Conceptual Review Agenda

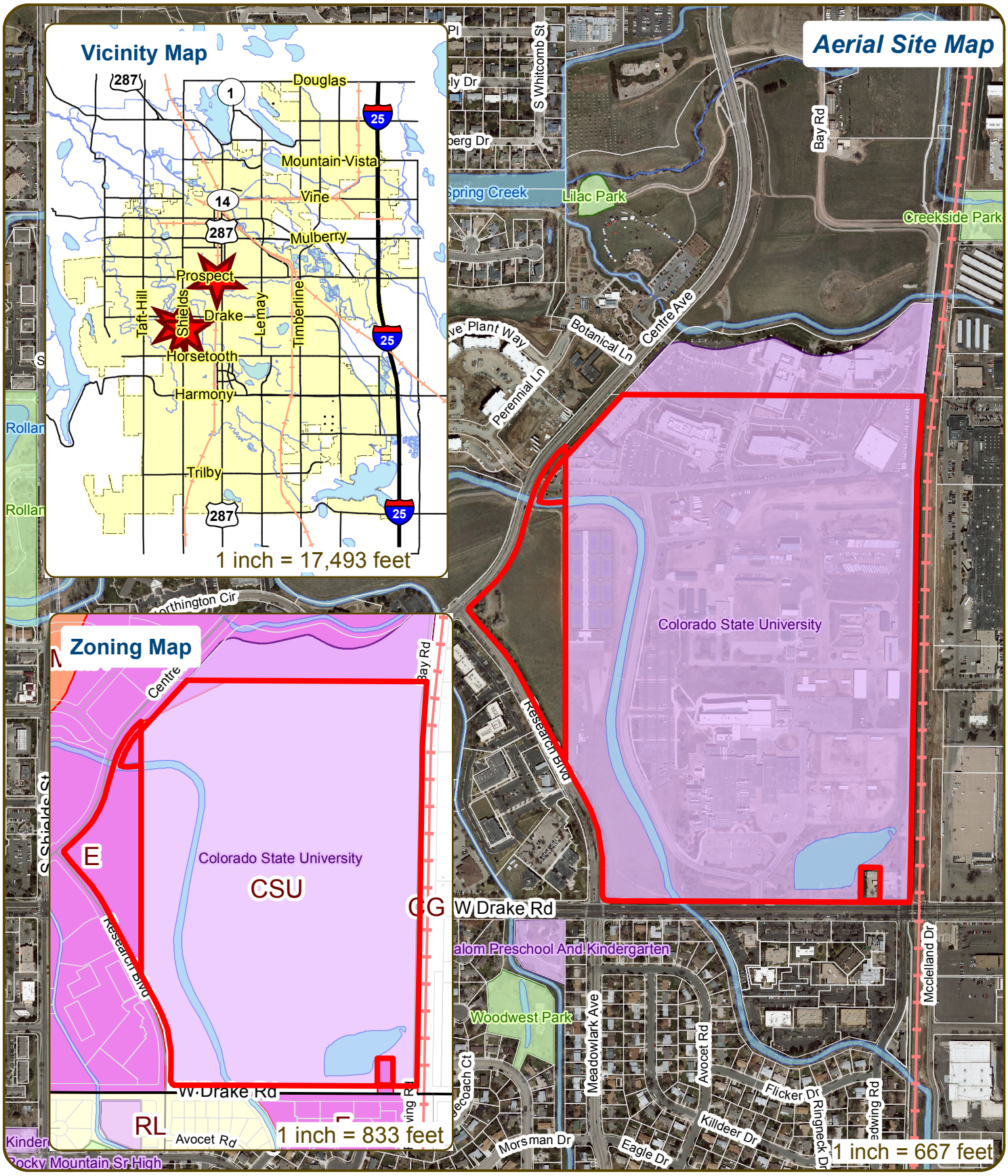
Schedule for 02/23/15 to 02/23/15

281 Conference Room A

Monday, February 23, 2015

Time	Project Name	Applicant Info	Project Description	Planner
9:30	CSU - Parking Lot CDR150009	Fred Haberecht (970) 491-0162 fred.haberecht@colostate.edu	This is a request to construct a surface parking lot at 2400 Research Blvd. (parcel #'s 9723400906 and 9723300901). The parking lot will contain 1,077 parking stalls. The parking lot will have access points on Research Blvd., Centre Ave., and Gilette Dr. One parcel is located in the Employment (E) zone district while the other parcel is on CSU land. This project will be subject to Site Plan Advisory Review (SPAR).	Jason Holland
10:15	312 E Stuart - Duplex CDR150010	Chandler Souther (970) 381-7699 chandler@hammersmithstructures.com	This is a request to construct a duplex at 312 E Stuart (parcel #9721219013). The duplex will be two stories with approximately 900 sq. ft. of floor area per unit. Each unit will have its own garage. The site is located in the Low Density Mixed-Use Neighborhood (LMN) zone district. This proposal will be subject to Type I (Adminstrative) review.	Clay Frickey
11:00	102 Fossil Creek - Auto Body Shop CDR150011	Mike Stults (214) 614-8252 mike@crossdevelopment.net	This is a request to build an auto body shop at 102 Fossil Creek (parcel #9601335001). The shop and office space will be housed in an 11,500 sq. ft. building. The shop will provide 70 parking spaces on-site. The parcel is located in the General Commercial (CG) zone district. This proposal will be subject to Administrative (Type I) review.	Clay Frickey

CSU Parking Lot



N W E S

City of Fort Collins GIS

City of Fort Collins

Development Review Guide – STEP 2 of 8

CONCEPTUAL REVIEW:
APPLICATION

General Information
All proposed development projects begin with Conceptual Review. Anyone with a development idea can schedule a Conceptual Review meeting to get feedback on prospective development ideas. At this stage, the development idea does not need to be finalized or professionally presented. However, a sketch plan and this application must be submitted to City Staff prior to the Conceptual Review meeting. The more information you are able to provide, the better feedback you are likely to get from the meeting. Please be aware that any information submitted may be considered a public record, available for review by anyone who requests it, including the media.

Conceptual Reviews are scheduled on three Monday mornings per month on a "first come, first served" basis. One 45 meeting is allocated per applicant and only three conceptual reviews are done each Monday morning. Conceptual Review is a free service. **Complete applications and sketch plans must be submitted to City Staff no later than 5 pm, two Tuesdays prior to the meeting date.** Application materials must be e-mailed to currentplanning@fcgov.com. If you do not have access to e-mail, other accommodations can be made upon request.

At Conceptual Review, you will meet with Staff from a number of City departments, such as Community Development and Neighborhood Services (Zoning, Current Planning, and Development Review Engineering), Light and Power, Stormwater, Water/Waste Water, Advance Planning (Long Range Planning and Transportation Planning) and Poudre Fire Authority. Comments are offered by staff to assist you in preparing the detailed components of the project application. There is no approval or denial of development proposals associated with Conceptual Review. At the meeting you will be presented with a letter from staff, summarizing comments on your proposal.

BOLDED ITEMS ARE REQUIRED *The more info provided, the more detailed your comments from staff will be.*

Contact Name(s) and Role(s) (Please identify whether Consultant or Owner, etc) FRED HABERECHT – CSU FACILITIES

Business Name (if applicable) _____

Your Mailing Address 6030 CAMPUS DELIVERY, FT COLLINS 80523

Phone Number 491 0162 Email Address FRED.HABERECHT@COLOSTATE.EDU

Site Address or Description (parcel # if no address) _____

9723400906 / 9723300901 – 2400 RESEARCH BLVD.

Description of Proposal (attach additional sheets if necessary) NEW SURFACE PARKING LOT ON EXISTING OPEN LOT

Proposed Use PARKING **Existing Use** NONE

Total Building Square Footage 0 S.F. Number of Stories _____ Lot Dimensions _____

Age of any Existing Structures 0

Info available on Larimer County's Website: http://www.co.larimer.co.us/assessor/query/search.cfm
If any structures are 50+ years old, good quality, color photos of all sides of the structure are required for conceptual.

Is your property in a Flood Plain? ☐ Yes ☒ No If yes, then at what risk is it? _____
Info available on FC Maps: http://gisweb.fcgov.com/redirect/default.aspx?layerTheme=Floodplains.

Increase in Impervious Area _____ S.F.
(Approximate amount of additional building, pavement, or etc. that will cover existing bare ground to be added to the site)

Suggested items for the Sketch Plan:
Property location and boundaries, surrounding land uses, proposed use(s), existing and proposed improvements (buildings, landscaping, parking/drive areas, water treatment/detention, drainage), existing natural features (water bodies, wetlands, large trees, wildlife, canals, irrigation ditches), utility line locations (if known), photographs (helpful but not required). Things to consider when making a proposal: How does the site drain now? Will it change? If so, what will change?

PROJECT DEVELOPMENT AND UTILITY PLANS FOR

RESEARCH BLVD. PARKING LOT PROJECT #14-031

LOCATED IN THE SOUTH 1/2 OF SECTION 23, TOWNSHIP 7 NORTH, RANGE 69 WEST OF THE SIXTH PRINCIPAL MERIDIAN, CITY OF FORT COLLINS, COUNTY OF LARMIER, STATE OF COLORADO.

VICINITY MAP
NOT TO SCALE

OWNER

COLORADO STATE UNIVERSITY
PARKING AND TRANSPORTATION SERVICES
FORT COLLINS, CO 80523-6030

ENGINEER

TST, INC. CONSULTING ENGINEERS
760 WHALERS WAY
BUILDING C, SUITE 200
FORT COLLINS, CO. 80525
(970) 226-0557

PROJECT BENCHMARKS

PROJECT DATUM: NAVD88

BENCHMARK #1 B.M.NUMBER: 14-97

DESCRIPTION: CITY OF FORT COLLINS VERTICAL CONTROL, 14-97, APPROXIMATELY 100 FEET WEST OF THE INTERSECTION OF CENTRE AVE. AND RESEARCH BLVD., ON THE WEST END OF THE SOUTH HEADWALL ON CENTRE AVE.

ELEV. = 5051.76

BENCHMARK #2 B.M. NUMBER: 21-92

DESCRIPTION: CITY OF FORT COLLINS VERTICAL CONTROL, 21-92, NORTHWEST CORNER OF WEST DRAKE RD. AND RESEARCH BLVD., ON A POWER TOWER BASE.

ELEV.= 5042.84

LOCATED IN THE CITY OF FORT COLLINS

FEBRUARY 2015

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PROPOSED GRAVEL INLET FILTER
PROPOSED RIPRAP PAD
PROPOSED VEHICLE TRACKING CONTROL PAD
PROPOSED SILT FENCE — SILT
PROPOSED SWALE CROSS-SECTION
PROPOSED PAN
PROPOSED HIGH WATER LINE — HW — HW
PROPOSED SWALE CENTERLINE

ABBREVIATIONS

B.O.	BLOW OFF
B.V.C.	BEGIN VERTICAL CURVE
E.V.C.	END VERTICAL CURVE
F.F.	FINISHED FLOOR
F.G.	FINISHED GRADE
F.H.	FIRE HYDRANT
FL	FLOW LINE
GTV	GATE VALVE
HP	HIGH POINT
L.F.	LINEAL FEET
LP	LOW POINT
M.H.	MANHOLE
MIN.	MINIMUM
MRJ (ABBR)	MECHANICALLY RESTRAINED JOINT
N.T.S.	NOT TO SCALE
P.C.	POINT OF CURVATURE
P.C.R.	POINT OF CURB RETURN
P.I.	POINT OF INTERSECTION
P.R.C.	POINT OF REVERSE CURVE
P.T.	POINT OF TANGENCY
P.V.C.	POLYVINYL CHLORIDE (PIPE)
P.V.I.	POINT OF VERTICAL INTERSECTION
R.O.W.	RIGHT OF WAY
SEWER	SANITARY SEWER
STA.	STATION
ST	STORM SEWER
T.B.	THRUST BLOCK
TYP.	TYPICAL
w/	WITH
W/L	WATER LINE
V.C.	VERTICAL CURVE

REVISIONS | BY | DATE | DESCRIPTION

DRAWN: D.A.P.
CHECKED: H.E.M.
DESIGNED: D.A.P.
FILENAME: 091_0014_Cover

RESEARCH BLVD. PARKING LOT PROJECT #14-031

COVER SHEET

TST
TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE N.T.S.
DATE FEBRUARY 2015
SHEET C0.01

A. GENERAL NOTES

1. ALL MATERIALS, WORKMANSHIP, AND CONSTRUCTION OF PUBLIC IMPROVEMENTS SHALL MEET OR EXCEED THE STANDARDS AND SPECIFICATIONS SET FORTH IN THE LARIMER COUNTY URBAN AREA STREET STANDARDS AND APPLICABLE STATE AND FEDERAL REGULATIONS. WHERE THERE IS CONFLICT BETWEEN THESE PLANS AND THE SPECIFICATIONS, OR ANY APPLICABLE STANDARDS, THE MOST RESTRICTIVE STANDARD SHALL APPLY. ALL WORK SHALL BE INSPECTED AND APPROVED BY THE LOCAL ENTITY.

2. ALL REFERENCES TO ANY PUBLISHED STANDARDS SHALL REFER TO THE LATEST REVISION OF SAID STANDARD, UNLESS SPECIFICALLY STATED OTHERWISE.

3. THESE PUBLIC IMPROVEMENT CONSTRUCTION PLANS SHALL BE VALID FOR A PERIOD OF THREE YEARS FROM THE DATE OF APPROVAL BY THE LOCAL ENTITY ENGINEER. USE OF THESE PLANS AFTER THE EXPIRATION DATE WILL REQUIRE A NEW REVIEW AND APPROVAL PROCESS BY THE LOCAL ENTITY PRIOR TO COMMENCEMENT OF ANY WORK SHOWN IN THESE PLANS.

4. THE ENGINEER WHO HAS PREPARED THESE PLANS, BY EXECUTION AND/OR SEAL HEREOF, DOES HEREBY AFFIRM RESPONSIBILITY TO THE LOCAL ENTITY, AS BENEFICIARY OF SAID ENGINEER'S WORK, FOR ANY ERRORS AND OMISSIONS CONTAINED IN THESE PLANS, AND APPROVAL OF THESE PLANS BY THE LOCAL ENTITY ENGINEER SHALL NOT RELIEVE THE ENGINEER WHO HAS PREPARED THESE PLANS OF ALL SUCH RESPONSIBILITY. FURTHER, TO THE EXTENT PERMITTED BY LAW, THE ENGINEER HEREBY AGREES TO HOLD HARMLESS AND INDEMNIFY THE LOCAL ENTITY, AND ITS OFFICERS AND EMPLOYEES, FROM AND AGAINST ALL LIABILITIES, CLAIMS, AND DEMANDS WHICH MAY ARISE FROM ANY ERRORS AND OMISSIONS CONTAINED IN THESE PLANS.

5. ALL SANITARY SEWER, STORM SEWER, AND WATER LINE CONSTRUCTION, AS WELL AS POWER AND OTHER DRY UTILITY INSTALLATIONS, SHALL CONFORM TO THE LOCAL ENTITY STANDARDS AND SPECIFICATIONS CURRENT AT THE DATE OF APPROVAL OF THE PLANS BY THE LOCAL ENTITY ENGINEER.

6. THE TYPE, SIZE, LOCATION AND NUMBER OF ALL KNOWN UNDERGROUND UTILITIES ARE APPROXIMATE WHEN SHOWN ON THE DRAWINGS. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES ALONG THE ROUTE OF THE WORK BEFORE COMMENCING NEW CONSTRUCTION. THE DEVELOPER SHALL BE RESPONSIBLE FOR UNKNOWN UNDERGROUND UTILITIES.

7. THE ENGINEER SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987, AT LEAST 2 WORKING DAYS PRIOR TO BEGINNING EXCAVATION OR GRADING, TO HAVE ALL REGISTERED UTILITY LOCATIONS MARKED. OTHER UNREGISTERED UTILITY ENTITIES (I.E. DITCH / IRRIGATION COMPANY) ARE TO BE LOCATED BY CONTACTING THE RESPECTIVE REPRESENTATIVE. UTILITY SERVICE LATERALS ARE ALSO TO BE LOCATED PRIOR TO BEGINNING EXCAVATION OR GRADING. IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO RELOCATE ALL EXISTING UTILITIES THAT CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THESE PLANS.

8. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROTECTING ALL UTILITIES DURING CONSTRUCTION AND FOR COORDINATING WITH THE APPROPRIATE UTILITY COMPANY FOR ANY UTILITY CROSSINGS REQUIRED.

9. IF A CONFLICT EXISTS BETWEEN EXISTING AND PROPOSED UTILITIES AND/OR A DESIGN MODIFICATION IS REQUIRED, THE DEVELOPER SHALL COORDINATE WITH THE ENGINEER TO MODIFY THE DESIGN. DESIGN MODIFICATION(S) MUST BE APPROVED BY THE LOCAL ENTITY PRIOR TO BEGINNING CONSTRUCTION.

10. THE DEVELOPER SHALL COORDINATE AND COOPERATE WITH THE LOCAL ENTITY, AND ALL UTILITY COMPANIES INVOLVED, TO ASSURE THAT THE WORK IS ACCOMPLISHED IN A TIMELY FASHION AND WITH A MINIMUM DISRUPTION OF SERVICE. THE DEVELOPER SHALL BE RESPONSIBLE FOR CONTACTING, IN ADVANCE, ALL PARTIES AFFECTED BY ANY DISRUPTION OF ANY UTILITY SERVICE AS WELL AS THE UTILITY COMPANIES.

11. NO WORK MAY COMMENCE WITHIN ANY PUBLIC STORM WATER, SANITARY SEWER OR POTABLE WATER SYSTEM UNTIL THE DEVELOPER NOTIFIES THE UTILITY PROVIDER. NOTIFICATION SHALL BE A MINIMUM OF 2 WORKING DAYS PRIOR TO COMMENCEMENT OF ANY WORK. AT THE DISCRETION OF THE WATER UTILITY PROVIDER, A PRE-CONSTRUCTION MEETING MAY BE REQUIRED PRIOR TO COMMENCEMENT OF ANY WORK.

12. THE DEVELOPER SHALL SEQUENCE INSTALLATION OF UTILITIES IN SUCH A MANNER AS TO MINIMIZE POTENTIAL UTILITY CONFLICTS. IN GENERAL, STORM SEWER AND SANITARY SEWER SHOULD BE CONSTRUCTED PRIOR TO INSTALLATION OF THE WATER LINES AND DRY UTILITIES.

13. THE MINIMUM COVER OVER WATER LINES IS 4.5 FEET AND THE MAXIMUM COVER IS 5.5 FEET UNLESS OTHERWISE NOTED IN THE PLANS AND APPROVED BY THE WATER UTILITY.

14. A STATE CONSTRUCTION DEWATERING WASTEWATER DISCHARGE PERMIT IS REQUIRED IF DEWATERING IS REQUIRED IN ORDER TO INSTALL UTILITIES OR WATER IS DISCHARGED INTO A STORM SEWER, CHANNEL, IRRIGATION DITCH OR ANY WATERS OF THE UNITED STATES.

15. THE DEVELOPER SHALL COMPLY WITH ALL TERMS AND CONDITIONS OF THE COLORADO PERMIT FOR STORM WATER DISCHARGE (CONTACT COLORADO DEPARTMENT OF HEALTH, WATER QUALITY CONTROL DIVISION, (303) 692-3590), THE STORM WATER MANAGEMENT PLAN, AND THE EROSION CONTROL PLAN.

16. THE CITY OF FORT COLLINS SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF STORM DRAINAGE FACILITIES LOCATED ON PRIVATE PROPERTY. MAINTENANCE OF ALL OTHER ONSITE DRAINAGE FACILITIES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNER(S).

17. PRIOR TO FINAL INSPECTION AND ACCEPTANCE BY THE LOCAL ENTITY, CERTIFICATION OF THE DRAINAGE FACILITIES, BY A REGISTERED ENGINEER, MUST BE SUBMITTED TO AND APPROVED BY THE STORMWATER UTILITY DEPARTMENT. CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF A CERTIFICATE OF OCCUPANCY FOR SINGLE FAMILY UNITS. FOR COMMERCIAL PROPERTIES, CERTIFICATION SHALL BE SUBMITTED TO THE STORMWATER UTILITY DEPARTMENT AT LEAST TWO WEEKS PRIOR TO THE RELEASE OF ANY BUILDING PERMITS IN EXCESS OF THOSE ALLOWED PRIOR TO CERTIFICATION PER THE DEVELOPMENT AGREEMENT.

18. THE LOCAL ENTITY SHALL NOT BE RESPONSIBLE FOR ANY DAMAGES OR INJURIES SUSTAINED IN THIS DEVELOPMENT AS A RESULT OF GROUNDWATER SEEPAGE, WHETHER RESULTING FROM GROUNDWATER FLOODING, STRUCTURAL DAMAGE OR OTHER DAMAGE UNLESS SUCH DAMAGE OR INJURIES ARE SUSTAINED AS A RESULT OF THE LOCAL ENTITY FAILURE TO PROPERLY MAINTAIN ITS WATER, WASTEWATER, AND/OR STORM DRAINAGE FACILITIES IN THE DEVELOPMENT.

19. ALL RECOMMENDATIONS OF THE FINAL DRAINAGE AND EROSION CONTROL STUDY FOR THE RESEARCH DRIVE PARKING LOT, PROJECT #14-031, BY OLSSON ASSOCIATES SHALL BE FOLLOWED AND IMPLEMENTED.

20. TEMPORARY EROSION CONTROL DURING CONSTRUCTION SHALL BE PROVIDED AS SHOWN ON THE EROSION CONTROL PLAN. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED IN GOOD REPAIR BY THE DEVELOPER, UNTIL SUCH TIME AS THE ENTIRE DISTURBED AREAS IS STABILIZED WITH HARD SURFACE OR LANDSCAPING.

21. THE DEVELOPER SHALL BE RESPONSIBLE FOR INSURING THAT NO MUD OR DEBRIS SHALL BE TRACKED ONTO THE EXISTING PUBLIC STREET SYSTEM. MUD AND DEBRIS MUST BE REMOVED WITHIN 24 HOURS BY AN APPROPRIATE MECHANICAL METHOD (I.E. MACHINE BROOM SWEEP, LIGHT DUTY FRONT-END LOADER, ETC.) OR AS APPROVED BY THE LOCAL ENTITY STREET INSPECTOR.

22. NO WORK MAY COMMENCE WITHIN ANY IMPROVED OR UNIMPROVED PUBLIC RIGHT-OF-WAY UNTIL A RIGHT-OF-WAY PERMIT OR DEVELOPMENT CONSTRUCTION PERMIT IS OBTAINED, IF APPLICABLE.

23. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FOR ALL APPLICABLE AGENCIES PRIOR TO COMMENCEMENT OF CONSTRUCTION. THE DEVELOPER SHALL NOTIFY THE LOCAL ENTITY ENGINEERING INSPECTOR (FORT COLLINS - 221-6605) AND THE LOCAL ENTITY EROSION CONTROL INSPECTOR (FORT COLLINS - 221-6700) AT LEAST 2 WORKING DAYS PRIOR TO THE START OF ANY EARTH DISTURBING ACTIVITY, OR CONSTRUCTION ON ANY AND ALL PUBLIC IMPROVEMENTS. IF THE LOCAL ENTITY ENGINEER IS NOT AVAILABLE AFTER PROPER NOTICE OF CONSTRUCTION ACTIVITY HAS BEEN PROVIDED, THE DEVELOPER MAY COMMENCE WORK IN THE ENGINEER ABSENCE. HOWEVER, THE LOCAL ENTITY RESERVES THE RIGHT NOT TO ACCEPT THE IMPROVEMENT IF SUBSEQUENT TESTING REVEALS AN IMPROPER INSTALLATION.

24. THE DEVELOPER SHALL BE RESPONSIBLE FOR OBTAINING SOILS TESTS WITHIN THE PUBLIC RIGHT-OF-WAY AFTER RIGHT OF WAY GRADING AND ALL UTILITY TRENCH WORK IS COMPLETE AND PRIOR TO THE PLACEMENT OF CURB, GUTTER, SIDEWALK AND PAVEMENT. IF THE FINAL SOILS/PAVEMENT DESIGN REPORT DOES NOT CORRESPOND WITH THE RESULTS OF THE ORIGINAL GEOTECHNICAL REPORT, THE DEVELOPER SHALL BE RESPONSIBLE FOR A RE-DESIGN OF THE SUBJECT PAVEMENT SECTION OR, THE DEVELOPER MAY USE THE LOCAL ENTITY'S DEFAULT PAVEMENT THICKNESS SECTION(S). REGARDLESS OF THE OPTION USED, ALL FINAL SOILS/PAVEMENT DESIGN REPORTS SHALL BE PREPARED BY A LICENSED PROFESSIONAL ENGINEER. THE FINAL REPORT SHALL BE SUBMITTED TO THE INSPECTOR A MINIMUM OF 10 WORKING DAYS PRIOR TO PLACEMENT OF BASE AND ASPHALT. PLACEMENT OF CURB, GUTTER, SIDEWALK, BASE AND ASPHALT SHALL NOT OCCUR UNTIL THE LOCAL ENTITY ENGINEER APPROVES THE FINAL REPORT.

25. THE CONTRACTOR SHALL HIRE A LICENSED ENGINEER OR LAND SURVEYOR TO SURVEY THE CONSTRUCTED ELEVATIONS OF THE STREET SUBGRADE AND THE GUTTER FLOWLINE AT ALL INTERSECTIONS, INLETS, AND OTHER LOCATIONS REQUESTED BY THE LOCAL ENTITY INSPECTOR. THE ENGINEER OR SURVEYOR MUST CERTIFY IN A LETTER TO THE LOCAL ENTITY THAT THESE ELEVATIONS CONFORM TO THE APPROVED PLANS AND SPECIFICATIONS. ANY DEVIATIONS SHALL BE NOTED IN THE LETTER AND THEN RESOLVED WITH THE LOCAL ENTITY BEFORE INSTALLATION OF BASE COURSE OR ASPHALT WILL BE ALLOWED ON THE STREETS.

26. ALL UTILITY INSTALLATIONS WITHIN OR ACROSS THE ROADBED OF NEW RESIDENTIAL ROADS MUST BE COMPLETED PRIOR TO THE FINAL STAGES OF ROAD CONSTRUCTION. FOR THE PURPOSES OF THESE STANDARDS, ANY WORK EXCEPT C/G ABOVE THE SUBGRADE IS CONSIDERED FINAL STAGE WORK. ALL SERVICE LINES MUST BE STUBBED TO THE PROPERTY LINES AND MARKED SO AS TO REDUCE THE EXCAVATION NECESSARY FOR BUILDING CONNECTIONS.

27. PORTIONS OF LARIMER COUNTY ARE WITHIN OVERLAY DISTRICTS. THE LARIMER COUNTY FLOODPLAIN RESOLUTION SHOULD BE REFERRED TO FOR ADDITIONAL CRITERIA FOR ROADS WITHIN THESE DISTRICTS.

28. ALL ROAD CONSTRUCTION IN AREAS DESIGNATED AS WILD FIRE HAZARD AREAS SHALL BE DONE IN ACCORDANCE WITH THE CONSTRUCTION CRITERIA AS ESTABLISHED IN THE WILD FIRE HAZARD AREA MITIGATION REGULATIONS IN FORCE AT THE TIME OF FINAL PLAT APPROVAL.

29. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE LOCAL ENTITY FORESTER TO SCHEDULE A SITE INSPECTION FOR ANY TREE REMOVAL REQUIRING A PERMIT.

30. THE DEVELOPER SHALL BE RESPONSIBLE FOR ALL ASPECTS OF SAFETY INCLUDING, BUT NOT LIMITED TO, EXCAVATION, TRENCHING, SHORING, TRAFFIC CONTROL, AND SECURITY. REFER TO OSHA PUBLICATION 2226, EXCAVATING AND TRENCHING.

31. THE DEVELOPER SHALL SUBMIT A CONSTRUCTION TRAFFIC CONTROL PLAN, IN ACCORDANCE WITH MUTCD, TO THE APPROPRIATE RIGHT-OF-WAY AUTHORITY. (LOCAL ENTITY, COUNTY OR STATE), FOR APPROVAL, PRIOR TO ANY CONSTRUCTION ACTIVITIES WITHIN, OR AFFECTING, THE RIGHT-OF-WAY. THE DEVELOPER SHALL BE RESPONSIBLE FOR PROVIDING ANY AND ALL TRAFFIC CONTROL DEVICES AS MAY BE REQUIRED BY THE CONSTRUCTION ACTIVITIES.

32. PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION THAT WILL AFFECT TRAFFIC SIGNS OF ANY TYPE, THE CONTRACTOR SHALL CONTACT LOCAL ENTITY TRAFFIC OPERATIONS DEPARTMENT, WHO WILL TEMPORARILY REMOVE OR RELOCATE THE SIGN AT NO COST TO THE CONTRACTOR; HOWEVER, IF THE CONTRACTOR MOVES THE TRAFFIC SIGN THEN THE CONTRACTOR WILL BE CHARGED FOR THE LABOR, MATERIALS AND EQUIPMENT TO REINSTALL THE SIGN AS NEEDED.

33. THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS FOR THE INITIAL INSTALLATION OF TRAFFIC SIGNING AND STRIPING FOR THE DEVELOPMENT RELATED TO THE DEVELOPMENT'S LOCAL STREET OPERATIONS. IN ADDITION, THE DEVELOPER IS RESPONSIBLE FOR ALL COSTS FOR TRAFFIC SIGNING AND STRIPING RELATED TO DIRECTING TRAFFIC ACCESS TO AND FROM THE DEVELOPMENT.

34. THERE SHALL BE NO SITE CONSTRUCTION ACTIVITIES ON SATURDAYS, UNLESS SPECIFICALLY APPROVED BY THE LOCAL ENTITY ENGINEER, AND NO SITE CONSTRUCTION ACTIVITIES ON SUNDAYS OR HOLIDAYS, UNLESS THERE IS PRIOR WRITTEN APPROVAL BY THE LOCAL ENTITY.

35. THE DEVELOPER IS RESPONSIBLE FOR PROVIDING ALL LABOR AND MATERIALS NECESSARY FOR THE COMPLETION OF THE INTENDED IMPROVEMENTS, SHOWN ON THESE DRAWINGS, OR DESIGNATED TO BE PROVIDED, INSTALLED, OR CONSTRUCTED, UNLESS SPECIFICALLY NOTED OTHERWISE.

36. DIMENSIONS FOR LAYOUT AND CONSTRUCTION ARE NOT TO BE SCALED FROM ANY DRAWING. IF PERTINENT DIMENSIONS ARE NOT SHOWN, CONTACT THE DESIGNER FOR CLARIFICATION, AND ANNOTATE THE DIMENSION ON THE AS-BUILT RECORD DRAWINGS.

37. THE DEVELOPER SHALL HAVE, ONSITE AT ALL TIMES, ONE (1) SIGNED COPY OF THE APPROVED PLANS, ONE (1) COPY OF THE APPROPRIATE STANDARDS AND SPECIFICATIONS, AND A COPY OF ANY PERMITS AND EXTENSION AGREEMENTS NEEDED FOR THE JOB.

38. IF, DURING THE CONSTRUCTION PROCESS, CONDITIONS ARE ENCOUNTERED WHICH COULD INDICATE A SITUATION THAT IS NOT IDENTIFIED IN THE PLANS OR SPECIFICATIONS, THE DEVELOPER SHALL CONTACT THE DESIGNER AND THE LOCAL ENTITY ENGINEER IMMEDIATELY.

39. THE DEVELOPER SHALL BE RESPONSIBLE FOR RECORDING AS-BUILT INFORMATION ON A SET OF RECORD DRAWINGS KEPT ON THE CONSTRUCTION SITE, AND AVAILABLE TO THE LOCAL ENTITY'S INSPECTOR AT ALL TIMES. UPON COMPLETION OF THE WORK, THE CONTRACTOR(S) SHALL SUBMIT RECORD DRAWINGS TO THE LOCAL ENTITY ENGINEER.

40. BENCHMARKS/VERTICAL DATUM:

PROJECT DATUM: NAVD88

BENCHMARK #1 B.M.NUMBER: 14-97

DESCRIPTION: CITY OF FORT COLLINS VERTICAL CONTROL, 14-97, APPROXIMATELY 100 FEET WEST OF THE INTERSECTION OF CENTRE AVE. AND RESEARCH BLVD., ON THE WEST END OF THE SOUTH HEADWALL ON CENTRE AVE.

ELEV. = 5051.76

BENCHMARK #2 B.M. NUMBER: 21-92

DESCRIPTION: CITY OF FORT COLLINS VERTICAL CONTROL, 21-92, NORTHWEST CORNER OF WEST DRAKE RD. AND RESEARCH BLVD., ON A POWER TOWER BASE.

ELEV.= 5042.84

41. ALL STATIONING IS BASED ON FLOWLINE OF ROADWAYS UNLESS OTHERWISE NOTED.

42. DAMAGED CURB, GUTTER AND SIDEWALK EXISTING PRIOR TO CONSTRUCTION, AS WELL AS EXISTING FENCES, TREES, STREETS, SIDEWALKS, CURBS AND GUTTERS, LANDSCAPING, STRUCTURES, AND IMPROVEMENTS DESTROYED, DAMAGED OR REMOVED DUE TO CONSTRUCTION OF THIS PROJECT, SHALL BE REPLACED OR RESTORED IN LIKE KIND AT THE DEVELOPER'S EXPENSE, UNLESS OTHERWISE INDICATED ON THESE PLANS, PRIOR TO THE ACCEPTANCE OF COMPLETED IMPROVEMENTS AND/OR PRIOR TO THE ISSUANCE OF THE FIRST CERTIFICATE OF OCCUPANCY.

43. WHEN AN EXISTING ASPHALT STREET MUST BE CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. THE EXISTING STREET CONDITION SHALL BE DOCUMENTED BY THE LOCAL ENTITY CONSTRUCTION INSPECTOR BEFORE ANY CUTS ARE MADE. PATCHING SHALL BE DONE IN ACCORDANCE WITH THE LOCAL ENTITY STREET REPAIR STANDARDS. THE FINISHED PATCH SHALL BLEND IN SMOOTHLY INTO THE EXISTING SURFACE. ALL LARGE PATCHES SHALL BE PAVED WITH AN ASPHALT LAY-DOWN MACHINE. IN STREETS WHERE MORE THAN ONE CUT IS MADE, AN OVERLAY OF THE ENTIRE STREET WIDTH, INCLUDING THE PATCHED AREA, MAY BE REQUIRED. THE DETERMINATION OF NEED FOR A COMPLETE OVERLAY SHALL BE MADE BY THE LOCAL ENTITY ENGINEER AND/OR THE LOCAL ENTITY INSPECTOR AT THE TIME THE CUTS ARE MADE.

44. UPON COMPLETION OF CONSTRUCTION, THE SITE SHALL BE CLEANED AND RESTORED TO A CONDITION EQUAL TO, OR BETTER THAN, THAT WHICH EXISTED BEFORE CONSTRUCTION, OR TO THE GRADES AND CONDITION AS REQUIRED BY THESE PLANS.

45. STANDARD HANDICAP RAMPS ARE TO BE CONSTRUCTED AT ALL CURB RETURNS AND AT ALL T INTERSECTIONS. (ENGINEER'S NOTE: APPLIES TO CITY ROW ONLY, REFER TO PLANS FOR ONSITE RAMPS AND DETAILS).

46. AFTER ACCEPTANCE BY THE LOCAL ENTITY, PUBLIC IMPROVEMENTS DEPICTED IN THESE PLANS SHALL BE GUARANTEED TO BE FREE FROM MATERIAL AND WORKMANSHIP DEFECTS FOR A MINIMUM PERIOD OF TWO YEARS FROM THE DATE OF ACCEPTANCE.

47. THE LOCAL ENTITY SHALL NOT BE RESPONSIBLE FOR THE MAINTENANCE OF ROADWAY AND APPURTENANT IMPROVEMENTS, INCLUDING STORM DRAINAGE STRUCTURES AND PIPES, FOR THE FOLLOWING PRIVATE STREETS: NONE.

48. APPROVED VARIANCES ARE LISTED AS FOLLOWS:
NONE

B. GRADING AND EROSION CONTROL NOTES

1. ALL GRADING AND EROSION CONTROL MEASURES ARE SUBJECT TO GENERAL NOTES ON THE COVER SHEET OF THESE PLANS AS WELL AS THE GRADING AND EROSION CONTROL NOTES LISTED HERE.

2. AT ALL TIMES DURING CONSTRUCTION, THE DEVELOPER SHALL BE RESPONSIBLE FOR PREVENTING AND CONTROLLING ON-SITE EROSION DUE TO WIND AND RUNOFF, AS WELL AS VEHICLE TRACKING. THE DEVELOPER SHALL ALSO BE RESPONSIBLE FOR INSTALLING AND MAINTAINING ALL EROSION CONTROL FACILITIES SHOWN HERE.

3. ALL PERIMETER EROSION CONTROL MEASURES SHALL BE INSTALLED AND FUNCTIONAL, PRIOR TO ANY OTHER EARTH-DISTURBING ACTIVITY. ALL OTHER STRUCTURAL EROSION CONTROL MEASURES SHALL BE IMPLEMENTED AS SOON AS THE FACILITIES, AROUND WHICH THEY ARE BASED, BECOME OPERATIONAL.

4. ANY EROSION CONTROL FACILITY DAMAGED OR DESTROYED PREMATURELY, BY ANY MEANS, SHALL BE IMMEDIATELY REPAIRED BY THE DEVELOPER.

5. THERE SHALL BE NO EARTH-DISTURBING ACTIVITY OUTSIDE THE LIMITS DESIGNATED ON THESE PLANS.

6. TOP SOIL SHALL BE REMOVED AND STOCK PILED PRIOR TO OVERLOT GRADING OPERATIONS.

7. A WATER TRUCK SHALL BE KEPT ON-SITE AT ALL TIMES DURING EARTHWORK ACTIVITIES FOR DUST ABATEMENT.

8. CONDITIONS IN THE FIELD MAY WARRANT EROSION CONTROL MEASURES IN ADDITION TO WHAT IS SHOWN ON THESE PLANS. THE DEVELOPER SHALL IMPLEMENT WHATEVER MEASURES ARE DETERMINED NECESSARY, AS DIRECTED BY THE LOCAL ENTITY ENGINEER.

9. SILT AND SEDIMENT, WITHIN RIGHT-OF-WAY, SHALL BE REMOVED AFTER EACH SUBSTANTIAL RAINFALL.

10. 1NEGATIVE IMPACTS TO DOWNSTREAM AREAS CAUSED BY OVERLOT GRADING ARE TO BE MONITORED AND CORRECTED BY THE DEVELOPER. ANY OFF-SITE CLEAN-UP, DIRECTED BY THE LOCAL ENTITY'S INSPECTOR, (INCLUDING STREET CLEANING), SHALL BE COMPLETED WITHIN 24-HOURS OF WRITTEN INSTRUCTION, OR RISK CONSTRUCTION STOPPAGE.

11. TEMPORARY EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL SUCH TIME AS ALL TRIBUTARY-DISTURBED AREAS ARE SUFFICIENTLY STABILIZED IN THE OPINION OF THE LOCAL ENTITY ENGINEER, TO MINIMIZE EROSION POTENTIAL.

12. WHEN TEMPORARY EROSION CONTROL MEASURES ARE REMOVED, THE DEVELOPER SHALL BE RESPONSIBLE FOR THE CLEAN-UP AND REMOVAL OF ALL SEDIMENT AND DEBRIS FROM ALL DRAINAGE AND OTHER PUBLIC FACILITIES.

