	1.00			1.00	1.00	0.95	1.00	1.00			
Satd. Flow (perm)	3433	5085			7544	1583	1681	1445	1504			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	224	2755	0	0	1415	1029	149	0	1340	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	486	0	156	156	0	0	0
Lane Group Flow (vph)	224	2755	0	0	1415	543	134	529	514	0	0	0
Turn Type	Prot					Perm	Perm		Perm			
Protected Phases	7	4			8			2				
Permitted Phases						8	2		2			
Actuated Green, G (s)	8.0	36.0			42.0	42.0	32.0	32.0	32.0			
Effective Green, g (s)	8.0	36.0			42.0	42.0	32.0	32.0	32.0			
Actuated g/C Ratio	0.09	0.38			0.45	0.45	0.34	0.34	0.34			
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0	4.0			
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0			
Lane Grp Cap (vph)	292	1947			3371	707	572	492	512			
v/s Ratio Prot	c0.07	c0.54			0.19							
v/s Ratio Perm						c0.34	0.08	0.37	0.34			
v/c Ratio	0.77	1.41			0.42	0.77	0.23	1.07	1.00			
Uniform Delay, d1	42.1	29.0			17.7	21.9	22.2	31.0	31.0			
Progression Factor	1.46	1.19			1.00	1.00	1.00	1.00	1.00			
Incremental Delay, d2	10.4	187.0			0.1	5.0	1.0	62.1	40.6			
Delay (s)	71.7	221.5			17.8	26.9	23.2	93.1	71.6			
Level of Service	E	F			B	C	C	F	E			
Approach Delay (s)		210.2			21.6			77.1			0.0	
Approach LOS		F			C			E			A	

Intersection Summary			
HCM Average Control Delay	114.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	163.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	184	2466	1096	101	1458	86	651	274	175	247	671	104
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	200	2680	1191	110	1585	93	708	298	190	268	729	113
RTOR Reduction (vph)	0	0	222	0	0	56	0	0	75	0	0	86
Lane Group Flow (vph)	200	2680	969	110	1585	37	708	298	115	268	729	27
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	42.0	42.0	4.0	37.3	37.3	15.0	20.3	20.3	11.2	16.5	16.5
Effective Green, g (s)	8.7	42.0	42.0	4.0	37.3	37.3	15.0	20.3	20.3	11.2	16.5	16.5
Actuated g/C Ratio	0.09	0.45	0.45	0.04	0.40	0.40	0.16	0.22	0.22	0.12	0.18	0.18
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	319	2284	711	147	2029	632	551	1104	344	411	897	279
v/s Ratio Prot	c0.06	0.53		0.03	0.31		c0.21	0.06		0.08	c0.14	
v/s Ratio Perm			c0.61			0.02			c0.07			0.02
v/c Ratio	0.63	1.17	1.36	0.75	0.78	0.06	1.28	0.27	0.33	0.65	0.81	0.10
Uniform Delay, d1	40.8	25.8	25.8	44.3	24.5	17.3	39.2	30.4	30.9	39.3	37.0	32.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.8	83.0	172.3	18.6	2.0	0.0	141.6	0.1	0.6	3.7	5.7	0.2
Delay (s)	44.7	108.8	198.1	62.9	26.6	17.3	180.8	30.6	31.5	43.0	42.7	32.4
Level of Service	D	F	F	E	C	B	F	C	C	D	D	C
Approach Delay (s)		131.8			28.3			119.7			41.7	
Approach LOS		F			C			F			D	

Intersection Summary			
HCM Average Control Delay	95.1	HCM Level of Service	F
HCM Volume to Capacity ratio	1.24		
Actuated Cycle Length (s)	93.5	Sum of lost time (s)	20.0
Intersection Capacity Utilization	95.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	175	1884	891	71	995	77	345	671	262	759	1165	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	190	2048	968	77	1082	84	375	729	285	825	1266	37
RTOR Reduction (vph)	0	0	204	0	0	55	0	0	69	0	0	27
Lane Group Flow (vph)	190	2048	764	77	1082	29	375	729	216	825	1266	10
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	38.1	38.1	3.1	32.5	32.5	11.0	16.9	16.9	19.0	24.9	24.9
Effective Green, g (s)	8.7	38.1	38.1	3.1	32.5	32.5	11.0	16.9	16.9	19.0	24.9	24.9
Actuated g/C Ratio	0.09	0.41	0.41	0.03	0.35	0.35	0.12	0.18	0.18	0.20	0.27	0.27
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	321	2081	648	114	1775	553	406	923	287	701	1360	423
v/s Ratio Prot	c0.06	0.40		0.02	0.21		0.11	0.14		c0.24	c0.25	
v/s Ratio Perm			c0.48			0.02			0.14			0.01
v/c Ratio	0.59	0.98	1.18	0.68	0.61	0.05	0.92	0.79	0.75	1.18	0.93	0.02
Uniform Delay, d1	40.5	27.2	27.5	44.5	25.1	20.1	40.6	36.4	36.1	37.0	33.3	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.9	16.0	96.0	14.7	0.6	0.0	26.4	4.6	10.7	94.1	11.5	0.0
Delay (s)	43.4	43.2	123.5	59.2	25.7	20.1	67.1	41.0	46.8	131.1	44.8	25.2
Level of Service	D	D	F	E	C	C	E	D	D	F	D	C
Approach Delay (s)		67.5			27.4			49.2			77.9	
Approach LOS		E			C			D			E	

Intersection Summary			
HCM Average Control Delay	60.8	HCM Level of Service	E
HCM Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	93.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	2082	514	99	934	129	85	573	166	445	1384	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	2263	559	108	1015	140	92	623	180	484	1504	41
RTOR Reduction (vph)	0	0	77	0	0	77	0	0	68	0	0	29
Lane Group Flow (vph)	60	2263	482	108	1015	63	92	623	112	484	1504	12
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	4.0	42.9	42.9	4.0	42.9	42.9	3.2	16.2	16.2	15.5	28.5	28.5
Effective Green, g (s)	4.0	42.9	42.9	4.0	42.9	42.9	3.2	16.2	16.2	15.5	28.5	28.5
Actuated g/C Ratio	0.04	0.45	0.45	0.04	0.45	0.45	0.03	0.17	0.17	0.16	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	145	2306	718	145	2306	718	116	871	271	562	1532	477
v/s Ratio Prot	0.02	c0.45		c0.03	0.20		0.03	0.12		c0.14	c0.30	
v/s Ratio Perm			0.30			0.04			0.07			0.01
v/c Ratio	0.41	0.98	0.67	0.74	0.44	0.09	0.79	0.72	0.41	0.86	0.98	0.03
Uniform Delay, d1	44.2	25.5	20.3	44.8	17.7	14.7	45.4	37.0	35.0	38.5	32.8	23.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	14.5	2.5	18.6	0.1	0.1	30.0	2.8	1.0	12.8	18.7	0.0
Delay (s)	46.1	40.0	22.8	63.4	17.8	14.8	75.3	39.8	36.0	51.3	51.5	23.3
Level of Service	D	D	C	E	B	B	E	D	D	D	D	C
Approach Delay (s)		36.8			21.4			42.7			50.9	
Approach LOS		D			C			D			D	

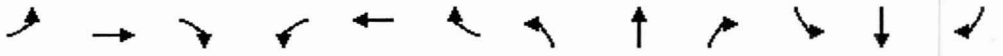
Intersection Summary			
HCM Average Control Delay	38.8	HCM Level of Service	D
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	94.6	Sum of lost time (s)	16.0
Intersection Capacity Utilization	82.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	220	1370	1044	247	647	275	247	1080	219	137	1600	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	239	1489	1135	268	703	299	268	1174	238	149	1739	141
RTOR Reduction (vph)	0	0	83	0	0	96	0	0	90	0	0	93
Lane Group Flow (vph)	239	1489	1052	268	703	203	268	1174	148	149	1739	48
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	10.4	40.0	40.0	5.0	34.6	34.6	5.0	28.0	28.0	5.0	28.0	28.0
Effective Green, g (s)	10.4	40.0	40.0	5.0	34.6	34.6	5.0	28.0	28.0	5.0	28.0	28.0
Actuated g/C Ratio	0.11	0.43	0.43	0.05	0.37	0.37	0.05	0.30	0.30	0.05	0.30	0.30
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	380	2164	674	183	1872	583	183	1515	472	183	1515	472
v/s Ratio Prot	0.07	0.29		c0.08	0.14		c0.08	0.23		0.04	c0.34	
v/s Ratio Perm			c0.66			0.13			0.09			0.03
v/c Ratio	0.63	0.69	1.56	1.46	0.38	0.35	1.46	0.77	0.31	0.81	1.15	0.10
Uniform Delay, d1	40.0	21.9	27.0	44.5	21.8	21.5	44.5	30.1	25.6	44.0	33.0	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.2	0.9	259.8	236.4	0.1	0.4	236.4	2.5	0.4	23.4	74.7	0.1
Delay (s)	43.2	22.9	286.8	280.9	21.9	21.9	280.9	32.7	25.9	67.5	107.7	24.0
Level of Service	D	C	F	F	C	C	F	C	C	E	F	C
Approach Delay (s)		129.2			76.6			71.3			99.0	
Approach LOS		F			E			E			F	

Intersection Summary			
HCM Average Control Delay	100.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.40		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	164	1200	650	450	750	144	250	500	300	600	1300	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	3433	5085	1583	3433	5085	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	178	1304	707	489	815	157	272	543	326	652	1413	85
RTOR Reduction (vph)	0	0	150	0	0	100	0	0	156	0	0	61
Lane Group Flow (vph)	178	1304	557	489	815	57	272	543	170	652	1413	24
Turn Type	Prot		Perm	Prot		Perm	Prot		Perm	Prot		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	30.0	30.0	13.0	34.3	34.3	8.0	17.0	17.0	18.0	27.0	27.0
Effective Green, g (s)	8.7	30.0	30.0	13.0	34.3	34.3	8.0	17.0	17.0	18.0	27.0	27.0
Actuated g/C Ratio	0.09	0.32	0.32	0.14	0.36	0.36	0.09	0.18	0.18	0.19	0.29	0.29
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	318	1623	505	475	1855	578	292	920	286	657	1461	455
v/s Ratio Prot	0.05	0.26		c0.14	0.16		0.08	0.11		c0.19	c0.28	
v/s Ratio Perm			c0.35			0.04			0.11			0.02
v/c Ratio	0.56	0.80	1.10	1.03	0.44	0.10	0.93	0.59	0.60	0.99	0.97	0.05
Uniform Delay, d1	40.8	29.3	32.0	40.5	22.6	19.7	42.7	35.3	35.3	37.9	33.1	24.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	3.0	70.9	49.1	0.2	0.1	34.9	1.0	3.3	33.0	16.2	0.0
Delay (s)	43.0	32.3	102.9	89.6	22.7	19.7	77.6	36.3	38.7	71.0	49.3	24.3
Level of Service	D	C	F	F	C	B	E	D	D	E	D	C
Approach Delay (s)		55.9			44.8			46.8			54.9	
Approach LOS		E			D			D			D	

Intersection Summary			
HCM Average Control Delay	51.8	HCM Level of Service	D
HCM Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	94.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Kimley-Horn
and Associates, Inc.