13. ALL AREAS DISTURBED BY THIS PROJECT, WHICH ARE NOT SCHEDULED FOR IMPROVEMENT OR DISTURBANCE WITHIN 90 DAYS, AND ARE NOT OTHERWISE STABILIZED BY HARD SURFACE OR LANDSCAPING, SHALL BE SEEDED AND MULCHED IN ACCORDANCE WITH THESE SPECIFICATIONS WITHIN 10 WORKING DAYS OF RIGHT-OF-WAY GRADING COMPLETION.
   - A. ALL AREAS FOR SEEDING SHALL BE TILLED TO BREAK UP ROOTING RESTRICTIVE LAYERS, HAVE A MINIMUM OF 4 INCHES OF TOPSOIL REAPPLIED, AND THEN BE HARROWED, AND ROLLED OR PACKED, TO PREPARE THE REQUIRED FIRM SEED BED.
   - B. THE SEED BED SHALL BE WELL-SETTLED AND FIRM, BUT FRIABLE ENOUGH SO THAT SEED CAN BE PLACED AT THE SEEDING DEPTHS SPECIFIED. THE SEED BED SHALL BE REASONABLY FREE OF WEEDS.
   - C. ALL SEEDING AREAS SHALL BE FERTILIZED, UNLESS FIELD EVIDENCE OR LABORATORY SOIL ANALYSIS INDICATES SUFFICIENT AMOUNTS OF NITROGEN (N) AND 40 POUNDS AVAILABLE PHOSPHATE (P205) PER ACRE. TIME OF APPLICATION WILL BE AS APPLICABLE TO THE KIND OF FERTILIZER AND TYPE OF EQUIPMENT USED.
   - D. SEED SHALL BE PLANTED WITH A DRILL ON ALL SLOPES OF 3:1 OR FLATTER. THE DRILL MUST HAVE THE CAPABILITY OF HANDLING THE KIND AND RATE OF SEED BEING PLANTED. SEED MAY BE BROADCAST BY MECHANICAL SPREADER, OR BY HYDRAULIC EQUIPMENT ON AREAS THAT ARE SMALL, TOO STEEP, OR NOT ACCESSIBLE FOR SEED-OPERATIONS. BROADCAST RATES OF SEED ON 4:1 OR LESSER SLOPES WILL BE DOUBLE THE DRILLED RATES. FOR SLOPES GREATER THAN 4:1, BROADCAST RATES WILL BE FOUR TIMES THE DRILLED RATES.
   - E. SEED PLANTED WITH A DRILL SHALL BE COVERED WITH SOIL TO A DEPTH OF 1/4 TO 3/4 INCH. SEED PLANTED BY THE BROADCAST METHOD SHALL BE INCORPORATED INTO THE SURFACE SOIL, TO A MAXIMUM DEPTH OF 3/4 INCH, BY RAKING, HARROWING, OR OTHER PROVEN METHODS.
   - F. HYDRO-MULCHING SHALL BE ALLOWED. MULCH SHALL CONSIST OF EITHER CEREAL GRAIN STRAW OR GRASS HAY, AT LEAST 50% BY WEIGHT, BEING 10 INCHES OR LONGER. APPLICATION RATE TO BE 2000 LBS/ACRE TO ACHIEVE A STUBBLED SURFACE. ANCHORING WITH A MULCH CRIMPER IS ACCEPTABLE, OR WITH THE USE OF A DISC PLOW, SET VERTICAL TO THE GROUND WITH SUFFICIENT WEIGHT TO ACHIEVE A CRIMPING DEPTH OF AT LEAST 4 INCHES INTO THE SOIL. ALL MULCHED AREAS SHALL BE TACKIFIED AFTER CRIMPING. THE TACKIFIER SOLUTION SHALL BE IN ACCORDANCE WITH NOTE J BELOW.
   - G. ALL SEEDED AREAS SHALL BE MULCHED, CRIMPED, AND TACKIFIED WITHIN 24 HOURS AFTER SEEDING; OTHERWISE, AREAS SHALL BE RESEEDED, AT THE DEVELOPER'S EXPENSE, PRIOR TO THE MULCHING, CRIMPING, AND TACKIFYING.
   - H. ALL SLOPES STEEPER THAN 4:1 SHALL BE TACKIFIED (SEE NOTE J BELOW) AFTER THE COMPLETION OF SEEDING AND FERTILIZING. SLOPES SHALL THEN BE COVERED WITH A SOIL RETENTION BLANKET. THE SOIL RETENTION BLANKET SHALL BE A MACHINE-PRODUCED MAT CONSISTING OF 70% AGRICULTURAL STRAW (0.35 LB/SY) AND 30% COCONUT FIBER (0.15LB/SY). THE BLANKET SHALL BE OF CONSISTENT THICKNESS, WITH THE STRAW EVENLY DISTRIBUTED OVER THE ENTIRE AREA OF THE MAT. THE BLANKET SHALL BE COVERED ON THE TOP SIDE WITH POLYPROPYLENE NETTING HAVING AN APPROXIMATE 5/8" X 5/8" MESH (1.65 - 3.00 LB/KSF), AND ON THE BOTTOM WITH POLYPROPYLENE NETTING WITH AN APPROXIMATE 3" X 3" TO 2" X 2" MESH (1.00 - 1.65 LB/KSF). THE BLANKET SHALL BE SEWN TOGETHER WITH COTTON, BIODEGRADABLE OR PHOTO-DEGRADABLE THREAD. ALL NETTING SHALL BE PHOTO-DEGRADABLE. A SAMPLE OF THE BLANKET SHALL BE SUBMITTED AT LEAST TWO WEEKS IN ADVANCE OF ITS USE FOR APPROVAL BY THE LOCAL ENTITY ENGINEER. THE LOCAL ENTITY ENGINEER MAY REQUIRE BLANKETS FOR UNSTABLE SOILS WITH SLOPES UNDER 4:1 IF DEEMED NECESSARY.
   - I. SOIL RETENTION BLANKET SHALL BE PLACED SMOOTHLY, BUT LOOSELY, ON THE SOIL SURFACE, WITHOUT STRETCHING. THE UPSLOPE END SHALL BE BURIED IN A TRENCH 6 INCHES WIDE BY 6 INCHES DEEP BEYOND THE CREST OF THE SLOPE, TO AVOID UNDERCUTTING. THERE SHALL BE A 6-INCH OVERLAP WHEREVER ONE ROLL OF BLANKET ENDS AND ANOTHER BEGINS, WITH THE UPHILL BLANKET PLACED ON TOP OF THE DOWNHILL BLANKET. THERE SHALL BE A 4-INCH OVERLAP WHEREVER 2 WIDTHS OF BLANKET ARE APPLIED SIDE BY SIDE. INSERT STAPLES IN A PATTERN ACCORDING TO THE MANUFACTURER'S RECOMMENDATION, AT APPROXIMATELY 2 STAPLES PER SQUARE YARD. "T" SHAPED PINS SHALL NOT BE USED.
   - J. TACKIFIER, WHETHER PLACED ON SOIL OR MULCH, SHALL CONFORM TO THE COLORADO HIGHWAY SPECIFICATIONS, SECTION 213.02. APPLY TACKIFIER WITH A SPRAY NOZZLE, DISPENSING A MIST THAT WILL UNIFORMLY COVER THE SURFACE.
   - K. ALL SEEDED AREAS SHALL BE KEPT IN A DAMP CONDITION, FOR AT LEAST 14 DAYS AFTER SEEDING, TO AID IN GERMINATION. SOME FORM OF IRRIGATION MAY BE REQUIRED TO ACHIEVE THIS GOAL, AND IT IS THE RESPONSIBILITY OF THE DEVELOPER TO PERFORM ANY AND ALL NECESSARY OPERATIONS TO THAT END. THE MEANS OF IRRIGATION SHALL BE APPROVED BY THE LOCAL ENTITY ENGINEER PRIOR TO IMPLEMENTATION. DIRECTOR FLOWS FROM LARGE HOSES, WHICH COULD DAMAGE THE MULCH, WILL NOT BE PERMITTED. ADDITIONAL MAINTENANCE, AS REQUIRED BY THE STORM WATER UTILITY, IS ALSO REQUIRED.

14. SEE LANDSCAPING PLAN FOR SEEDING REQUIREMENTS.

15. PLEASE REFER TO THE PRELIMINARY GEOTECHNICAL STUDY ENTITLED "XXXX. FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

C. STREET IMPROVEMENTS NOTES

1. ALL STREET CONSTRUCTION IS SUBJECT TO THE GENERAL NOTES ON THE COVER SHEET OF THESE PLANS AS WELL AS THE STREET IMPROVEMENTS NOTES LISTED HERE.

2. A PAVING SECTION DESIGN, SIGNED AND STAMPED BY A COLORADO LICENSED ENGINEER, MUST BE SUBMITTED TO THE LOCAL ENTITY ENGINEER FOR APPROVAL, PRIOR TO ANY STREET CONSTRUCTION ACTIVITY, (FULL DEPTH ASPHALT SECTIONS ARE NOT PERMITTED AT A DEPTH GREATER THAN 8 INCHES OF ASPHALT). THE JOB MIX SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PLACEMENT OF ANY ASPHALT.

3. WHERE PROPOSED PAVING ADJOINS EXISTING ASPHALT, THE EXISTING ASPHALT SHALL BE SAW CUT, A MINIMUM DISTANCE OF 12 INCHES FROM THE EXISTING EDGE, TO CREATE A CLEAN CONSTRUCTION JOINT. THE DEVELOPER SHALL BE REQUIRED TO REMOVE EXISTING PAVEMENT TO A DISTANCE WHERE A CLEAN CONSTRUCTION JOINT CAN BE MADE. WHEEL CUTS SHALL NOT BE ALLOWED UNLESS APPROVED BY THE LOCAL ENTITY ENGINEER IN LOVELAND.

4. STREET SUBGRADES SHALL BE SCARIFIED THE TOP 12 INCHES AND RE-COMPACTED PRIOR TO SUBBASE INSTALLATION. NO BASE MATERIAL SHALL BE LAID UNTIL THE SUBGRADE HAS BEEN INSPECTED AND APPROVED BY THE LOCAL ENTITY ENGINEER.

5. FT. COLLINS ONLY. VALVE BOXES AND MANHOLES ARE TO BE BROUGHT UP TO GRADE AT THE TIME OF PAVEMENT PLACEMENT OR OVERLAY. VALVE BOX ADJUSTING RINGS ARE NOT ALLOWED.

6. WHEN AN EXISTING ASPHALT STREET MUST BE CUT, THE STREET MUST BE RESTORED TO A CONDITION EQUAL TO OR BETTER THAN ITS ORIGINAL CONDITION. THE EXISTING STREET CONDITION SHALL BE DOCUMENTED BY THE INSPECTOR BEFORE ANY CUTS ARE MADE. CUTTING AND PATCHING SHALL BE DONE IN CONFORMANCE WITH CHAPTER 25, RECONSTRUCTION AND REPAIR. THE FINISHED PATCH SHALL BLEND SMOOTHLY INTO THE EXISTING SURFACE. THE DETERMINATION OF NEED FOR A COMPLETE OVERLAY SHALL BE MADE BY THE LOCAL ENTITY ENGINEER. ALL OVERLAY WORK SHALL BE COORDINATED WITH ADJACENT LANDOWNERS SUCH THAT FUTURE PROJECTS DO NOT CUT THE NEW ASPHALT OVERLAY WORK.

7. ALL TRAFFIC CONTROL DEVICES SHALL BE IN CONFORMANCE WITH THESE PLANS OR AS OTHERWISE SPECIFIED IN M.U.T.C.D. (INCLUDING COLORADO SUPPLEMENT) AND AS PER THE RIGHT-OF-WAY WORK PERMIT TRAFFIC CONTROL PLAN.

8. THE DEVELOPER IS REQUIRED TO PERFORM A GUTTER WATER FLOW TEST IN THE PRESENCE OF THE LOCAL ENTITY INSPECTOR AND PRIOR TO INSTALLATION OF ASPHALT. GUTTERS THAT HOLD MORE THAN ¼ INCH DEEP OR 5 FEET LONGITUDINALLY, OF WATER, SHALL BE COMPLETELY REMOVED AND RECONSTRUCTED TO DRAIN PROPERLY.

9. PRIOR TO PLACEMENT OF H.B.P. OR CONCRETE WITHIN THE STREET AND AFTER MOISTURE/DENSITY TESTS HAVE BEEN TAKEN ON THE SUBGRADE MATERIAL (WHEN A FULL DEPTH SECTION IS PROPOSED) OR ON THE SUBGRADE AND BASE MATERIAL (WHEN A COMPOSITE SECTION IS PROPOSED), A MECHANICAL "PROOF ROLL" WILL BE REQUIRED. THE ENTIRE SUBGRADE AND/OR BASE MATERIAL SHALL BE ROLLED WITH A HEAVILY LOADED VEHICLE HAVING A TOTAL GVW OF NOT LESS THAN 50,000 LBS. AND A SINGLE AXLE WEIGHT OF AT LEAST 18,000 LBS. WITH PNEUMATIC TIRES INFLATED TO NOT LESS THAT 90 P.S.I.G. "PROOF ROLL" VEHICLES SHALL NOT TRAVEL AT SPEEDS GREATER THAN 3 M.P.H. ANY PORTION OF THE SUBGRADE OR BASE MATERIAL WHICH EXHIBITS EXCESSIVE PUMPING OR DEFORMATION, AS DETERMINED BY THE LOCAL ENTITY ENGINEER, SHALL BE REWORKED, REPLACED OR OTHERWISE MODIFIED TO FORM A SMOOTH, NON-YIELDING SURFACE. THE LOCAL ENTITY ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO THE "PROOF ROLL." ALL "PROOF ROLLS" SHALL BE PREFORMED IN THE PRESENCE OF AN INSPECTOR.

D. TRAFFIC SIGNING AND PAVEMENT MARKING CONSTRUCTION

1. ALL SIGNAGE AND MARKING IS SUBJECT TO THE GENERAL NOTES ON THE COVER SHEET OF THESE PLANS, AS WELL AS THE TRAFFIC SIGNING AND MARKING CONSTRUCTION NOTES LISTED HERE.

2. ALL SYMBOLS, INCLUDING ARROWS, ONLYS, CROSSWALKS, STOP BARS, ETC. SHALL BE PRE-FORMED THERMO-PLASTIC.

3. ALL SIGNAGE SHALL BE PER LOCAL ENTITY STANDARDS AND THESE PLANS OR AS OTHERWISE SPECIFIED IN MUTCD.

4. ALL LANE LINES FOR ASPHALT PAVEMENT SHALL RECEIVE TWO COATS OF LATEX PAINT WITH GLASS BEADS.

5. ALL LANE LINES FOR CONCRETE PAVEMENT SHOULD BE EPOXY PAINT.

6. PRIOR TO PERMANENT INSTALLATION OF TRAFFIC STRIPING AND SYMBOLS, THE DEVELOPER SHALL PLACE TEMPORARY TABS OR TAPE DEPICTING ALIGNMENT AND PLACEMENT OF THE SAME. THEIR PLACEMENT SHALL BE APPROVED BY THE LOCAL ENTITY TRAFFIC ENGINEER PRIOR TO PERMANENT INSTALLATION OF STRIPING AND SYMBOLS.

7. PRE-FORMED THERMO-PLASTIC APPLICATIONS SHALL BE AS SPECIFIED IN THESE PLANS AND/OR THESE STANDARDS.

8. EPOXY APPLICATIONS SHALL BE APPLIED AS SPECIFIED IN CDOT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION.

9. ALL SURFACES SHALL BE THOROUGHLY CLEANED PRIOR TO INSTALLATION OF STRIPING OR MARKINGS.

10. ALL SIGN POSTS SHALL UTILIZE BREAK-AWAY ASSEMBLIES AND FASTENERS PER THE STANDARDS.

11. A FIELD INSPECTION OF LOCATION AND INSTALLATION OF ALL SIGNS SHALL BE PERFORMED BY THE LOCAL ENTITY TRAFFIC ENGINEER. ALL DISCREPANCIES IDENTIFIED DURING THE FIELD INSPECTION MUST BE CORRECTED BEFORE THE 2-YEAR WARRANTY PERIOD WILL BEGIN.

12. THE DEVELOPER INSTALLING SIGNS SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL UNDERGROUND UTILITIES.

13. SPECIAL CARE SHALL BE TAKEN IN SIGN LOCATION TO ENSURE AN UNOBSTRUCTED VIEW OF EACH SIGN.

14. SIGNAGE AND STRIPING HAS BEEN DETERMINED BY INFORMATION AVAILABLE AT THE TIME OF REVIEW. PRIOR TO INITIATION OF THE WARRANTY PERIOD, THE LOCAL ENTITY TRAFFIC ENGINEER RESERVES THE RIGHT TO REQUIRE ADDITIONAL SIGNAGE AND/OR STRIPING IF THE LOCAL ENTITY TRAFFIC ENGINEER DETERMINES THAT AN UNFORESEEN CONDITION WARRANTS SUCH SIGNAGE ACCORDING TO THE MUTCD OR THE CDOT M AND S STANDARDS. ALL SIGNAGE AND STRIPING SHALL FALL UNDER THE REQUIREMENTS OF THE 2-YEAR WARRANTY PERIOD FOR NEW CONSTRUCTION (EXCEPT FAIR WEAR ON TRAFFIC MARKINGS).

15. SLEEVES FOR SIGN POSTS SHALL BE REQUIRED FOR USE IN ISLANDS/MEDIANS. REFER TO CHAPTER 14, TRAFFIC CONTROL DEVICES, FOR ADDITIONAL DETAIL.

REVISIONS		
BY	DATE	DESCRIPTION

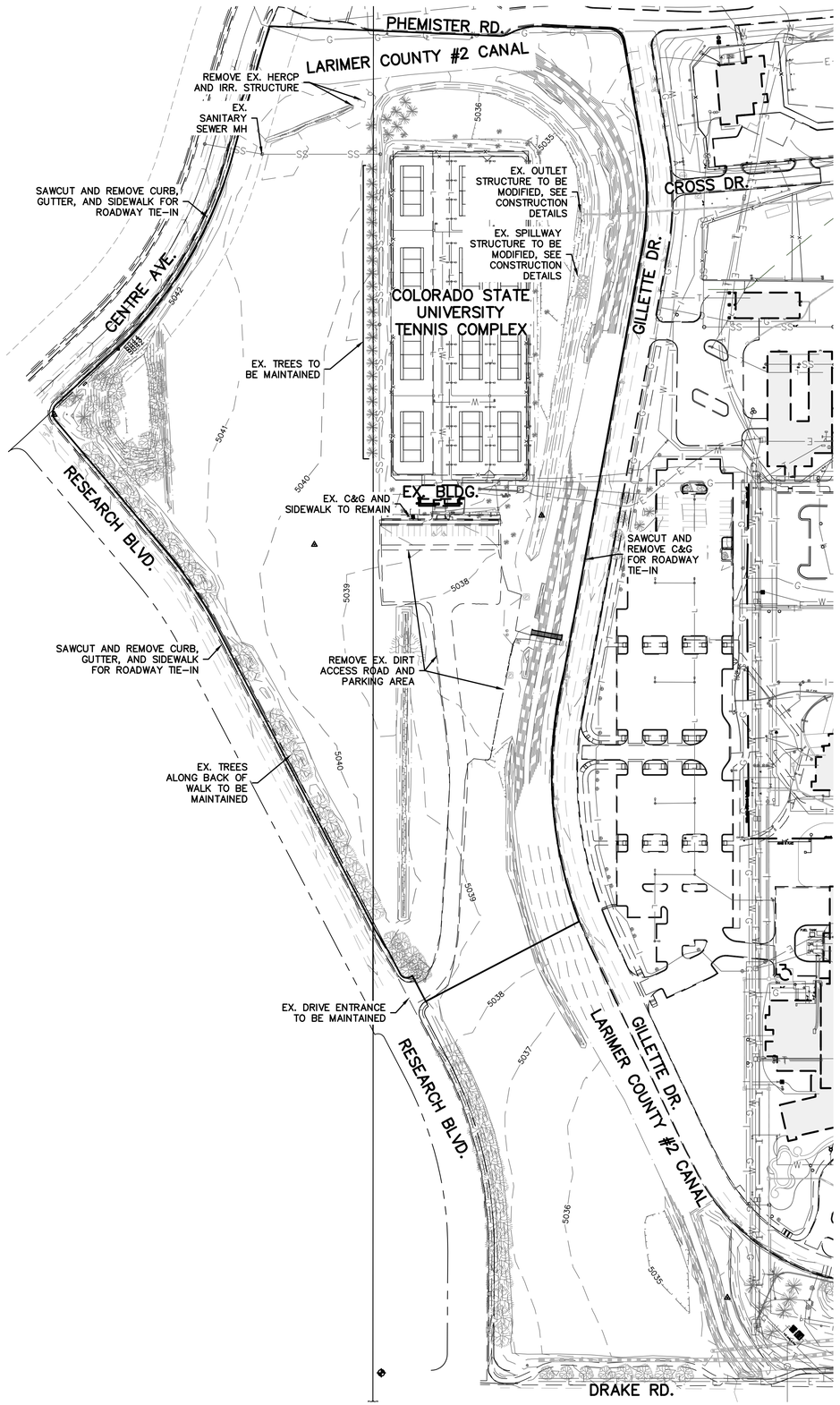
DRAWN: D.A.P.
CHECKED: H.E.M.
DESIGNED: D.A.P.
FILENAME: 091_0014_Notes

RESEARCH BLVD. PARKING LOT PROJECT #14-031

GENERAL NOTES - CITY OF FORT COLLINS

TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE N.T.S.
DATE FEBRUARY 2015
SHEET C0.02



REVISIONS

BY	DATE	DESCRIPTION

DRAWN D.A.P.

CHECKED H.E.M.

DESIGNED D.A.P.

FILENAME 091_0014_Demo

RESEARCH BLVD. PARKING LOT PROJECT #14-031

DEMOLITION PLAN

TST

TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00

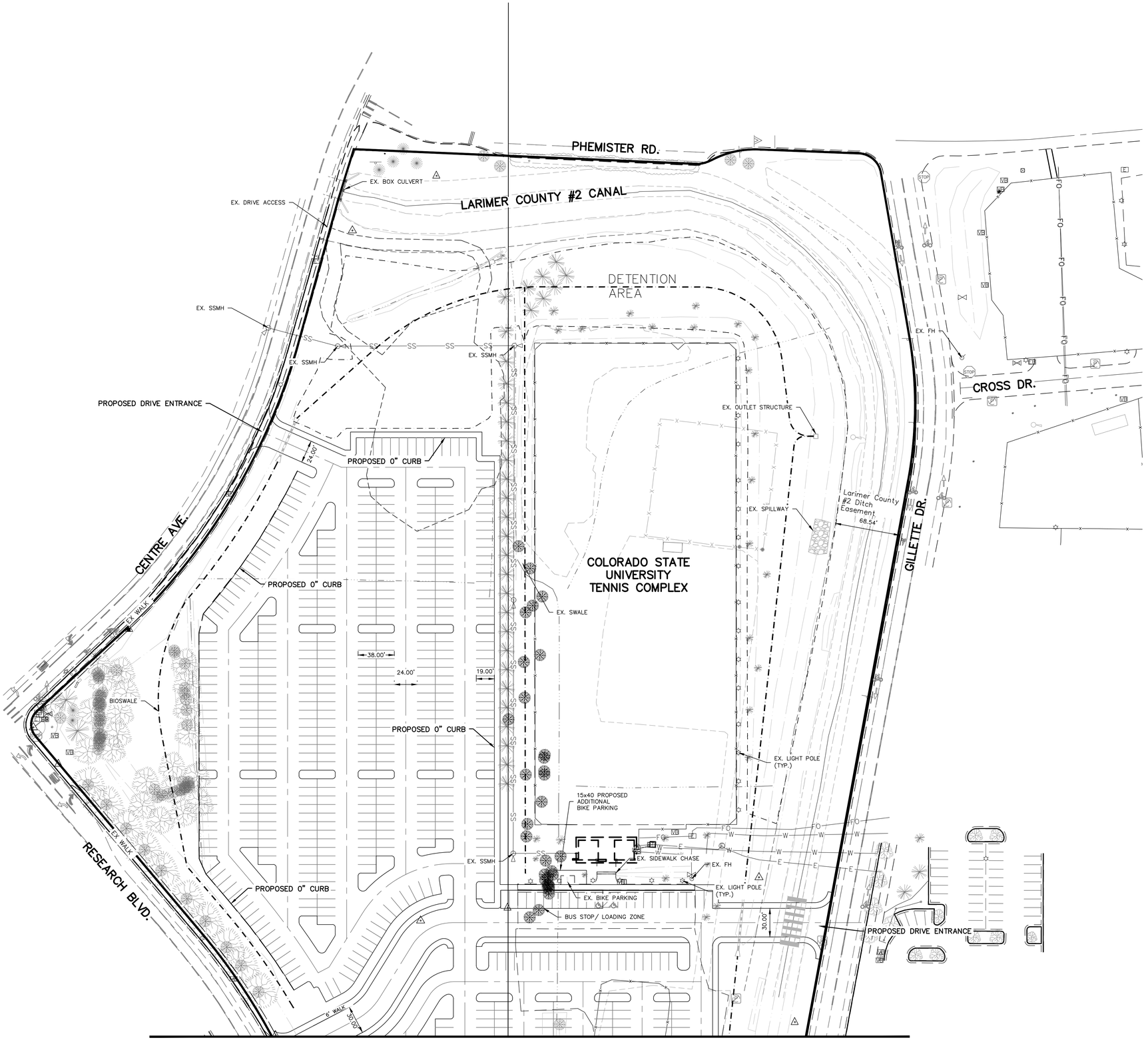
SCALE 1"=100'

DATE FEBRUARY 2015

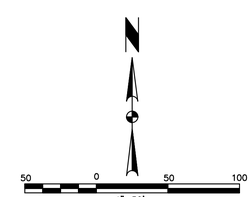
SHEET C2.01

NOTES:

1. HANDICAP PARKING SPACES WILL BE PROVIDED AS A PART OF THIS PARKING LOT PROJECT



LAND USE	SF	ACREAGE	% OF LOT
Building Coverage (Existing)	1,304	0.030	0.3%
Roadway/Parking Coverage	17,921	0.411	3.5%
Landscape/Open Space Coverage	388,800	8.926	75.1%
Active Recreational Use Area (Tennis Facility)	109,578	2.516	21.2%
Total	517,603	11.883	100.0%
Parking Stalls	907		



REVISIONS

BY	DATE	DESCRIPTION

DRAWN: D.A.P.
CHECKED: H.E.M.
DESIGNED: D.A.P.
FILENAME: 091_0014_SitePlan

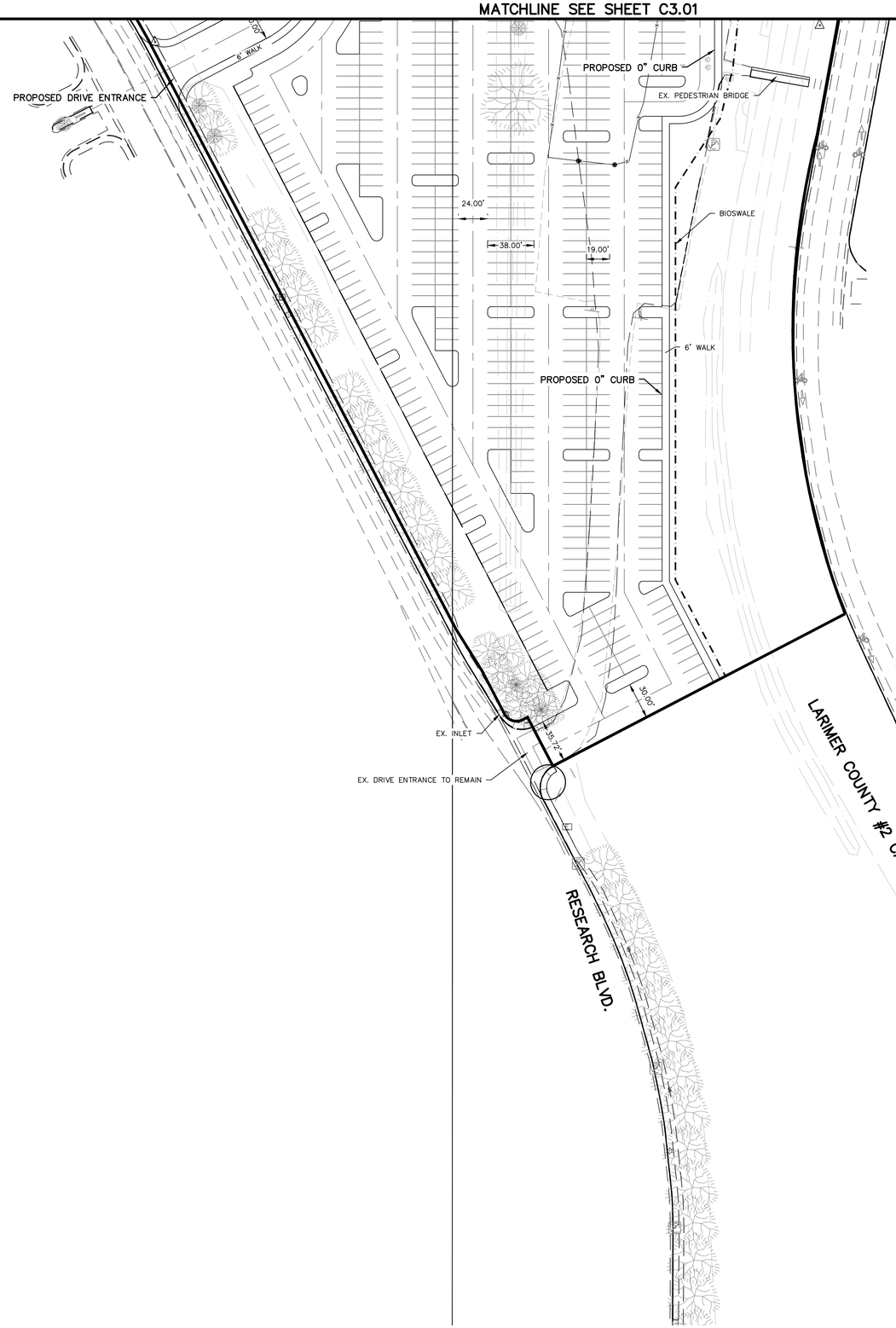
RESEARCH BLVD. PARKING LOT PROJECT #14-031

SITE PLAN

TST
TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE 1"=50'
DATE FEBRUARY 2015
SHEET C3.01

MATCHLINE SEE SHEET C3.01



NOTES:

1. HANDICAP PARKING SPACES WILL BE PROVIDED AS A PART OF THIS PARKING LOT PROJECT

LAND USE	SF	ACREAGE	% OF LOT
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Parking Stalls	907		

N

50 0 50 100
scale 1"=50' feet

REVISIONS

DESCRIPTION	DATE	BY

DRAWN D.A.P.
CHECKED 3.02
DESIGNED D.A.P.
FILENAME 091_0014_SitePlan

RESEARCH BLVD. PARKING LOT PROJECT #14-031

SITE PLAN

TST
TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE 1"=50'
DATE FEBRUARY 2015
SHEET C3.02

PHEMISTER RD.

EXISTING BOX CULVERT

LARIMER COUNTY #2 CANAL

EXISTING MAINTENANCE ACCESS

PROPOSED SWALE

DETENTION POND
APPROX. VOLUME = 7.0± AC-FT
100-YR WSEL = 5036.50

TOP OF POND

EXISTING TREES WITHIN POND TO BE RELOCATED

EXISTING OUTLET STRUCTURE TO BE MODIFIED INV. = 5030.60±

EXISTING SPILLWAY TO BE MODIFIED ELEV. = 5036.50±

EX. SDMH

CROSS DR.

GILLETTE DR.

CENTRE AVE.

PROPOSED CULVERT

PROPOSED 1.5' VERTICAL C&G ISLANDS (TYP.)

PROPOSED 0" CURB

PROPOSED BIOSWALE

COLORADO STATE UNIVERSITY TENNIS COMPLEX

EXISTING SWALE TO BE RE-GARDED

EXISTING TREES TO BE MAINTAINED

EX. VOLUNTEER TREES TO BE REMOVED

EX. BLDG

EXISTING SIDEWALK CHASE

RESEARCH BLVD.

EXISTING PARKWAY TREES ALONG RESEARCH BLVD. TO BE MAINTAINED

PROPOSED DRIVE ENTRANCE

PROPOSED BOX CULVERT FOR LARIMER COUNTY CANAL #2 CROSSING

PROPOSED 1.5' VERTICAL C&G

MATCHLINE SEE SHEET C4.02

scale 1"=50' feet (50 0 50 100)

REVISIONS

BY	DATE	DESCRIPTION

DRAWN D.A.P.
CHECKED H.E.M.
DESIGNED D.A.P.
FILENAME 091_0014_Grading

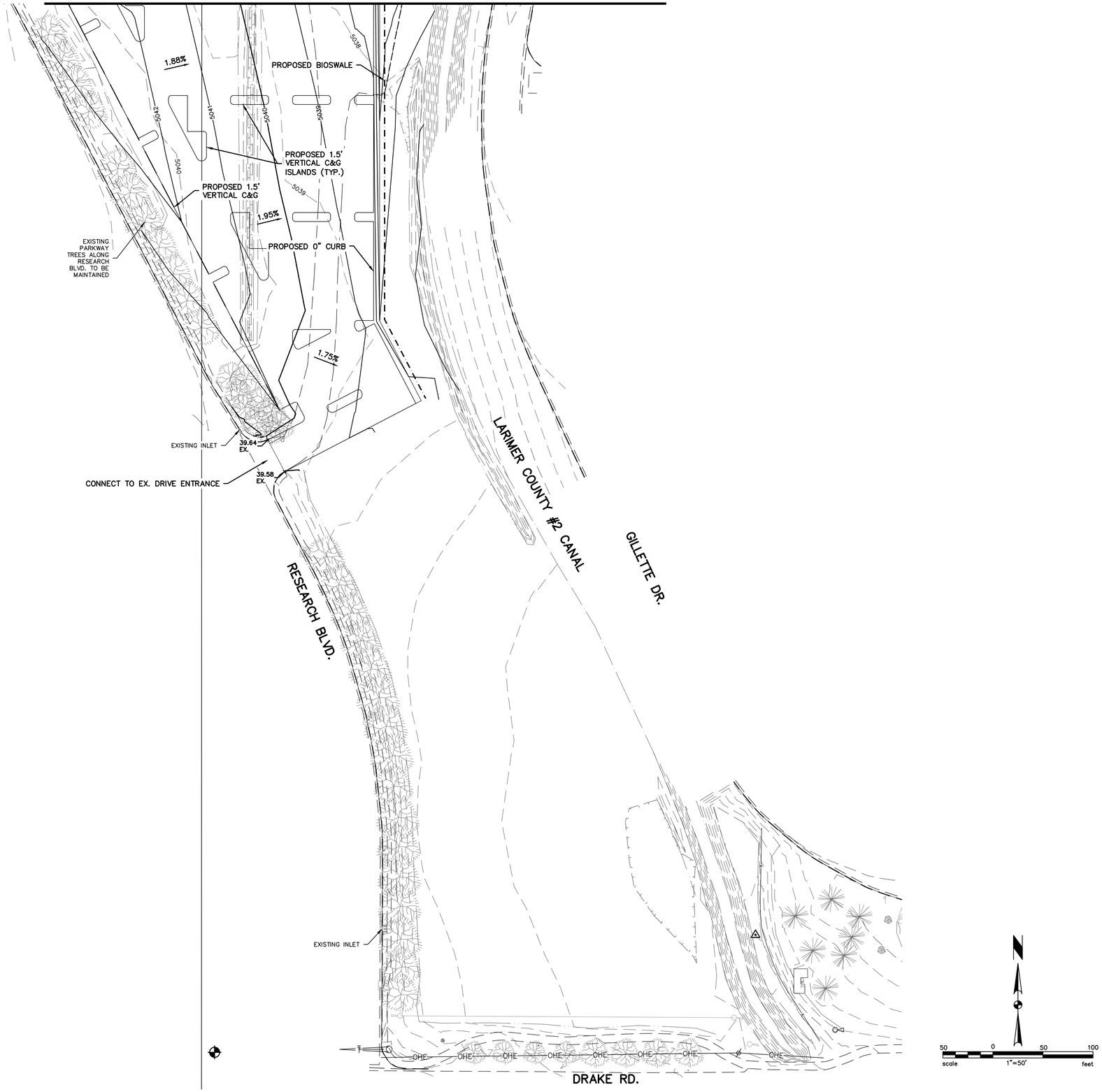
RESEARCH BLVD. PARKING LOT PROJECT #14-031

GRADING PLAN

TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE 1"=50'
DATE FEBRUARY 2015
SHEET C4.01

MATCHLINE SEE SHEET C4.01



REVISIONS		
BY	DATE	DESCRIPTION

DRAWN D.A.P.
CHECKED H.E.M.
DESIGNED D.A.P.
FILENAME 091_0014_Grading

RESEARCH BLVD. PARKING LOT PROJECT #14-031

GRADING PLAN

TST
TST, INC.
CONSULTING ENGINEERS
760 Whalers Way
Building C, Suite 200
Fort Collins, Colorado
Phone: 970.226.0557
Fax: 970.226.0204

JOB NO. 0091.0014.00
SCALE 1"=50'
DATE FEBRUARY 2015
SHEET C4.02

Traffic Impact Study

Colorado State University South Campus Parking Lot

Fort Collins, Colorado

Prepared for:

Colorado State University

Kimley»Horn

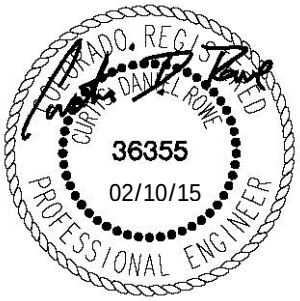
T R A F F I C I M P A C T S T U D Y

Colorado State University
South Campus Parking Lot

Fort Collins, Colorado

Prepared for
Colorado State University
251 Edison Drive
Fort Collins, Colorado 80523

Prepared by
Kimley-Horn and Associates, Inc.
990 South Broadway
Suite 200
Denver, Colorado 80209
(303) 228-2300



February 2015

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APPENDICES

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

Kimley-Horn and Associates, Inc. (Kimley-Horn) has prepared this report to document the results of a Traffic Impact Study of future traffic conditions associated with the surface parking lot project to be located at Colorado State University (CSU) South Campus on the southeast corner of the Centre Avenue and Research Boulevard intersection on the CSU campus in Fort Collins, Colorado. A vicinity map showing the location of the project site is shown in **Figure 1**.

Kimley-Horn previously prepared the Parking and Transportation Master Plan (April 2014) which studied the future traffic conditions associated with the CSU 2020 Transit Plan prepared by CSU's parking and transportation management team. The CSU 2020 Transit Plan includes construction of seven (7) new parking structures on campus which would allow for a net increase of 5,896 parking spaces available for use by faculty, staff, and students of CSU. CSU is now proposing to construct an additional on-campus surface parking lot not previously included in the 2020 Transit Plan at the site of the existing CSU tennis courts. The additional parking lot is needed based on the projected increase in student admissions and thus increasing demand for parking on campus as described in the CSU 2020 Transit Plan.

The project is anticipated to develop with a surface parking lot containing up to 1,077 parking spaces located adjacent to the existing CSU tennis courts. The surface parking lot will have two access drives off of Research Boulevard, one access off of Centre Avenue, and one access off of Gilette Drive. It is expected that project construction will be completed within 2015. Analysis was therefore completed for the 2015 short-term horizon, as well as the 2025 long-term horizon. A conceptual site plan illustrating the proposed surface parking lot and access locations is provided in **Appendix C**.

The purpose of this study is to identify project traffic generation characteristics, to identify potential project traffic related impacts on the local street system, and to develop mitigation measures required for identified impacts. The following intersections were incorporated into this traffic study in accordance with Colorado State University and the City of Fort Collins standards and requirements:

- Prospect Road and Center Avenue
- Centre Avenue and Shields Street
- Centre Avenue and Research Boulevard

- Drake Road and Research Boulevard
- Drake Road and Gilette Drive South Campus Access

In addition, the proposed access drives along Centre Avenue, Research Boulevard, and Gilette Drive were included for evaluation.

Kimley»Horn
NORTH
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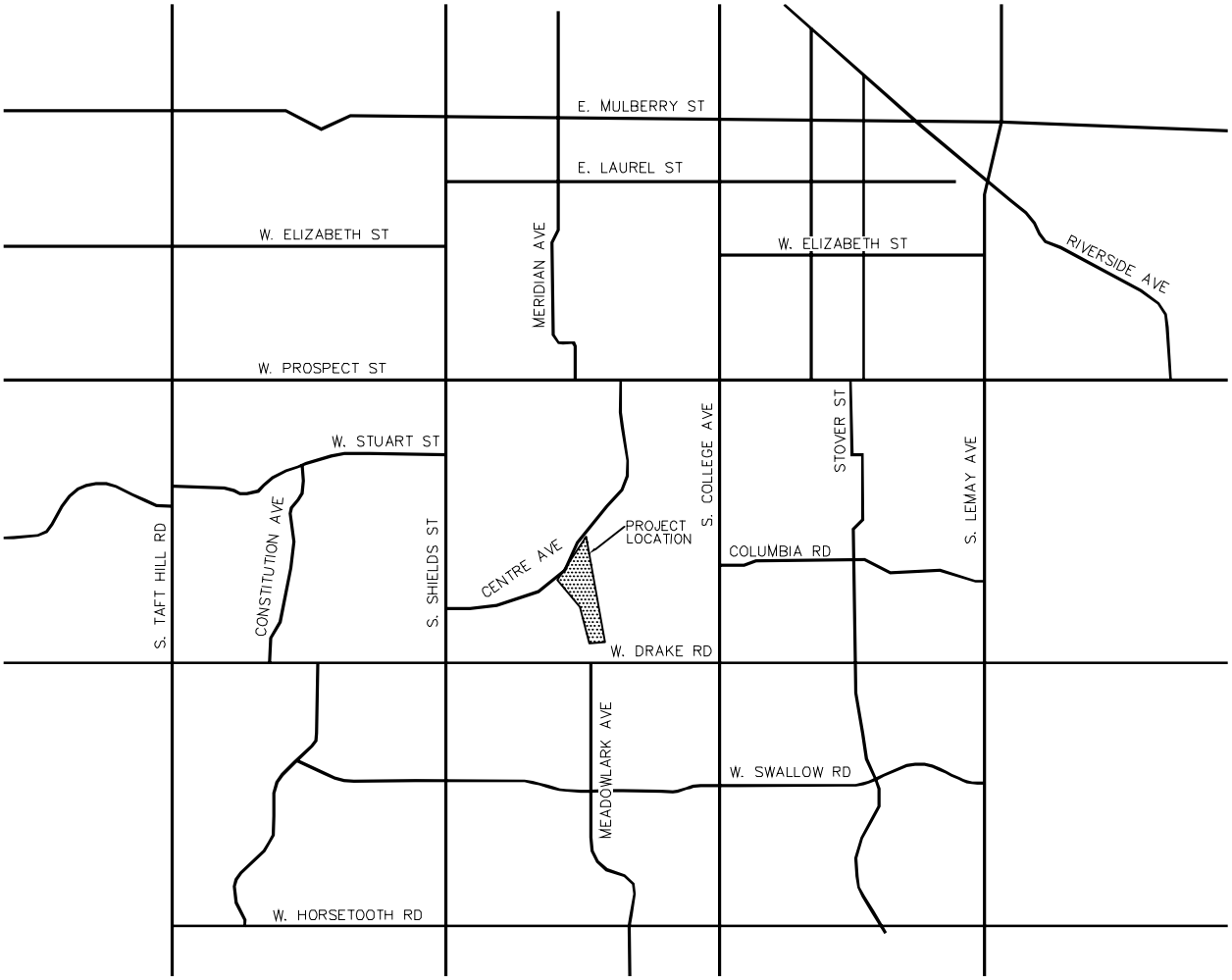


CSU SOUTH CAMPUS PARKING LOT
VICINITY MAP

FIGURE 1

Kimley»Horn

2.0 EXISTING AND FUTURE CONDITIONS

The following section outlines existing and future conditions in the vicinity of the CSU South Campus parking lot.

2.1 Study Area and Roadway Network

The study area is located around the existing CSU tennis courts bound between Centre Avenue, Research Boulevard, Drake Road, and Gilette Drive. Developed areas of the CSU South Campus surround the study area and the proposed parking lot. Transportation modes used by commuters traveling to and from campus include driving, biking, walking, carpooling, and taking the bus. This study focuses on the driving (automobile) commuters.

2.2 Existing Roadway and Intersection Configuration

The roadways providing access to the CSU South Campus parking lot project are described below.

Prospect Road

Prospect Road is an arterial roadway at the southern edge of the CSU Main Campus. It provides two through lanes in each direction, eastbound and westbound, with a posted speed limit of 35 miles per hour east of Shields Street through the study area. The intersection of Prospect Road and Center Avenue is signalized with separate left turn lanes on all approaches along with designated right turn lanes on the northbound and southbound approaches. Two-way left-turn lanes occur along Prospect Road and on the northbound approach along Centre Avenue.

Centre Avenue

Centre Avenue provides access between the CSU Main Campus and CSU South Campus. It provides a single northbound and southbound through lane with a posted speed limit of 35 miles per hour on the northern portion and 30 miles per hour on the southern portion. The Centre Avenue intersections with Prospect Road and Shields Street are signalized. A two-way left-turn lane occurs along Centre Avenue.

Shields Street

The western boundary of the Colorado State University Main Campus is Shields Street. It provides two through lanes in each direction (northbound and southbound) with a posted speed limit of 40 miles per hour.

Research Boulevard

Research Boulevard is a two lane roadway with a posted speed limit of 30 miles per hour. It provides access to the CSU tennis courts and other South Campus buildings. The Drake Road/Research Boulevard intersection is signalized with designated left turn lanes on all approaches. The Centre Avenue/Research Boulevard intersection is unsignalized with stop control on the northbound approach.