DRAINAGE DATA

Drainage Criteria

Category	Maricopa County Department of Transportation (MCDOT)	City of Mesa	Pinal County	City of Apache Junction	Flood Control District of Maricopa County (FCDMC)	Recommended Criteria
References						
	MCDOT Roadway Design Manual Section 4.7 Revised April 2004	City of Mesa Engineering and Design Standards Chapter 8, Stormwater Drainage and Retention February 2007	Pinal County Drainage Manual Vol. 1, Design Criteria Chapter 3, Design Criteria Draft August 2004	City of Apache Junction Engineering Guidelines Chapter 4, Stormwater Management November 2006	Drainage Policies and Standards for Maricopa County, Arizona January 11, 2007 Drainage Design Manual for Maricopa County, Arizona Volume I, Hydrology January 1, 1995 Drainage Design Manual for Maricopa County, Arizona Volume II, Hydraulics January 28, 1996	
Hydrology						
Hydrologic Method	not described in MCDOT Roadway Design Manual see FCDMC requirements	Rational Method for areas less than 160 acres	not described in Pinal County Drainage Manual	see FCDMC requirements (Rational Method and Unit Hydrograph method according to the Design Drainage Manual for Maricopa County, Hydrology)	Rational or Unit Hydrograph, depending on drainage area 6-hour or 24-hour local storm, see DDM	For the Elliot Road Corridor Improvement Study, KHA will use existing hydrologic information and discharges provided by FCDMC drainage reports and studies[1]
On-Site Drainage[2]						
Roads with Curb and Gutter (arterial roads)	not described in MCDOT roadway Design Manual see FCDMC requirements	Maintain one dry traffic lane in each direction Design to convey peak flows from the 10-year storm Time of concentration = 10 minutes (unless approved by City) Inverted crown roads are not permitted on public streets	Design to convey flow from a 10-year storm between the curbs and a 100-year storm may be carried within the ROW provided that flow depths do not exceed six inches above the center line. Drainage flowing along streets may not encroach more than the width of a lane from either side	See FCDMC requirements (Section 3 of the Design Drainage Manual for Maricopa County, Hydraulics)	Qmax = 100 cfs between curbs Maintain a 12-foot wide clear lane at 10-year peak flow depth in both directions Max. flow depth for all street classifications for the 10-yr peak discharge = 6-in. or top of curb, whichever is lesser Max. flow depth for 100-year peak discharge = 6-in.	**City of Mesa** Maintain one dry traffic lane in each directions Design to convey peak flows from the 10-year storm Time of concentration = 10 minutes (unless approved by the City) Inverted crown roads are not permitted on public streets **City of Apache Junction** Qmax = 100 cfs Maintain a 12-foot wide clear lane at 10-year peak flow depth in both directions Max. flow depth for all street classifications for the 10-yr peak discharge = 6-in. or top of curb, whichever is lesser Max. flow depth for 100-year peak discharge = 6-in.

Drainage Criteria (continued)

Category	Maricopa County Department of Transportation (MCDOT)	City of Mesa	Pinal County	City of Apache Junction	Flood Control District of Maricopa County (FCDMC)	Recommended Criteria
On-Site Drainage[2] (continued)						
Roads without Curb and Gutter (arterial roads)	see FCDMC requirements	Maintain one dry traffic lane in each direction Design to convey peak flows from the 10-year storm Time of concentration = 10 minutes (unless approved by City)	not described in Pinal County Drainage Manual	See FCDMC requirements (Section 3 of the Design Drainage Manual for Maricopa County, Hydraulics)	Max. Peak WSEL shall be lowest adjacent subgrade for the 50-year storm in the roadside ditch Max. flow depth for 100-year peak discharge = 6-in. Erosion protection may be required for the roadside channels, shoulders, and embankments Alternative designs varying from the max. WSEL requirement require prior County/District approval	**City of Mesa** Maintain one dry traffic lane in each direction Design to convey peak flows from the 10-year storm Time of concentration = 10 minutes (unless approved by City) **City of Apache Junction** Max. Peak WSEL shall be lowest adjacent subgrade for the 50-year storm Max. flow depth for 100-year peak discharge = 6-in. Erosion protection may be required for the roadside channels, shoulders, and embankments Alternative designs varying from the max. WSEL requirement require prior County/District approval
Inlets	see FCDMC requirements	Preferred: Mesa Standard Detail M-64 Other: Maricopa Association of Governments Standard 533, 534, and 535	not described in Pinal County Drainage Manual	Maricopa Association of Governments Standard 533, 534, and 535, all modified with an 18-in sump area below the invert of the pipe as shown in Apache Junction Standard Detail AJ-533-1M.	Maricopa Association of Governments standards shall be used for construction of storm drain systems	**City of Mesa** Preferred: Mesa Standard Detail M-64 Other: Maricopa Association of Governments Standard 533, 534, and 535 **City of Apache Junction** Maricopa Association of Governments Standard 533, 534, and 535, all modified with an 18-in sump area below the invert of the pipe as shown in Apache Junction Standard Detail AJ-533-1M.
Scuppers	see FCDMC requirements	Scuppers are not allowed	scuppers can be used when discharging to a roadside ditch	Maricopa Association of Governments Standard 206-1	Maricopa Association of Governments standards shall be used for construction of storm drain systems	**City of Mesa** Scuppers are not allowed **City of Apache Junction** Maricopa Association of Governments Standard 206-1
Inlet Capacity	see FCDMC requirements	Calculate in accordance with the FCDMC Drainage Design Manual, Hydraulics or the Federal Highway Administration Hydraulic Engineering Circular 12	not described in Pinal County Drainage Manual	Calculate in accordance with the Design Drainage Manual for Maricopa County, Hydraulics or the Federal Highway Administration Hydraulic Engineering Circular 12	Calculate in accordance with the FCDMC Drainage Design Manual, Hydraulics	Calculate in accordance with the Drainage Design Manual for Maricopa County, Hydraulics or the Federal Highway Administration Hydraulic Engineering Circular 12

Drainage Criteria (continued)

Category	Maricopa County Department of Transportation (MCDOT)	City of Mesa	Pinal County	City of Apache Junction	Flood Control District of Maricopa County (FCDMC)	Recommended Criteria
On-Site Drainage[2] (continued)						
Minimum Distance between Inlets	see FCDMC requirements	Minimum is 30 feet between inlets in public right-of-way	not described in Pinal County Drainage Manual	Minimum is 30 feet between inlets in public right-of-way	Distance required to maintain a 12-foot dry lane in each direction for the 10-year event, and 10-year peak flow depths shall not exceed the top-of-curb for local streets	Minimum is 30 feet between inlets in public right-of-way
Maximum Spacing between Manholes	see FCDMC requirements	Pipe Diameter 8-15-in: 500 ft spacing Pipe Diameter 18-30-in: 600 ft spacing Pipe Diameter 36-60-in: 800 ft spacing Pipe Diameter >60-in: 1300 ft spacing	not described in Pinal County Drainage Manual	Pipe Diameter 18-36-in: 400 ft spacing Pipe Diameter >35-in: 660 ft spacing	Pipe Diameter <30-in: 333 ft spacing Pipe Diameter 33-45-in: 440 ft spacing Pipe Diameter 48-84 in: 660 ft spacing Pipe Diameter >84 in: 1320 ft spacing	**City of Mesa** Pipe Diameter 8-15-in: 500 ft spacing Pipe Diameter 18-30-in: 600 ft spacing Pipe Diameter 36-60-in: 800 ft spacing Pipe Diameter >60-in: 1300 ft spacing **City of Apache Junction** Pipe Diameter 18-36-in: 400 ft spacing Pipe Diameter >35-in: 660 ft spacing
Storm Drain Minimum Diameter	see FCDMC requirements	Pipe diameter at least 15-in. when subject to traffic loading forces	not described in Pinal County Drainage Manual	Main Line = 18-in Lateral and Connections = 15-in	Main Line = 18-in Lateral and Connections = 15-in	**City of Mesa** Pipe diameter at least 15-in. when subject to traffic loading forces **City of Apache Junction** Main Line = 18-in Lateral and Connections = 15-in
Manhole Details	see FCDMC requirements	Manhole Base MAG 520, 5-ft diameter shaft per MAG 420, and 30-in. frame and cover per MAG 424.	not described in Pinal County Drainage Manual	Maricopa Association of Government Standards (see Apache Junction manual)	Maricopa Association of Governments standards shall be used for construction of storm drain systems	**City of Mesa** Manhole Base MAG 520, 5-ft diameter shaft per MAG 420, and 30-in. frame and cover per MAG 424. **City of Apache Junction** Maricopa Association of Government Standards (see Apache Junction Manual)
Storm Drain Alignment	not described in MCDOT guidelines	5-ft east or north of the centerline of the public street	not described in Pinal County Drainage Manual	normally within the pavement area of a public street unless otherwise approved by the Development Services Engineer	not described in FCDMC drainage policies or manuals	**City of Mesa** 5-ft east or north of the centerline of the public street **City of Apache Junction** normally within the pavement area of a public street unless otherwise approved by the Development Services Engineer

Drainage Criteria (continued)

Category	Maricopa County Department of Transportation (MCDOT)	City of Mesa	Pinal County	City of Apache Junction	Flood Control District of Maricopa County (FCDMC)	Recommended Criteria
On-Site Drainage[2] (continued)						
Hydraulic Grade Line	see FCDMC requirements	Min. of 1-ft below the grate elevation of the inlets for the 10-year storm event	Min. of 6-in. below the inlet elevations	HGL may be above pipe provided that it remains at least one foot below the ground elevation at all manholes, catch basins, inlets, etc.	Shall not be higher than 12-in. below inlet gutter flowline elevation	**City of Mesa** Min. of 1-ft below the grate elevation of the inlets for the 10-year storm event **City of Apache Junction** HGL may be above pipe provided that it remains at least one foot below the ground elevation at all manholes, catch basins, inlets, etc.
Storm Drain Velocity	see FCDMC requirements	2 fps to 10 fps	not described in Pinal County Drainage Manual	2 fps to 10 fps	3fps for 0.5 x Qdesign, or 5fps for Qdesign to 15 fps	2 fps to 10 fps
Pipe Materials	see FCDMC requirements	Rubber Gasket Reinforced Concrete Pipe, Reinforced Concrete Pipe, Cast-In-Place Pipe (subject to conditions)	must be approved by the County Engineer	Rubber Gasket Reinforced Concrete Pipe, Reinforced Concrete Pipe, Cast-In-Place Pipe (subject to conditions)	All materials used for a storm drain system must be approved by the governing municipality prior to use	Rubber Gasket Reinforced Concrete Pipe, Reinforced Concrete Pipe, Cast-In-Place Pipe (subject to conditions)
Off-Site Drainage						
Design Storm for Cross Culverts	see FCDMC requirements	50-year storm	50-year peak discharge with no flow crossing over the roadway, 100-year storm with 0.8 feet over the roadway	50-year storm: runoff to be conveyed by culvert or bridge over the road with no flow depth over road 100-year storm: runoff to be conveyed by culvert or bridge under road with 6-in. overtopping the road	Convey at least the 50-year peak discharge with no flow crossing over the roadway. Additionally, the flow depth over the roadway shall be limited to 0.5 feet for the 100-year discharge	Convey at least the 50-year peak discharge with no flow crossing over the roadway. Additionally, the flow depth over the roadway shall be limited to 0.5 feet for the 100-year discharge
Minimum diameter	Cross culverts: 24 inches Driveway Culverts: 18 inches	not described in City of Mesa Engineering and Design Standards	18 inches	not described in City of Apache Junction Engineering Design Guidelines	in conformance with MCDOT Roadway Design Manual	Cross culverts: 24 inches Driveway Culverts: 18 inches
Minimum Cover	Min. Cover over Box Culverts: 12 in. Min. Cover over Pipe Culverts: 18 in. Min. Cover over Arch Culverts: 18 in.	not described in City of Mesa Engineering and Design Standards	12 inches	not described in City of Apache Junction Engineering Design Guidelines	minimum cover to maintain structural integrity of the pipe under anticipated loading conditions	Minimum 1 foot of cover
Minimum Height of Box Culverts	4 feet above natural streambed In desert wash areas, preferred min. height is 5 feet	not described in City of Mesa Engineering and Design Standards	3' x 3' (precast) 4' x 4' (cast in place)	not described in City of Apache Junction Engineering Design Guidelines	not described in FCDMC drainage policies or manuals	3' x 3' (precast) 4' x 4' (cast in place)
Minimum Height of Arch Culverts	4.5 feet above natural streambed (use of arch culverts shall require specific approval from MCDOT)	not described in City of Mesa Engineering and Design Standards	not described in Pinal County Drainage Manual	not described in City of Apache Junction Engineering Design Guidelines	not described in FCDMC drainage policies or manuals	4 feet
Velocities at Outlet	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	2.5 fps to 15 fps	not described in City of Apache Junction Engineering Design Guidelines	Max velocity = 15 fps	Max velocity = 15 fps