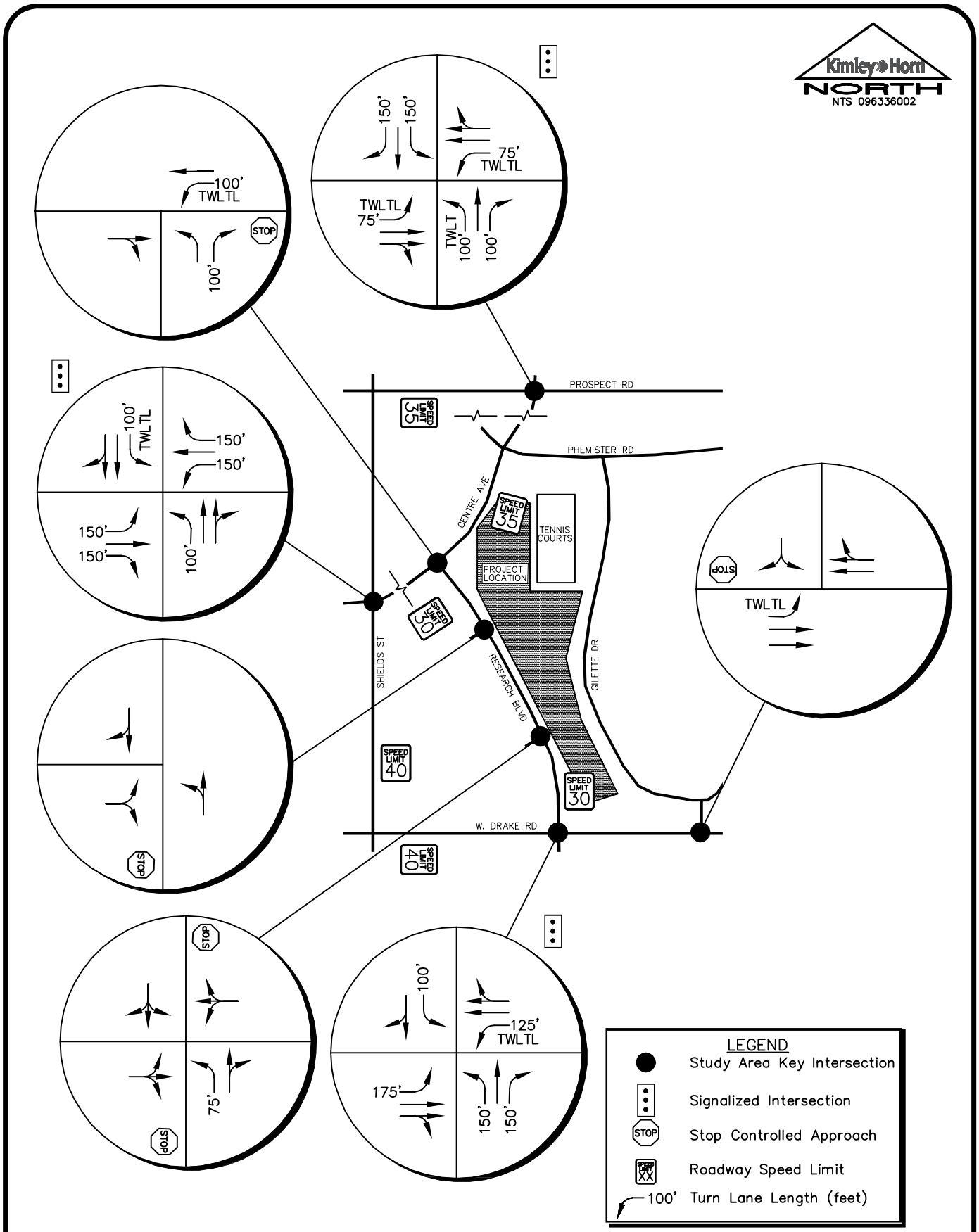
Drake Road

Drake Road is a four lane roadway that has a two-way left-turn lane along almost the entire length of the roadway from Ziegler Road to Taft Hill Road with a speed limit of 40 miles per hour. The Drake Road/Gilette Drive Access intersection is unsignalized with stop control on the southbound approach.

Gilette Drive

Gilette Drive is a north-south roadway providing access through the CSU South Campus. Gilette Drive is a two lane roadway with a speed limit of 35 mile per hour. A dedicated bike lane also exists along the entire length of the roadway, from Drake Road to Phemister Road, in both the north and southbound direction.

The intersection lane configurations and control for the study area are shown in **Figure 2**.



CSU SOUTH CAMPUS PARKING LOT
EXISTING LANE CONFIGURATIONS

FIGURE 2

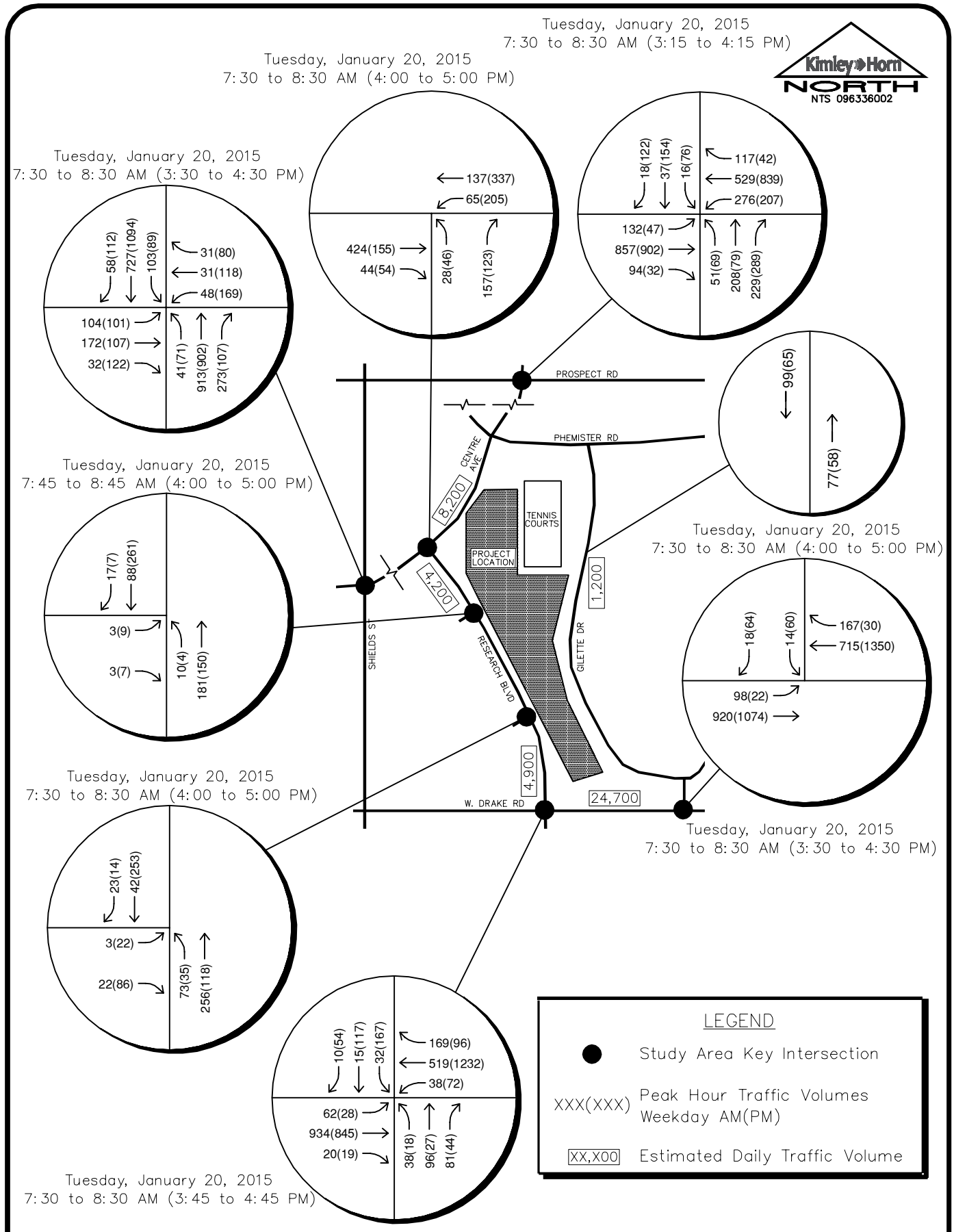
Kimley»Horn

2.3 Existing Traffic Volumes

Existing peak hour turning movement counts were conducted at the existing study intersections on Tuesday, January 20, 2015 during the morning and afternoon peak hours. The weekday counts were conducted in 15-minute intervals during the AM and PM peak hours of adjacent street traffic from 7:30 AM to 9:30 AM and 3:00 PM to 5:00 PM. These time intervals are anticipated to coincide with morning and afternoon peaks of CSU traffic. Existing turning movement counts are shown in **Figure 3** with intersection count sheets provided in **Appendix A**.

2.4 Unspecified Development Traffic Growth

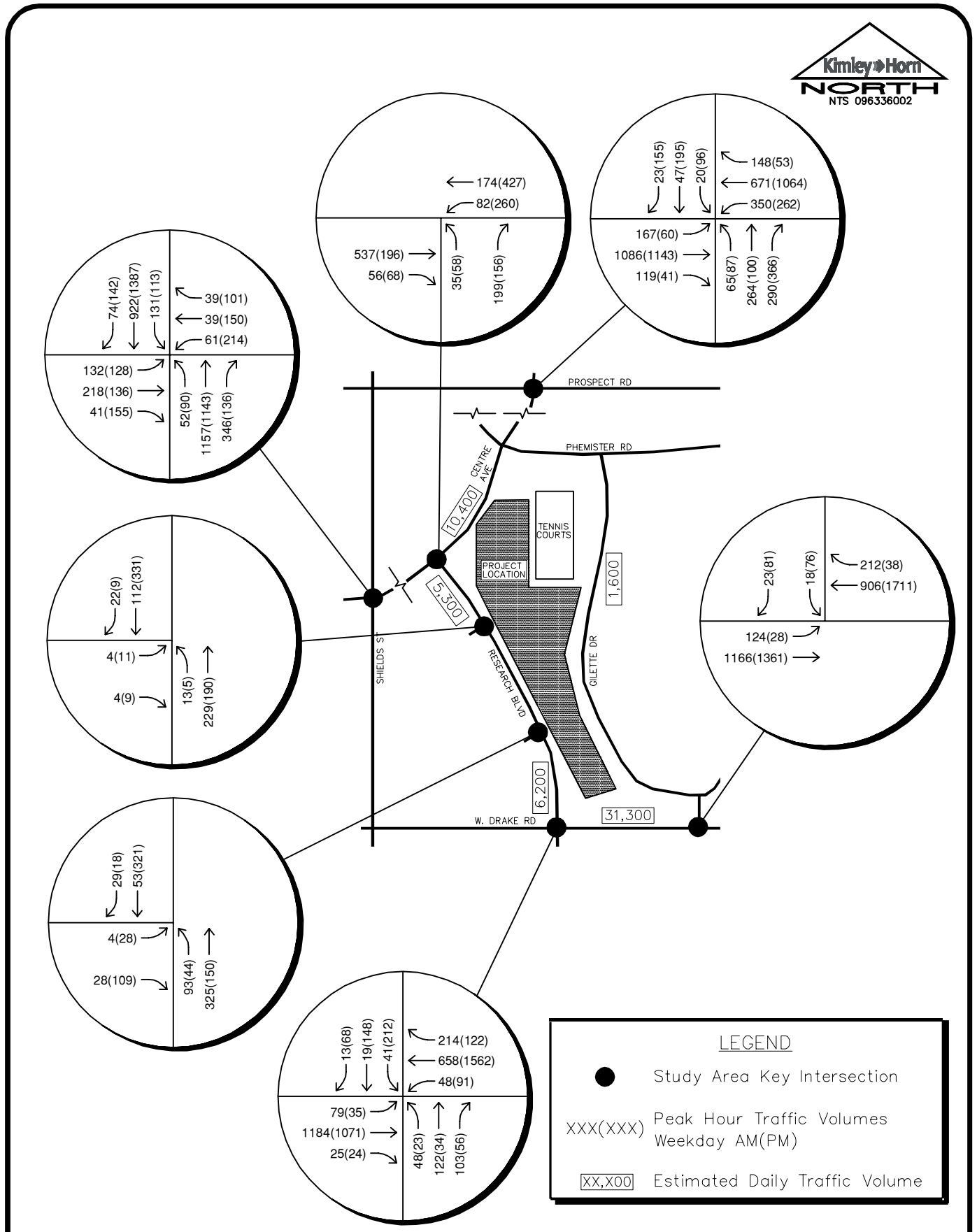
According to the CSU 2020 Transit Plan, the CSU student population may grow by approximately 8,000 students, from 27,000 to 35,000 students, which equates to a 29.6 percent increase between the years of 2013 and 2025. This equates to an annual growth rate of approximately 2.4 percent per year. Based on this growth factor, the projected automobile 2025 background values for the study's key intersections have been calculated and are provided in **Figure 4**.



CSU SOUTH CAMPUS PARKING LOT
2015 EXISITNG TRAFFIC VOLUMES

FIGURE 3

Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2025 BACKGROUND TRAFFIC VOLUMES

FIGURE 4

Kimley»Horn

3.0 PARKING LOT DISTRIBUTED TRAFFIC

3.1 South Campus Parking Lot Trip Distribution

The CSU Parking and Transportation Master Plan used traffic count data from existing CSU parking lots as well as the number of total existing parking spaces on-campus to calculate average rates of traffic generated per parking space. It was determined that the existing average morning and afternoon total trips per parking space on the CSU campus are 0.192 and 0.306 trips per parking space, respectively.

Based on the anticipated CSU population increase of 29.6 percent from 2012 to 2025, it is expected that the average trips per parking space will also increase over the same time frame. Future parking structure/lot trip generation rates were determined by multiplying the percent population increase by the existing averages for trips per parking space. As shown in **Table 1**, the total peak hour trips per parking space for the morning and afternoon were calculated to be 0.249 and 0.396 trips per parking space respectively. In other words, 25 percent of the parking spaces generate a vehicle trip during the morning peak hour and 40 percent of the parking spaces generate a vehicle trip during the afternoon peak hour.

Based on these calculated trip generation rates, the predicted trip generation for the proposed CSU South Campus parking lot may be calculated based on the increase of 1,077 parking spaces to the campus with this project. This increase in parking spaces was used in the trip generation calculation. **Table 1** provides the anticipated increase of vehicle trips entering and exiting the south campus parking lot during the morning and afternoon peak hours.

Table 1 – CSU South Campus Parking Lot Trip Generation

Parking Lot	Number of Parking Spaces	Increase in AM Peak Hour Trips			Increase in PM Peak Hour Trips		
		Enter	Exit	Total	Enter	Exit	Total
		0.166 trips/ space	0.083 trips/ space	0.249 trips/ space	0.172 trips/ space	0.224 trips/ space	0.396 trips/ space
South Campus Parking Lot	1,077	179	89	268	185	241	426

3.2 Trip Distribution

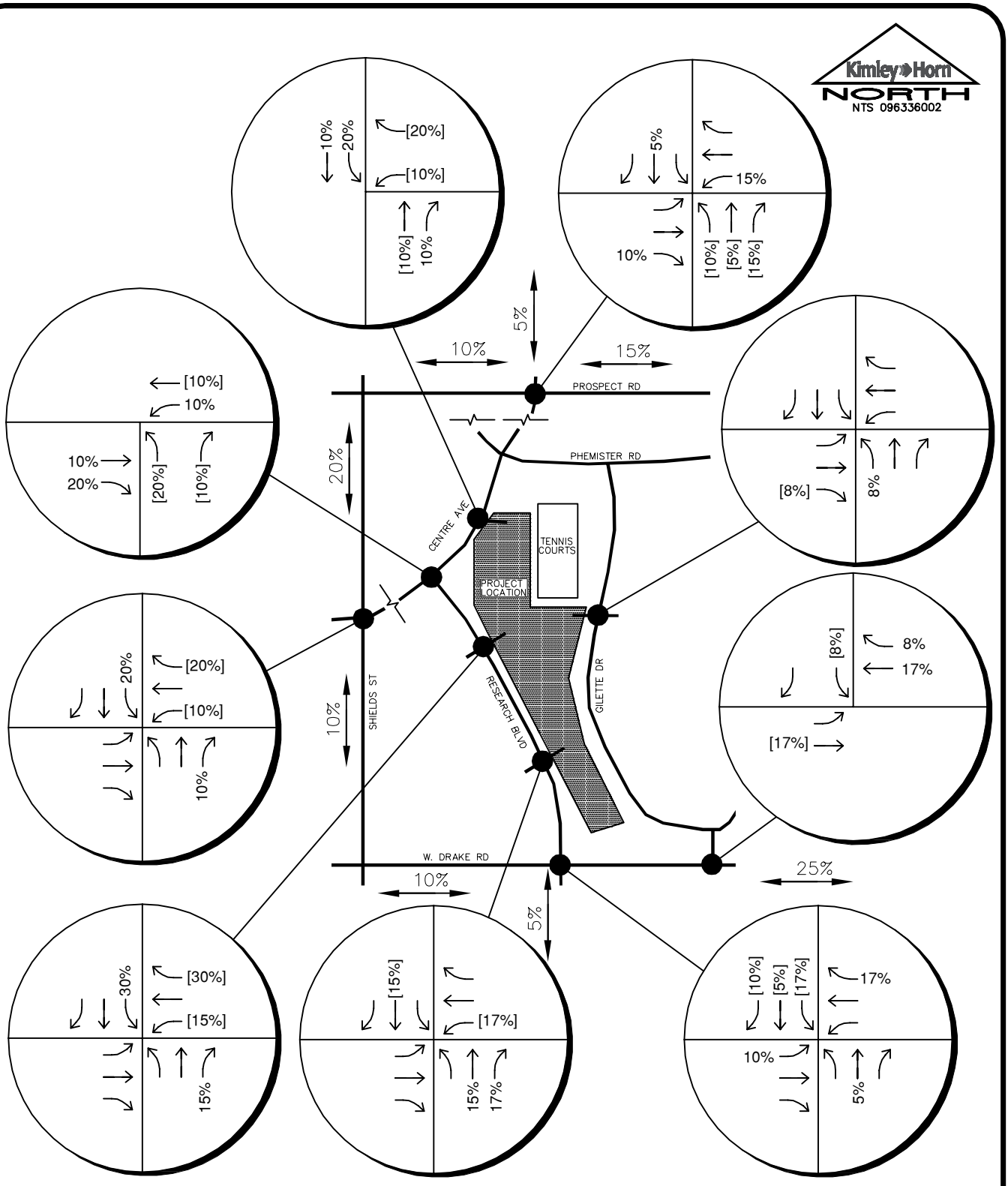
The distribution of the traffic generated by the proposed CSU South Campus parking lot onto the existing street network was based on the area street network characteristics, the existing traffic patterns and volumes, and the proposed accesses for the CSU South Campus parking lot. The directional distribution of traffic is a means to quantify the percentage of traffic that approaches the CSU South Campus parking lot from a given direction and departs the South Campus parking lot in the original source direction. **Figure 5** illustrates the expected trip redistribution with the proposed CSU South Campus parking lot.

3.3 Traffic Assignment

The 2015 and 2025 proposed CSU South Campus parking lot traffic assignment volumes were obtained by applying the trip distributions shown in **Figure 5** to the projected parking lot trip generation calculated in **Table 1**. The resultant 2015 and 2025 parking lot traffic assignment volumes are provided in **Figure 6** for each of the study's key intersections and the four proposed CSU South Campus parking lot accesses.

3.4 Total Traffic Volumes

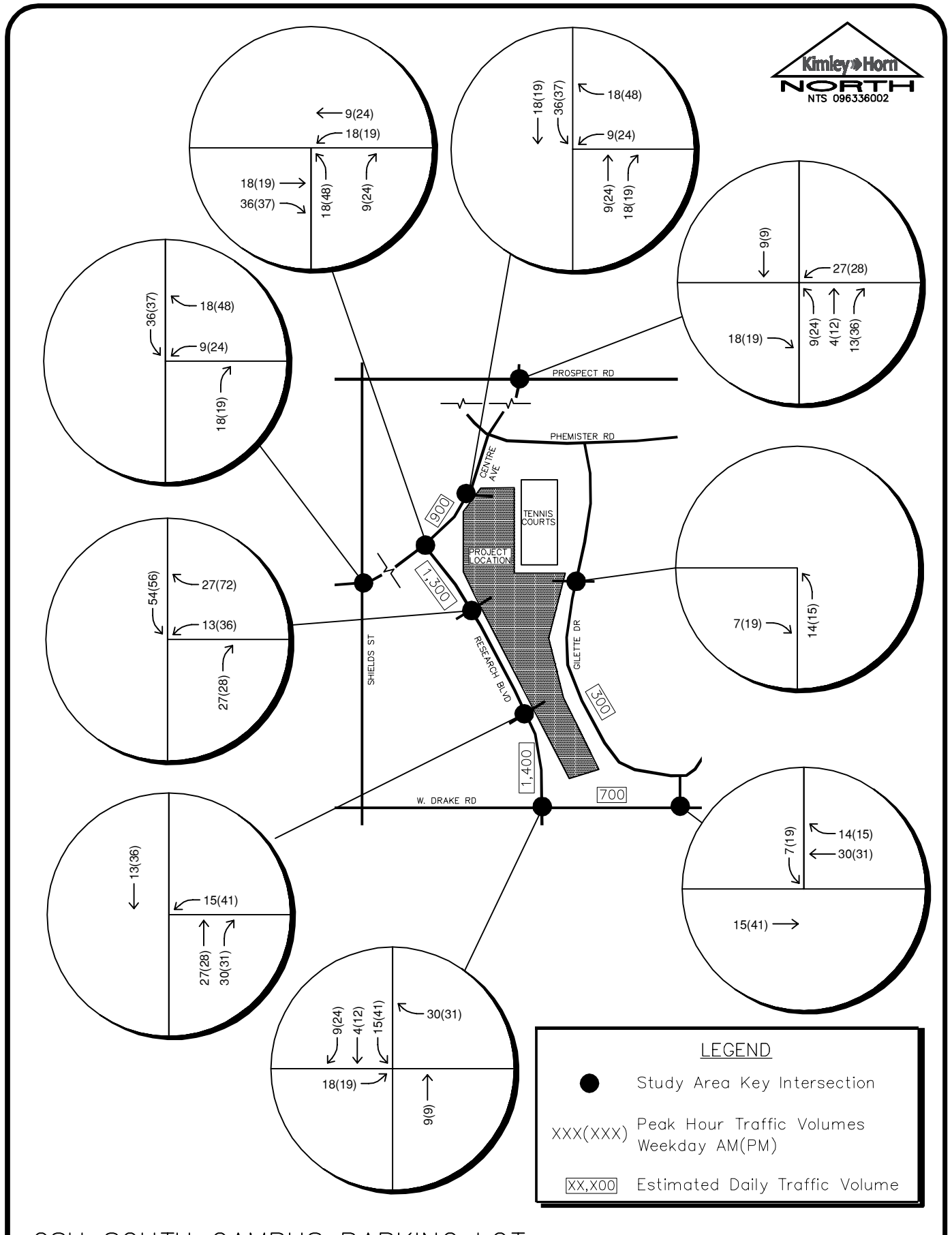
The 2015 and 2025 proposed CSU South Campus parking lot traffic assignment volumes were then added to the 2015 and 2025 background volumes to find the projected 2015 and 2025 total traffic volumes. **Figures 7** and **8** illustrate the projected total traffic volumes for the 2015 and 2025 horizon years.



CSU SOUTH CAMPUS PARKING LOT
TRIP REDISTRIBUTION

FIGURE 5

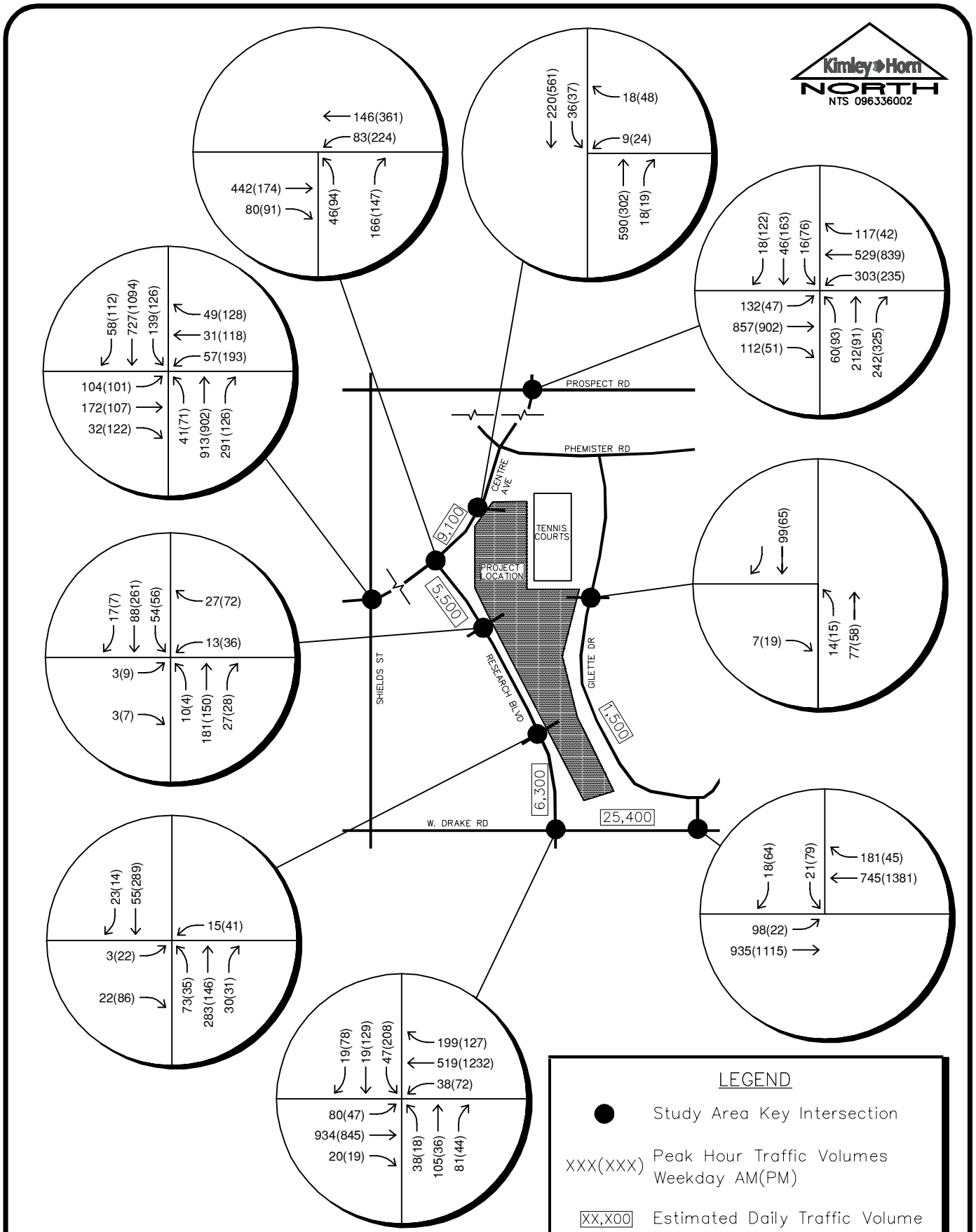
Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
PROJECT TRAFFIC ASSIGNMENT

FIGURE 6

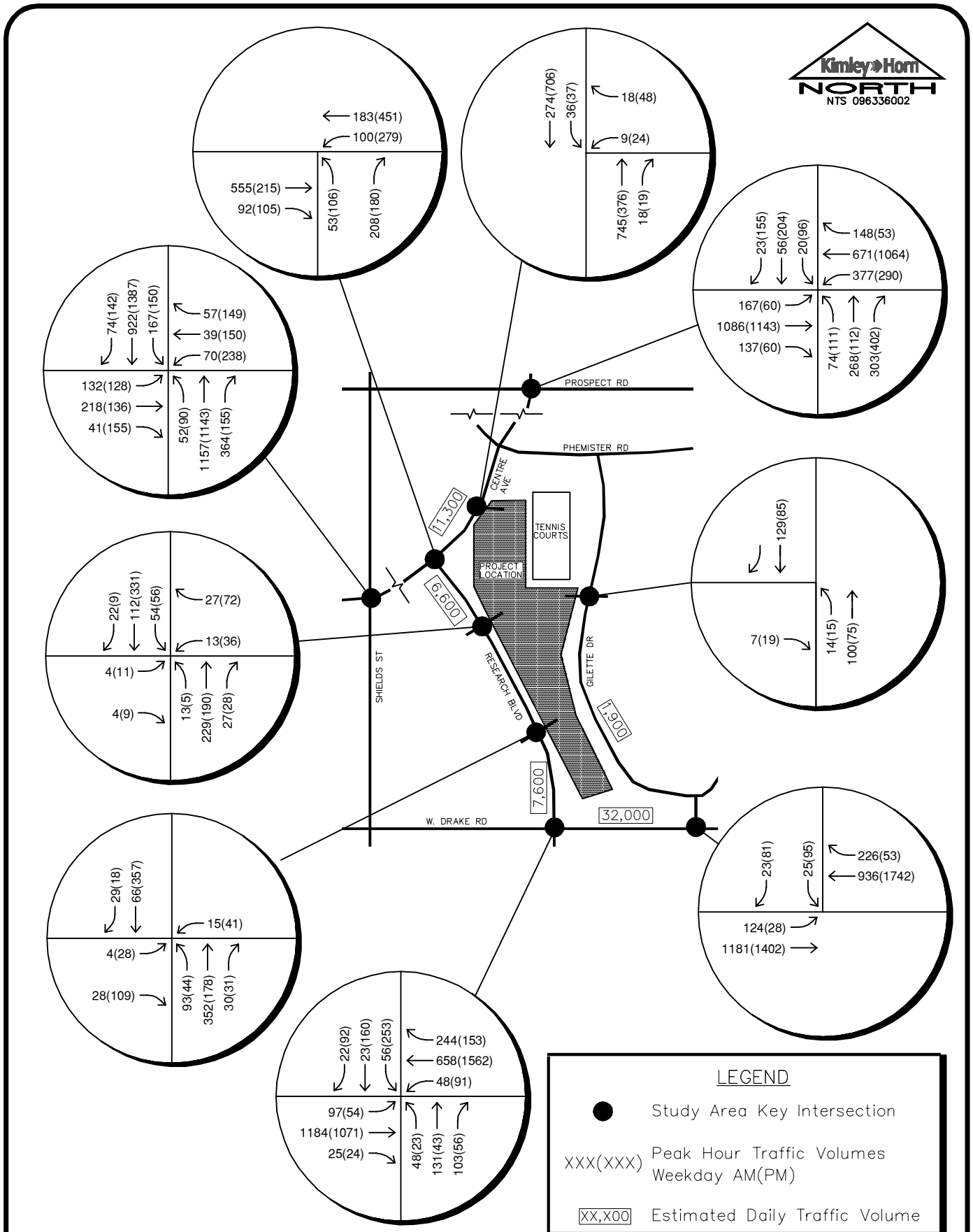
Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2015 BACKGROUND
PLUS PROJECT TRAFFIC VOLUMES

FIGURE 7

Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2025 BACKGROUND
PLUS PROJECT TRAFFIC VOLUMES

FIGURE 8

Kimley»Horn

4.0 TRAFFIC OPERATIONS ANALYSIS

An analysis of traffic operations in the site vicinity was conducted to determine potential capacity deficiencies in the 2015 and 2025 development horizons at the identified key intersections. The acknowledged source for determining overall capacity is the current edition of the *Highway Capacity Manual (HCM)*[1].

4.1 Analysis Methodology

Capacity analysis results are listed in terms of Level of Service (LOS). LOS is a qualitative term describing operating conditions a driver will experience while traveling on a particular street or highway during a specific time interval. It ranges from A (very little delay) to F (long delays and congestion). For intersections and roadways in this study area, LOS D is recommended as the minimum threshold for acceptable operation. **Table 2** shows the definition of LOS for signalized and unsignalized intersections.

Table 2 – Level of Service Definitions

Level of Service	Signalized Intersection Average Total Delay (sec/veh)	Unsignalized Intersection Average Total Delay (sec/veh)
A	≤ 10	≤ 10
B	> 10 and ≤ 20	> 10 and ≤ 15
C	> 20 and ≤ 35	> 15 and ≤ 25
D	> 35 and ≤ 55	> 25 and ≤ 35
E	> 55 and ≤ 80	> 35 and ≤ 50
F	> 80	> 50

Definitions provided from the Highway Capacity Manual, Special Report 209, Transportation Research Board, 2010.

The study's key intersections were analyzed based on average total delay analysis for signalized and unsignalized intersections. Under the unsignalized analysis, the LOS for a two-way stop controlled intersection is determined by the computed or measured control delay and is defined for each minor movement. LOS for a two-way stop-controlled intersection is not defined for the intersection as a whole. LOS for a signalized and four-way stop controlled intersection is defined for each approach and for the intersection.

[1] Transportation Research Board, *Highway Capacity Manual*, Special Report 209, Washington DC, 2010.

4.2 Key Intersection Operational Analysis

Calculations for the level of service at the key intersections for the study area are provided in **Appendix B**. The existing 2015 analysis is based on the lane geometry and intersection control shown in **Figure 2.** All signalized intersection analyses utilize the existing observed 110-second cycle lengths and existing signal phasing of the intersection provided by the City of Fort Collins. LOS for the intersections was calculated using Synchro analysis software reporting the HCM results. A summary of the existing intersection delay and LOS is provided in **Table 3** and summarized graphically in **Figure 9**. A summary of the background intersection delay and LOS in 2025 is provided in **Table 4** and summarized graphically in **Figure 10**. A summary of the expected intersection delay and LOS in 2015 and 2025 with the proposed project is provided in **Tables 5** and **6** and summarized graphically in **Figures 11** and **12**.

Table 3 – Existing Intersection Delay and Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Prospect/Center	24.9	C	23.4	C
Shields/Centre	21.7	C	25.8	C
Centre/Research				
Westbound Left	*9.1*	*A*	*8.3*	*A*
Northbound Approach	*17.0*	*C*	*12.5*	*B*
Drake/Research	14.9	B	19.1	B
Drake/Gilette Access				
Eastbound Left	*6.1*	*A*	*2.3*	*A*
Southbound Approach	*17.0*	*C*	*67.6*	*F*
Research North Access				
Eastbound Approach	*10.0*	*B*	*11.2*	*B*
Northbound Left	*7.5*	*A*	*7.9*	*A*
Research South Access				
Eastbound Approach	*10.0*	*B*	*12.6*	*B*
Northbound Left	*7.5*	*A*	*8.0*	*A*

Table 4 – 2025 Expected Background Intersection Delay and Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Prospect/Center	50.0	D	33.0	C
Shields/Centre	36.9	D	40.7	D
Centre/Research				
Westbound Left	*9.9*	*A*	*8.8*	*A*
Northbound Approach	*29.4*	*D*	*15.4*	*C*
Drake/Research	16.5	B	23.5	C
Drake/Gilette Drive Access				
Eastbound Left	*11.4*	*B*	*4.8*	*A*
Southbound Approach	*24.0*	*C*	*360.1*	*F*
Research North Access				
Eastbound Approach	*10.7*	*B*	*12.3*	*B*
Northbound Approach	*7.6*	*A*	*8.1*	*A*
Research South Access				
Eastbound Approach	*11.0*	*B*	*15.5*	*C*
Northbound Left	*7.6*	*A*	*8.3*	*A*

Table 5 – 2015 Expected Background Plus Project Intersection Delay and Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Prospect/Center	28.7	C	25.6	C
Shields/Centre	23.3	C	27.7	C
Centre/Research				
Westbound Left	*9.5*	*A*	*8.7*	*A*
Northbound Approach	*19.1*	*C*	*16.6*	*C*
Drake/Research	15.9	B	21.5	C
Drake/Gilette Drive Access				
Eastbound Left	*6.5*	*A*	*2.4*	*A*
Southbound Approach	*19.3*	*C*	*122.4*	*F*
Drake/Gilette Drive Access #				
Eastbound Left	*6.5*	*A*	*2.4*	*A*
Southbound Left	*26.6*	*C*	*70.1*	*F*
Southbound Right	*13.9*	*B*	*21.7*	*C*
Research North Access				
Eastbound Approach	*11.5*	*B*	*14.1*	*B*
Westbound Approach	*11.3*	*B*	*12.6*	*B*
Northbound Left	*7.5*	*A*	*7.9*	*A*
Southbound Left	*7.9*	*A*	*7.8*	*A*
Research South Access				
Eastbound Left	*12.2*	*B*	*14.5*	*B*
Eastbound Right	*8.7*	*A*	*10.7*	*B*
Westbound Approach	*19.7*	*C*	*28.6*	*D*
Northbound Left	*7.6*	*A*	*8.1*	*A*
Centre Access				
Westbound Approach	*15.4*	*C*	*15.0*	*C*
Southbound Left	*9.1*	*A*	*8.1*	*A*
Gilette Access				
Eastbound Approach	*8.8*	*A*	*8.7*	*A*
Westbound Approach	*9.6*	*A*	*9.4*	*A*
Northbound Left	*7.5*	*A*	*7.4*	*A*
Southbound Left	*7.4*	*A*	*7.4*	*A*

Southbound designated left turn and right turn lanes

Table 6 – 2025 Expected Background Plus Project Intersection Delay and Level of Service

Intersection	AM Peak Hour		PM Peak Hour	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Prospect/Center	57.2	E	39.2	D
Prospect/Center *	58.9	E	48.3	D
Shields/Centre	44.6	D	45.8	D
Centre/Research				
Westbound Left	*10.5*	*A*	*9.3*	*A*
Northbound Approach	*37.2*	*E*	*25.0*	*C*
Drake/Research	18.7	B	27.0	C
Drake/Gilette Drive Access				
Eastbound Left	*12.4*	*B*	*5.2*	*A*
Southbound Approach	*28.3*	*D*	*522.6*	*F*
Drake/Gilette Drive Access #				
Eastbound Left	*12.4*	*B*	*5.2*	*A*
Southbound Left	*33.0*	*D*	*306.3*	*F*
Southbound Right	*23.5*	*C*	*40.7*	*E*
Research North Access				
Eastbound Approach	*12.5*	*B*	*16.2*	*C*
Westbound Approach	*12.3*	*B*	*14.2*	*B*
Northbound Left	*7.8*	*A*	*8.1*	*A*
Southbound Left	*8.1*	*A*	*7.9*	*A*
Research South Access				
Eastbound Left	*14.3*	*B*	*18.0*	*C*
Eastbound Right	*8.8*	*A*	*11.6*	*B*
Westbound Approach	*26.3*	*D*	*51.4*	*F*
Northbound Left	*7.7*	*A*	*8.4*	*A*
Centre Access				
Westbound Approach	*19.0*	*C*	*18.6*	*C*
Southbound Left	*9.7*	*A*	*8.3*	*A*
Gilette Access				
Eastbound Approach	*9.0*	*A*	*8.8*	*A*
Westbound Approach	*9.9*	*A*	*9.6*	*A*
Northbound Left	*7.5*	*A*	*7.4*	*A*
Southbound Left	*7.5*	*A*	*7.4*	*A*

* Northbound and southbound dual left turn lanes
# Southbound designated left turn and right turn lanes

The intersections with LOS values of E or below were analyzed in further detail. These analyses provide recommendations for what improvements may be needed at the intersections to improve the LOS, allowing them to better handle the anticipated 2015 and 2025 traffic volumes. The following provides a description of the recommended intersection improvements for consideration by CSU and the City of Fort Collins:

Drake Road and Gilette Drive Access

The only capacity deficiency found during the existing condition is the southbound approach of Gillette Drive to Drake Road during the afternoon peak hour. To improve the Drake Road/Gilette Drive unsignalized intersection, the southbound Gilette Drive Access approach would benefit from a separate left turn and right turn lanes. Currently there is one shared left turn/right turn lane with a width of roughly 20 feet. With separate left turn and right turn lanes, long delays on the southbound could still occur. If delays are too excessive for drivers it is expected that traffic will reroute on the street network. Otherwise, a traffic signal could be considered at this intersection. It is located approximately halfway (approximately 800 feet) between the Drake Road/Research Boulevard and Drake Road/Redwing Road signalized intersections.

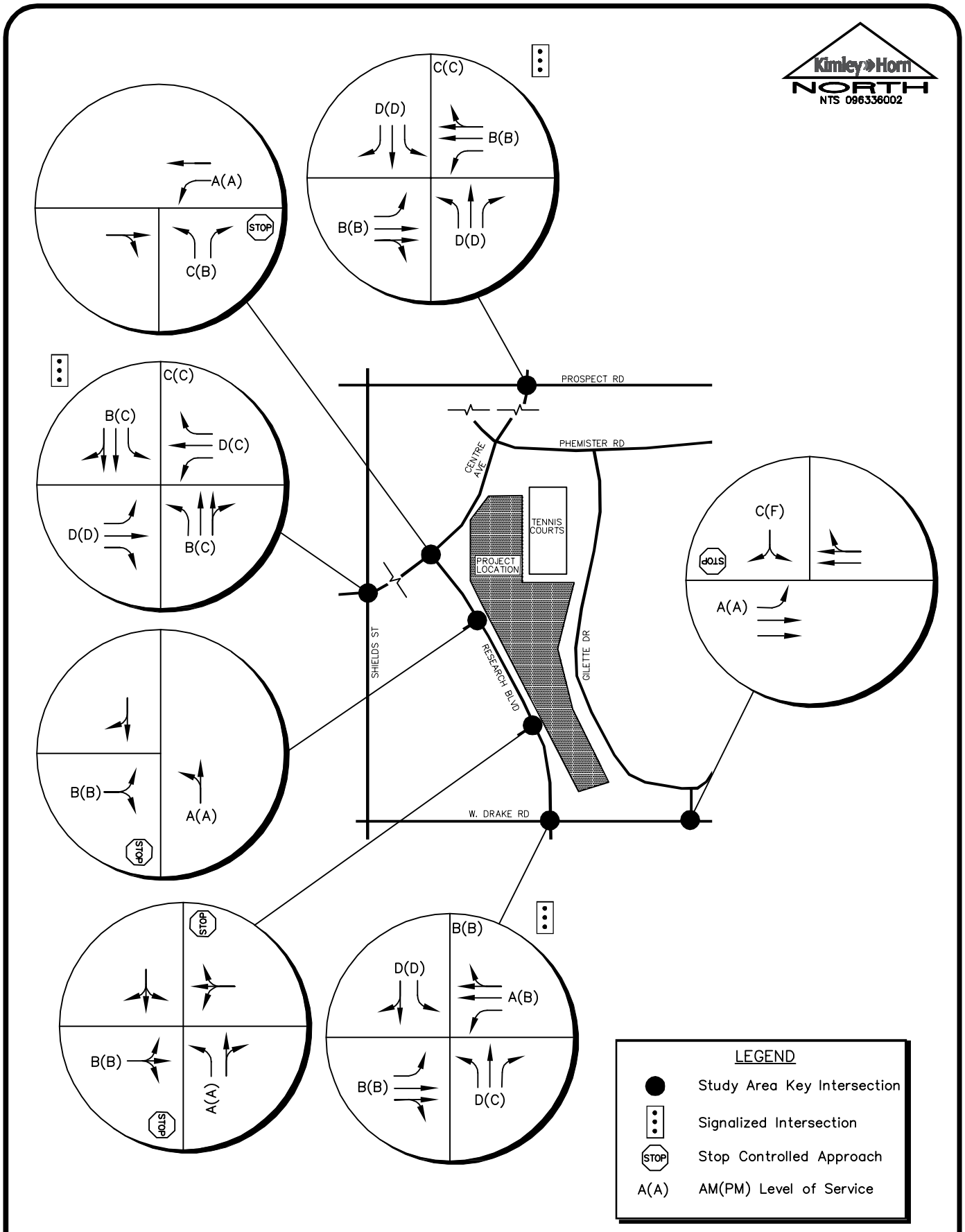
Research Boulevard South Access

With the completion of the CSU South Campus parking lot, the existing Research Boulevard south driveway that provides access to the tennis courts will be modified to provide access to the parking lot. It is recommended that the approach be constructed with a sufficient width to include separate shared left turn/through and right turn lanes. It is anticipated that the eastbound approach from the credit union will also function with two approach lanes as well since it has an adequate driveway width. In addition, it is recommended that the southbound Research Boulevard approach be restriped to include a left turn lane to shadow the northbound left turn lane. It is believed that a left turn lane length of 75 feet would be sufficient. With this configuration, acceptable level of service is anticipated for all movements with the addition of the parking lot traffic in the near term 2015 horizon. In the 2025 horizon, the westbound left turn movement may operate at a 51 second LOS F during the afternoon peak hour. It is believed that during times of heavy adjacent street traffic, drivers will reroute on the street network. This will occur either by vehicles turning right at this access or by traffic suing alternate driveways from the parking lot.