Drainage Criteria (continued)

Category	Maricopa County Department of Transportation (MCDOT)	City of Mesa	Pinal County	City of Apache Junction	Flood Control District of Maricopa County (FCDMC)	Recommended Criteria
Off-Site Drainage (continued)						
Culvert Materials	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	Reinforced concrete, corrugated aluminum, corrugated steel, PVC	not described in City of Apache Junction Engineering Design Guidelines	The FCDMC required that storm drain pipes constructed within FCDMC right-of-way be reinforced concrete	Reinforced Concrete
Cut Off Walls	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	may be required	may be required	May be required at inlet	May be required at inlet
Erosion Protection	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	may be required	may be required	May be required for the embankment fill slopes	May be required for the embankment fill slopes
Retention Basin Requirements						
Rainfall	see FCDMC requirements	100-year, 2-hour rainfall	100-year, 2-hour rainfall	100-year, 2-hour rainfall	100-year, 2-hour rainfall	100-year, 2-hour rainfall
Open Channels						
Types	see FCDMC requirements	Concrete lined, desert landscaped, soil cement lining	depends on velocities	no open channels are allowed in the City's ROW	grass-lined or artificial channels, depending on velocities	grass-lined or artificial channels, depending on velocities
Side Slopes	see FCDMC requirements	Concrete - 1:1 (H:V) Landscaped channels - 4:1 (H:V) All other: 6:1 (H:V)	no steeper than 4:1	N/A	Concrete - no max Soil Cement - 2:1 (H:V) Rock lined - 3:1 (H:V) Earth lined - 4:1 (H:V) Grass lined - 4:1 (H:V)	Concrete - no max Soil Cement - 2:1 (H:V) Rock lined - 3:1 (H:V) Earth lined - 4:1 (H:V) Grass lined - 4:1 (H:V)
Design Discharge	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	not described in Pinal County Drainage Manual	N/A	50-year frequency for arterial/all weather streets	50-year frequency for arterial/all weather streets
Water Surface Elevation	see FCDMC requirements	not described in City of Mesa Engineering and Design Standards	not described in Pinal County Drainage Manual	N/A	Max WSEL no greater than the lowest adjacent road subgrade or alternative design approved by County/District for the 50-year storm for arterial/all weather streets	Max WSEL no greater than the lowest adjacent road subgrade or alternative design approved by County/District for the 50-year storm for arterial/all weather streets

Notes:

1 Drainage reports and studies referenced in the Elliot Road Corridor Improvement Study, Technical Memorandum #5, Conceptual Drainage Report are:

1. Arizona Department of Transportation Planning Division. "Final Drainage Report, Santan Freeway (SR 202L), Elliot Road to Baseline Road", prepared by Stanley Consultants, April 2003.
2. Flood Control District of Maricopa County. "East Mesa Area Drainage Master Plan", prepared by Dibble and Associates, Consulting Engineers and Hoskin Engineering Consultants, July 1998.
3. Flood Control District of Maricopa County. "East Mesa Area Drainage Master Plan, Hydrologic Analysis," Volume 1 of 2, October 1998.
4. Flood Control District of Maricopa County. "East Maricopa Floodway Capacity Assessment, Final Study Report," Volume 1 of 2, prepared by HNTB, revised February 1999.
5. Flood Control District of Maricopa County. "Elliot Road Detention Basins and Outfall Channel, Phases I and II, Design Documentation Summary", prepared by Wood, Patel, and Associates, Inc., May 2, 2000.
6. Flood Control District of Maricopa County. "Siphon Draw Drainage Improvements Concept Letter Report", prepared by Wood, Patel, and Associates, Inc., May 2006.

2 On-site drainage criteria will be City of Mesa standards for the roadway section in Maricopa County, and City of Apache Junction Standards for the roadway section in Pinal County. Developers of property in the City of Mesa along Elliot Road will be required to install pavement drainage systems and detain pavement drainage along the frontage of their property per the appropriate City of Mesa standards.

Kimley-Horn
and Associates, Inc.

ALTERNATIVES

Alternative A – Widen Symmetrically
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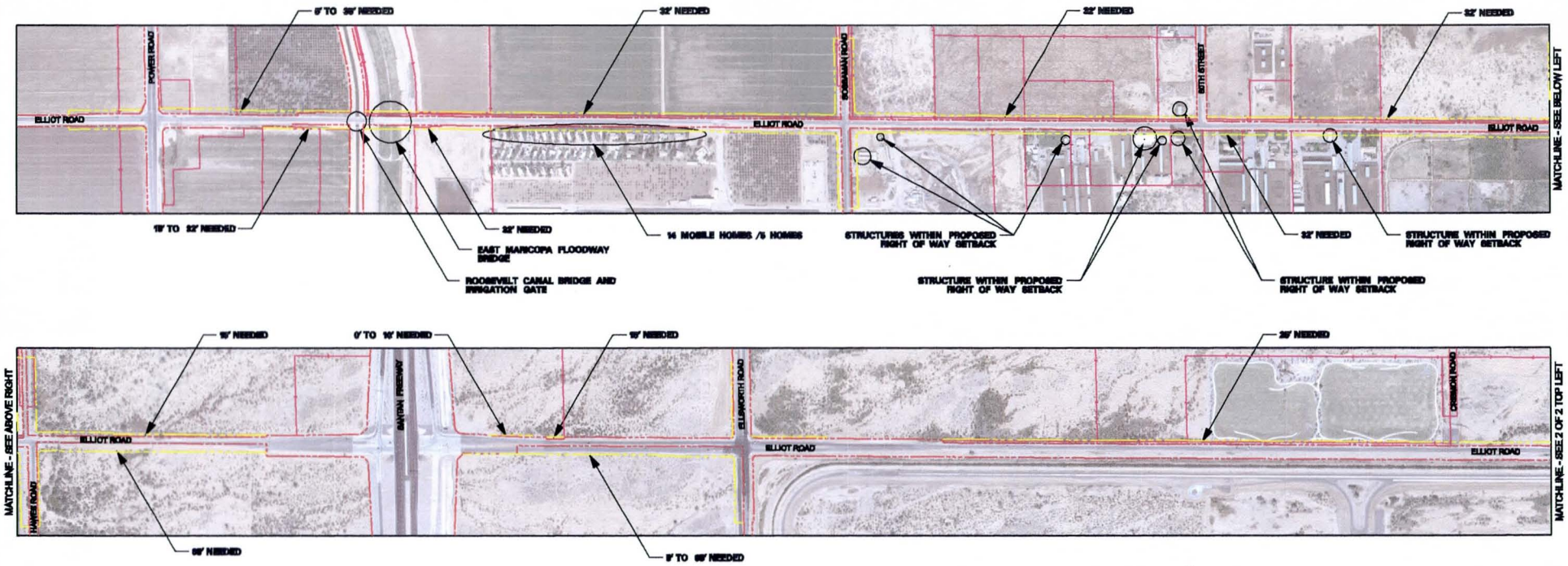


ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

Kimley-Horn and Associates, Inc.

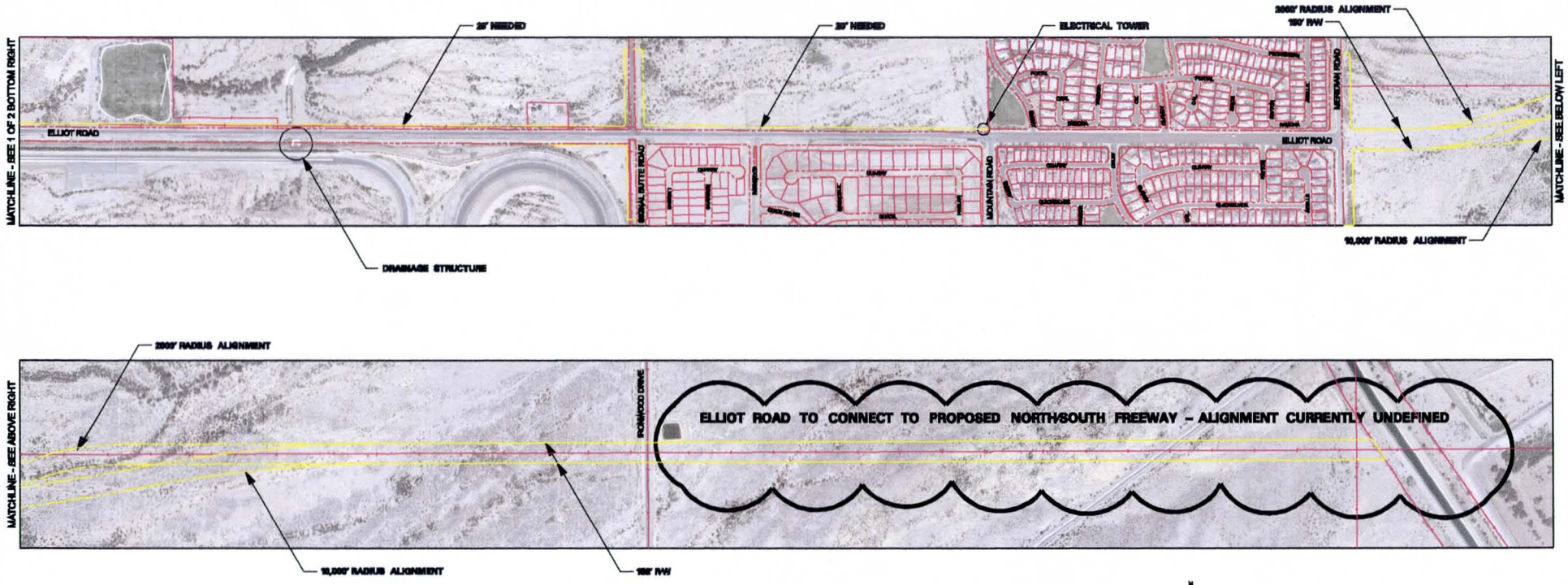
N

200 0 200 400
SCALE IN FEET

LEGEND

EXISTING RIGHT-OF-WAY
EXISTING PARCEL LINE
PROPOSED RIGHT-OF-WAY

Alternative A – Widen Symmetrically
Display 2 of 2



ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

Kimley-Horn and Associates, Inc.