Prospect Road and Center Avenue

By 2025, the existing signalized intersection of Prospect Road and Center Avenue may operate at LOS E. This intersection was also identified as operating with poor LOS in the Parking and Transportation Master Plan (April 2014), prepared by Kimley-Horn, which studied the future traffic conditions associated with the CSU 2020 Transit Plan prepared by CSU's parking and transportation management team. Within the previous study it was recommended that the northbound and southbound approaches include dual left turn lanes.

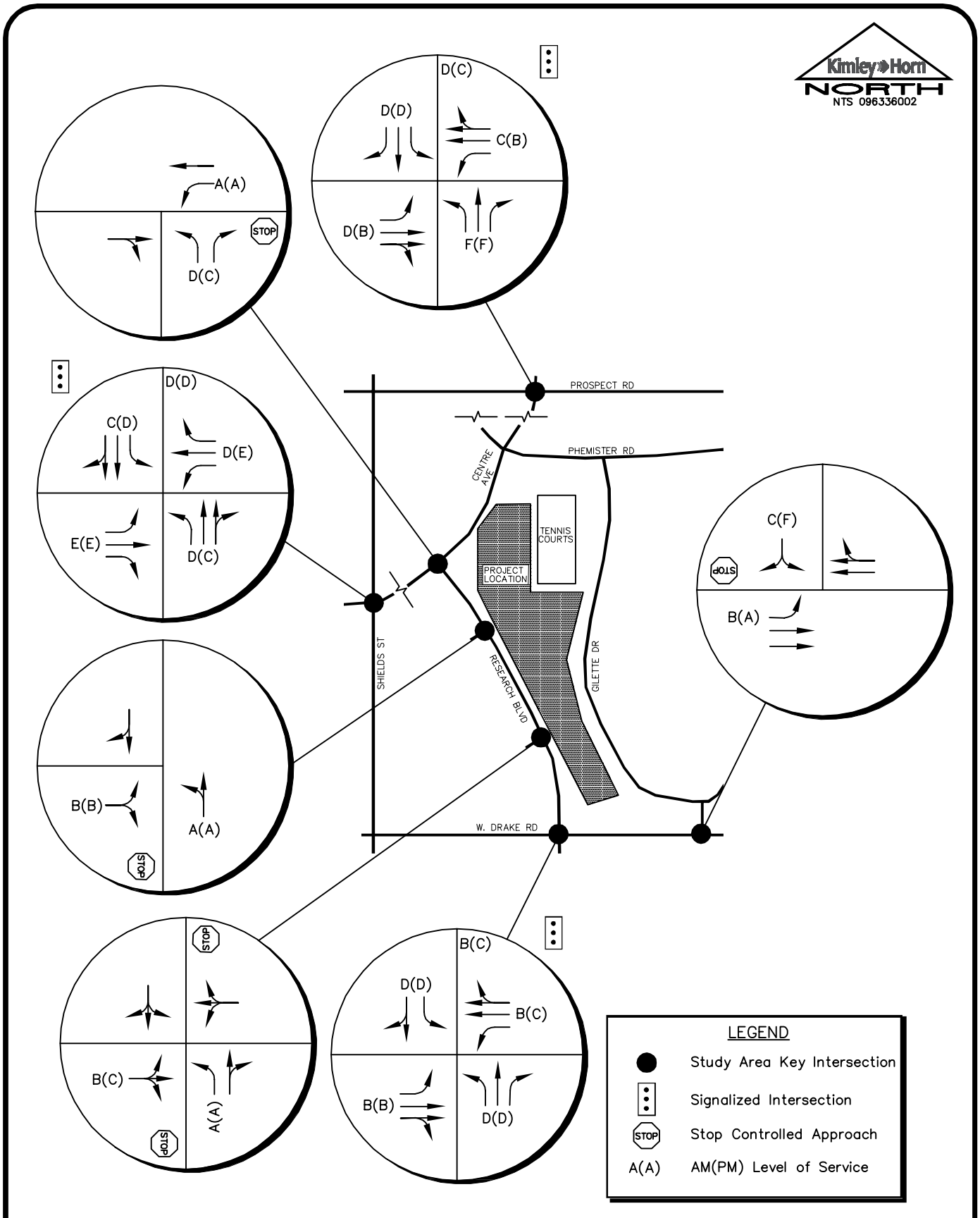
The above mentioned improvements at the Drake Road/Gilette Drive Access, Research Boulevard/South Access, and Prospect Road/Center Avenue intersections were incorporated into the operational analysis. The expected intersection delay and LOS in 2015 and 2025 with the project and the recommended intersection improvements for each of the study's key intersections is provided in **Tables 5** and **6** previously and summarized graphically in **Figures 11** and **12**.



CSU SOUTH CAMPUS PARKING LOT
2015 EXISTING LEVEL OF SERVICE

FIGURE 9

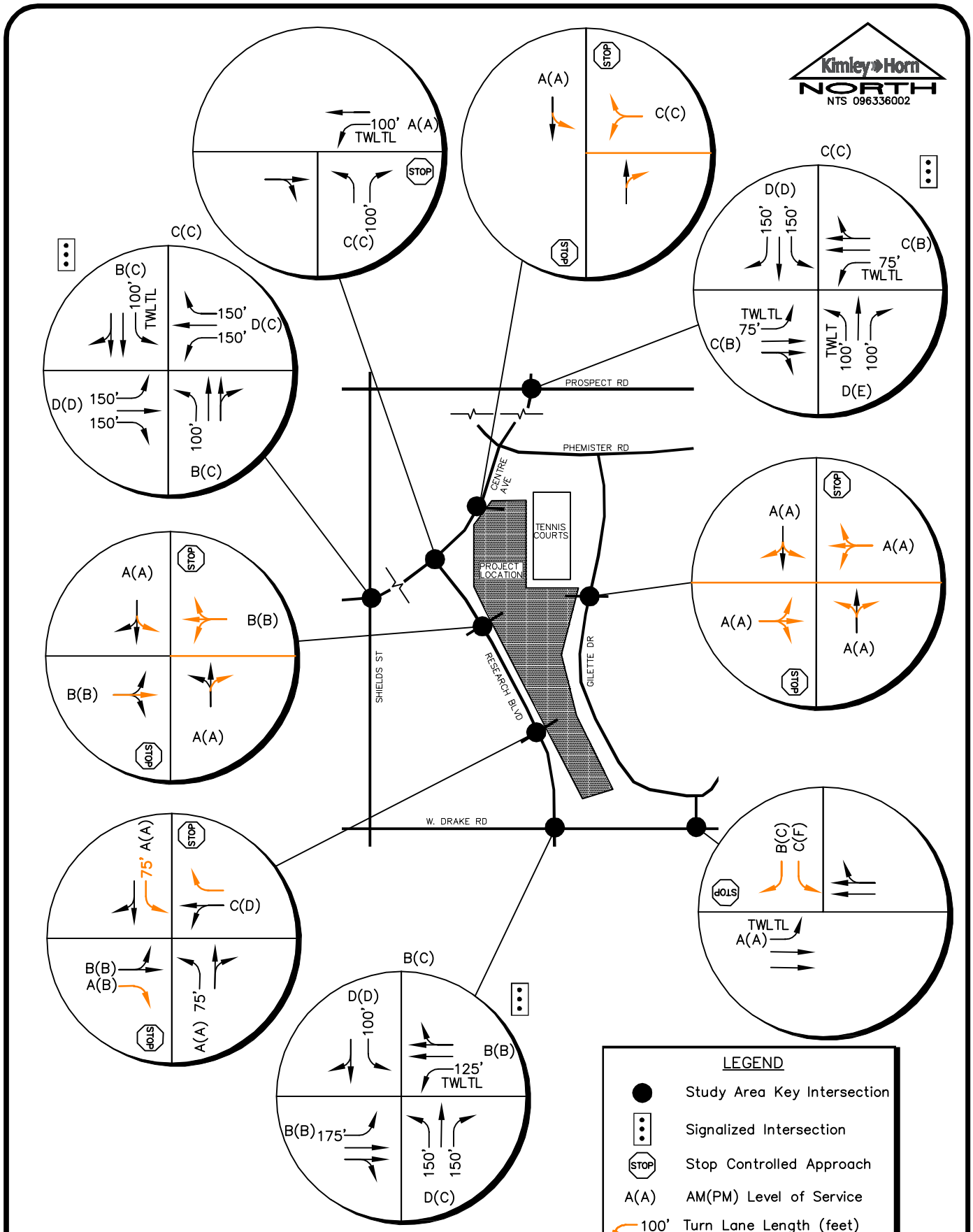
Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2025 BACKGROUND
EXPECTED LEVEL OF SERVICE

FIGURE 10

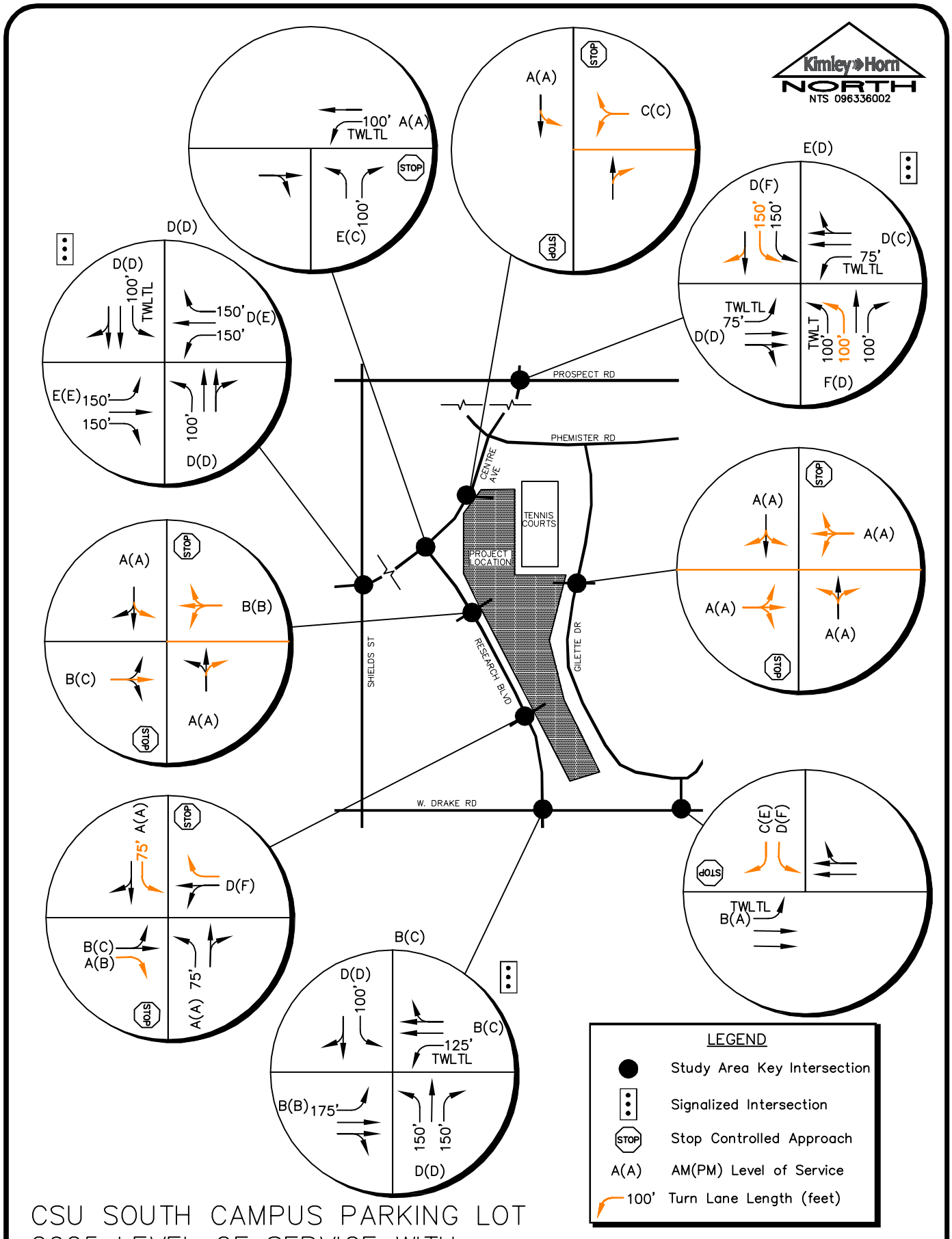
Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2015 LEVEL OF SERVICE WITH
RECOMMENDED IMPROVEMENTS

FIGURE 11

Kimley»Horn



CSU SOUTH CAMPUS PARKING LOT
2025 LEVEL OF SERVICE WITH
RECOMMENDED IMPROVEMENTS

FIGURE 12

Kimley»Horn

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis presented in this report, Kimley-Horn believes the proposed CSU South Campus parking lot project will be successfully incorporated into the roadway network. The proposed South Campus Parking Lot project development and expected traffic volumes resulted in the following recommendations:

- The access proposed for the surface parking lot project is recommended to include four full movement access driveways; two access drives off of Research Boulevard, one access off of Centre Avenue, and one access off of Gilette Drive.

- At the proposed Centre Avenue access, the westbound approach exiting the parking lot is recommended to have a combined left turn/right turn lane. It is recommended that this approach operate with stop control with the installation of a R1-1 “STOP” sign.

- At the proposed access along Gilette Drive, the eastbound approach exiting the development is recommended to have a combined left turn/through/right turn lane. It is believed that a new access to the parking lot on the east side of Gilette Drive will be constructed to align with this access. It is recommended that the parking lot approaches operate with stop control with the installation of R1-1 “STOP” signs.

- With the completion of the South Campus Parking Lot, an access will be located to align with the existing Centre Tech development. This Research Boulevard North Access will include a stop controlled westbound approach and is recommended to have a combined left turn/through/right turn lane. It is recommended that this approach operate with stop control with the installation of a R1-1 “STOP” sign.

- The existing access to the tennis courts along Research Boulevard will be reconstructed with the parking lot project. It is recommended that the westbound approach exiting the parking lot include shared left turn/through lane and a separate right turn lane. It is recommended that this approach operate with stop control with the installation of a R1-1 “STOP” sign. It is further recommended that southbound Research Boulevard include

restriping a 75-foot left turn lane at the access to shadow the existing northbound left turn lane.

- To improve the Drake Road/Gilette Drive Access unsignalized intersection, the southbound Gilette Drive Access approach would benefit from designating separate left turn and right turn lanes. Currently there is one shared approach lane with a width of approximately 20 feet which could be striped to provide two 10-foot turn lanes.

- To improve LOS conditions in the 2025 horizon at the intersection of Prospect Road/Center Avenue and remain consistent with the Parking and Transportation Master Plan (April 2014), prepared by Kimley-Horn, it is recommended that the northbound and southbound approaches be constructed with dual left turn lanes.

- All on-site and off-site signing and striping improvements should be incorporated into the project civil drawings, and conform to City of Fort Collins standards as well as the Manual on Uniform Traffic Control Devices – 2009 Edition (MUTCD).

APPENDICES

APPENDIX A

Intersection Count Sheets

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Research Blvd

File Name : CentreResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

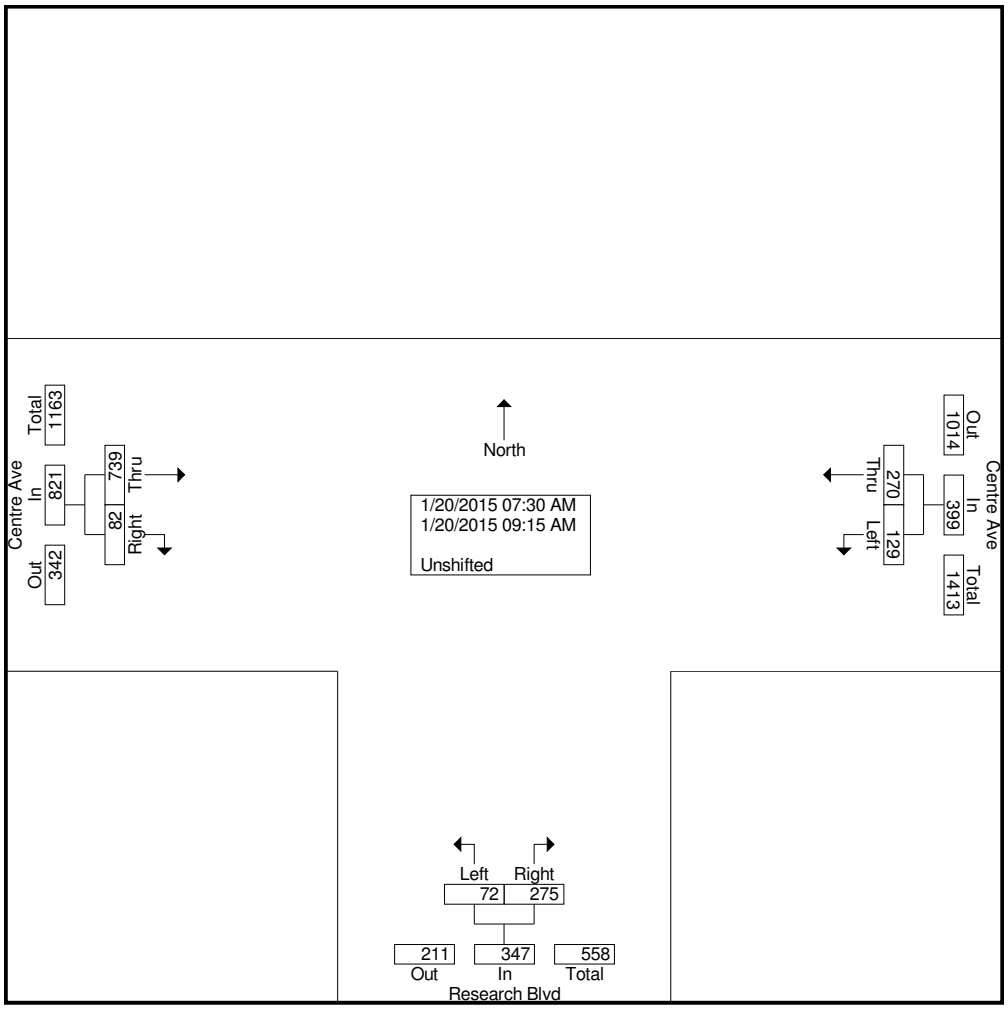
	Centre Ave Eastbound			Centre Ave Westbound			Research Blvd Northbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
07:30 AM	133	10	143	15	28	43	8	36	44	230
07:45 AM	136	2	138	17	38	55	10	58	68	261
Total	269	12	281	32	66	98	18	94	112	491
08:00 AM	79	21	100	17	32	49	7	36	43	192
08:15 AM	76	11	87	16	39	55	3	27	30	172
08:30 AM	111	11	122	16	34	50	13	31	44	216
08:45 AM	96	14	110	20	36	56	20	30	50	216
Total	362	57	419	69	141	210	43	124	167	796
09:00 AM	51	7	58	18	42	60	4	30	34	152
09:15 AM	57	6	63	10	21	31	7	27	34	128
Grand Total	739	82	821	129	270	399	72	275	347	1567
Apprch %	90	10		32.3	67.7		20.7	79.3		
Total %	47.2	5.2	52.4	8.2	17.2	25.5	4.6	17.5	22.1	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Research Blvd

File Name : CentreResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



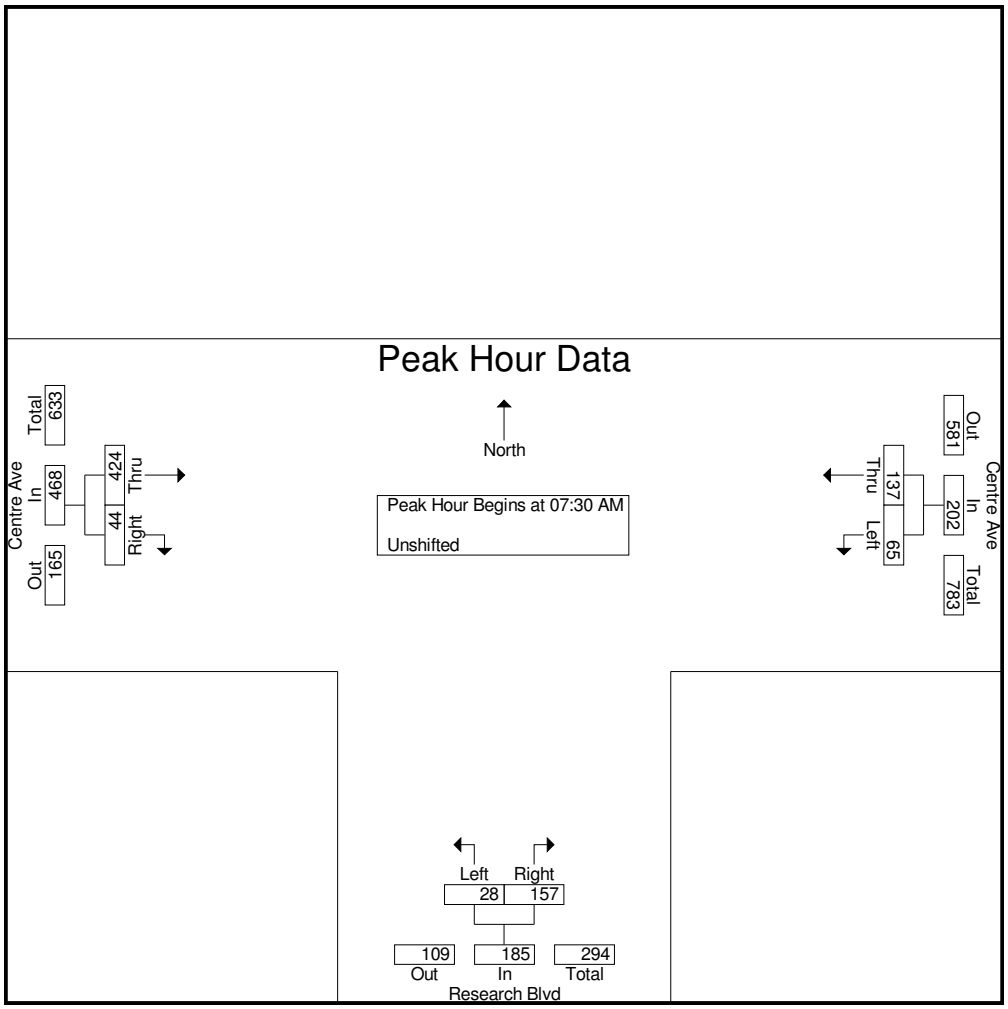
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Research Blvd

File Name : CentreResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Centre Ave Eastbound			Centre Ave Westbound			Research Blvd Northbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	133	10	**143**	15	28	43	8	36	44	230
07:45 AM	**136**	2	138	**17**	38	**55**	**10**	**58**	**68**	**261**
08:00 AM	79	**21**	100	17	32	49	7	36	43	192
08:15 AM	76	11	87	16	**39**	55	3	27	30	172
Total Volume	424	44	468	65	137	202	28	157	185	855
% App. Total	90.6	9.4		32.2	67.8		15.1	84.9		
PHF	.779	.524	.818	.956	.878	.918	.700	.677	.680	.819



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Research Blvd

File Name : CentreResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Research Blvd

File Name : CentreResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

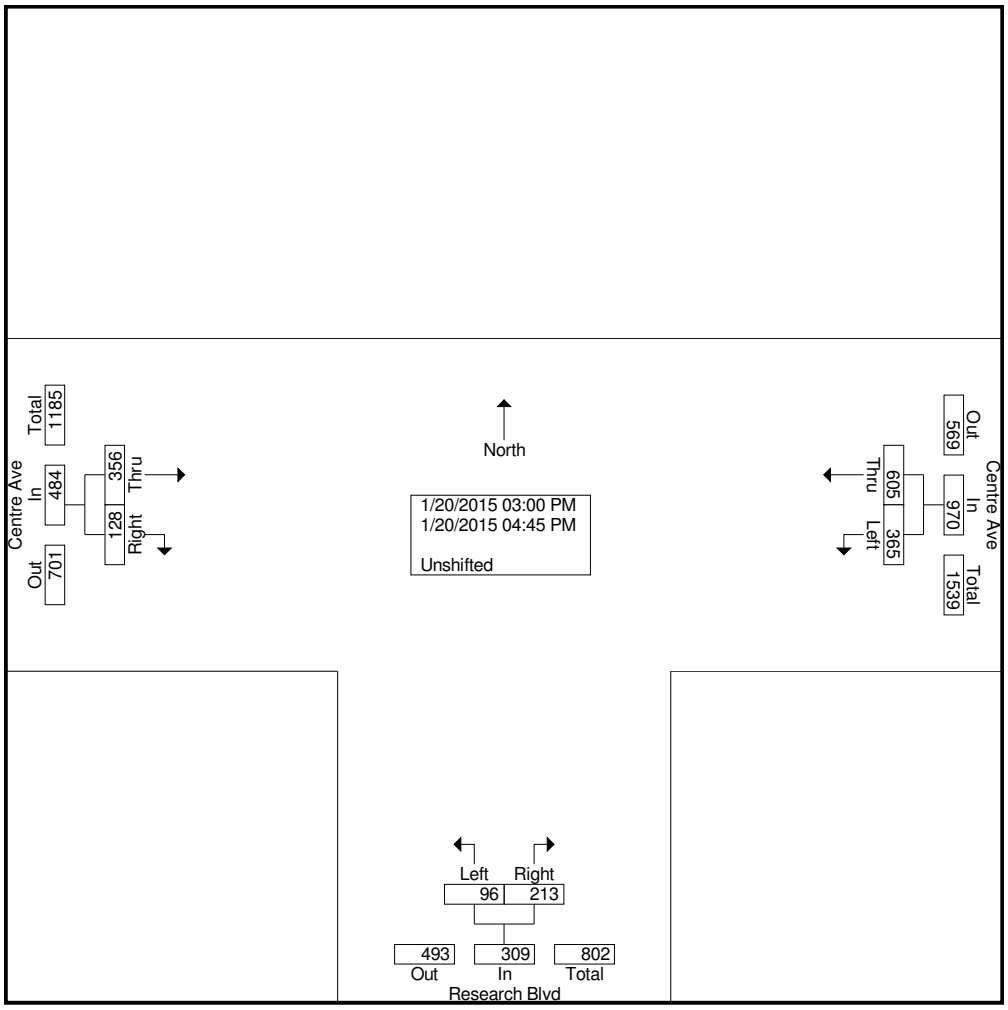
	Centre Ave Eastbound			Centre Ave Westbound			Research Blvd Northbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
03:00 PM	54	17	71	41	54	95	11	19	30	196
03:15 PM	41	17	58	36	71	107	17	28	45	210
03:30 PM	53	17	70	40	77	117	11	31	42	229
03:45 PM	53	23	76	43	66	109	11	12	23	208
Total	201	74	275	160	268	428	50	90	140	843
04:00 PM	34	20	54	42	72	114	14	34	48	216
04:15 PM	33	13	46	52	85	137	13	28	41	224
04:30 PM	45	12	57	57	81	138	8	26	34	229
04:45 PM	43	9	52	54	99	153	11	35	46	251
Total	155	54	209	205	337	542	46	123	169	920
Grand Total	356	128	484	365	605	970	96	213	309	1763
Apprch %	73.6	26.4		37.6	62.4		31.1	68.9		
Total %	20.2	7.3	27.5	20.7	34.3	55	5.4	12.1	17.5	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Research Blvd

File Name : CentreResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



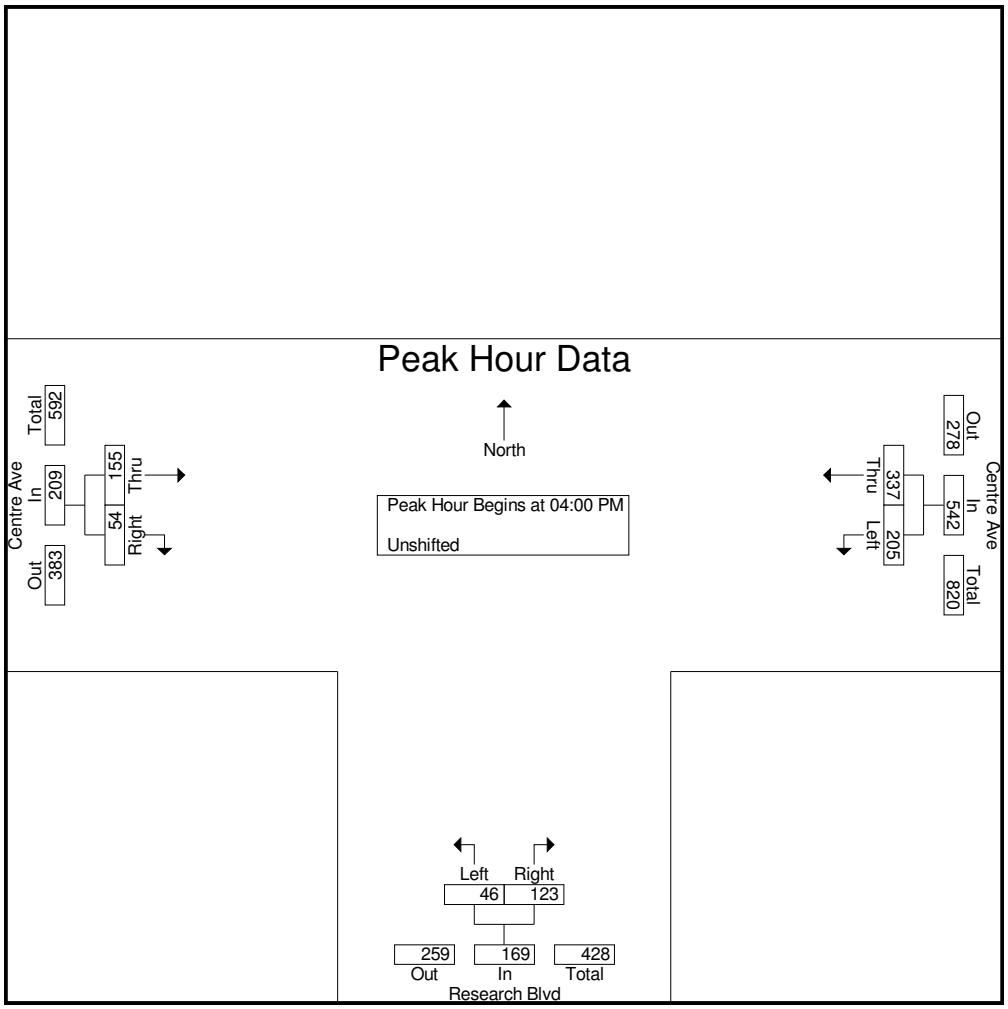
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Research Blvd

File Name : CentreResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Centre Ave Eastbound			Centre Ave Westbound			Research Blvd Northbound			
Start Time	Thru	Right	App. Total	Left	Thru	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	34	**20**	54	42	72	114	**14**	34	**48**	216
04:15 PM	33	13	46	52	85	137	13	28	41	224
04:30 PM	**45**	12	**57**	**57**	81	138	8	26	34	229
04:45 PM	43	9	52	54	**99**	**153**	11	**35**	46	**251**
Total Volume	155	54	209	205	337	542	46	123	169	920
% App. Total	74.2	25.8		37.8	62.2		27.2	72.8		
PHF	.861	.675	.917	.899	.851	.886	.821	.879	.880	.916



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Research Blvd

File Name : CentreResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Shields St

File Name : CentreShieldsAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

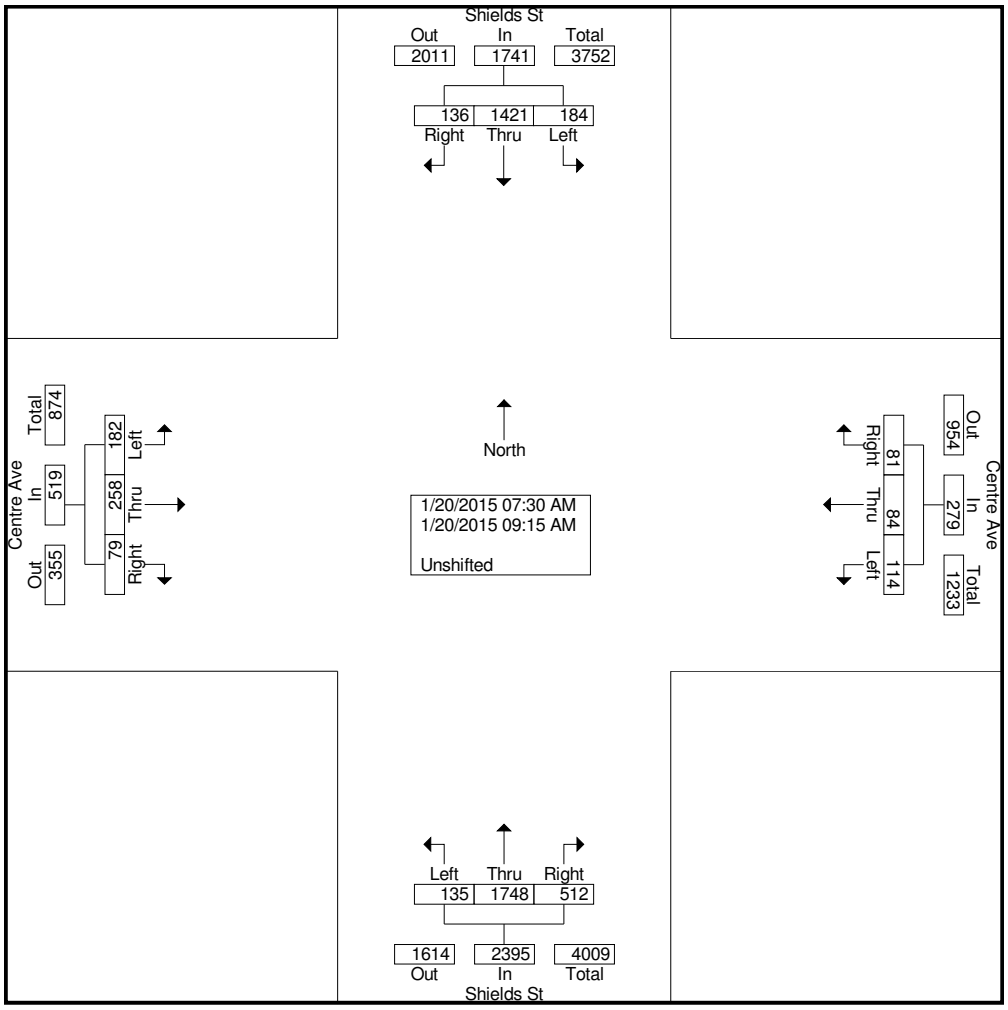
	Centre Ave Eastbound				Centre Ave Westbound				Shields St Northbound				Shields St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:30 AM	45	45	8	98	12	1	12	25	9	263	82	354	26	204	6	236	713
07:45 AM	23	69	4	96	10	7	7	24	9	278	81	368	36	176	15	227	715
Total	68	114	12	194	22	8	19	49	18	541	163	722	62	380	21	463	1428
08:00 AM	18	30	13	61	12	9	4	25	14	188	50	252	21	163	21	205	543
08:15 AM	18	28	7	53	14	14	8	36	9	184	60	253	20	184	16	220	562
08:30 AM	26	23	5	54	19	9	13	41	22	234	81	337	23	198	13	234	666
08:45 AM	19	27	9	55	16	18	17	51	20	203	69	292	33	209	23	265	663
Total	81	108	34	223	61	50	42	153	65	809	260	1134	97	754	73	924	2434
09:00 AM	12	15	12	39	22	14	7	43	26	222	48	296	16	137	15	168	546
09:15 AM	21	21	21	63	9	12	13	34	26	176	41	243	9	150	27	186	526
Grand Total	182	258	79	519	114	84	81	279	135	1748	512	2395	184	1421	136	1741	4934
Apprch %	35.1	49.7	15.2		40.9	30.1	29		5.6	73	21.4		10.6	81.6	7.8		
Total %	3.7	5.2	1.6	10.5	2.3	1.7	1.6	5.7	2.7	35.4	10.4	48.5	3.7	28.8	2.8	35.3	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Shields St

File Name : CentreShieldsAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



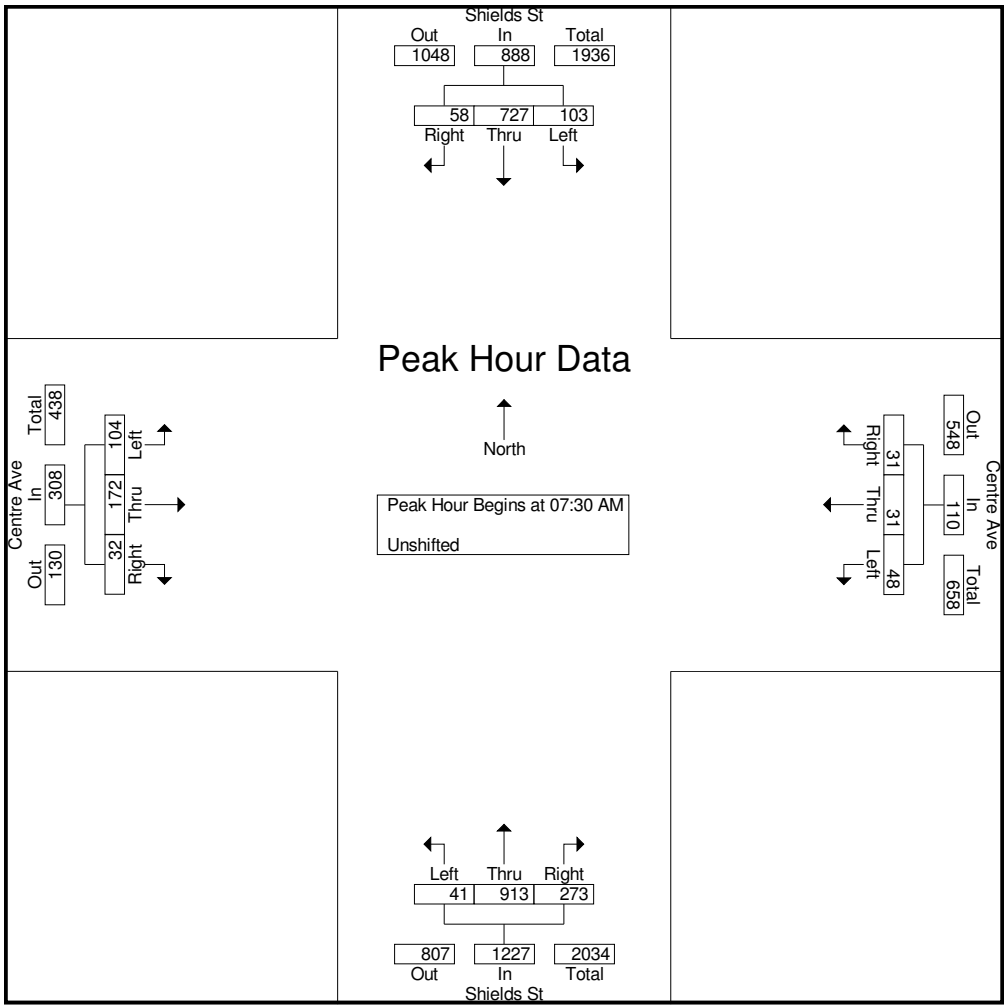
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Shields St

File Name : CentreShieldsAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Centre Ave Eastbound				Centre Ave Westbound				Shields St Northbound				Shields St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	**45**	45	8	**98**	12	1	**12**	25	9	263	**82**	354	26	**204**	6	**236**	713
07:45 AM	23	**69**	4	96	10	7	7	24	9	**278**	81	**368**	**36**	176	15	227	**715**
08:00 AM	18	30	**13**	61	12	9	4	25	**14**	188	50	252	21	163	**21**	205	543
08:15 AM	18	28	7	53	**14**	**14**	8	**36**	9	184	60	253	20	184	16	220	562
Total Volume	104	172	32	308	48	31	31	110	41	913	273	1227	103	727	58	888	2533
% App. Total	33.8	55.8	10.4		43.6	28.2	28.2		3.3	74.4	22.2		11.6	81.9	6.5		
PHF	.578	.623	.615	.786	.857	.554	.646	.764	.732	.821	.832	.834	.715	.891	.690	.941	.886