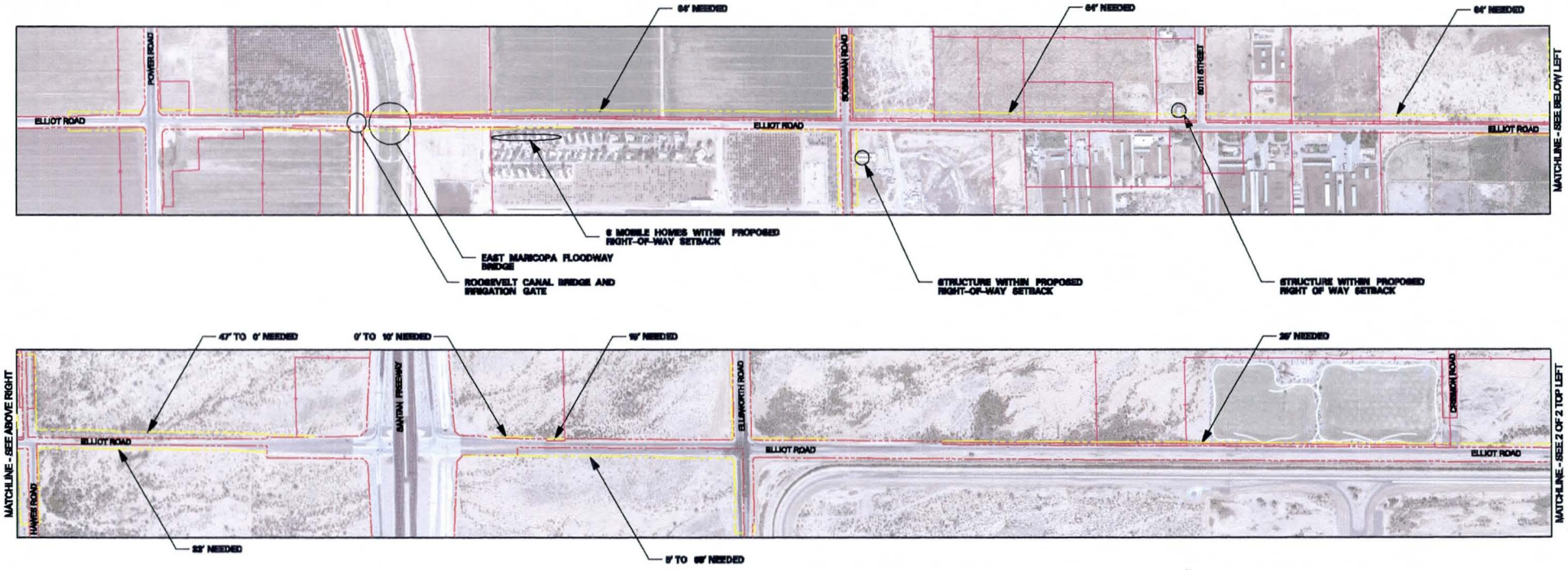
N

200 0 200 400

LEGEND

EXISTING RIGHT-OF-WAY
EXISTING PARCEL LINE
PROPOSED RIGHT-OF-WAY

Alternative B – Widen to North between Canal and Loop 202
Display 1 of 2



ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

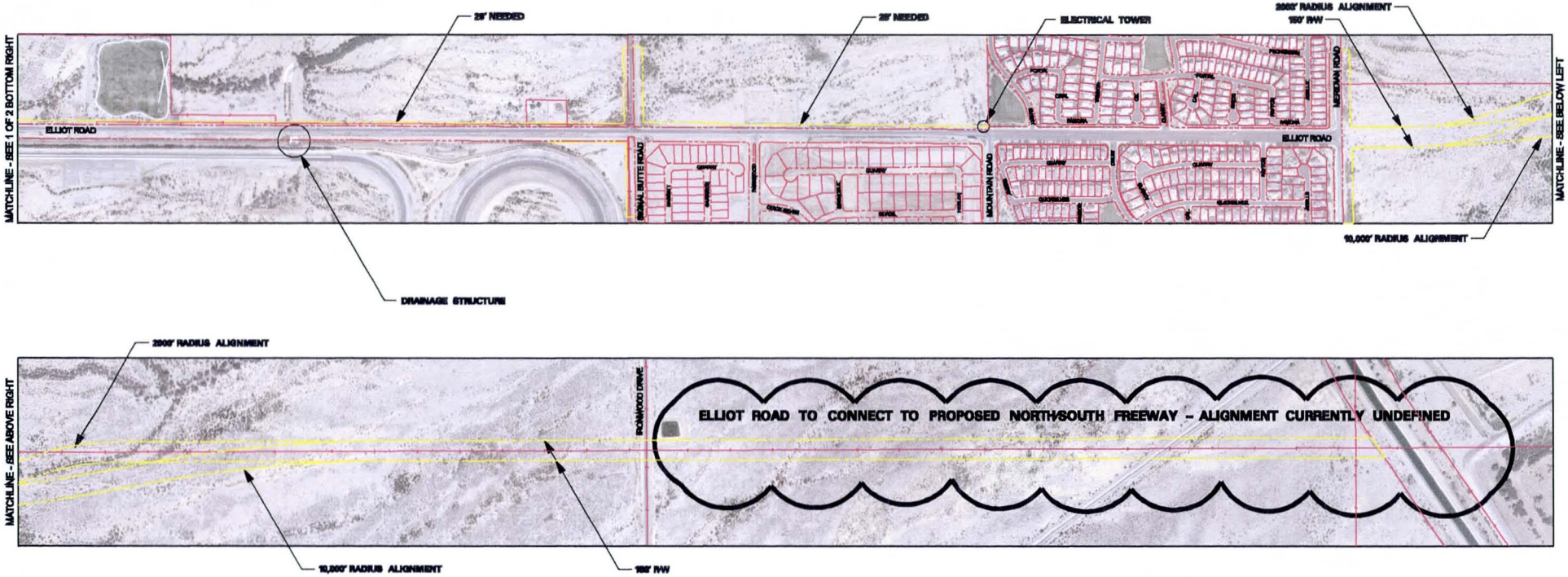
Kimley-Horn and Associates, Inc.

N

200 0 200 400
SCALE IN FEET

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PARCEL LINE
- PROPOSED RIGHT-OF-WAY

Alternative B – Widen to North between Canal and Loop 202
Display 2 of 2



ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

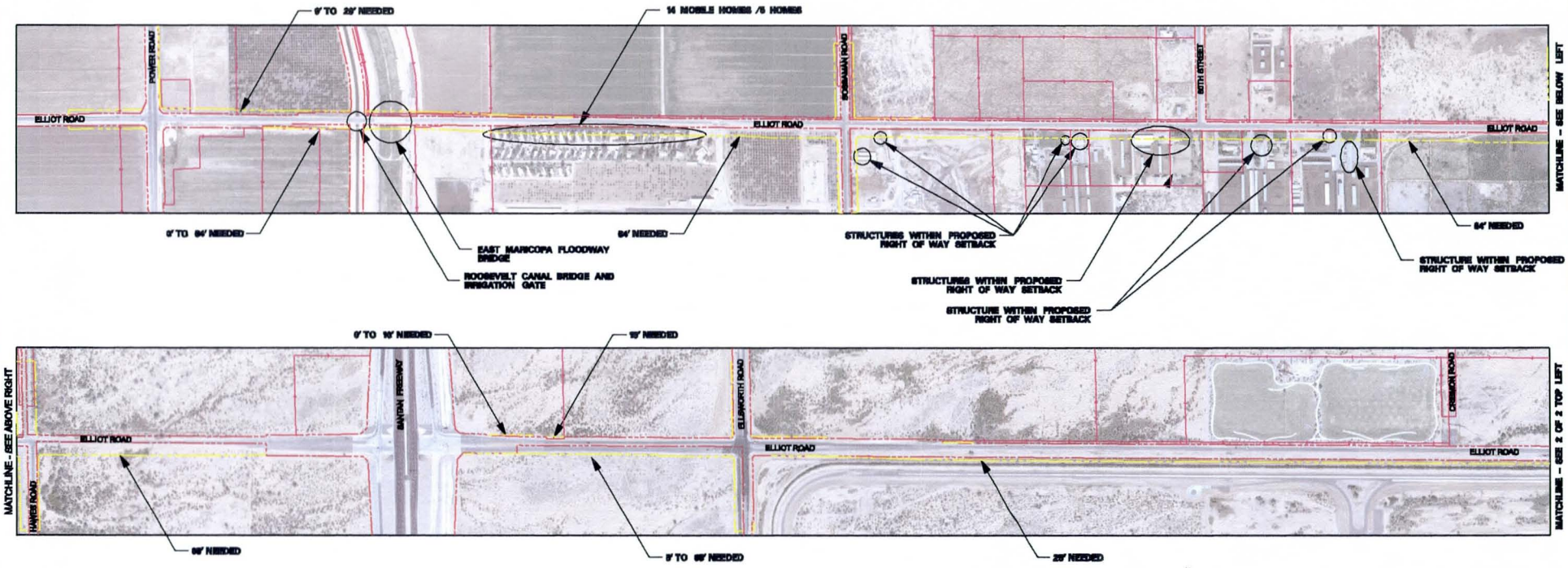
Kimley-Horn and Associates, Inc.

N

200 0 200 400
SCALE: 1" = 400'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PARCEL LINE
- PROPOSED RIGHT-OF-WAY

Alternative C – Widen to South between Canal and Loop 202 and between Ellsworth Rd. and Signal Butte Rd.
Display 1 of 2



ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

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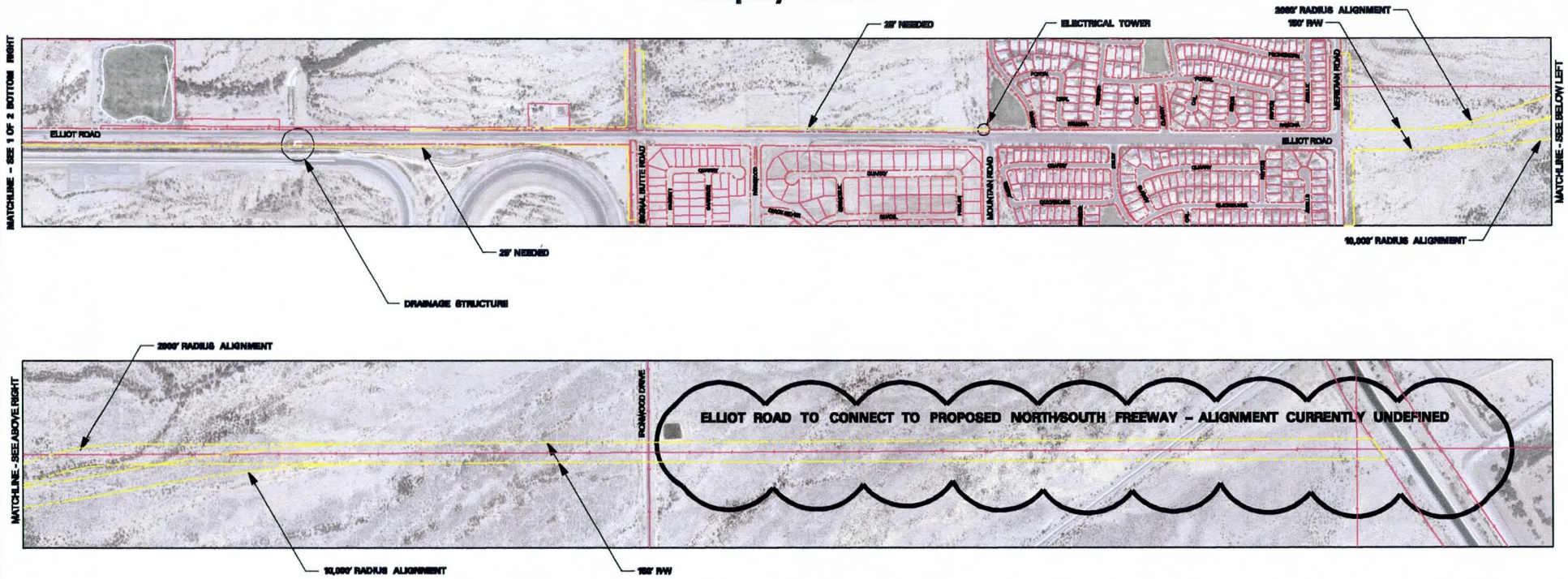
N

200 0 200 400
SCALE IN FEET

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PARCEL LINE
- PROPOSED RIGHT-OF-WAY

Alternative C – Widen to South between Canal and Loop 202 and between Ellsworth Rd. and Signal Butte Rd.
Display 2 of 2



ELLIOT ROAD CORRIDOR IMPROVEMENT STUDY

Kimley-Horn and Associates, Inc.

N

200 0 200 400

LEGEND

EXISTING RIGHT-OF-WAY
EXISTING PARCEL LINE
PROPOSED RIGHT-OF-WAY