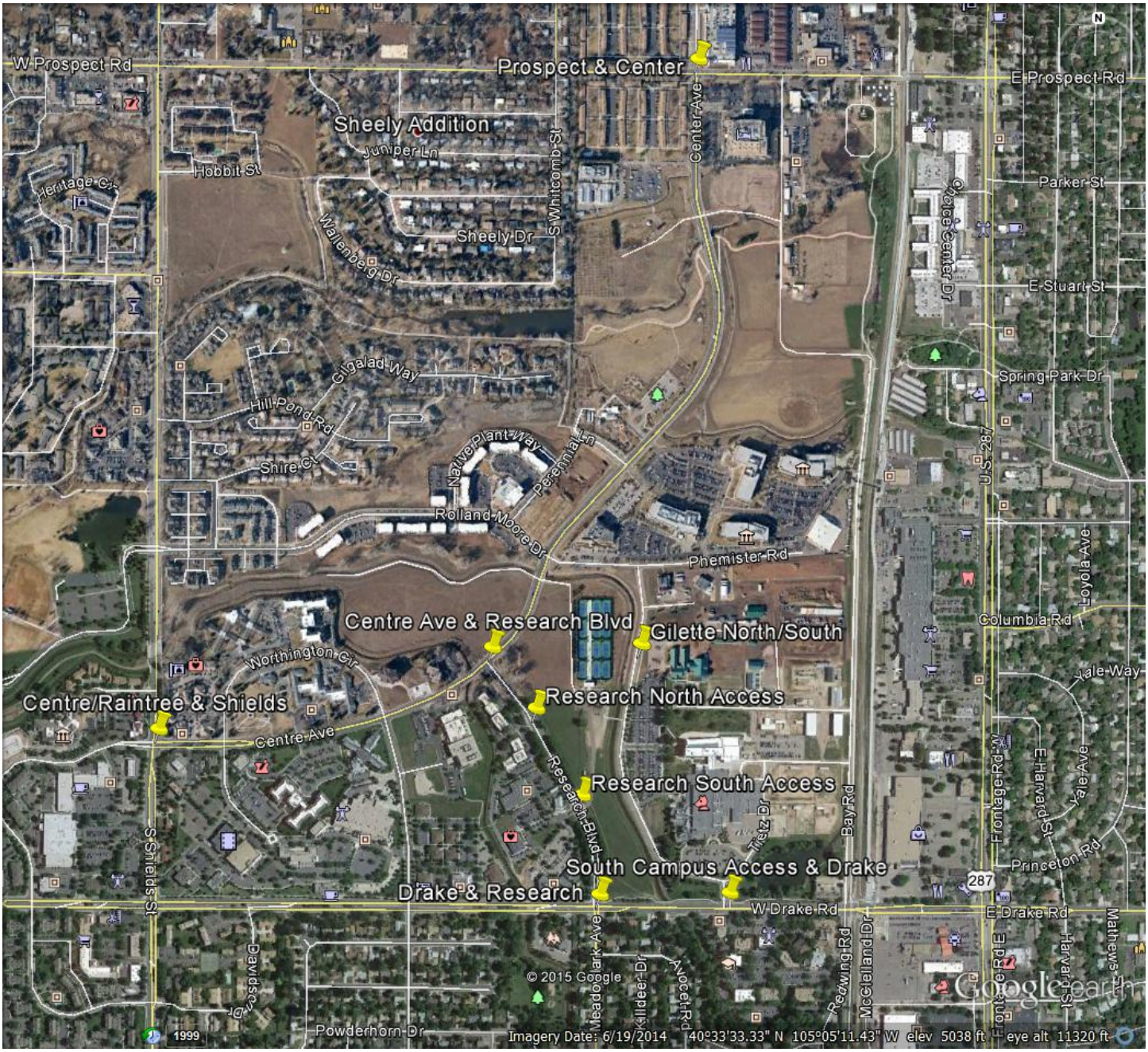
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Centre Ave and Shields St

File Name : CentreShieldsAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Shields St

File Name : CentreShieldsPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

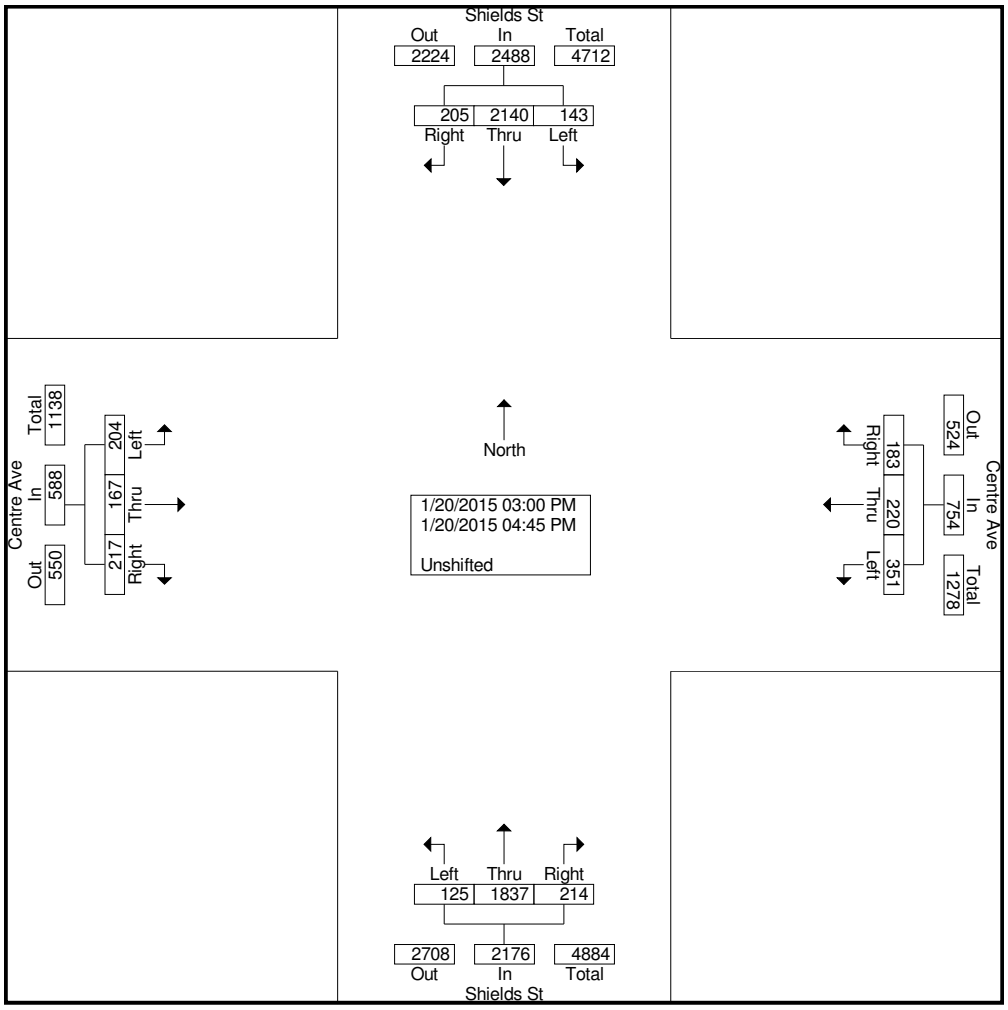
	Centre Ave Eastbound				Centre Ave Westbound				Shields St Northbound				Shields St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	28	17	34	79	39	18	27	84	13	250	36	299	15	233	22	270	732
03:15 PM	28	19	32	79	44	18	17	79	11	237	26	274	16	268	19	303	735
03:30 PM	35	63	42	140	51	34	18	103	15	185	39	239	22	245	27	294	776
03:45 PM	19	19	35	73	34	21	20	75	23	240	40	303	34	300	38	372	823
Total	110	118	143	371	168	91	82	341	62	912	141	1115	87	1046	106	1239	3066
04:00 PM	20	13	22	55	47	35	17	99	19	236	15	270	17	258	27	302	726
04:15 PM	27	12	23	62	37	28	25	90	14	241	13	268	16	291	20	327	747
04:30 PM	21	16	9	46	49	30	31	110	16	222	21	259	9	245	21	275	690
04:45 PM	26	8	20	54	50	36	28	114	14	226	24	264	14	300	31	345	777
Total	94	49	74	217	183	129	101	413	63	925	73	1061	56	1094	99	1249	2940
Grand Total	204	167	217	588	351	220	183	754	125	1837	214	2176	143	2140	205	2488	6006
Apprch %	34.7	28.4	36.9		46.6	29.2	24.3		5.7	84.4	9.8		5.7	86	8.2		
Total %	3.4	2.8	3.6	9.8	5.8	3.7	3	12.6	2.1	30.6	3.6	36.2	2.4	35.6	3.4	41.4	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Shields St

File Name : CentreShieldsPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



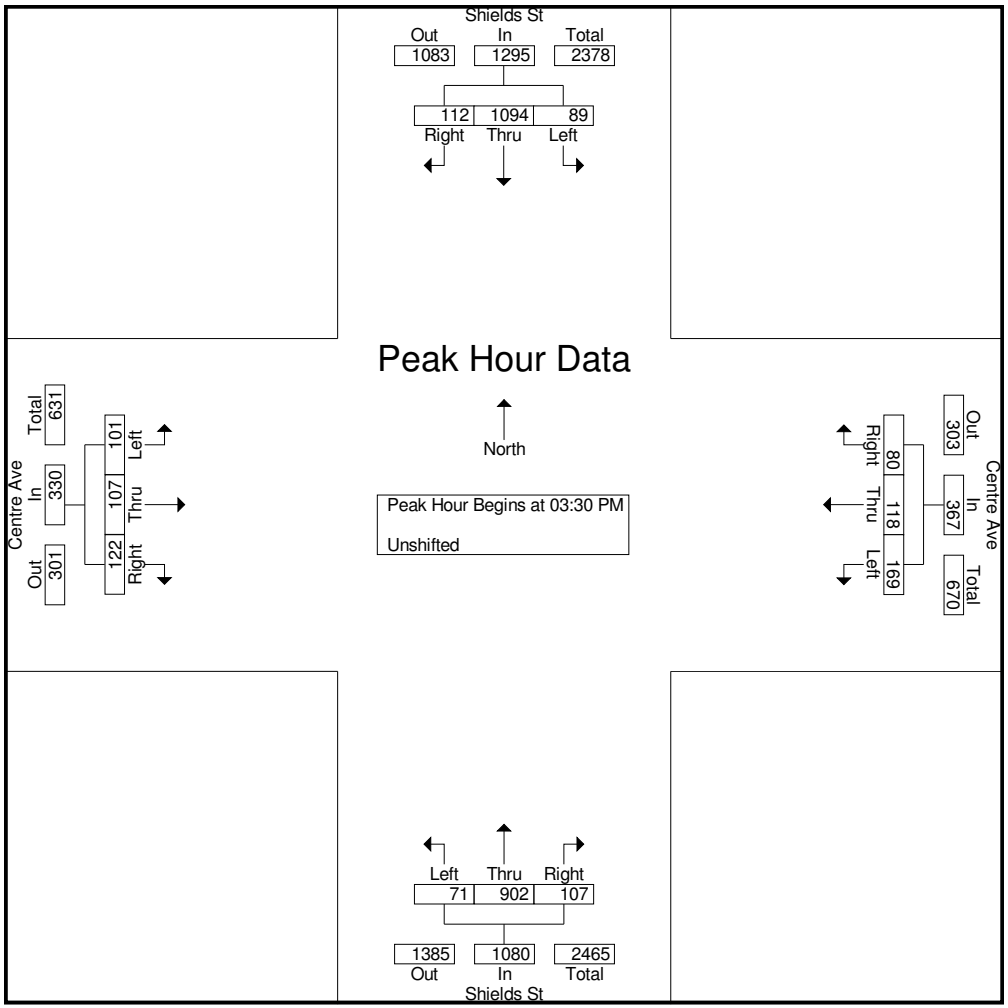
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Shields St

File Name : CentreShieldsPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Centre Ave Eastbound				Centre Ave Westbound				Shields St Northbound				Shields St Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:30 PM																	
03:30 PM	**35**	**63**	**42**	**140**	**51**	34	18	**103**	15	185	39	239	22	245	27	294	776
03:45 PM	19	19	35	73	34	21	20	75	**23**	240	**40**	**303**	**34**	**300**	**38**	**372**	**823**
04:00 PM	20	13	22	55	47	**35**	17	99	19	236	15	270	17	258	27	302	726
04:15 PM	27	12	23	62	37	28	**25**	90	14	**241**	13	268	16	291	20	327	747
Total Volume	101	107	122	330	169	118	80	367	71	902	107	1080	89	1094	112	1295	3072
% App. Total	30.6	32.4	37		46	32.2	21.8		6.6	83.5	9.9		6.9	84.5	8.6		
PHF	.721	.425	.726	.589	.828	.843	.800	.891	.772	.936	.669	.891	.654	.912	.737	.870	.933



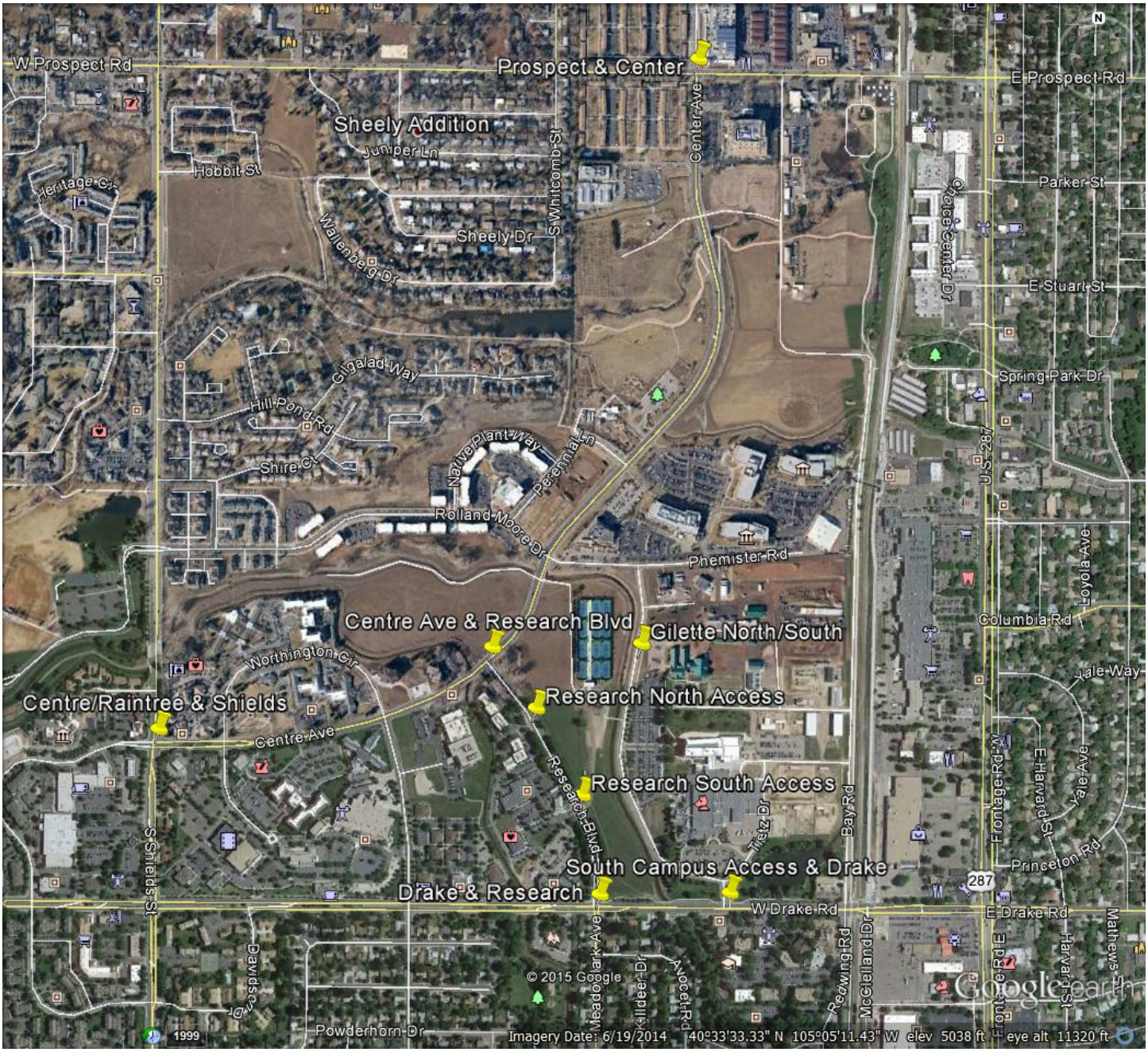
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Centre Ave and Shields St

File Name : CentreShieldsPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

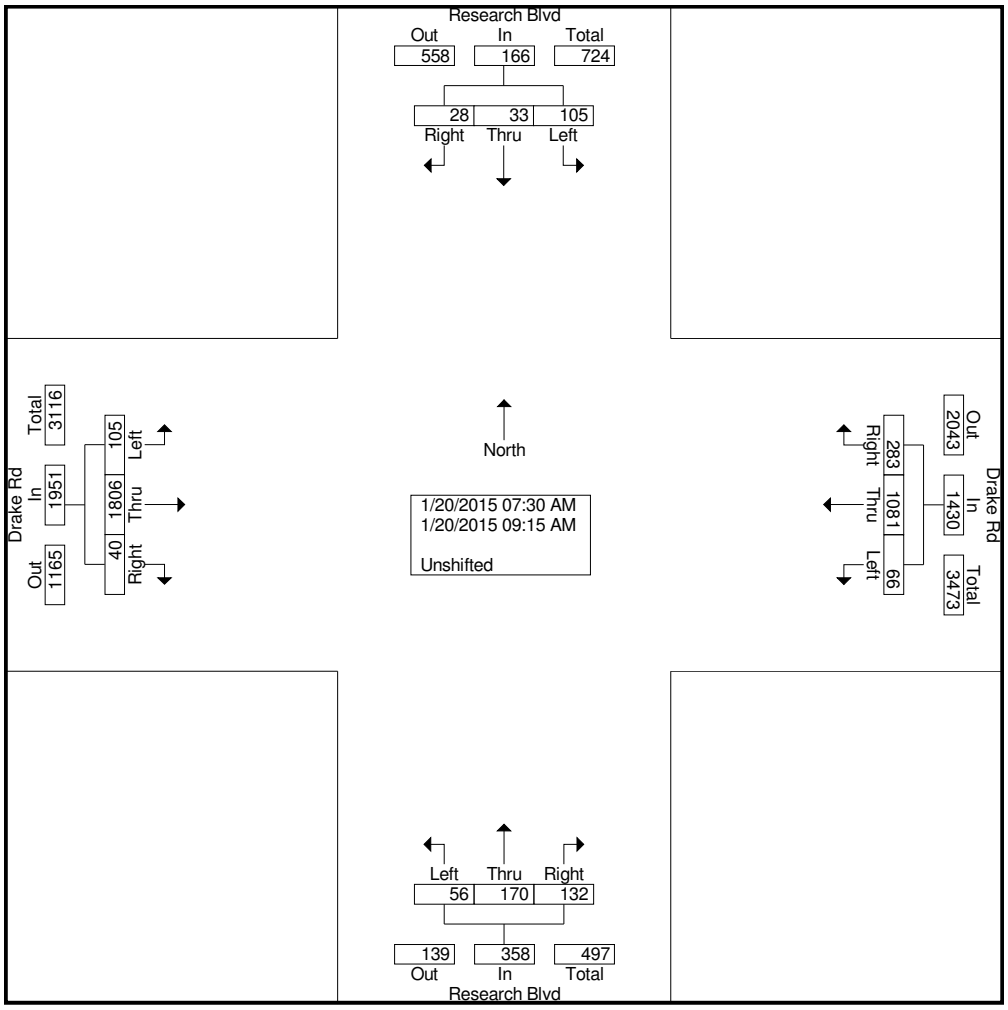
	Drake Rd Eastbound				Drake Rd Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:30 AM	9	285	2	296	5	113	39	157	6	34	15	55	9	4	1	14	522
07:45 AM	23	242	0	265	13	166	60	239	6	31	21	58	7	3	1	11	573
Total	32	527	2	561	18	279	99	396	12	65	36	113	16	7	2	25	1095
08:00 AM	17	195	6	218	4	108	44	156	13	18	11	42	4	6	5	15	431
08:15 AM	13	212	12	237	16	132	26	174	13	13	34	60	12	2	3	17	488
08:30 AM	9	231	3	243	7	151	29	187	10	24	18	52	11	6	2	19	501
08:45 AM	20	263	5	288	5	166	35	206	4	24	11	39	28	4	1	33	566
Total	59	901	26	986	32	557	134	723	40	79	74	193	55	18	11	84	1986
09:00 AM	11	191	4	206	10	121	17	148	3	14	15	32	15	5	8	28	414
09:15 AM	3	187	8	198	6	124	33	163	1	12	7	20	19	3	7	29	410
Grand Total	105	1806	40	1951	66	1081	283	1430	56	170	132	358	105	33	28	166	3905
Apprch %	5.4	92.6	2.1		4.6	75.6	19.8		15.6	47.5	36.9		63.3	19.9	16.9		
Total %	2.7	46.2	1	50	1.7	27.7	7.2	36.6	1.4	4.4	3.4	9.2	2.7	0.8	0.7	4.3	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



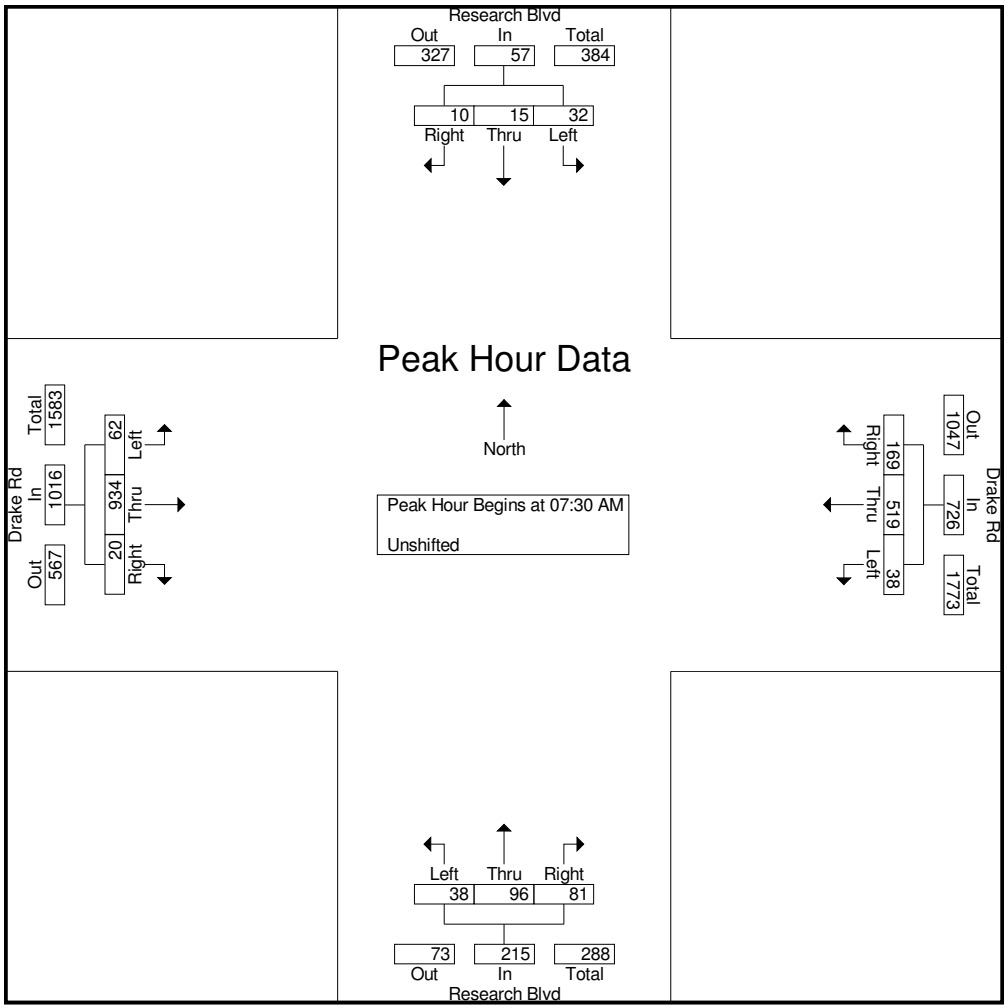
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Drake Rd Eastbound				Drake Rd Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	9	**285**	2	**296**	5	113	39	157	6	**34**	15	55	9	4	1	14	522
07:45 AM	**23**	242	0	265	13	**166**	**60**	**239**	6	31	21	58	7	3	1	11	**573**
08:00 AM	17	195	6	218	4	108	44	156	**13**	18	11	42	4	**6**	**5**	15	431
08:15 AM	13	212	**12**	237	**16**	132	26	174	13	13	**34**	**60**	**12**	2	3	**17**	488
Total Volume	62	934	20	1016	38	519	169	726	38	96	81	215	32	15	10	57	2014
% App. Total	6.1	91.9	2		5.2	71.5	23.3		17.7	44.7	37.7		56.1	26.3	17.5		
PHF	.674	.819	.417	.858	.594	.782	.704	.759	.731	.706	.596	.896	.667	.625	.500	.838	.879



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

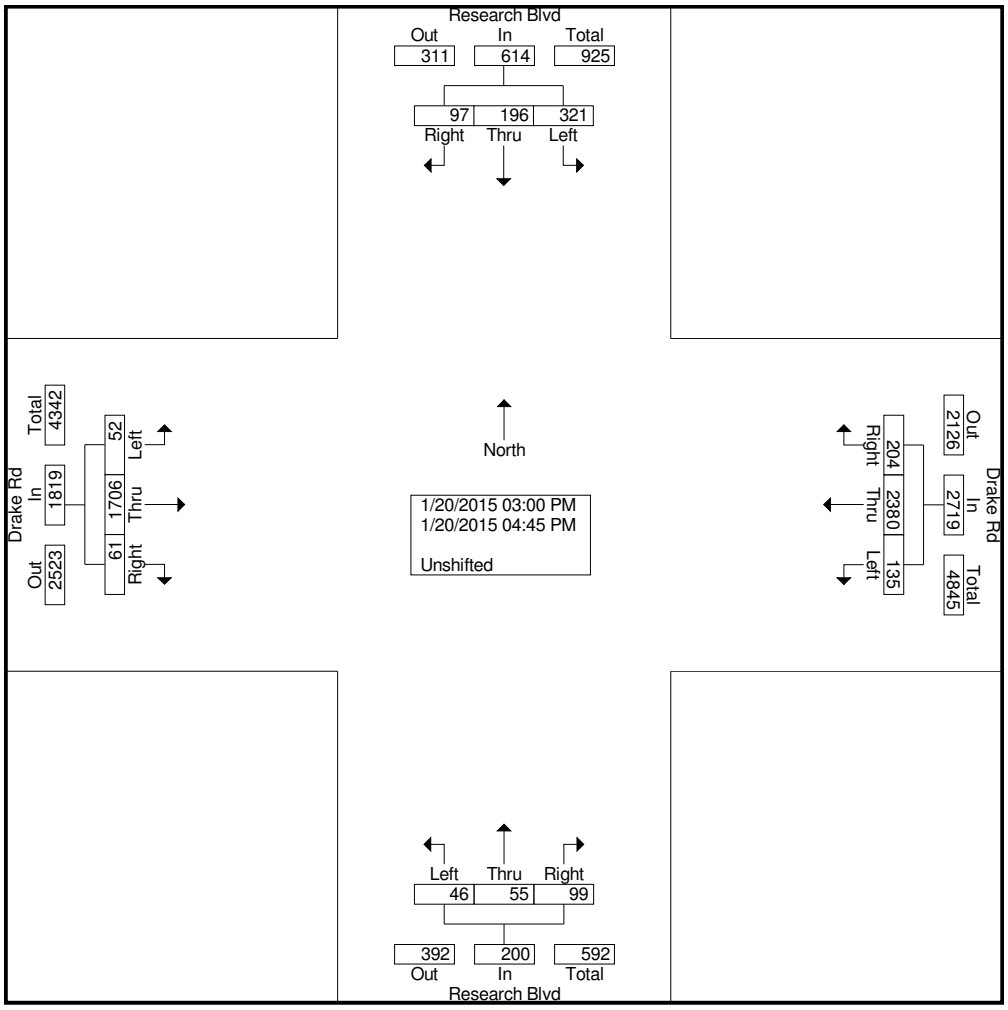
	Drake Rd Eastbound				Drake Rd Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	4	209	18	231	21	260	21	302	10	5	13	28	43	24	14	81	642
03:15 PM	7	217	6	230	7	255	40	302	9	8	22	39	44	15	9	68	639
03:30 PM	8	229	8	245	14	277	26	317	5	8	10	23	34	19	7	60	645
03:45 PM	5	240	6	251	13	335	24	372	4	3	13	20	36	20	16	72	715
Total	24	895	38	957	55	1127	111	1293	28	24	58	110	157	78	46	281	2641
04:00 PM	12	200	3	215	22	285	24	331	5	9	9	23	45	32	12	89	658
04:15 PM	4	221	6	231	14	326	27	367	2	6	12	20	40	26	16	82	700
04:30 PM	7	184	4	195	23	286	21	330	7	9	10	26	46	39	10	95	646
04:45 PM	5	206	10	221	21	356	21	398	4	7	10	21	33	21	13	67	707
Total	28	811	23	862	80	1253	93	1426	18	31	41	90	164	118	51	333	2711
Grand Total	52	1706	61	1819	135	2380	204	2719	46	55	99	200	321	196	97	614	5352
Apprch %	2.9	93.8	3.4		5	87.5	7.5		23	27.5	49.5		52.3	31.9	15.8		
Total %	1	31.9	1.1	34	2.5	44.5	3.8	50.8	0.9	1	1.8	3.7	6	3.7	1.8	11.5	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



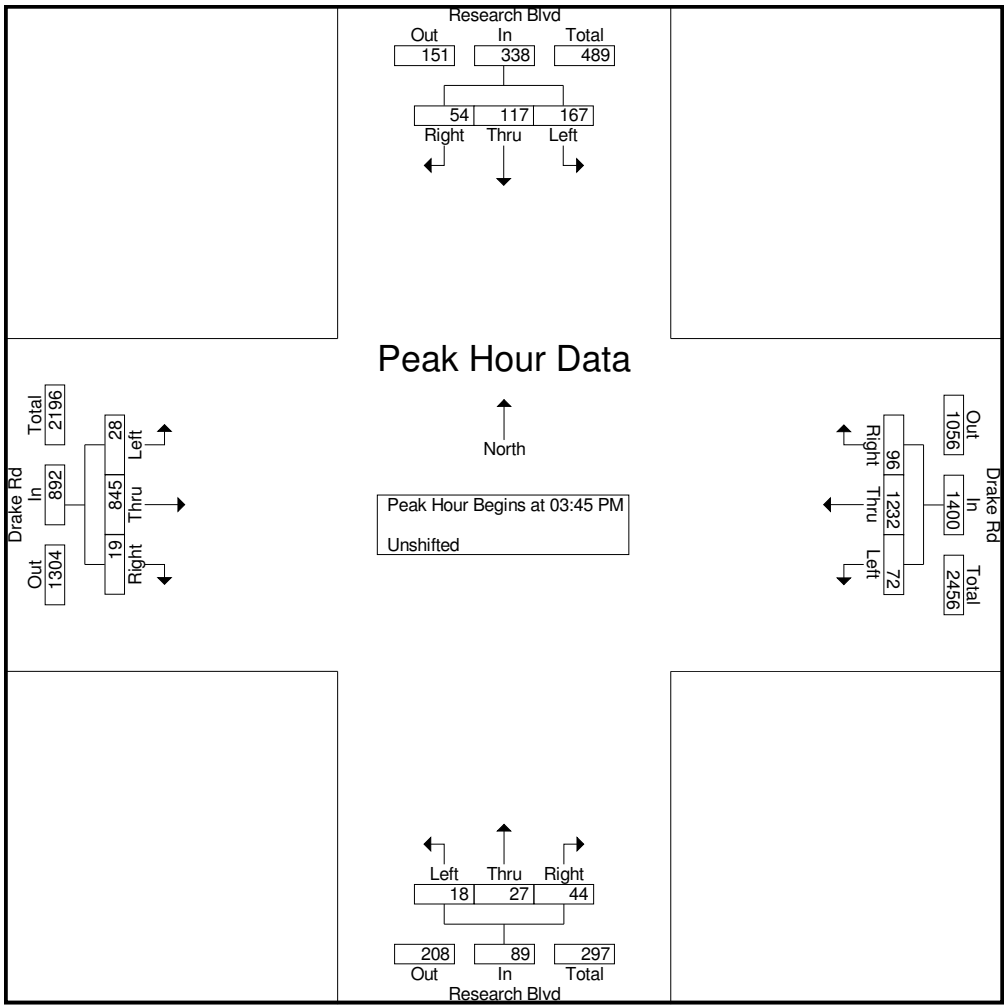
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Drake Rd Eastbound				Drake Rd Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:45 PM																	
03:45 PM	5	**240**	**6**	**251**	13	**335**	24	**372**	4	3	**13**	20	36	20	**16**	72	**715**
04:00 PM	**12**	200	3	215	22	285	24	331	5	**9**	9	23	45	32	12	89	658
04:15 PM	4	221	6	231	14	326	**27**	367	2	6	12	20	40	26	16	82	700
04:30 PM	7	184	4	195	**23**	286	21	330	**7**	9	10	**26**	**46**	**39**	10	**95**	646
Total Volume	28	845	19	892	72	1232	96	1400	18	27	44	89	167	117	54	338	2719
% App. Total	3.1	94.7	2.1		5.1	88	6.9		20.2	30.3	49.4		49.4	34.6	16		
PHF	.583	.880	.792	.888	.783	.919	.889	.941	.643	.750	.846	.856	.908	.750	.844	.889	.951



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and Research Blvd

File Name : DrakeResearchPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

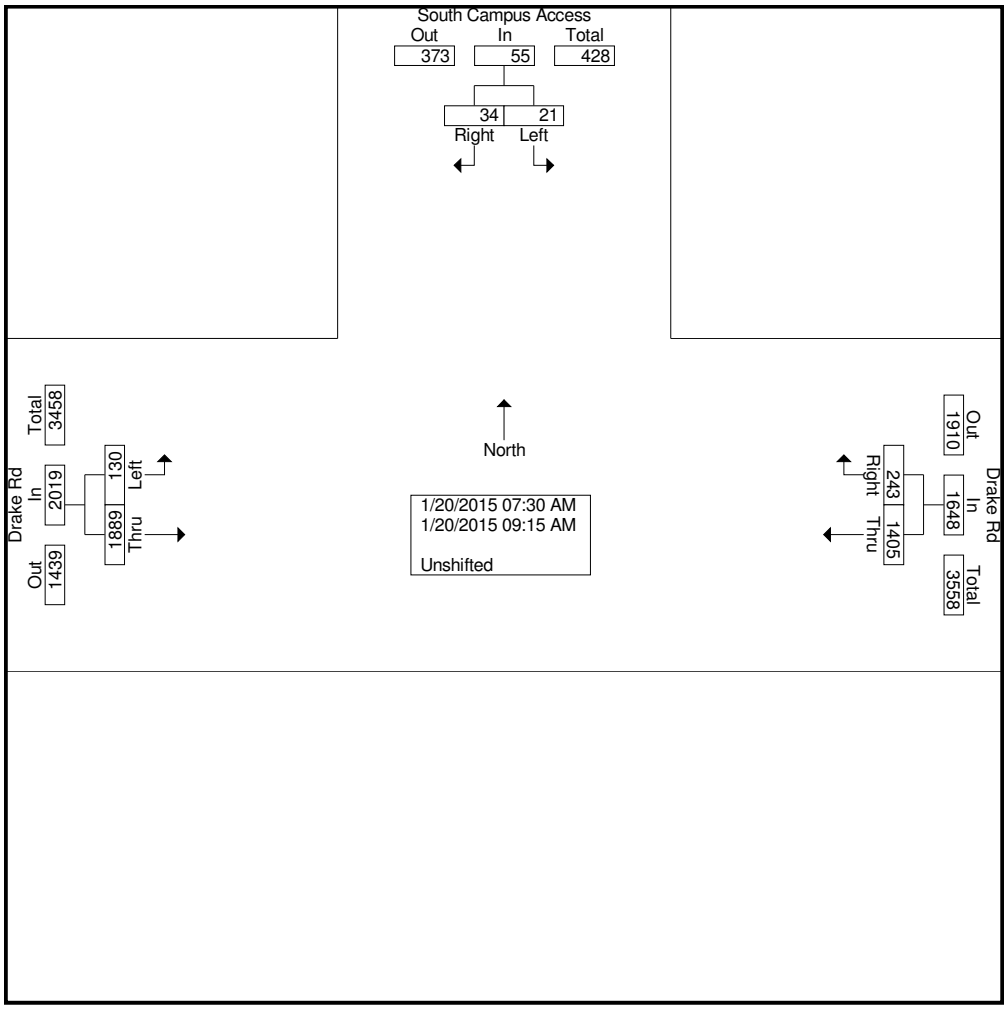
	Drake Rd Eastbound			Drake Rd Westbound			South Campus Access Southbound			
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	Int. Total
07:30 AM	26	280	306	158	40	198	3	4	7	511
07:45 AM	35	226	261	228	55	283	3	10	13	557
Total	61	506	567	386	95	481	6	14	20	1068
08:00 AM	19	186	205	200	43	243	3	1	4	452
08:15 AM	18	228	246	129	29	158	5	3	8	412
08:30 AM	9	260	269	179	14	193	0	4	4	466
08:45 AM	4	298	302	204	25	229	3	5	8	539
Total	50	972	1022	712	111	823	11	13	24	1869
09:00 AM	10	207	217	152	19	171	0	2	2	390
09:15 AM	9	204	213	155	18	173	4	5	9	395
Grand Total	130	1889	2019	1405	243	1648	21	34	55	3722
Apprch %	6.4	93.6		85.3	14.7		38.2	61.8		
Total %	3.5	50.8	54.2	37.7	6.5	44.3	0.6	0.9	1.5	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



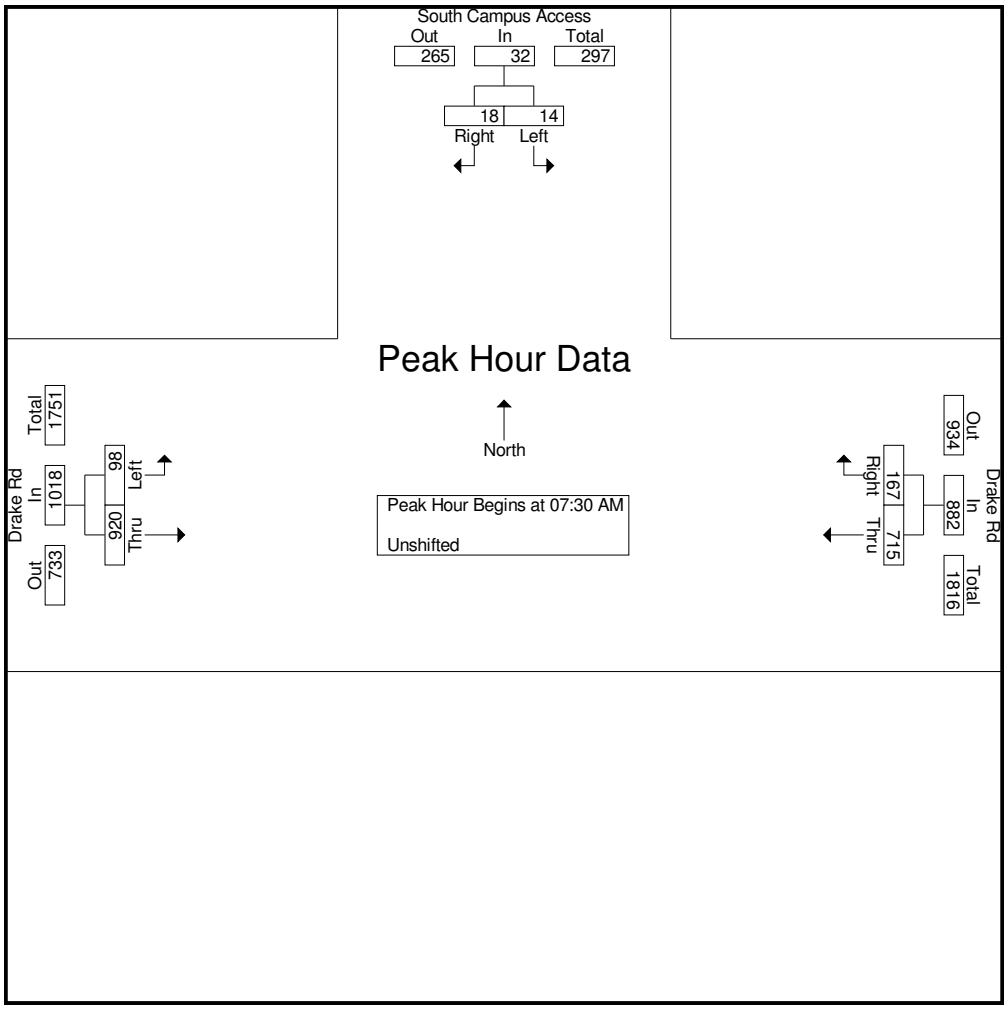
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Drake Rd Eastbound			Drake Rd Westbound			South Campus Access Southbound			
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:30 AM										
07:30 AM	26	**280**	**306**	158	40	198	3	4	7	511
07:45 AM	**35**	226	261	**228**	**55**	**283**	3	**10**	**13**	**557**
08:00 AM	19	186	205	200	43	243	3	1	4	452
08:15 AM	18	228	246	129	29	158	**5**	3	8	412
Total Volume	98	920	1018	715	167	882	14	18	32	1932
% App. Total	9.6	90.4		81.1	18.9		43.8	56.2		
PHF	.700	.821	.832	.784	.759	.779	.700	.450	.615	.867



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

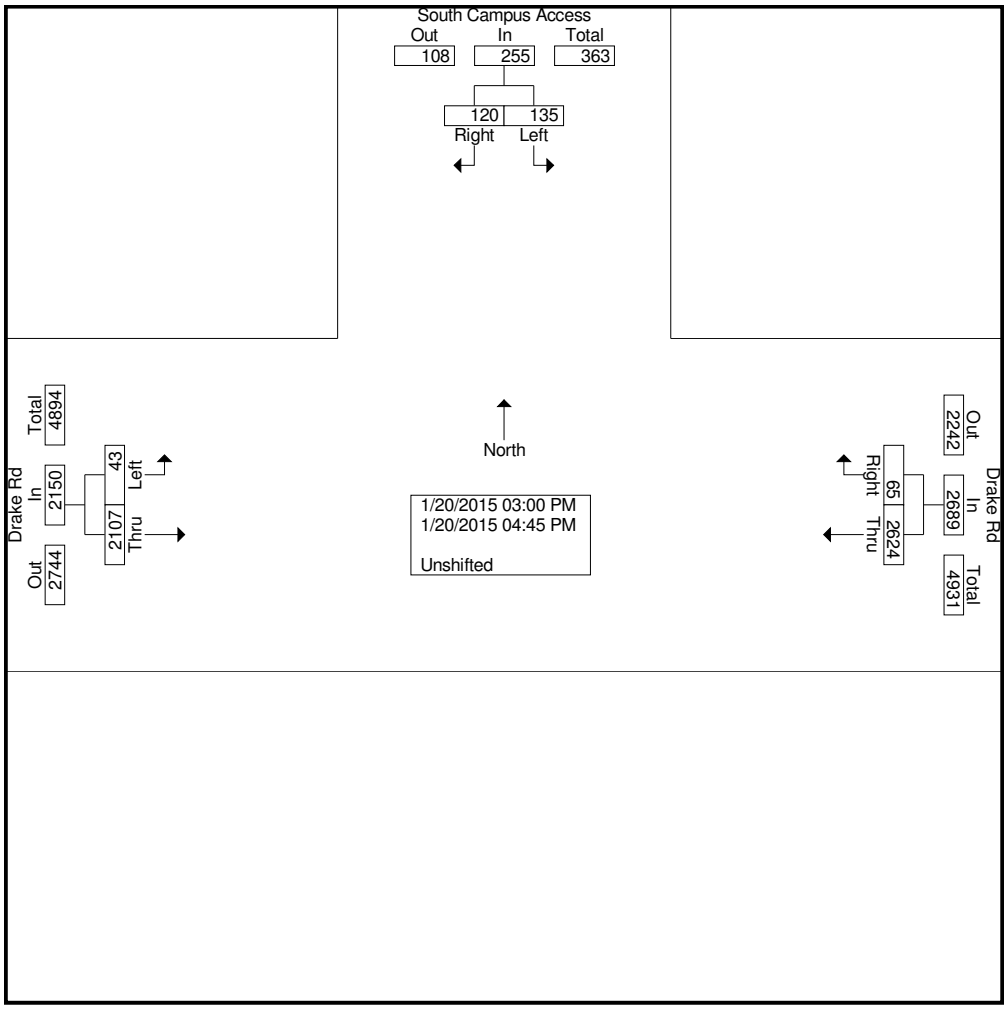
	Drake Rd Eastbound			Drake Rd Westbound			South Campus Access Southbound			
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	Int. Total
03:00 PM	5	262	267	307	6	313	19	5	24	604
03:15 PM	6	282	288	294	6	300	7	7	14	602
03:30 PM	3	270	273	304	6	310	14	7	21	604
03:45 PM	4	291	295	371	7	378	10	4	14	687
Total	18	1105	1123	1276	25	1301	50	23	73	2497
04:00 PM	8	251	259	311	12	323	20	29	49	631
04:15 PM	7	262	269	364	5	369	16	24	40	678
04:30 PM	5	241	246	287	14	301	24	23	47	594
04:45 PM	5	248	253	386	9	395	25	21	46	694
Total	25	1002	1027	1348	40	1388	85	97	182	2597
Grand Total	43	2107	2150	2624	65	2689	135	120	255	5094
Apprch %	2	98		97.6	2.4		52.9	47.1		
Total %	0.8	41.4	42.2	51.5	1.3	52.8	2.7	2.4	5	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



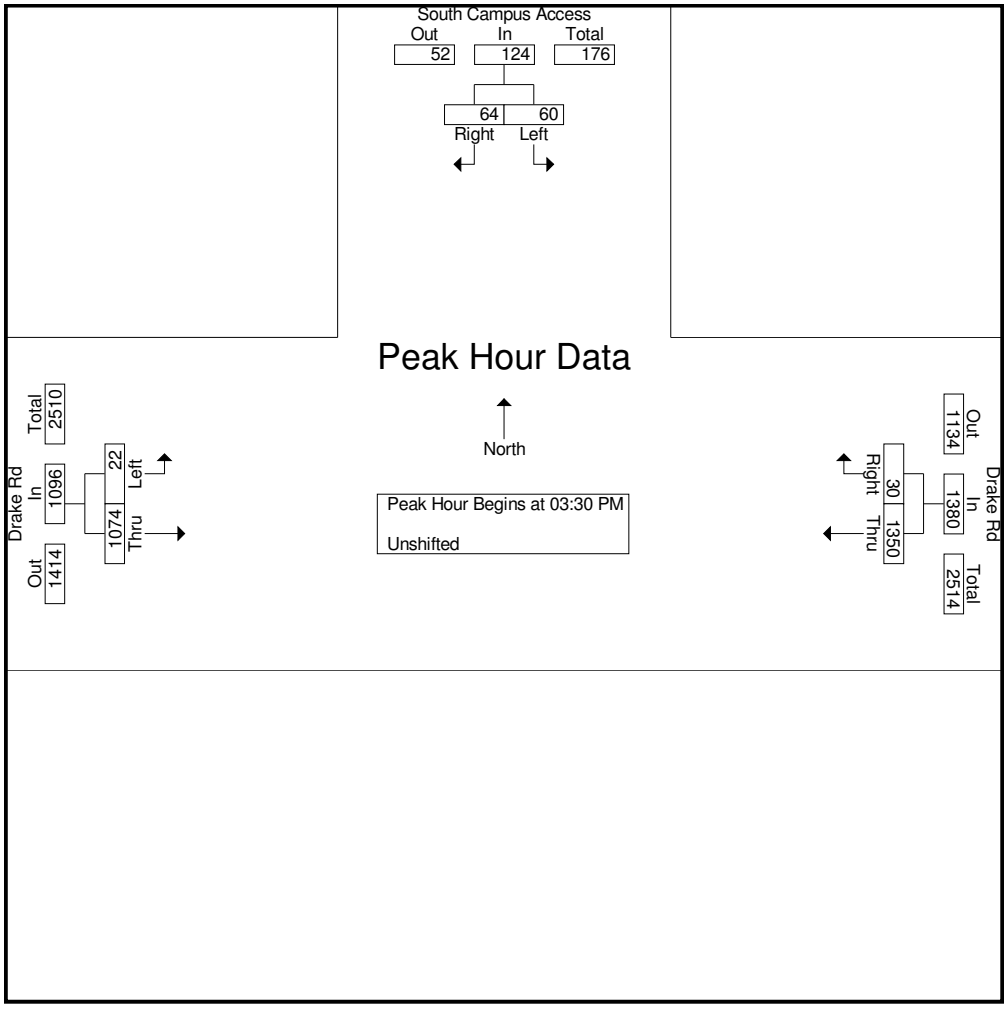
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Drake Rd Eastbound			Drake Rd Westbound			South Campus Access Southbound			
Start Time	Left	Thru	App. Total	Thru	Right	App. Total	Left	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 03:30 PM										
03:30 PM	3	270	273	304	6	310	14	7	21	604
03:45 PM	4	**291**	**295**	**371**	7	**378**	10	4	14	**687**
04:00 PM	**8**	251	259	311	**12**	323	**20**	**29**	**49**	631
04:15 PM	7	262	269	364	5	369	16	24	40	678
Total Volume	22	1074	1096	1350	30	1380	60	64	124	2600
% App. Total	2	98		97.8	2.2		48.4	51.6		
PHF	.688	.923	.929	.910	.625	.913	.750	.552	.633	.946



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Drake Rd and South Campus Access

File Name : DrakeSouthCampusPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Gilette Dr North/Southbound only

File Name : GiletteAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

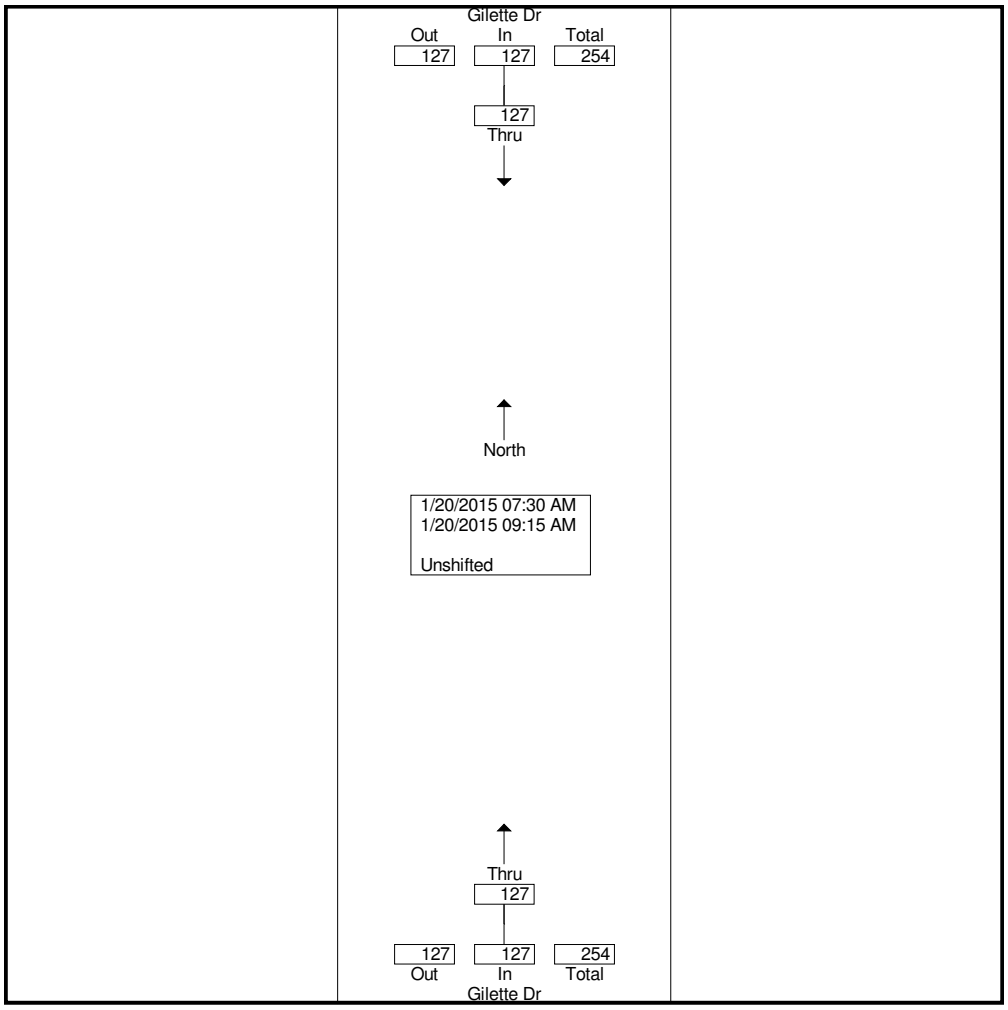
	Gilette Dr Northbound		Gilette Dr Southbound		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
07:30 AM	24	24	27	27	51
07:45 AM	13	13	44	44	57
Total	37	37	71	71	108
08:00 AM	29	29	14	14	43
08:15 AM	11	11	14	14	25
08:30 AM	11	11	8	8	19
08:45 AM	16	16	8	8	24
Total	67	67	44	44	111
09:00 AM	13	13	6	6	19
09:15 AM	10	10	6	6	16
Grand Total	127	127	127	127	254
Apprch %	100		100		
Total %	50	50	50	50	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Gilette Dr North/Southbound only

File Name : GiletteAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



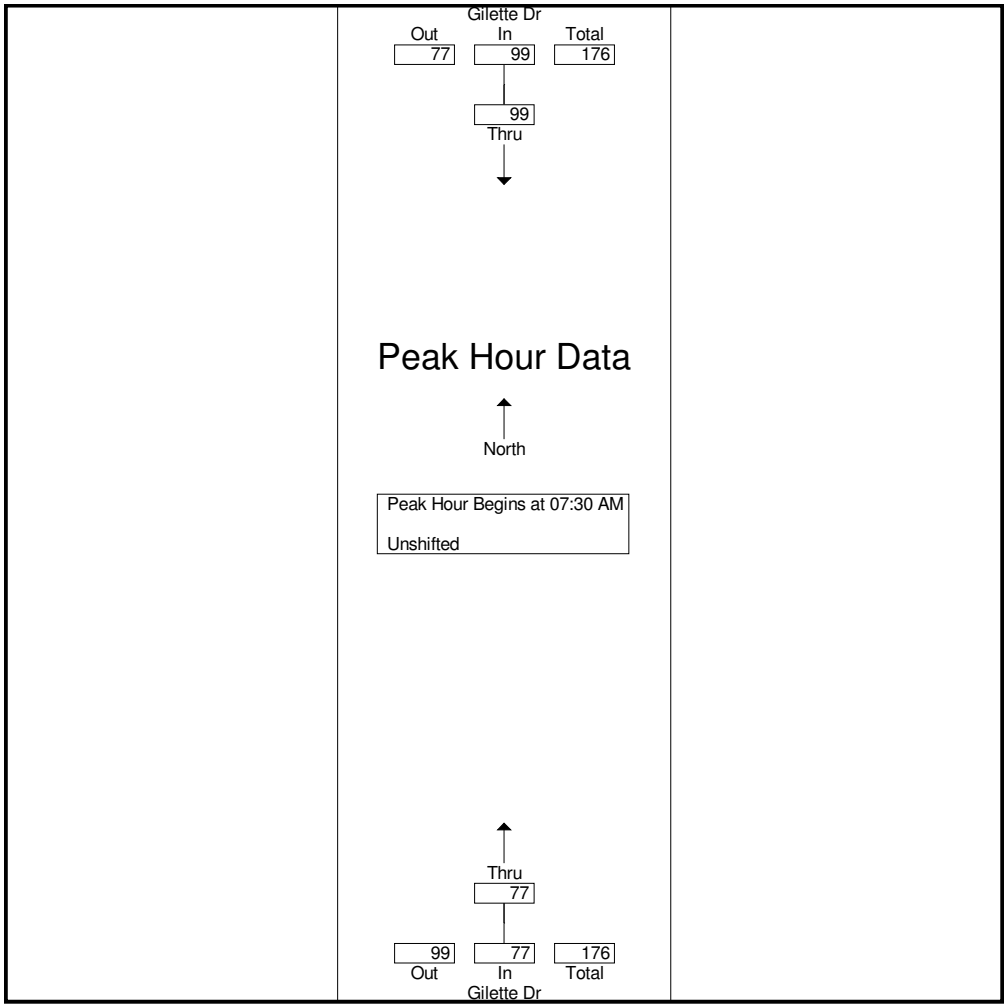
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Gilette Dr North/Southbound only

File Name : GiletteAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Gilette Dr Northbound		Gilette Dr Southbound		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 07:30 AM					
07:30 AM	24	24	27	27	51
07:45 AM	13	13	**44**	**44**	**57**
08:00 AM	**29**	**29**	14	14	43
08:15 AM	11	11	14	14	25
Total Volume	77	77	99	99	176
% App. Total	100		100		
PHF	.664	.664	.563	.563	.772



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Gilette Dr North/Southbound only

File Name : GiletteAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Gilette North/Southbound Only

File Name : GilettePM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

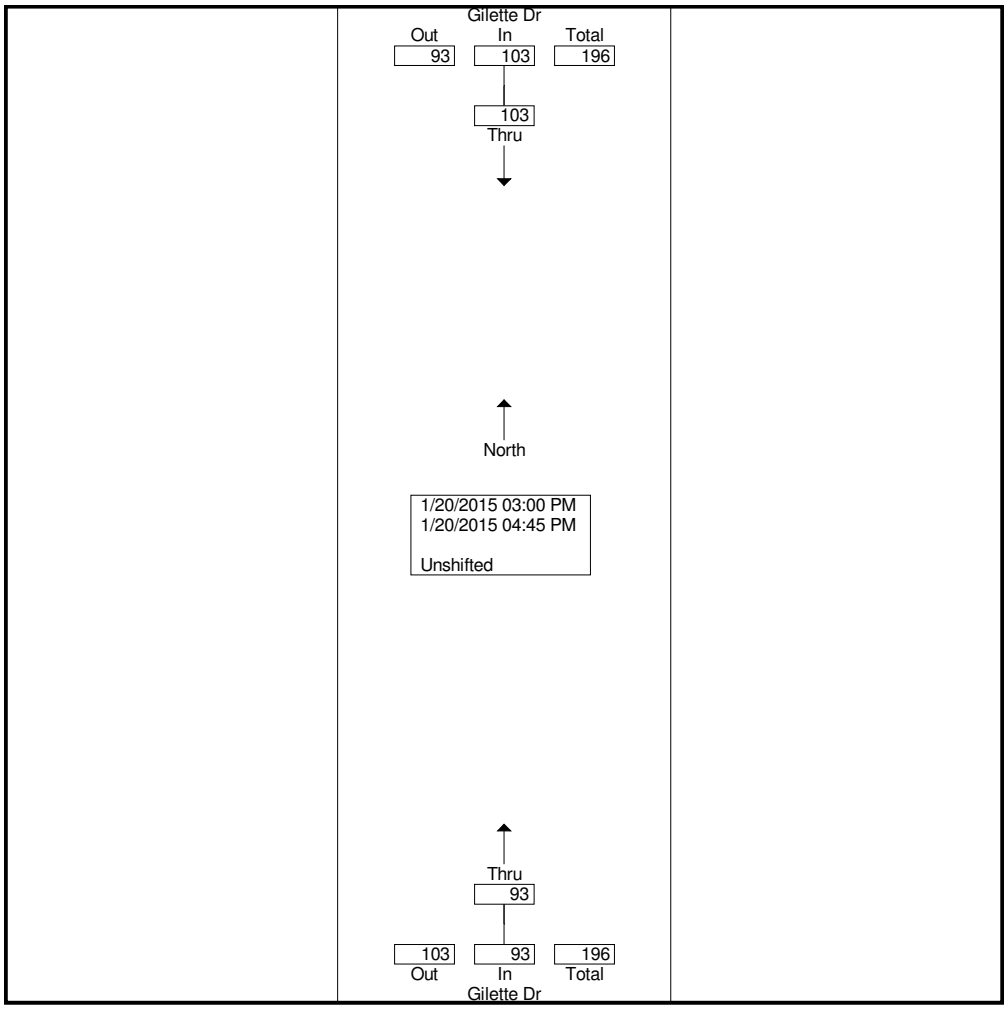
	Gilette Dr Northbound		Gilette Dr Southbound		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
03:00 PM	8	8	14	14	22
03:15 PM	6	6	6	6	12
03:30 PM	13	13	11	11	24
03:45 PM	8	8	7	7	15
Total	35	35	38	38	73
04:00 PM	11	11	24	24	35
04:15 PM	11	11	10	10	21
04:30 PM	15	15	14	14	29
04:45 PM	21	21	17	17	38
Total	58	58	65	65	123
Grand Total	93	93	103	103	196
Apprch %	100		100		
Total %	47.4	47.4	52.6	52.6	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Gilette North/Southbound Only

File Name : GilettePM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



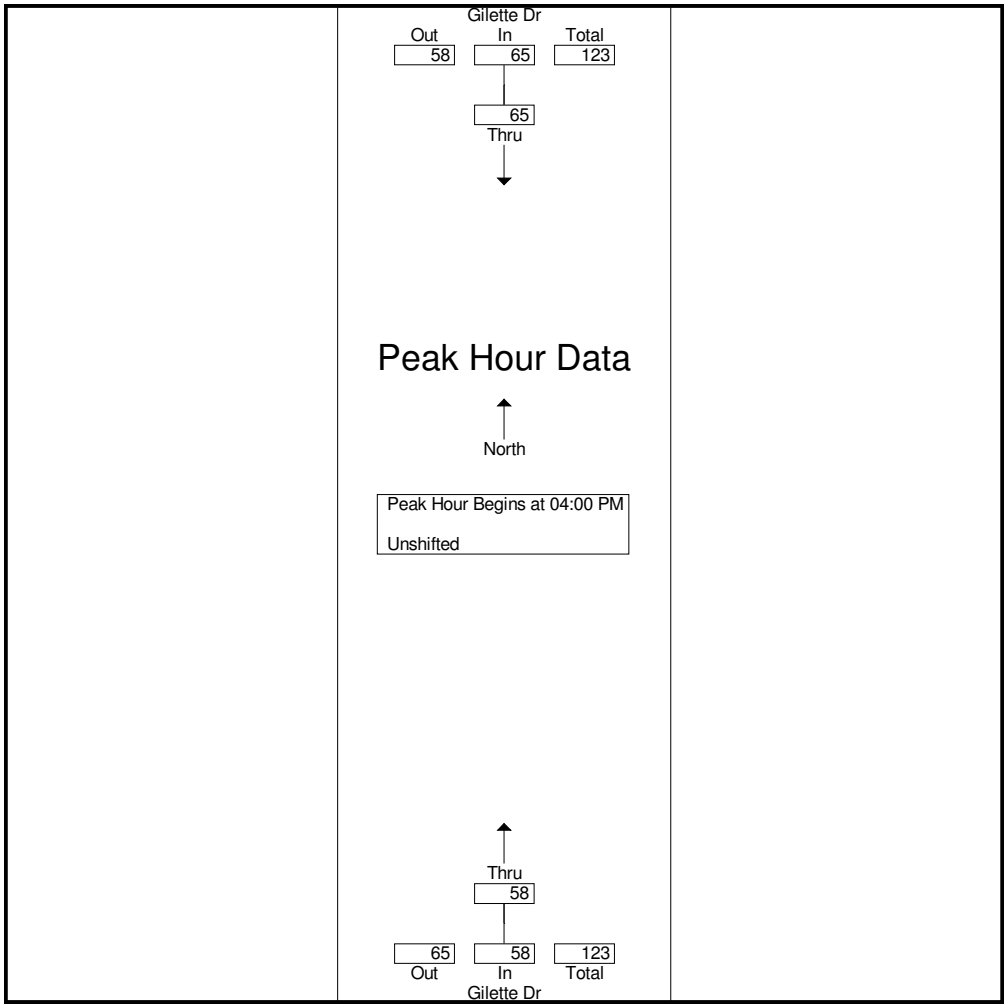
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Gilette North/Southbound Only

File Name : GilettePM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Gilette Dr Northbound		Gilette Dr Southbound		
Start Time	Thru	App. Total	Thru	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1					
Peak Hour for Entire Intersection Begins at 04:00 PM					
04:00 PM	11	11	**24**	**24**	35
04:15 PM	11	11	10	10	21
04:30 PM	15	15	14	14	29
04:45 PM	**21**	**21**	17	17	**38**
Total Volume	58	58	65	65	123
% App. Total	100		100		
PHF	.690	.690	.677	.677	.809



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Gilette North/Southbound Only

File Name : GilettePM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

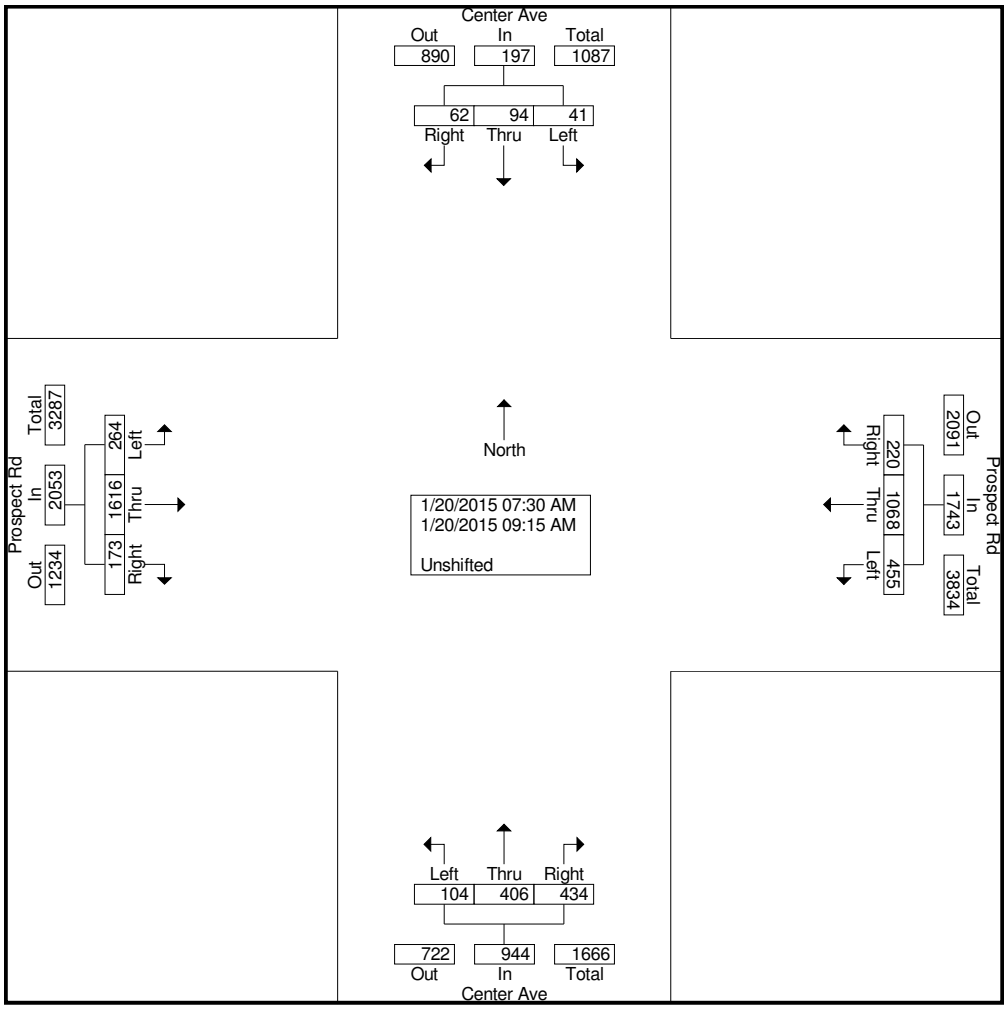
	Prospect Rd Eastbound				Prospect Rd Westbound				Center Ave Northbound				Center Ave Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:30 AM	43	203	26	272	61	157	36	254	11	58	70	139	4	5	3	12	677
07:45 AM	52	258	29	339	97	134	41	272	19	77	76	172	5	11	3	19	802
Total	95	461	55	611	158	291	77	526	30	135	146	311	9	16	6	31	1479
08:00 AM	23	201	23	247	54	129	20	203	15	46	40	101	2	8	8	18	569
08:15 AM	14	195	16	225	64	109	20	193	6	27	43	76	5	13	4	22	516
08:30 AM	43	209	25	277	49	146	26	221	11	60	61	132	2	12	5	19	649
08:45 AM	32	246	32	310	53	127	30	210	13	47	69	129	6	11	7	24	673
Total	112	851	96	1059	220	511	96	827	45	180	213	438	15	44	24	83	2407
09:00 AM	34	173	17	224	44	129	33	206	12	47	41	100	5	11	10	26	556
09:15 AM	23	131	5	159	33	137	14	184	17	44	34	95	12	23	22	57	495
Grand Total	264	1616	173	2053	455	1068	220	1743	104	406	434	944	41	94	62	197	4937
Apprch %	12.9	78.7	8.4		26.1	61.3	12.6		11	43	46		20.8	47.7	31.5		
Total %	5.3	32.7	3.5	41.6	9.2	21.6	4.5	35.3	2.1	8.2	8.8	19.1	0.8	1.9	1.3	4	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



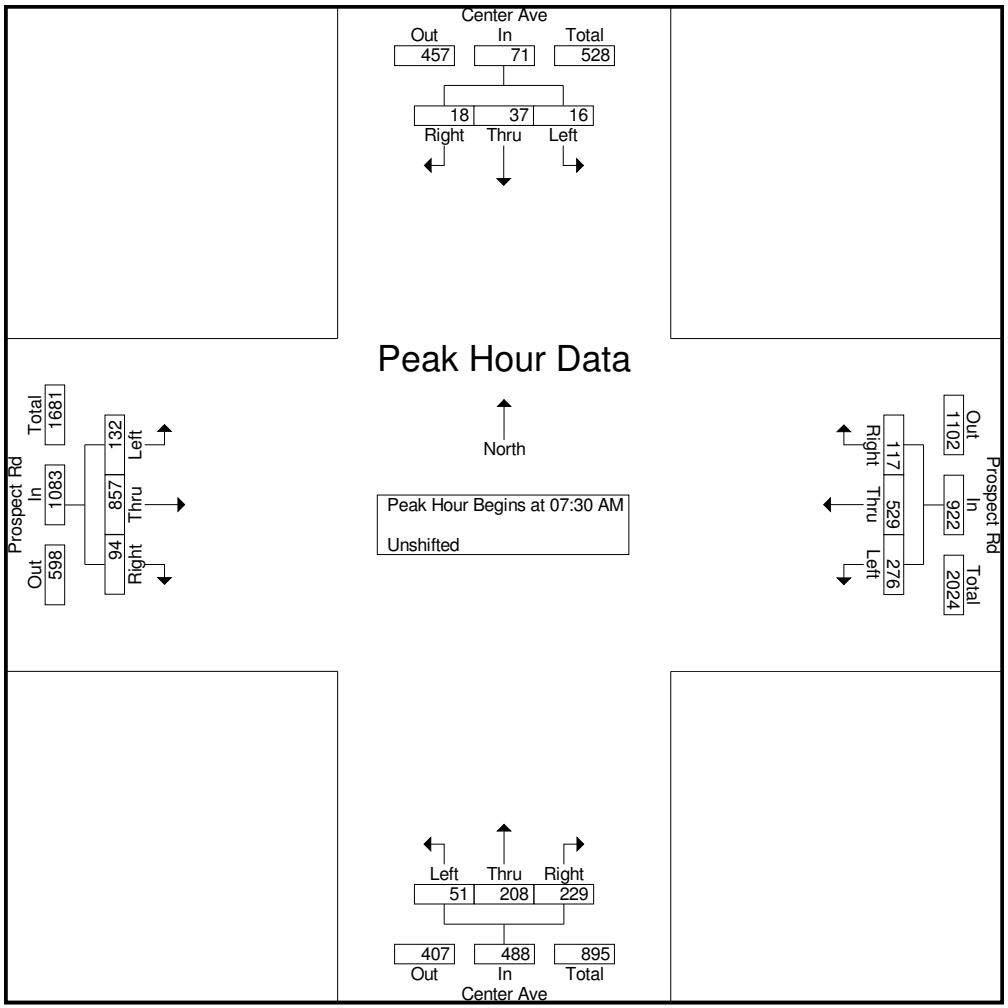
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Prospect Rd Eastbound				Prospect Rd Westbound				Center Ave Northbound				Center Ave Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	43	203	26	272	61	**157**	36	254	11	58	70	139	4	5	3	12	677
07:45 AM	**52**	**258**	**29**	**339**	**97**	134	**41**	**272**	**19**	**77**	**76**	**172**	**5**	11	3	19	**802**
08:00 AM	23	201	23	247	54	129	20	203	15	46	40	101	2	8	**8**	18	569
08:15 AM	14	195	16	225	64	109	20	193	6	27	43	76	5	**13**	4	**22**	516
Total Volume	132	857	94	1083	276	529	117	922	51	208	229	488	16	37	18	71	2564
% App. Total	12.2	79.1	8.7		29.9	57.4	12.7		10.5	42.6	46.9		22.5	52.1	25.4		
PHF	.635	.830	.810	.799	.711	.842	.713	.847	.671	.675	.753	.709	.800	.712	.563	.807	.799



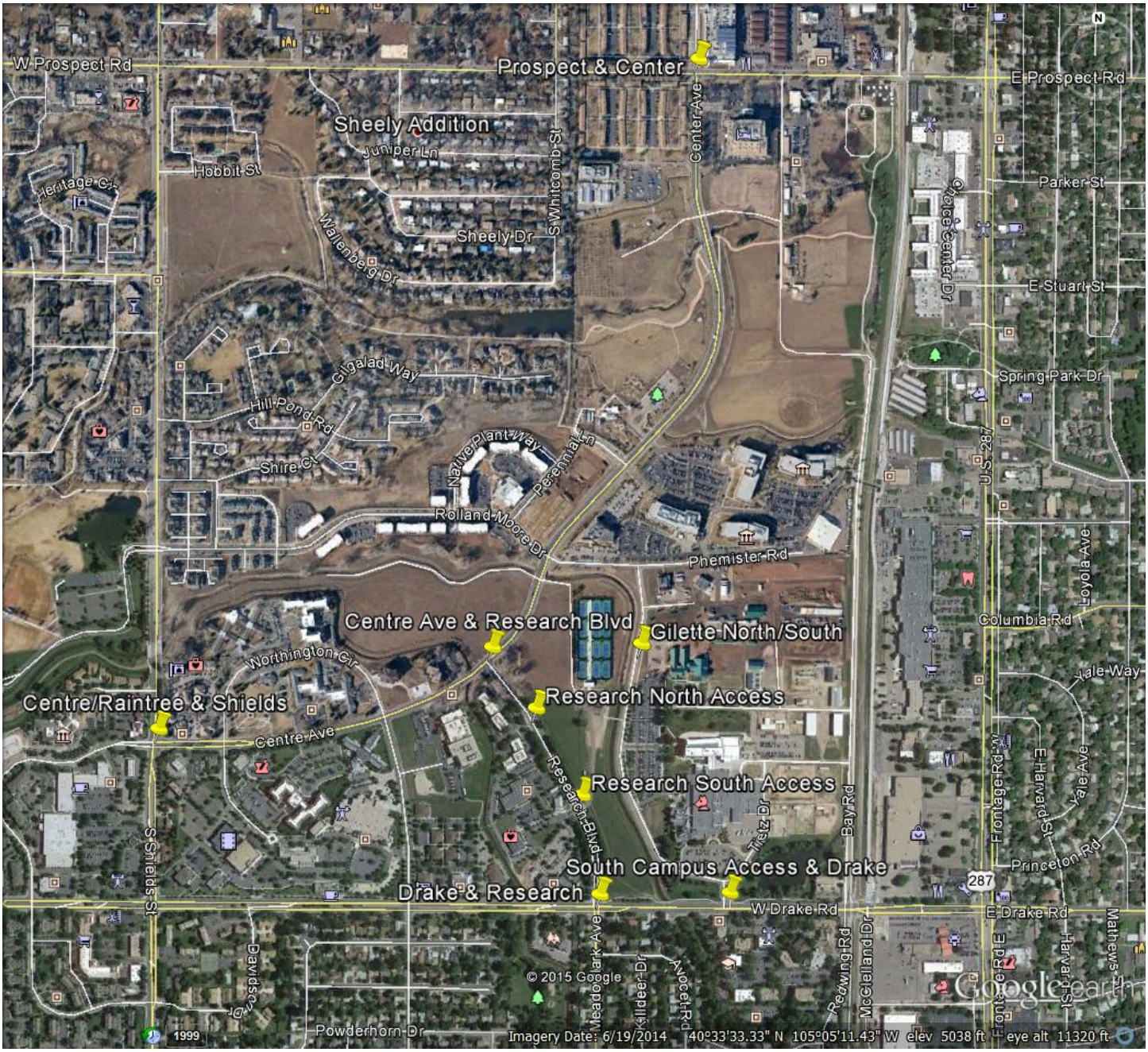
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

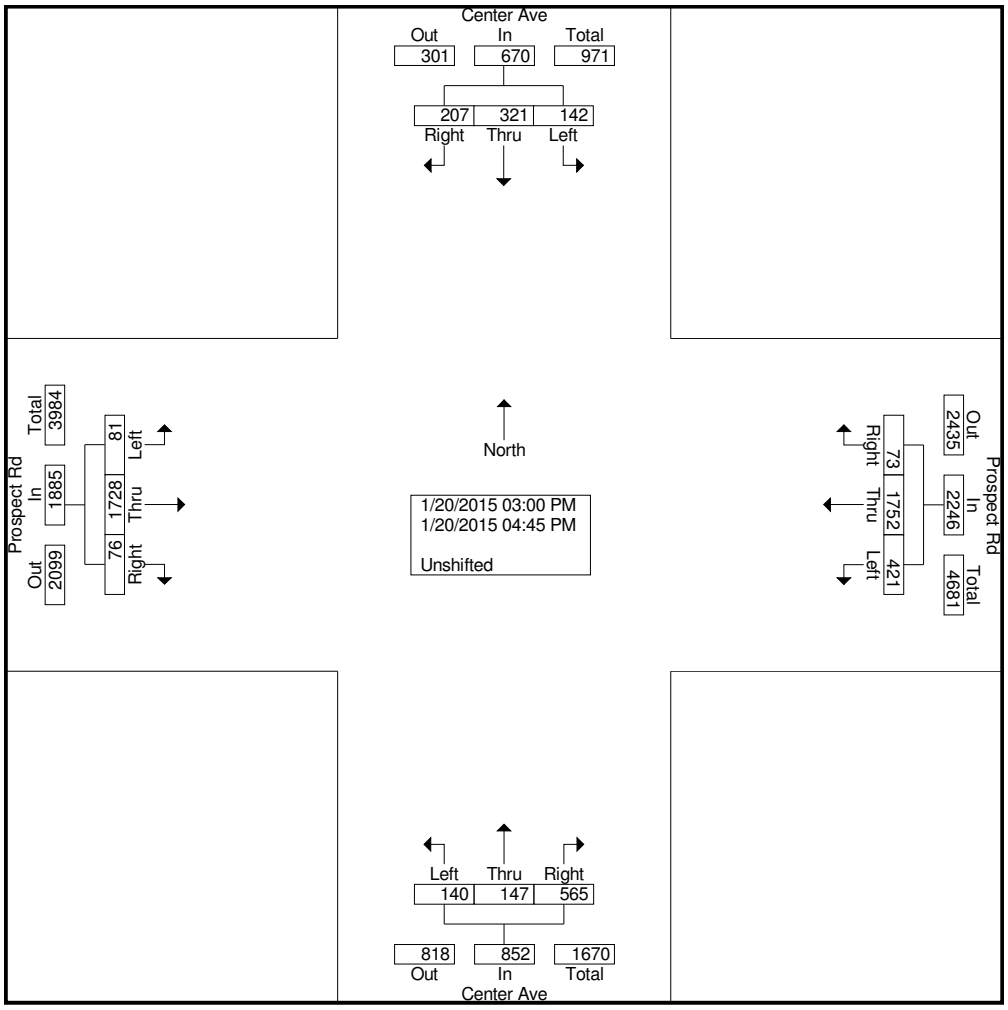
	Prospect Rd Eastbound				Prospect Rd Westbound				Center Ave Northbound				Center Ave Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	9	198	13	220	42	188	7	237	16	24	80	120	25	37	20	82	659
03:15 PM	14	248	12	274	51	218	12	281	21	13	60	94	25	38	35	98	747
03:30 PM	12	215	8	235	60	192	10	262	17	30	83	130	20	38	29	87	714
03:45 PM	17	241	9	267	43	228	14	285	10	24	68	102	14	30	17	61	715
Total	52	902	42	996	196	826	43	1065	64	91	291	446	84	143	101	328	2835
04:00 PM	4	198	3	205	53	201	6	260	21	12	78	111	17	48	41	106	682
04:15 PM	5	200	8	213	69	259	8	336	22	10	53	85	13	36	21	70	704
04:30 PM	11	195	9	215	40	214	4	258	19	19	74	112	12	45	14	71	656
04:45 PM	9	233	14	256	63	252	12	327	14	15	69	98	16	49	30	95	776
Total	29	826	34	889	225	926	30	1181	76	56	274	406	58	178	106	342	2818
Grand Total	81	1728	76	1885	421	1752	73	2246	140	147	565	852	142	321	207	670	5653
Apprch %	4.3	91.7	4		18.7	78	3.3		16.4	17.3	66.3		21.2	47.9	30.9		
Total %	1.4	30.6	1.3	33.3	7.4	31	1.3	39.7	2.5	2.6	10	15.1	2.5	5.7	3.7	11.9	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



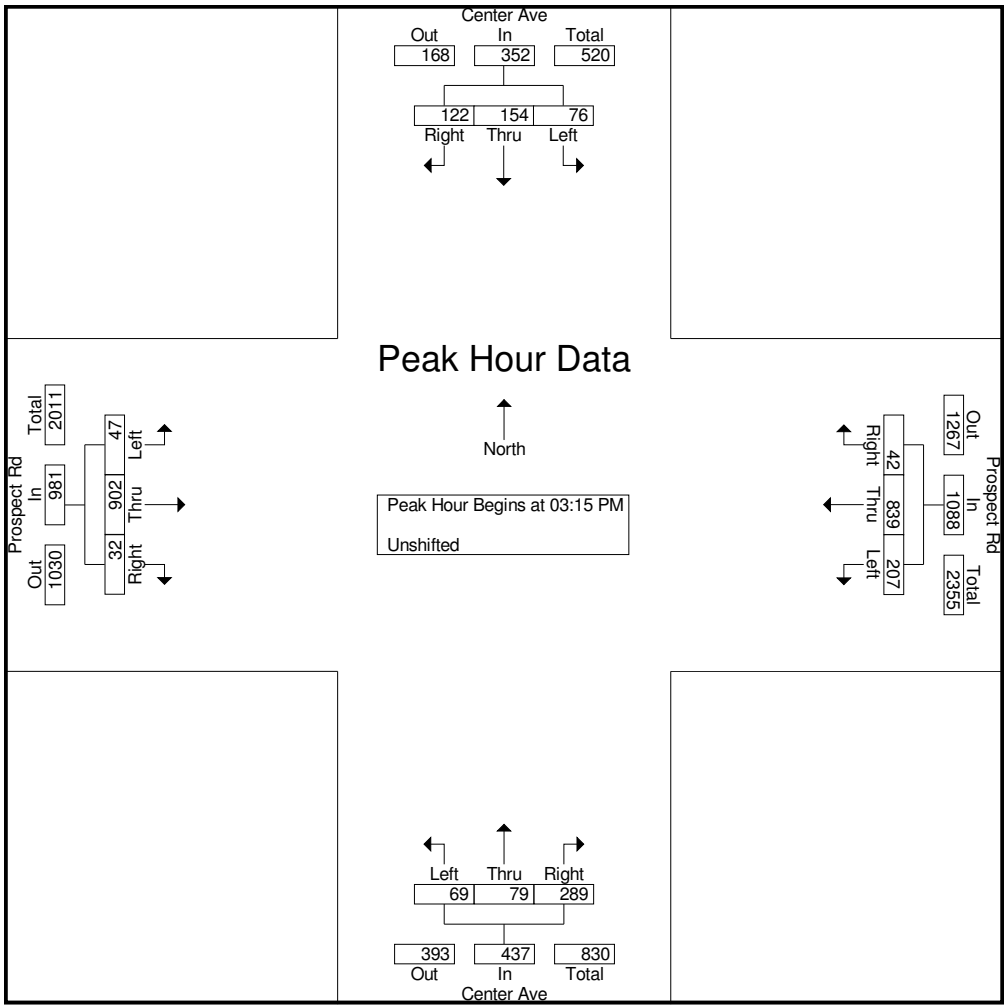
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Prospect Rd Eastbound				Prospect Rd Westbound				Center Ave Northbound				Center Ave Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 03:15 PM																	
03:15 PM	14	**248**	**12**	**274**	51	218	12	281	**21**	13	60	94	**25**	38	35	98	**747**
03:30 PM	12	215	8	235	**60**	192	10	262	17	**30**	**83**	**130**	20	38	29	87	714
03:45 PM	**17**	241	9	267	43	**228**	**14**	**285**	10	24	68	102	14	30	17	61	715
04:00 PM	4	198	3	205	53	201	6	260	21	12	78	111	17	**48**	**41**	**106**	682
Total Volume	47	902	32	981	207	839	42	1088	69	79	289	437	76	154	122	352	2858
% App. Total	4.8	91.9	3.3		19	77.1	3.9		15.8	18.1	66.1		21.6	43.8	34.7		
PHF	.691	.909	.667	.895	.863	.920	.750	.954	.821	.658	.870	.840	.760	.802	.744	.830	.956



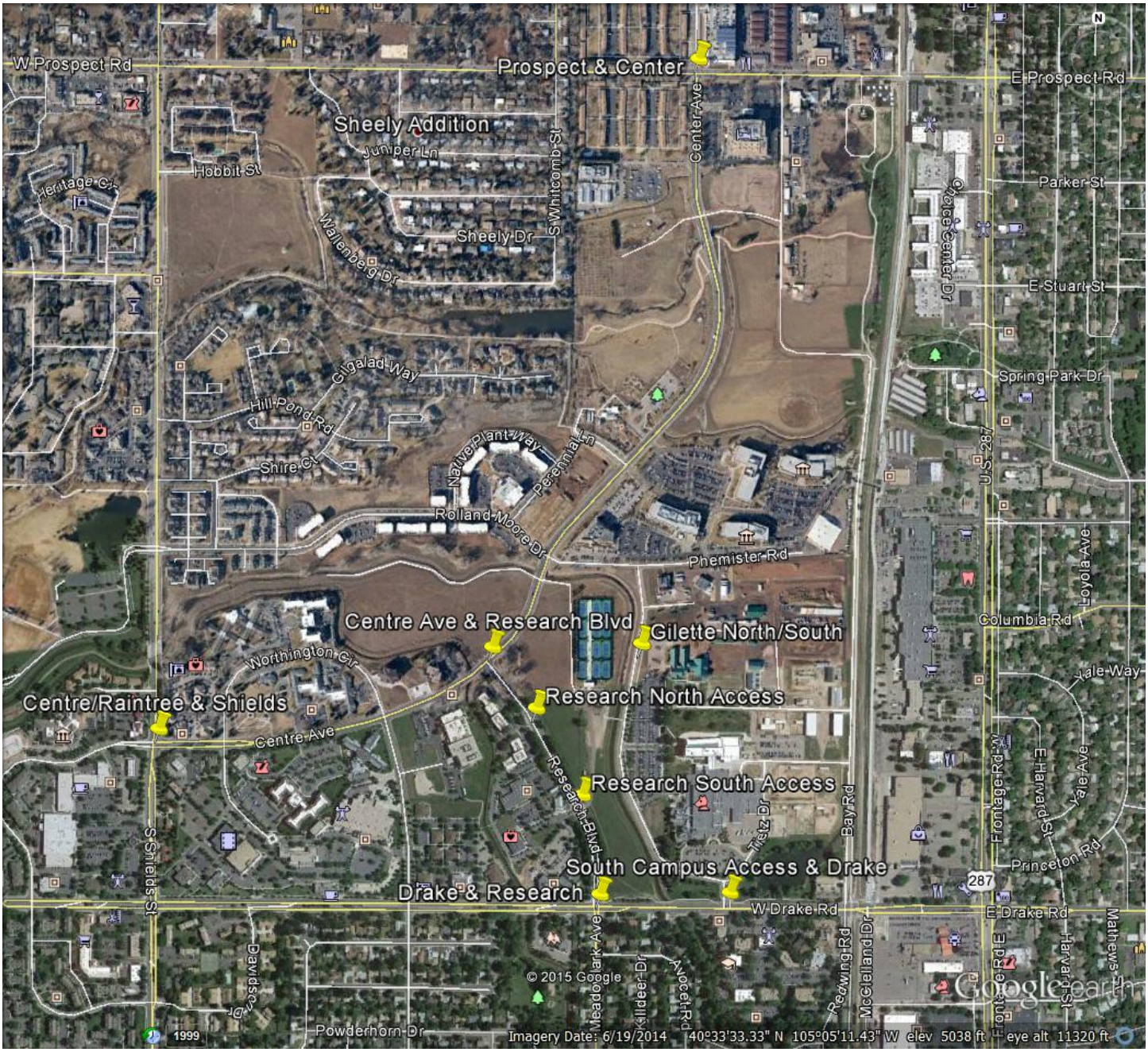
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Prospect Rd and Center Ave

File Name : ProspectCenterPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

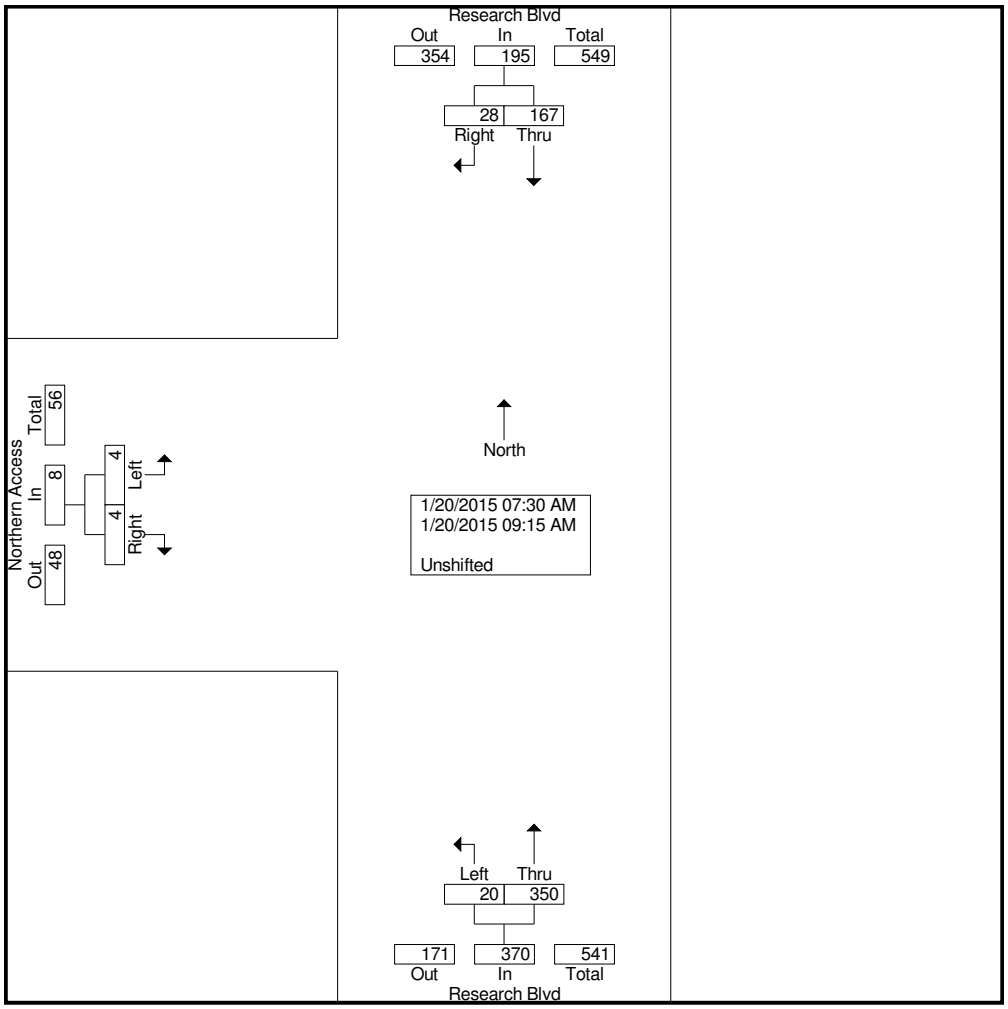
	Northern Access Eastbound			Research Blvd Northbound			Research Blvd Southbound			
Start Time	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
07:30 AM	0	0	0	1	53	54	15	3	18	72
07:45 AM	2	2	4	5	63	68	22	4	26	98
Total	2	2	4	6	116	122	37	7	44	170
08:00 AM	1	0	1	3	38	41	22	1	23	65
08:15 AM	0	0	0	1	31	32	21	8	29	61
08:30 AM	0	1	1	1	49	50	23	4	27	78
08:45 AM	1	0	1	6	52	58	31	2	33	92
Total	2	1	3	11	170	181	97	15	112	296
09:00 AM	0	0	0	2	30	32	21	3	24	56
09:15 AM	0	1	1	1	34	35	12	3	15	51
Grand Total	4	4	8	20	350	370	167	28	195	573
Apprch %	50	50		5.4	94.6		85.6	14.4		
Total %	0.7	0.7	1.4	3.5	61.1	64.6	29.1	4.9	34	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



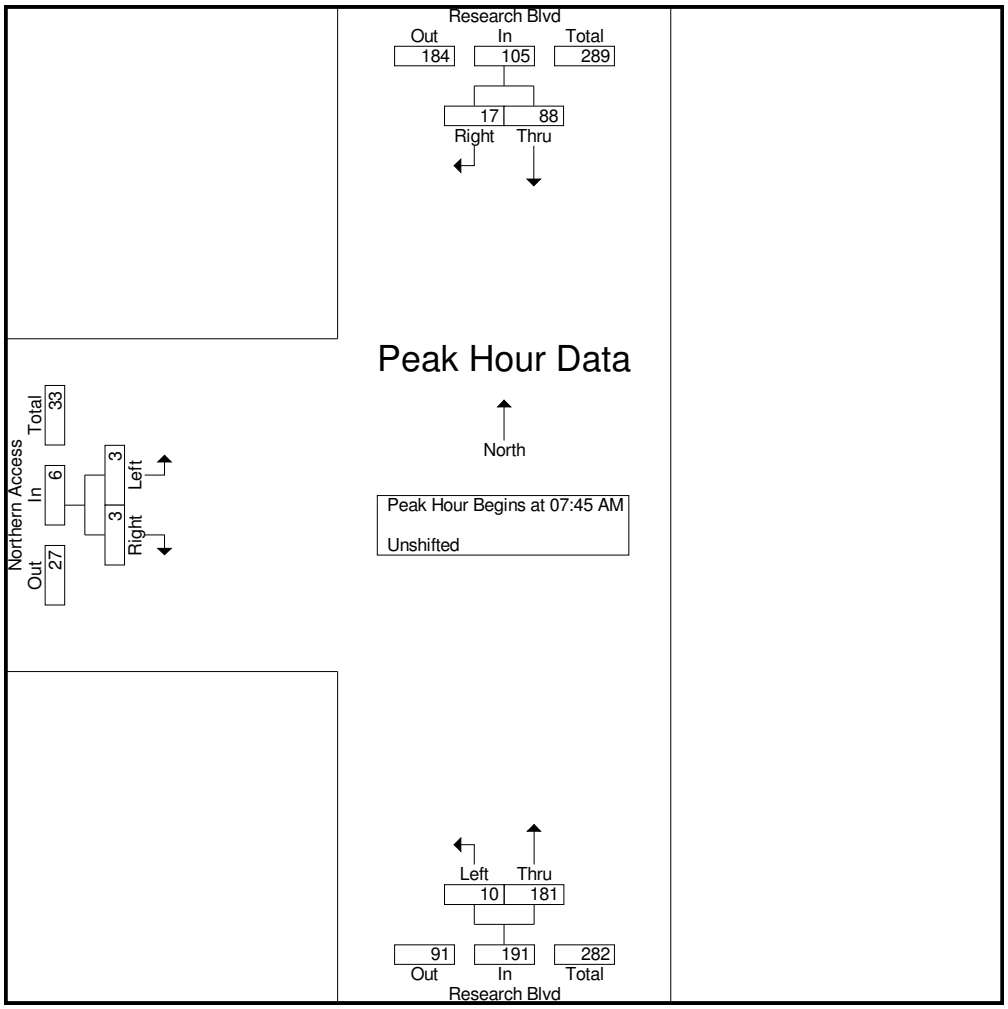
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Northern Access Eastbound			Research Blvd Northbound			Research Blvd Southbound			
Start Time	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 07:45 AM										
07:45 AM	**2**	**2**	**4**	**5**	**63**	**68**	22	4	26	**98**
08:00 AM	1	0	1	3	38	41	22	1	23	65
08:15 AM	0	0	0	1	31	32	21	**8**	**29**	61
08:30 AM	0	1	1	1	49	50	**23**	4	27	78
Total Volume	3	3	6	10	181	191	88	17	105	302
% App. Total	50	50		5.2	94.8		83.8	16.2		
PHF	.375	.375	.375	.500	.718	.702	.957	.531	.905	.770



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

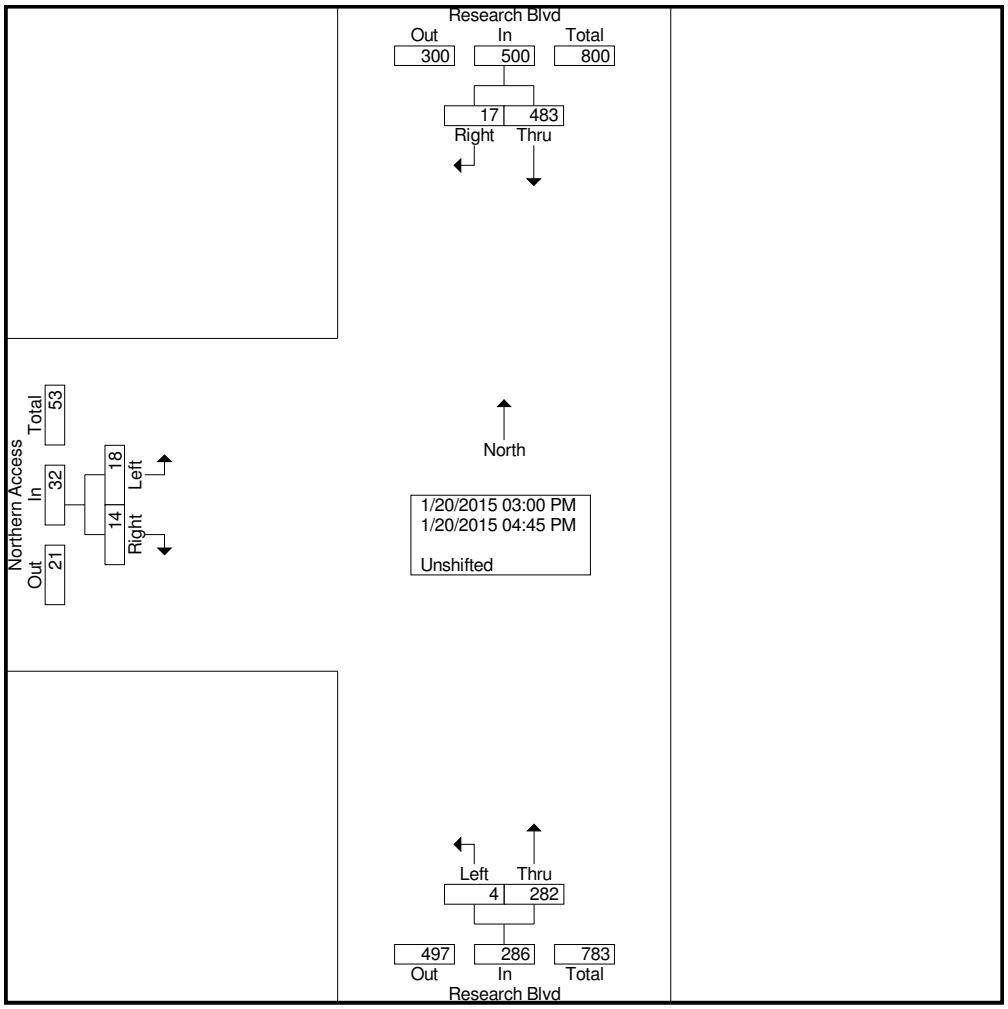
	Northern Access Eastbound			Research Blvd Northbound			Research Blvd Southbound			
Start Time	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
03:00 PM	4	2	6	0	24	24	58	2	60	90
03:15 PM	1	1	2	0	43	43	50	3	53	98
03:30 PM	2	1	3	0	41	41	53	1	54	98
03:45 PM	2	3	5	0	24	24	61	4	65	94
Total	9	7	16	0	132	132	222	10	232	380
04:00 PM	3	2	5	1	38	39	63	2	65	109
04:15 PM	4	1	5	1	37	38	64	2	66	109
04:30 PM	1	1	2	1	29	30	73	1	74	106
04:45 PM	1	3	4	1	46	47	61	2	63	114
Total	9	7	16	4	150	154	261	7	268	438
Grand Total	18	14	32	4	282	286	483	17	500	818
Apprch %	56.2	43.8		1.4	98.6		96.6	3.4		
Total %	2.2	1.7	3.9	0.5	34.5	35	59	2.1	61.1	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



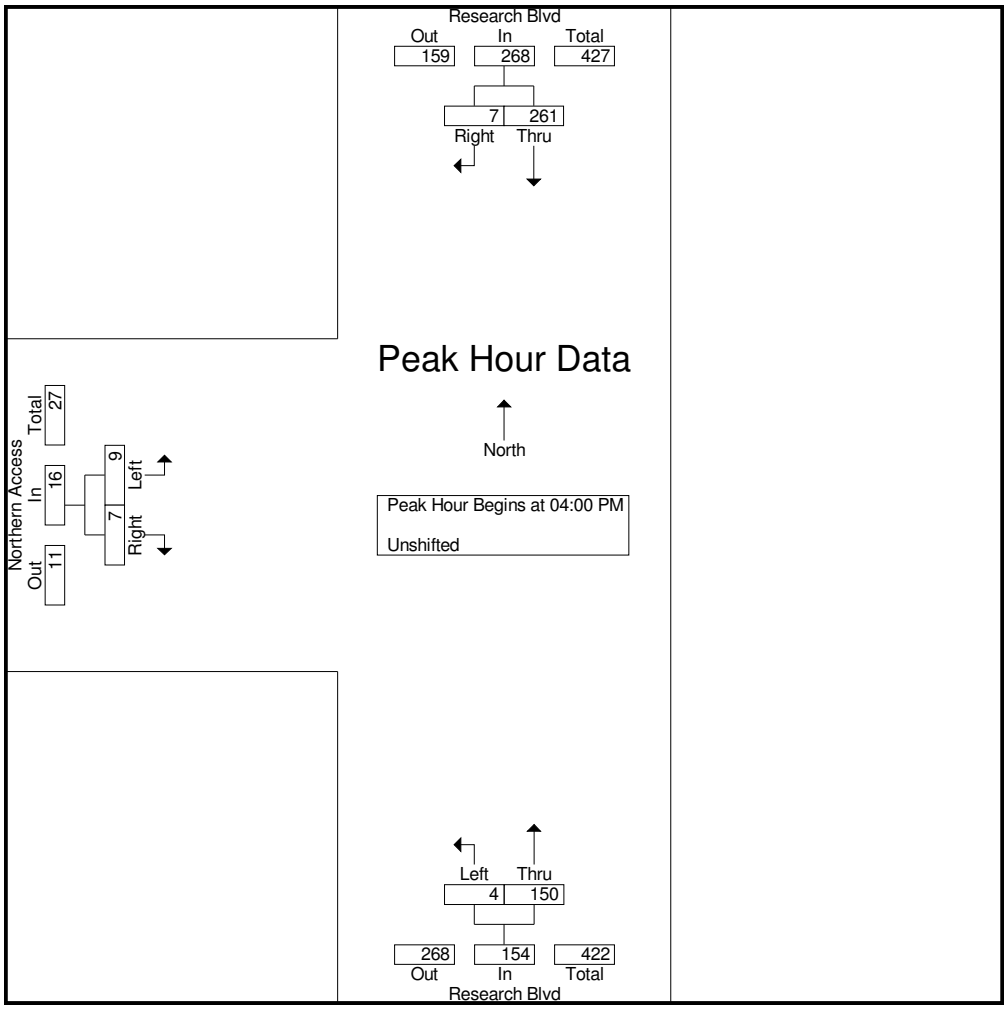
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Northern Access Eastbound			Research Blvd Northbound			Research Blvd Southbound			
Start Time	Left	Right	App. Total	Left	Thru	App. Total	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1										
Peak Hour for Entire Intersection Begins at 04:00 PM										
04:00 PM	3	2	**5**	**1**	38	39	63	**2**	65	109
04:15 PM	**4**	1	5	1	37	38	64	2	66	109
04:30 PM	1	1	2	1	29	30	**73**	1	**74**	106
04:45 PM	1	**3**	4	1	**46**	**47**	61	2	63	**114**
Total Volume	9	7	16	4	150	154	261	7	268	438
% App. Total	56.2	43.8		2.6	97.4		97.4	2.6		
PHF	.563	.583	.800	1.00	.815	.819	.894	.875	.905	.961



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Northern Access

File Name : ResearchNorthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

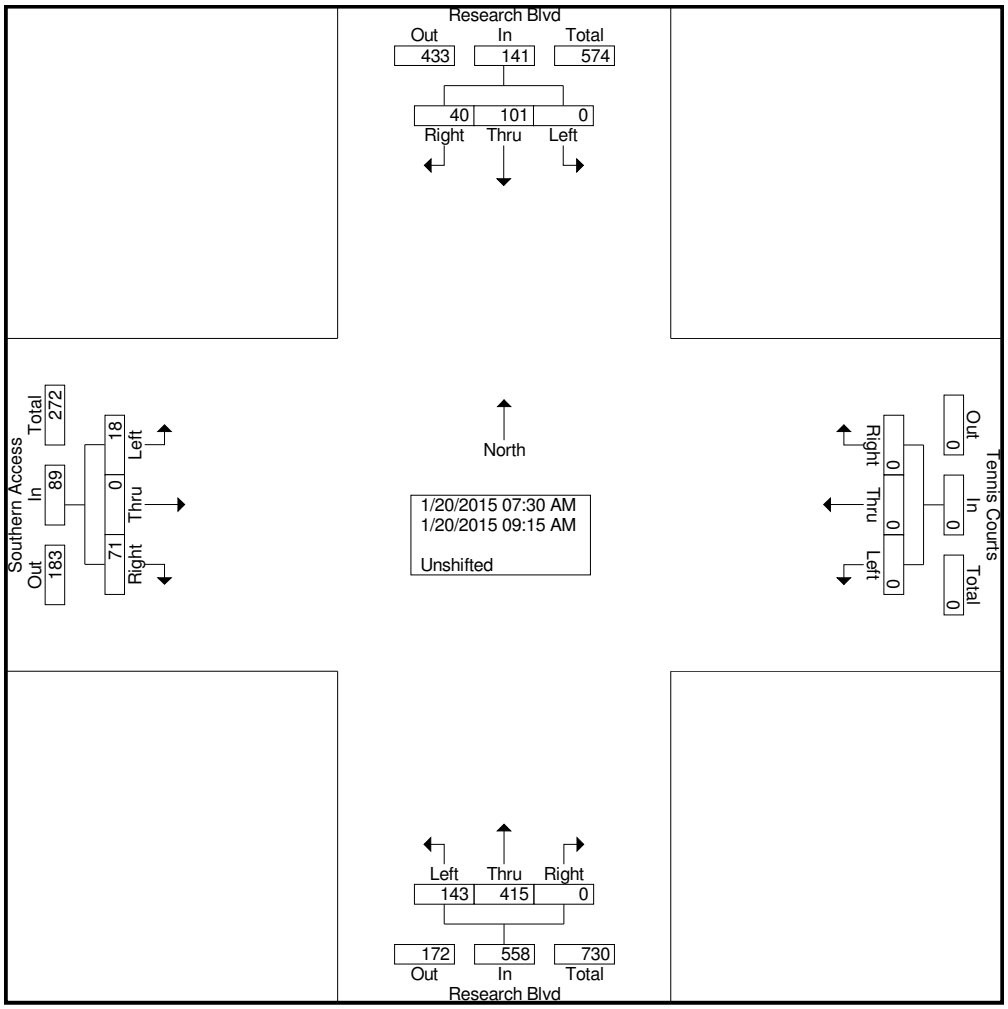
	Southern Access Eastbound				Tennis Courts Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:30 AM	0	0	5	5	0	0	0	0	12	69	0	81	0	10	4	14	100
07:45 AM	1	0	3	4	0	0	0	0	25	92	0	117	0	12	6	18	139
Total	1	0	8	9	0	0	0	0	37	161	0	198	0	22	10	32	239
08:00 AM	0	0	6	6	0	0	0	0	17	61	0	78	0	8	6	14	98
08:15 AM	2	0	8	10	0	0	0	0	19	34	0	53	0	12	7	19	82
08:30 AM	6	0	7	13	0	0	0	0	20	43	0	63	0	13	9	22	98
08:45 AM	3	0	7	10	0	0	0	0	21	52	0	73	0	24	4	28	111
Total	11	0	28	39	0	0	0	0	77	190	0	267	0	57	26	83	389
09:00 AM	2	0	13	15	0	0	0	0	13	33	0	46	0	11	4	15	76
09:15 AM	4	0	22	26	0	0	0	0	16	31	0	47	0	11	0	11	84
Grand Total	18	0	71	89	0	0	0	0	143	415	0	558	0	101	40	141	788
Apprch %	20.2	0	79.8		0	0	0		25.6	74.4	0		0	71.6	28.4		
Total %	2.3	0	9	11.3	0	0	0	0	18.1	52.7	0	70.8	0	12.8	5.1	17.9	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



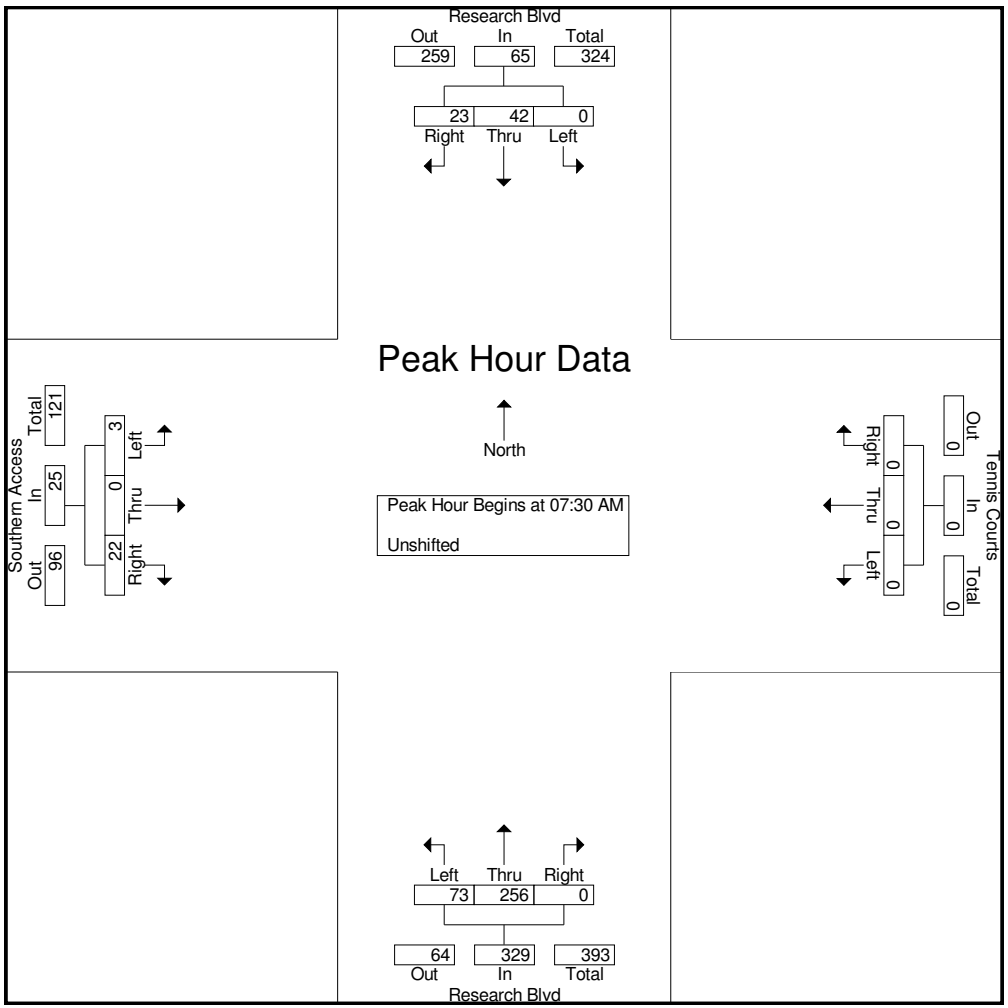
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Southern Access Eastbound				Tennis Courts Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	0	0	5	5	0	0	0	0	12	69	0	81	0	10	4	14	100
07:45 AM	1	0	3	4	0	0	0	0	**25**	**92**	0	**117**	0	**12**	6	18	**139**
08:00 AM	0	0	6	6	0	0	0	0	17	61	0	78	0	8	6	14	98
08:15 AM	**2**	0	**8**	**10**	0	0	0	0	19	34	0	53	0	12	**7**	**19**	82
Total Volume	3	0	22	25	0	0	0	0	73	256	0	329	0	42	23	65	419
% App. Total	12	0	88		0	0	0		22.2	77.8	0		0	64.6	35.4		
PHF	.375	.000	.688	.625	.000	.000	.000	.000	.730	.696	.000	.703	.000	.875	.821	.855	.754



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
AM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessAM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 1

Groups Printed- Unshifted

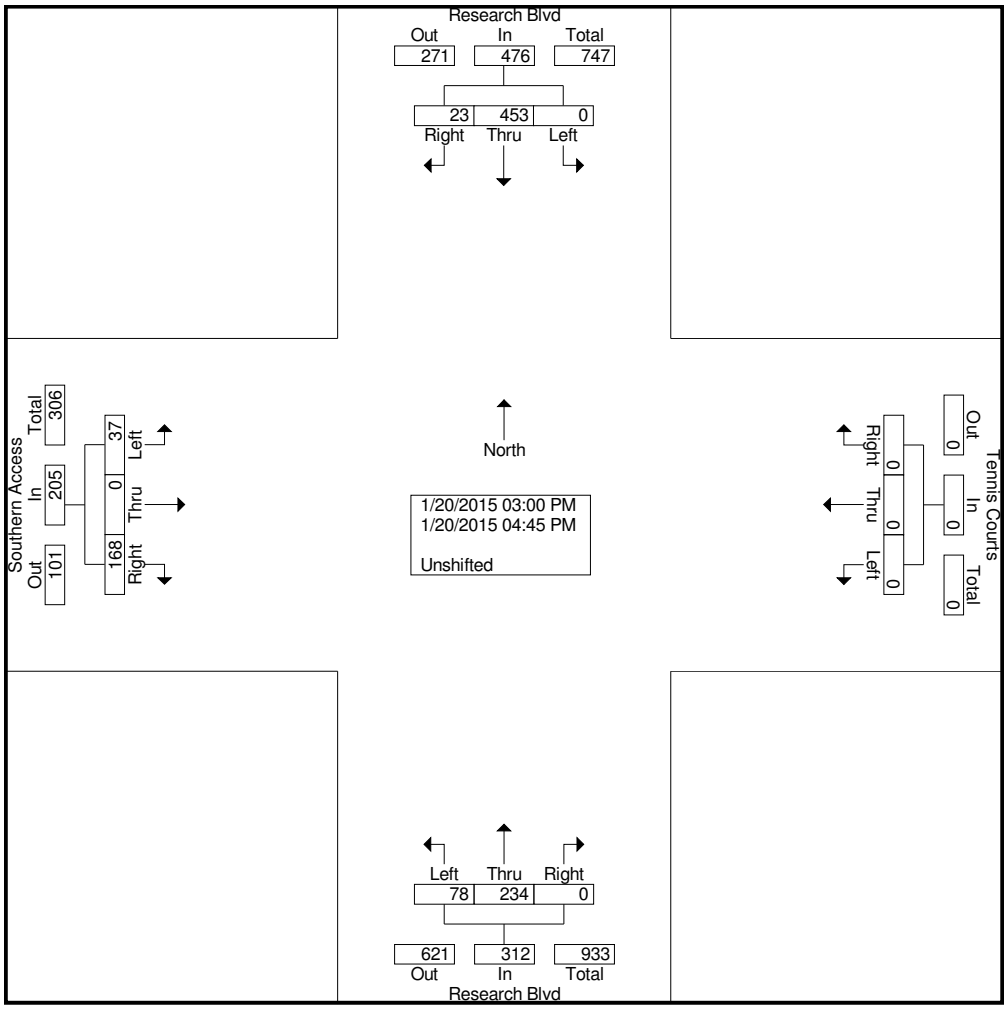
	Southern Access Eastbound				Tennis Courts Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
03:00 PM	4	0	22	26	0	0	0	0	11	18	0	29	0	59	3	62	117
03:15 PM	7	0	18	25	0	0	0	0	14	39	0	53	0	45	2	47	125
03:30 PM	2	0	17	19	0	0	0	0	9	34	0	43	0	46	0	46	108
03:45 PM	2	0	25	27	0	0	0	0	9	25	0	34	0	50	4	54	115
Total	15	0	82	97	0	0	0	0	43	116	0	159	0	200	9	209	465
04:00 PM	2	0	21	23	0	0	0	0	12	33	0	45	0	64	6	70	138
04:15 PM	6	0	24	30	0	0	0	0	10	27	0	37	0	59	3	62	129
04:30 PM	3	0	22	25	0	0	0	0	9	27	0	36	0	73	2	75	136
04:45 PM	11	0	19	30	0	0	0	0	4	31	0	35	0	57	3	60	125
Total	22	0	86	108	0	0	0	0	35	118	0	153	0	253	14	267	528
Grand Total	37	0	168	205	0	0	0	0	78	234	0	312	0	453	23	476	993
Apprch %	18	0	82		0	0	0		25	75	0		0	95.2	4.8		
Total %	3.7	0	16.9	20.6	0	0	0	0	7.9	23.6	0	31.4	0	45.6	2.3	47.9	

RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 2



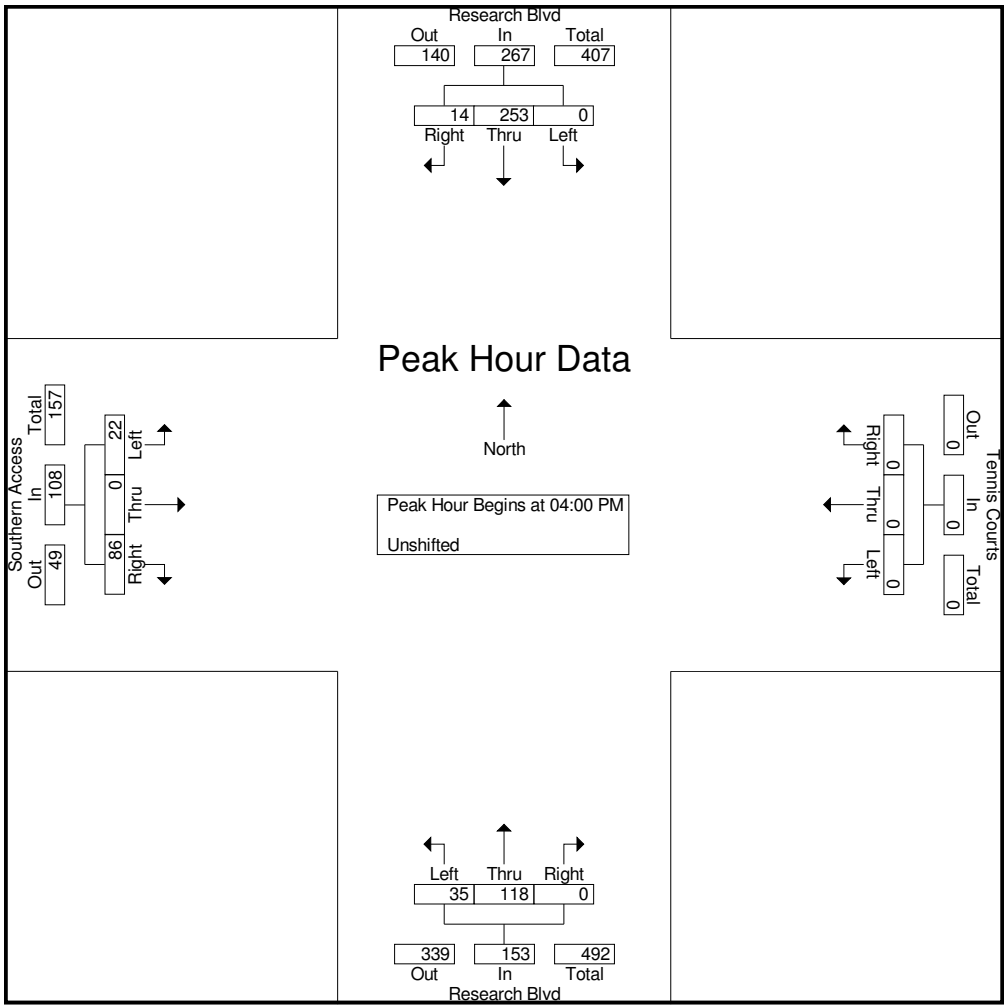
RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 3

	Southern Access Eastbound				Tennis Courts Westbound				Research Blvd Northbound				Research Blvd Southbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 04:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:00 PM																	
04:00 PM	2	0	21	23	0	0	0	0	**12**	**33**	0	**45**	0	64	**6**	70	**138**
04:15 PM	6	0	**24**	**30**	0	0	0	0	10	27	0	37	0	59	3	62	129
04:30 PM	3	0	22	25	0	0	0	0	9	27	0	36	0	**73**	2	**75**	136
04:45 PM	**11**	0	19	30	0	0	0	0	4	31	0	35	0	57	3	60	125
Total Volume	22	0	86	108	0	0	0	0	35	118	0	153	0	253	14	267	528
% App. Total	20.4	0	79.6		0	0	0		22.9	77.1	0		0	94.8	5.2		
PHF	.500	.000	.896	.900	.000	.000	.000	.000	.729	.894	.000	.850	.000	.866	.583	.890	.957



RDC
Ridgeview Data Collection

Morrison, CO 80465

Fort Collins, CO
CSU South Parking Lot
PM Peak
Research Blvd Southern Access/Tennis

File Name : ResearchSouthAccessPM
Site Code : IPO 72
Start Date : 1/20/2015
Page No : 4

Image 1

APPENDIX B

Intersection Analysis Worksheets

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	857	94	276	529	117	51	208	229	16	37	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	508	1759	197	430	1645	430	349	441	375	138	441	375
Arrive On Green	0.07	0.53	0.53	0.12	0.58	0.58	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	3291	369	1774	2849	745	1308	1863	1583	807	1863	1583
Grp Volume(v), veh/h	206	584	565	389	412	383	76	306	305	20	52	32
Grp Sat Flow(s),veh/h/ln	1774	1863	1798	1774	1863	1731	1308	1863	1583	807	1863	1583
Q Serve(g_s), s	5.5	22.5	22.5	9.1	12.7	12.7	5.1	15.9	19.2	2.5	2.3	1.7
Cycle Q Clear(g_c), s	5.5	22.5	22.5	9.1	12.7	12.7	7.4	15.9	19.2	18.3	2.3	1.7
Prop In Lane	1.00		0.21	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	508	995	961	430	1075	999	349	441	375	138	441	375
V/C Ratio(X)	0.41	0.59	0.59	0.91	0.38	0.38	0.22	0.69	0.81	0.14	0.12	0.09
Avail Cap(c_a), veh/h	580	995	961	695	1075	999	349	441	375	138	441	375
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.7	16.7	16.7	18.3	12.1	12.1	34.6	36.8	38.1	45.2	31.7	31.4
Incr Delay (d2), s/veh	0.5	2.5	2.6	10.1	1.0	1.1	1.4	8.7	17.4	2.2	0.5	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.1	10.3	10.0	7.0	5.6	5.2	1.8	8.4	9.3	0.6	1.1	0.7
Lane Grp Delay (d), s/veh	10.2	19.2	19.3	28.4	13.2	13.2	36.0	45.6	55.6	47.4	32.2	31.9
Lane Grp LOS	B	B	B	C	B	B	D	D	E	D	C	C
Approach Vol, veh/h		1355			1184			687			104	
Approach Delay, s/veh		17.9			18.2			48.9			35.0	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	11.7	60.5		16.2	65.0			29.0			29.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	12.0	45.0		28.0	61.0			25.0			25.0	
Max Q Clear Time (g_c+I1), s	7.5	24.5		11.1	14.7			21.2			20.3	
Green Ext Time (p_c), s	0.2	12.8		1.1	19.7			1.4			1.6	

Intersection Summary		
HCM 2010 Ctrl Delay		24.9
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	902	32	207	839	42	69	79	289	76	154	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	396	2021	98	411	2126	131	229	459	390	248	459	390
Arrive On Green	0.03	0.57	0.57	0.07	0.61	0.61	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3525	171	1774	3474	213	1020	1863	1583	935	1863	1583
Grp Volume(v), veh/h	68	524	515	241	489	479	84	120	332	100	192	165
Grp Sat Flow(s),veh/h/ln	1774	1863	1833	1774	1863	1825	1020	1863	1583	935	1863	1583
Q Serve(g_s), s	1.7	18.3	18.3	5.2	15.1	15.1	8.3	5.7	21.9	10.6	9.5	9.6
Cycle Q Clear(g_c), s	1.7	18.3	18.3	5.2	15.1	15.1	17.7	5.7	21.9	16.2	9.5	9.6
Prop In Lane	1.00		0.09	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	396	1068	1051	411	1140	1117	229	459	390	248	459	390
V/C Ratio(X)	0.17	0.49	0.49	0.59	0.43	0.43	0.37	0.26	0.85	0.40	0.42	0.42
Avail Cap(c_a), veh/h	405	1068	1051	626	1140	1117	229	459	390	248	459	390
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.5	13.9	13.9	10.6	11.2	11.2	42.1	33.2	39.3	39.8	34.6	34.7
Incr Delay (d2), s/veh	0.2	1.6	1.6	1.3	1.2	1.2	4.5	1.4	20.2	4.8	2.8	3.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	8.0	7.9	2.0	6.6	6.5	2.4	2.8	10.7	2.8	4.7	4.1
Lane Grp Delay (d), s/veh	9.7	15.5	15.5	12.0	12.4	12.4	46.6	34.6	59.5	44.6	37.4	38.0
Lane Grp LOS	A	B	B	B	B	B	D	C	E	D	D	D
Approach Vol, veh/h		1107			1209			536			457	
Approach Delay, s/veh		15.1			12.3			51.9			39.2	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.5	66.8		11.7	71.0			31.0			31.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	50.0		21.0	67.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s	3.7	20.3		7.2	17.1			23.9			18.2	
Green Ext Time (p_c), s	0.0	16.5		0.6	20.8			1.4			2.8	

Intersection Summary	
HCM 2010 Ctrl Delay	23.4
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	857	112	303	529	117	60	212	242	16	46	18
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	513	1596	213	467	1637	428	337	439	373	132	439	373
Arrive On Green	0.08	0.50	0.50	0.16	0.57	0.57	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	3220	430	1774	2849	745	1293	1863	1583	789	1863	1583
Grp Volume(v), veh/h	206	597	574	427	412	383	90	312	323	20	65	32
Grp Sat Flow(s),veh/h/ln	1774	1863	1787	1774	1863	1731	1293	1863	1583	789	1863	1583
Q Serve(g_s), s	6.0	25.3	25.3	13.4	12.8	12.8	6.3	16.3	20.8	2.5	2.9	1.7
Cycle Q Clear(g_c), s	6.0	25.3	25.3	13.4	12.8	12.8	9.2	16.3	20.8	18.9	2.9	1.7
Prop In Lane	1.00		0.24	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	513	923	886	467	1070	995	337	439	373	132	439	373
V/C Ratio(X)	0.40	0.65	0.65	0.91	0.38	0.39	0.27	0.71	0.87	0.15	0.15	0.09
Avail Cap(c_a), veh/h	577	923	886	675	1070	995	337	439	373	132	439	373
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.1	19.9	19.9	24.7	12.3	12.3	35.8	37.3	39.0	45.9	32.1	31.7
Incr Delay (d2), s/veh	0.5	3.5	3.7	13.1	1.0	1.1	1.9	9.4	22.7	2.4	0.7	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.4	11.8	11.4	8.1	5.7	5.3	2.2	8.7	10.4	0.6	1.4	0.7
Lane Grp Delay (d), s/veh	11.6	23.4	23.5	37.8	13.4	13.5	37.7	46.7	61.7	48.3	32.9	32.1
Lane Grp LOS	B	C	C	D	B	B	D	D	E	D	C	C
Approach Vol, veh/h		1377			1222			725			117	
Approach Delay, s/veh		21.7			21.9			52.2			35.3	
Approach LOS		C			C			D			D	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	12.1	56.6		20.5	65.0			29.0			29.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	12.0	44.0		29.0	61.0			25.0			25.0	
Max Q Clear Time (g_c+I1), s	8.0	27.3		15.4	14.8			22.8			20.9	
Green Ext Time (p_c), s	0.2	11.3		1.1	20.1			0.9			1.6	
Intersection Summary												
HCM 2010 Ctrl Delay			28.7									
HCM 2010 LOS			C									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	902	51	235	839	42	93	91	325	76	163	122
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	387	1884	144	402	2082	128	235	481	409	242	481	409
Arrive On Green	0.03	0.55	0.55	0.08	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3417	262	1774	3474	213	1009	1863	1583	885	1863	1583
Grp Volume(v), veh/h	68	540	527	273	489	479	113	138	374	100	204	165
Grp Sat Flow(s),veh/h/ln	1774	1863	1817	1774	1863	1825	1009	1863	1583	885	1863	1583
Q Serve(g_s), s	1.8	19.9	19.9	6.0	15.5	15.5	11.4	6.4	24.9	11.1	9.9	9.4
Cycle Q Clear(g_c), s	1.8	19.9	19.9	6.0	15.5	15.5	21.3	6.4	24.9	17.5	9.9	9.4
Prop In Lane	1.00		0.14	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	387	1027	1002	402	1116	1094	235	481	409	242	481	409
V/C Ratio(X)	0.18	0.53	0.53	0.68	0.44	0.44	0.48	0.29	0.92	0.41	0.42	0.40
Avail Cap(c_a), veh/h	412	1027	1002	653	1116	1094	235	481	409	242	481	409
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.3	15.4	15.4	12.9	11.8	11.8	42.4	32.2	39.1	39.3	33.5	33.3
Incr Delay (d2), s/veh	0.2	1.9	2.0	2.0	1.3	1.3	6.9	1.5	27.6	5.1	2.7	3.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	9.0	8.7	3.2	6.8	6.6	3.3	3.2	12.8	2.8	4.9	4.0
Lane Grp Delay (d), s/veh	10.5	17.3	17.3	14.9	13.1	13.1	49.3	33.7	66.7	44.4	36.3	36.3
Lane Grp LOS	B	B	B	B	B	B	D	C	E	D	D	D
Approach Vol, veh/h		1135			1241			625			469	
Approach Delay, s/veh		16.9			13.5			56.3			38.0	
Approach LOS		B			B			E			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.5	63.8		12.7	69.0			32.0			32.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	5.0	46.0		24.0	65.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s	3.8	21.9		8.0	17.5			26.9			19.5	
Green Ext Time (p_c), s	0.0	14.8		0.7	21.0			0.6			3.1	

Intersection Summary	
HCM 2010 Ctrl Delay	25.6
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	1086	119	350	671	148	65	264	290	20	47	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	472	1408	158	517	1624	423	309	407	346	74	407	346
Arrive On Green	0.10	0.43	0.43	0.24	0.57	0.57	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	3292	368	1774	2852	742	1281	1863	1583	693	1863	1583
Grp Volume(v), veh/h	261	737	718	493	522	485	97	388	387	25	66	41
Grp Sat Flow(s),veh/h/ln	1774	1863	1798	1774	1863	1732	1281	1863	1583	693	1863	1583
Q Serve(g_s), s	8.9	41.2	41.8	24.8	18.4	18.4	7.3	22.6	24.0	1.4	3.2	2.3
Cycle Q Clear(g_c), s	8.9	41.2	41.8	24.8	18.4	18.4	10.4	22.6	24.0	24.0	3.2	2.3
Prop In Lane	1.00		0.20	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	472	797	769	517	1060	986	309	407	346	74	407	346
V/C Ratio(X)	0.55	0.93	0.93	0.95	0.49	0.49	0.31	0.95	1.12	0.34	0.16	0.12
Avail Cap(c_a), veh/h	580	797	769	519	1060	986	309	407	346	74	407	346
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.3	29.8	29.9	35.5	14.2	14.2	39.0	42.4	42.9	54.7	34.8	34.5
Incr Delay (d2), s/veh	1.0	18.2	19.8	28.2	1.6	1.8	2.6	34.4	84.5	11.8	0.9	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.7	22.2	22.0	17.7	8.3	7.8	2.6	14.3	17.5	0.9	1.5	1.0
Lane Grp Delay (d), s/veh	15.3	47.9	49.7	63.7	15.8	15.9	41.7	76.7	127.5	66.5	35.6	35.1
Lane Grp LOS	B	D	D	E	B	B	D	E	F	E	D	D
Approach Vol, veh/h		1716			1500			872			132	
Approach Delay, s/veh		43.7			31.6			95.4			41.3	
Approach LOS		D			C			F			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	15.3	51.0		30.9	66.6			28.0			28.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	18.0	47.0		27.0	56.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	10.9	43.8		26.8	20.4			26.0			26.0	
Green Ext Time (p_c), s	0.4	3.0		0.0	24.2			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	50.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	1143	41	262	1064	53	87	100	366	96	195	155
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	320	1985	96	350	2125	130	185	449	381	212	449	381
Arrive On Green	0.04	0.56	0.56	0.08	0.61	0.61	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1774	3524	171	1774	3475	213	934	1863	1583	836	1863	1583
Grp Volume(v), veh/h	87	663	654	305	620	608	106	152	421	126	244	209
Grp Sat Flow(s),veh/h/ln	1774	1863	1833	1774	1863	1825	934	1863	1583	836	1863	1583
Q Serve(g_s), s	2.2	26.1	26.1	6.4	20.9	21.0	12.1	7.3	26.0	15.8	12.4	12.5
Cycle Q Clear(g_c), s	2.2	26.1	26.1	6.4	20.9	21.0	24.4	7.3	26.0	23.1	12.4	12.5
Prop In Lane	1.00		0.09	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	320	1049	1032	350	1139	1116	185	449	381	212	449	381
V/C Ratio(X)	0.27	0.63	0.63	0.87	0.54	0.54	0.57	0.34	1.10	0.60	0.54	0.55
Avail Cap(c_a), veh/h	354	1049	1032	562	1139	1116	185	449	381	212	449	381
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	10.5	16.0	16.0	19.2	12.2	12.2	46.5	33.9	41.0	43.4	35.8	35.8
Incr Delay (d2), s/veh	0.5	2.9	3.0	8.6	1.9	1.9	12.3	2.0	77.1	11.7	4.7	5.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	11.9	11.7	5.8	9.0	8.9	3.5	3.6	18.3	4.0	6.3	5.5
Lane Grp Delay (d), s/veh	11.0	18.9	19.0	27.7	14.1	14.1	58.8	35.9	118.1	55.2	40.5	41.4
Lane Grp LOS	B	B	B	C	B	B	E	D	F	E	D	D
Approach Vol, veh/h		1404			1533			679			579	
Approach Delay, s/veh		18.4			16.8			90.4			44.0	
Approach LOS		B			B			F			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.9	64.8		13.1	70.0			30.0			30.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	6.0	50.0		22.0	66.0			26.0			26.0	
Max Q Clear Time (g_c+I1), s	4.2	28.1		8.4	23.0			28.0			25.1	
Green Ext Time (p_c), s	0.0	17.1		0.7	28.1			0.0			0.5	

Intersection Summary	
HCM 2010 Ctrl Delay	33.0
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	1086	137	377	671	148	74	268	303	20	56	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	473	1353	174	524	1622	422	298	406	345	71	406	345
Arrive On Green	0.10	0.42	0.42	0.25	0.57	0.57	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	3237	416	1774	2852	742	1266	1863	1583	678	1863	1583
Grp Volume(v), veh/h	261	749	728	531	522	485	110	394	404	25	79	41
Grp Sat Flow(s),veh/h/ln	1774	1863	1789	1774	1863	1732	1266	1863	1583	678	1863	1583
Q Serve(g_s), s	9.1	43.1	43.9	28.0	18.5	18.5	8.5	23.1	24.0	0.9	3.8	2.3
Cycle Q Clear(g_c), s	9.1	43.1	43.9	28.0	18.5	18.5	12.4	23.1	24.0	24.0	3.8	2.3
Prop In Lane	1.00		0.23	1.00		0.43	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	473	779	748	524	1059	985	298	406	345	71	406	345
V/C Ratio(X)	0.55	0.96	0.97	1.01	0.49	0.49	0.37	0.97	1.17	0.35	0.19	0.12
Avail Cap(c_a), veh/h	563	779	748	524	1059	985	298	406	345	71	406	345
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	14.8	31.2	31.4	36.6	14.2	14.2	40.1	42.6	43.0	54.9	35.1	34.5
Incr Delay (d2), s/veh	1.0	24.2	26.8	42.7	1.6	1.8	3.5	37.6	102.9	13.1	1.1	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.8	24.6	24.6	20.8	8.3	7.8	3.0	15.0	19.3	1.0	1.9	1.0
Lane Grp Delay (d), s/veh	15.8	55.4	58.2	79.4	15.9	16.0	43.6	80.3	145.9	68.0	36.2	35.2
Lane Grp LOS	B	E	E	F	B	B	D	F	F	E	D	D
Approach Vol, veh/h		1738			1538			908			145	
Approach Delay, s/veh		50.6			37.8			105.0			41.4	
Approach LOS		D			D			F			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	15.4	50.0		32.0	66.6			28.0			28.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	17.0	46.0		28.0	57.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	11.1	45.9		30.0	20.5			26.0			26.0	
Green Ext Time (p_c), s	0.4	0.1		0.0	25.0			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	57.2
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	1143	60	290	1064	53	111	112	402	96	204	155
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	186.3
Lanes	1	2	0	1	2	0	1	1	1	1	1	1
Cap, veh/h	316	1796	128	373	2089	128	187	465	395	205	465	395
Arrive On Green	0.04	0.52	0.52	0.12	0.60	0.60	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3436	246	1774	3475	213	925	1863	1583	792	1863	1583
Grp Volume(v), veh/h	87	680	666	337	620	608	135	170	462	126	255	209
Grp Sat Flow(s),veh/h/ln	1774	1863	1819	1774	1863	1825	925	1863	1583	792	1863	1583
Q Serve(g_s), s	2.4	29.7	29.8	9.9	21.5	21.6	14.1	8.1	27.0	16.9	12.9	12.3
Cycle Q Clear(g_c), s	2.4	29.7	29.8	9.9	21.5	21.6	27.0	8.1	27.0	25.1	12.9	12.3
Prop In Lane	1.00		0.14	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	316	973	951	373	1120	1097	187	465	395	205	465	395
V/C Ratio(X)	0.28	0.70	0.70	0.90	0.55	0.55	0.72	0.37	1.17	0.62	0.55	0.53
Avail Cap(c_a), veh/h	347	973	951	527	1120	1097	187	465	395	205	465	395
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	11.9	19.4	19.4	26.1	12.9	12.9	47.7	33.5	40.6	43.8	35.3	35.1
Incr Delay (d2), s/veh	0.5	4.2	4.3	14.5	2.0	2.0	21.2	2.2	99.9	13.1	4.6	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.0	13.8	13.5	6.9	9.6	9.4	4.8	4.1	21.5	4.1	6.5	5.3
Lane Grp Delay (d), s/veh	12.4	23.6	23.7	40.6	14.9	14.9	68.9	35.7	140.5	57.0	39.9	40.1
Lane Grp LOS	B	C	C	D	B	B	E	D	F	E	D	D
Approach Vol, veh/h		1433			1565			767			590	
Approach Delay, s/veh		23.0			20.4			104.7			43.6	
Approach LOS		C			C			F			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	8.1	60.5		16.6	69.0			31.0			31.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	6.0	49.0		22.0	65.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s	4.4	31.8		11.9	23.6			29.0			27.1	
Green Ext Time (p_c), s	0.0	14.2		0.7	27.9			0.0			0.0	

Intersection Summary	
HCM 2010 Ctrl Delay	39.2
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	167	1086	137	377	671	148	74	268	303	20	56	23
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	2	1	1	2	1	0
Cap, veh/h	473	1353	174	524	1622	422	125	406	345	142	168	87
Arrive On Green	0.10	0.42	0.42	0.25	0.57	0.57	0.04	0.22	0.22	0.15	0.15	0.15
Sat Flow, veh/h	1774	3237	416	1774	2852	742	3442	1863	1583	1316	1157	600
Grp Volume(v), veh/h	261	749	728	531	522	485	110	394	404	25	0	120
Grp Sat Flow(s),veh/h/ln	1774	1863	1789	1774	1863	1732	1721	1863	1583	658	0	1757
Q Serve(g_s), s	9.1	43.1	43.9	28.0	18.5	18.5	3.5	23.1	24.0	0.9	0.0	6.9
Cycle Q Clear(g_c), s	9.1	43.1	43.9	28.0	18.5	18.5	3.5	23.1	24.0	16.0	0.0	6.9
Prop In Lane	1.00		0.23	1.00		0.43	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	473	779	748	524	1059	985	125	406	345	142	0	256
V/C Ratio(X)	0.55	0.96	0.97	1.01	0.49	0.49	0.88	0.97	1.17	0.18	0.00	0.47
Avail Cap(c_a), veh/h	563	779	748	524	1059	985	125	406	345	142	0	256
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.8	31.2	31.4	36.6	14.2	14.2	52.8	42.6	43.0	54.8	0.0	43.1
Incr Delay (d2), s/veh	1.0	24.2	26.8	42.7	1.6	1.8	45.9	37.6	102.9	2.7	0.0	6.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.8	24.6	24.6	20.8	8.3	7.8	2.3	15.0	19.3	0.4	0.0	3.5
Lane Grp Delay (d), s/veh	15.8	55.4	58.2	79.4	15.9	16.0	98.7	80.3	145.9	57.5	0.0	49.2
Lane Grp LOS	B	E	E	F	B	B	F	F	F	E		D
Approach Vol, veh/h		1738			1538			908			145	
Approach Delay, s/veh		50.6			37.8			111.7			50.6	
Approach LOS		D			D			F			D	

Timer												
Assigned Phs	7	4		3	8		5	2			6	
Phs Duration (G+Y+Rc), s	15.4	50.0		32.0	66.6		8.0	28.0			20.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Max Green Setting (Gmax), s	17.0	46.0		28.0	57.0		4.0	24.0			16.0	
Max Q Clear Time (g_c+I1), s	11.1	45.9		30.0	20.5		5.5	26.0			18.0	
Green Ext Time (p_c), s	0.4	0.1		0.0	25.0		0.0	0.0			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			58.9									
HCM 2010 LOS			E									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	60	1143	60	290	1064	53	111	112	402	96	204	155
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	2	1	1	2	1	0
Cap, veh/h	263	1351	97	364	1764	108	157	630	536	525	243	199
Arrive On Green	0.04	0.39	0.39	0.16	0.51	0.51	0.05	0.34	0.34	0.26	0.26	0.26
Sat Flow, veh/h	1774	3436	246	1774	3475	213	3442	1863	1583	1536	948	777
Grp Volume(v), veh/h	87	680	666	337	620	608	135	170	462	126	0	464
Grp Sat Flow(s),veh/h/ln	1774	1863	1819	1774	1863	1825	1721	1863	1583	768	0	1726
Q Serve(g_s), s	3.2	38.1	38.3	15.3	26.8	26.9	4.3	7.3	29.8	7.3	0.0	28.0
Cycle Q Clear(g_c), s	3.2	38.1	38.3	15.3	26.8	26.9	4.3	7.3	29.8	7.3	0.0	28.0
Prop In Lane	1.00		0.14	1.00		0.12	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	263	733	715	364	946	927	157	630	536	525	0	442
V/C Ratio(X)	0.33	0.93	0.93	0.92	0.66	0.66	0.86	0.27	0.86	0.24	0.00	1.05
Avail Cap(c_a), veh/h	298	733	715	375	946	927	157	630	536	525	0	442
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	19.4	31.7	31.8	34.6	19.9	19.9	51.8	26.3	33.8	33.0	0.0	40.7
Incr Delay (d2), s/veh	0.7	19.7	20.5	27.9	3.5	3.6	34.7	1.1	16.6	1.1	0.0	56.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.4	21.2	20.9	12.2	12.5	12.3	2.6	3.5	13.9	1.5	0.0	19.0
Lane Grp Delay (d), s/veh	20.1	51.4	52.2	62.5	23.4	23.5	86.6	27.4	50.4	34.0	0.0	97.2
Lane Grp LOS	C	D	D	E	C	C	F	C	D	C		F
Approach Vol, veh/h		1433			1565			767			590	
Approach Delay, s/veh		49.9			31.9			51.7			83.7	
Approach LOS		D			C			D			F	

Timer												
Assigned Phs	7	4		3	8		5	2			6	
Phs Duration (G+Y+Rc), s	8.8	47.0		21.3	59.5		9.0	41.0			32.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Max Green Setting (Gmax), s	7.0	43.0		18.0	54.0		5.0	37.0			28.0	
Max Q Clear Time (g_c+I1), s	5.2	40.3		17.3	28.9		6.3	31.8			30.0	
Green Ext Time (p_c), s	0.0	2.5		0.1	19.3		0.0	2.8			0.0	

Intersection Summary												
HCM 2010 Ctrl Delay			48.3									
HCM 2010 LOS			D									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	104	172	32	48	31	31	41	913	273	103	727	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	356	328	279	170	217	185	414	1609	470	268	1996	205
Arrive On Green	0.10	0.18	0.18	0.04	0.12	0.12	0.03	0.58	0.58	0.05	0.60	0.60
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2773	810	1774	3324	342
Grp Volume(v), veh/h	179	277	52	56	56	48	56	743	699	145	458	443
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1720	1774	1863	1802
Q Serve(g_s), s	8.2	14.9	2.9	2.8	2.8	2.9	1.3	28.8	29.6	3.2	13.4	13.4
Cycle Q Clear(g_c), s	8.2	14.9	2.9	2.8	2.8	2.9	1.3	28.8	29.6	3.2	13.4	13.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.47	1.00		0.19
Lane Grp Cap(c), veh/h	356	328	279	170	217	185	414	1081	998	268	1119	1082
V/C Ratio(X)	0.50	0.84	0.19	0.33	0.26	0.26	0.14	0.69	0.70	0.54	0.41	0.41
Avail Cap(c_a), veh/h	356	433	368	172	325	276	428	1081	998	367	1119	1082
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	29.4	41.2	36.2	38.5	41.5	41.5	8.7	15.1	15.3	14.9	10.9	10.9
Incr Delay (d2), s/veh	1.1	11.2	0.3	1.1	0.6	0.7	0.1	3.6	4.1	1.7	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.7	8.1	1.2	1.3	1.4	1.2	0.5	13.0	12.4	1.6	5.8	5.6
Lane Grp Delay (d), s/veh	30.5	52.4	36.6	39.6	42.1	42.3	8.9	18.7	19.4	16.6	12.0	12.1
Lane Grp LOS	C	D	D	D	D	D	A	B	B	B	B	B
Approach Vol, veh/h		508			160			1498			1046	
Approach Delay, s/veh		43.1			41.3			18.7			12.7	
Approach LOS		D			D			B			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	14.0	22.2		7.9	16.1		7.2	63.9		9.3	66.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	10.0	24.0		4.0	18.0		4.0	55.0		11.0	62.0	
Max Q Clear Time (g_c+I1), s	10.2	16.9		4.8	4.9		3.3	31.6		5.2	15.4	
Green Ext Time (p_c), s	0.0	1.3		0.0	1.9		0.0	16.7		0.2	25.9	

Intersection Summary		
HCM 2010 Ctrl Delay		21.7
HCM 2010 LOS		C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	101	107	122	169	118	80	71	902	107	89	1094	112
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	350	317	269	296	403	342	242	1591	265	316	1704	213
Arrive On Green	0.06	0.17	0.17	0.11	0.22	0.22	0.04	0.51	0.51	0.06	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3115	519	1774	3247	407
Grp Volume(v), veh/h	140	255	167	204	140	100	92	574	546	137	688	665
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1771	1774	1863	1791
Q Serve(g_s), s	6.0	13.3	9.9	8.6	6.4	5.3	2.5	22.0	22.0	3.6	28.1	28.4
Cycle Q Clear(g_c), s	6.0	13.3	9.9	8.6	6.4	5.3	2.5	22.0	22.0	3.6	28.1	28.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.23
Lane Grp Cap(c), veh/h	350	317	269	296	403	342	242	951	904	316	977	940
V/C Ratio(X)	0.40	0.81	0.62	0.69	0.35	0.29	0.38	0.60	0.60	0.43	0.70	0.71
Avail Cap(c_a), veh/h	350	406	345	319	516	439	292	951	904	428	977	940
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.8	40.3	38.9	27.2	33.5	33.1	15.4	17.5	17.5	13.4	18.1	18.2
Incr Delay (d2), s/veh	0.7	8.9	2.3	5.7	0.5	0.5	1.0	2.8	3.0	0.9	4.2	4.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.1	7.1	4.2	4.6	3.1	2.2	1.0	10.2	9.7	1.4	13.2	12.8
Lane Grp Delay (d), s/veh	33.5	49.3	41.2	32.9	34.1	33.6	16.3	20.3	20.5	14.3	22.3	22.6
Lane Grp LOS	C	D	D	C	C	C	B	C	C	B	C	C
Approach Vol, veh/h		562			444			1212			1490	
Approach Delay, s/veh		42.9			33.4			20.1			21.7	
Approach LOS		D			C			C			C	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	10.0	21.2		14.7	25.9		8.2	55.6		9.6	57.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	6.0	22.0		12.0	28.0		7.0	48.0		12.0	53.0	
Max Q Clear Time (g_c+I1), s	8.0	15.3		10.6	8.4		4.5	24.0		5.6	30.4	
Green Ext Time (p_c), s	0.0	1.9		0.1	3.1		0.0	17.6		0.2	16.9	

Intersection Summary												
HCM 2010 Ctrl Delay			25.8									
HCM 2010 LOS			C									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	104	172	32	57	31	49	41	913	291	139	727	58
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	348	323	274	166	217	184	417	1571	489	277	2016	207
Arrive On Green	0.09	0.17	0.17	0.04	0.12	0.12	0.03	0.58	0.58	0.06	0.61	0.61
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2728	848	1774	3324	342
Grp Volume(v), veh/h	179	277	52	66	56	75	56	755	709	196	458	443
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1713	1774	1863	1802
Q Serve(g_s), s	8.4	15.2	3.0	3.4	2.9	4.6	1.4	30.5	31.6	4.2	13.5	13.5
Cycle Q Clear(g_c), s	8.4	15.2	3.0	3.4	2.9	4.6	1.4	30.5	31.6	4.2	13.5	13.5
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.50	1.00		0.19
Lane Grp Cap(c), veh/h	348	323	274	166	217	184	417	1073	987	277	1130	1093
V/C Ratio(X)	0.51	0.86	0.19	0.40	0.26	0.41	0.13	0.70	0.72	0.71	0.41	0.41
Avail Cap(c_a), veh/h	348	388	330	166	283	240	430	1073	987	387	1130	1093
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.5	42.4	37.3	39.6	42.5	43.2	9.0	15.9	16.2	18.8	10.8	10.8
Incr Delay (d2), s/veh	1.3	15.1	0.3	1.5	0.6	1.4	0.1	3.9	4.5	3.5	1.1	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.9	8.7	1.2	1.6	1.4	1.9	0.5	13.7	13.2	5.4	5.8	5.6
Lane Grp Delay (d), s/veh	31.8	57.4	37.6	41.2	43.1	44.7	9.1	19.8	20.7	22.3	11.9	11.9
Lane Grp LOS	C	E	D	D	D	D	A	B	C	C	B	B
Approach Vol, veh/h		508			197			1520			1097	
Approach Delay, s/veh		46.4			43.1			19.8			13.8	
Approach LOS		D			D			B			B	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	14.0	22.3		8.0	16.3		7.2	64.8		10.5	68.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	10.0	22.0		4.0	16.0		4.0	55.0		13.0	64.0	
Max Q Clear Time (g_c+I1), s	10.4	17.2		5.4	6.6		3.4	33.6		6.2	15.5	
Green Ext Time (p_c), s	0.0	1.0		0.0	1.6		0.0	15.8		0.3	26.9	

Intersection Summary	
HCM 2010 Ctrl Delay	23.3
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	101	107	122	193	118	128	71	902	126	126	1094	112
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	360	315	268	317	407	346	237	1462	286	317	1664	208
Arrive On Green	0.07	0.17	0.17	0.12	0.22	0.22	0.04	0.48	0.48	0.07	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3029	592	1774	3247	407
Grp Volume(v), veh/h	140	255	167	233	140	160	92	590	558	194	688	665
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1758	1774	1863	1791
Q Serve(g_s), s	6.6	13.4	9.9	9.9	6.4	8.9	2.6	24.3	24.4	5.1	29.0	29.2
Cycle Q Clear(g_c), s	6.6	13.4	9.9	9.9	6.4	8.9	2.6	24.3	24.4	5.1	29.0	29.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.34	1.00		0.23
Lane Grp Cap(c), veh/h	360	315	268	317	407	346	237	899	849	317	955	918
V/C Ratio(X)	0.39	0.81	0.62	0.74	0.34	0.46	0.39	0.66	0.66	0.61	0.72	0.72
Avail Cap(c_a), veh/h	360	385	328	351	514	437	283	899	849	451	955	918
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.0	40.6	39.2	26.8	33.5	34.5	16.5	19.9	19.9	16.0	19.1	19.2
Incr Delay (d2), s/veh	0.7	10.2	2.5	7.1	0.5	1.0	1.0	3.7	4.0	1.9	4.7	5.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	3.0	7.3	4.2	6.6	3.1	3.7	1.1	11.4	10.9	2.1	13.7	13.3
Lane Grp Delay (d), s/veh	32.7	50.8	41.7	33.8	34.0	35.5	17.5	23.6	23.8	17.9	23.8	24.2
Lane Grp LOS	C	D	D	C	C	D	B	C	C	B	C	C
Approach Vol, veh/h		562			533			1240			1547	
Approach Delay, s/veh		43.6			34.4			23.3			23.2	
Approach LOS		D			C			C			C	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	11.0	21.1		16.0	26.2		8.3	53.0		11.3	56.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	7.0	21.0		14.0	28.0		7.0	44.0		15.0	52.0	
Max Q Clear Time (g_c+I1), s	8.6	15.4		11.9	10.9		4.6	26.4		7.1	31.2	
Green Ext Time (p_c), s	0.0	1.8		0.1	3.2		0.0	14.0		0.3	16.0	

Intersection Summary		
HCM 2010 Ctrl Delay		27.7
HCM 2010 LOS		C

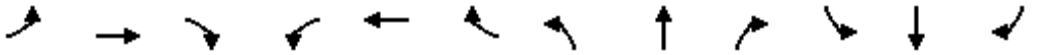
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	218	41	61	39	39	52	1157	346	131	922	74
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	346	356	302	147	288	245	324	1548	440	210	1977	204
Arrive On Green	0.07	0.19	0.19	0.04	0.15	0.15	0.03	0.55	0.55	0.07	0.60	0.60
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2792	793	1774	3322	343
Grp Volume(v), veh/h	228	352	67	71	71	60	71	922	906	185	581	562
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1723	1774	1863	1802
Q Serve(g_s), s	8.0	20.7	3.9	3.7	3.7	3.7	1.9	48.1	54.3	6.3	20.2	20.2
Cycle Q Clear(g_c), s	8.0	20.7	3.9	3.7	3.7	3.7	1.9	48.1	54.3	6.3	20.2	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.46	1.00		0.19
Lane Grp Cap(c), veh/h	346	356	302	147	288	245	324	1033	955	210	1108	1072
V/C Ratio(X)	0.66	0.99	0.22	0.48	0.25	0.25	0.22	0.89	0.95	0.88	0.52	0.52
Avail Cap(c_a), veh/h	346	356	302	147	288	245	348	1033	955	210	1108	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	35.9	44.4	37.6	38.6	40.9	40.9	11.1	21.6	23.0	33.4	13.1	13.1
Incr Delay (d2), s/veh	4.5	44.9	0.4	2.4	0.4	0.5	0.3	11.7	19.0	32.3	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.6	14.3	1.6	1.8	1.8	1.5	0.8	23.6	26.2	7.0	8.9	8.7
Lane Grp Delay (d), s/veh	40.5	89.3	38.0	41.0	41.3	41.4	11.4	33.3	42.0	65.7	14.9	14.9
Lane Grp LOS	D	F	D	D	D	D	B	C	D	E	B	B
Approach Vol, veh/h		647			202			1899			1328	
Approach Delay, s/veh		66.8			41.2			36.6			22.0	
Approach LOS		E			D			D			C	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	12.0	25.0		8.0	21.0		7.5	65.0		12.0	69.5	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	8.0	21.0		4.0	17.0		5.0	61.0		8.0	64.0	
Max Q Clear Time (g_c+I1), s	10.0	22.7		5.7	5.7		3.9	56.3		8.3	22.2	
Green Ext Time (p_c), s	0.0	0.0		0.0	2.3		0.0	4.5		0.0	33.1	

Intersection Summary	
HCM 2010 Ctrl Delay	36.9
HCM 2010 LOS	D

Notes



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	128	136	155	214	150	101	90	1143	136	113	1387	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	344	339	288	267	389	331	169	1556	258	246	1684	209
Arrive On Green	0.08	0.18	0.18	0.11	0.21	0.21	0.05	0.50	0.50	0.06	0.52	0.52
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3117	517	1774	3250	404
Grp Volume(v), veh/h	178	324	212	258	179	126	117	724	695	174	865	851
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1771	1774	1863	1791
Q Serve(g_s), s	9.0	19.0	13.9	12.0	9.2	7.5	3.5	35.0	35.6	5.0	46.0	48.0
Cycle Q Clear(g_c), s	9.0	19.0	13.9	12.0	9.2	7.5	3.5	35.0	35.6	5.0	46.0	48.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		0.23
Lane Grp Cap(c), veh/h	344	339	288	267	389	331	169	930	884	246	965	928
V/C Ratio(X)	0.52	0.96	0.74	0.97	0.46	0.38	0.69	0.78	0.79	0.71	0.90	0.92
Avail Cap(c_a), veh/h	344	339	288	267	389	331	169	930	884	309	965	928
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.4	44.6	42.5	32.5	38.1	37.4	25.0	22.6	22.7	21.7	23.8	24.3
Incr Delay (d2), s/veh	1.3	37.4	9.5	45.4	0.8	0.7	11.3	6.4	7.0	5.4	12.7	15.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	4.1	12.5	6.4	8.9	4.5	3.1	3.8	16.9	16.6	5.2	23.1	23.5
Lane Grp Delay (d), s/veh	34.7	82.0	52.0	77.9	38.9	38.1	36.3	29.0	29.7	27.1	36.5	39.5
Lane Grp LOS	C	F	D	E	D	D	D	C	C	C	D	D
Approach Vol, veh/h		714			563			1536			1890	
Approach Delay, s/veh		61.3			56.6			29.9			37.0	
Approach LOS		E			E			C			D	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	13.0	24.0		16.0	27.0		9.0	58.9		11.1	61.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	9.0	20.0		12.0	23.0		5.0	51.0		11.0	57.0	
Max Q Clear Time (g_c+I1), s	11.0	21.0		14.0	11.2		5.5	37.6		7.0	50.0	
Green Ext Time (p_c), s	0.0	0.0		0.0	3.4		0.0	12.4		0.2	6.7	

Intersection Summary	
HCM 2010 Ctrl Delay	40.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	132	218	41	70	39	57	52	1157	364	167	922	74
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	342	356	302	147	288	245	324	1455	433	243	1976	204
Arrive On Green	0.07	0.19	0.19	0.04	0.15	0.15	0.03	0.53	0.53	0.10	0.59	0.59
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	2759	822	1774	3322	343
Grp Volume(v), veh/h	228	352	67	81	71	88	71	932	918	235	581	562
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1718	1774	1863	1802
Q Serve(g_s), s	8.0	20.7	3.9	4.0	3.7	5.5	2.0	52.1	58.0	10.4	20.2	20.2
Cycle Q Clear(g_c), s	8.0	20.7	3.9	4.0	3.7	5.5	2.0	52.1	58.0	10.4	20.2	20.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.48	1.00		0.19
Lane Grp Cap(c), veh/h	342	356	302	147	288	245	324	982	906	243	1108	1072
V/C Ratio(X)	0.67	0.99	0.22	0.55	0.25	0.36	0.22	0.95	1.01	0.97	0.52	0.52
Avail Cap(c_a), veh/h	342	356	302	147	288	245	348	982	906	243	1108	1072
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	36.0	44.4	37.6	39.7	40.9	41.6	12.0	24.6	26.0	39.0	13.1	13.1
Incr Delay (d2), s/veh	4.8	44.9	0.4	4.3	0.4	0.9	0.3	18.8	33.2	48.5	1.8	1.8
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.6	14.3	1.6	2.1	1.8	2.3	0.8	27.4	31.0	9.8	8.9	8.7
Lane Grp Delay (d), s/veh	40.8	89.3	38.0	43.9	41.3	42.5	12.3	43.4	59.2	87.5	14.9	15.0
Lane Grp LOS	D	F	D	D	D	D	B	D	F	F	B	B
Approach Vol, veh/h		647			240			1921			1378	
Approach Delay, s/veh		66.9			42.6			49.8			27.3	
Approach LOS		E			D			D			C	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	12.0	25.0		8.0	21.0		7.6	62.0		15.0	69.4	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	8.0	21.0		4.0	17.0		5.0	58.0		11.0	64.0	
Max Q Clear Time (g_c+I1), s	10.0	22.7		6.0	7.5		4.0	60.0		12.4	22.2	
Green Ext Time (p_c), s	0.0	0.0		0.0	2.2		0.0	0.0		0.0	33.4	

Intersection Summary												
HCM 2010 Ctrl Delay			44.6									
HCM 2010 LOS			D									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	128	136	155	238	150	149	90	1143	155	150	1387	142
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	186.3	186.3	186.3	186.3	186.3	186.3	190.0	186.3	186.3	190.0
Lanes	1	1	1	1	1	1	1	2	0	1	2	0
Cap, veh/h	347	339	288	283	406	345	164	1425	269	260	1655	206
Arrive On Green	0.08	0.18	0.18	0.12	0.22	0.22	0.05	0.47	0.47	0.09	0.51	0.51
Sat Flow, veh/h	1774	1863	1583	1774	1863	1583	1774	3049	575	1774	3250	404
Grp Volume(v), veh/h	178	324	212	287	179	186	117	739	708	231	865	851
Grp Sat Flow(s),veh/h/ln	1774	1863	1583	1774	1863	1583	1774	1863	1761	1774	1863	1791
Q Serve(g_s), s	9.0	19.0	13.9	13.0	9.1	11.4	3.8	38.5	39.4	7.5	46.8	48.9
Cycle Q Clear(g_c), s	9.0	19.0	13.9	13.0	9.1	11.4	3.8	38.5	39.4	7.5	46.8	48.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.33	1.00		0.23
Lane Grp Cap(c), veh/h	347	339	288	283	406	345	164	870	823	260	948	912
V/C Ratio(X)	0.51	0.96	0.74	1.01	0.44	0.54	0.71	0.85	0.86	0.89	0.91	0.93
Avail Cap(c_a), veh/h	347	339	288	283	406	345	164	870	823	283	948	912
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.3	44.6	42.5	30.9	37.2	38.1	25.4	25.9	26.1	27.1	24.7	25.2
Incr Delay (d2), s/veh	1.3	37.4	9.5	56.8	0.8	1.7	13.4	10.1	11.4	25.7	14.4	17.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	4.1	12.5	6.4	10.3	4.4	4.8	3.9	19.3	18.9	5.0	24.0	24.5
Lane Grp Delay (d), s/veh	34.6	82.0	52.0	87.7	37.9	39.8	38.8	36.0	37.5	52.8	39.2	42.7
Lane Grp LOS	C	F	D	F	D	D	D	D	D	D	D	D
Approach Vol, veh/h		714			652			1564			1947	
Approach Delay, s/veh		61.3			60.4			36.9			42.3	
Approach LOS		E			E			D			D	

Timer												
Assigned Phs	7	4		3	8		5	2		1	6	
Phs Duration (G+Y+Rc), s	13.0	24.0		17.0	28.0		9.0	55.4		13.6	60.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Max Green Setting (Gmax), s	9.0	20.0		13.0	24.0		5.0	50.0		11.0	56.0	
Max Q Clear Time (g_c+I1), s	11.0	21.0		15.0	13.4		5.8	41.4		9.5	50.9	
Green Ext Time (p_c), s	0.0	0.0		0.0	3.4		0.0	8.2		0.1	5.0	

Intersection Summary	
HCM 2010 Ctrl Delay	45.8
HCM 2010 LOS	D

Notes

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	424	44	65	137	28	157
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.52	0.96	0.88	0.70	0.68
Hourly flow rate (vph)	544	85	68	156	40	231
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			628		877	586
vC1, stage 1 conf vol					586	
vC2, stage 2 conf vol					291	
vCu, unblocked vol			628		877	586
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			93		92	55
cM capacity (veh/h)			954		493	510

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	628	68	156	271
Volume Left	0	68	0	40
Volume Right	85	0	0	231
cSH	1700	954	1700	599
Volume to Capacity	0.37	0.07	0.09	0.45
Queue Length 95th (ft)	0	6	0	59
Control Delay (s)	0.0	9.1	0.0	17.0
Lane LOS		A		C
Approach Delay (s)	0.0	2.7		17.0
Approach LOS				C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	155	54	205	337	46	123
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.68	0.90	0.85	0.82	0.88
Hourly flow rate (vph)	180	79	228	396	56	140
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			260		1072	220
vC1, stage 1 conf vol					220	
vC2, stage 2 conf vol					852	
vCu, unblocked vol			260		1072	220
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			83		83	83
cM capacity (veh/h)			1305		331	820

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	260	228	396	196
Volume Left	0	228	0	56
Volume Right	79	0	0	140
cSH	1700	1305	1700	1149
Volume to Capacity	0.15	0.17	0.23	0.17
Queue Length 95th (ft)	0	16	0	15
Control Delay (s)	0.0	8.3	0.0	12.5
Lane LOS		A		B
Approach Delay (s)	0.0	3.0		12.5
Approach LOS				B

Intersection Summary			
Average Delay	4.0		
Intersection Capacity Utilization	36.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	442	80	83	146	46	166
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.52	0.96	0.88	0.70	0.68
Hourly flow rate (vph)	567	154	86	166	66	244
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			721		982	644
vC1, stage 1 conf vol					644	
vC2, stage 2 conf vol					339	
vCu, unblocked vol			721		982	644
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			90		85	48
cM capacity (veh/h)			881		453	473

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	721	86	166	310
Volume Left	0	86	0	66
Volume Right	154	0	0	244
cSH	1700	881	1700	600
Volume to Capacity	0.42	0.10	0.10	0.52
Queue Length 95th (ft)	0	8	0	74
Control Delay (s)	0.0	9.5	0.0	19.1
Lane LOS		A		C
Approach Delay (s)	0.0	3.3		19.1
Approach LOS				C

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	174	91	224	361	94	147
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.68	0.90	0.85	0.82	0.88
Hourly flow rate (vph)	202	134	249	425	115	167
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			336		1192	269
vC1, stage 1 conf vol					269	
vC2, stage 2 conf vol					922	
vCu, unblocked vol			336		1192	269
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			80		61	78
cM capacity (veh/h)			1223		295	769

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	336	249	425	282
Volume Left	0	249	0	115
Volume Right	134	0	0	167
cSH	1700	1223	1700	725
Volume to Capacity	0.20	0.20	0.25	0.39
Queue Length 95th (ft)	0	19	0	46
Control Delay (s)	0.0	8.7	0.0	16.6
Lane LOS		A		C
Approach Delay (s)	0.0	3.2		16.6
Approach LOS				C

Intersection Summary			
Average Delay	5.3		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	537	56	82	174	35	199
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.52	0.96	0.88	0.70	0.68
Hourly flow rate (vph)	688	108	85	198	50	293
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			796		1111	742
vC1, stage 1 conf vol					742	
vC2, stage 2 conf vol					369	
vCu, unblocked vol			796		1111	742
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			90		88	30
cM capacity (veh/h)			826		409	415

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	796	85	198	343
Volume Left	0	85	0	50
Volume Right	108	0	0	293
cSH	1700	826	1700	486
Volume to Capacity	0.47	0.10	0.12	0.70
Queue Length 95th (ft)	0	9	0	137
Control Delay (s)	0.0	9.9	0.0	29.4
Lane LOS		A		D
Approach Delay (s)	0.0	3.0		29.4
Approach LOS				D

Intersection Summary			
Average Delay	7.7		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	196	68	260	427	58	156
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.68	0.90	0.85	0.82	0.88
Hourly flow rate (vph)	228	100	289	502	71	177
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			328		1358	278
vC1, stage 1 conf vol					278	
vC2, stage 2 conf vol					1080	
vCu, unblocked vol			328		1358	278
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			77		71	77
cM capacity (veh/h)			1232		240	761

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	328	289	502	248
Volume Left	0	289	0	71
Volume Right	100	0	0	177
cSH	1700	1232	1700	841
Volume to Capacity	0.19	0.23	0.30	0.29
Queue Length 95th (ft)	0	23	0	31
Control Delay (s)	0.0	8.8	0.0	15.4
Lane LOS		A		C
Approach Delay (s)	0.0	3.2		15.4
Approach LOS				C

Intersection Summary			
Average Delay	4.7		
Intersection Capacity Utilization	42.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	555	92	100	183	53	208
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.78	0.52	0.96	0.88	0.70	0.68
Hourly flow rate (vph)	712	177	104	208	76	306
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			888		1216	800
vC1, stage 1 conf vol					800	
vC2, stage 2 conf vol					416	
vCu, unblocked vol			888		1216	800
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			86		80	21
cM capacity (veh/h)			762		376	385

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	888	104	208	382
Volume Left	0	104	0	76
Volume Right	177	0	0	306
cSH	1700	762	1700	480
Volume to Capacity	0.52	0.14	0.12	0.79
Queue Length 95th (ft)	0	12	0	182
Control Delay (s)	0.0	10.5	0.0	37.2
Lane LOS		B		E
Approach Delay (s)	0.0	3.5		37.2
Approach LOS				E

Intersection Summary			
Average Delay	9.7		
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Volume (veh/h)	215	105	279	451	106	180
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.86	0.68	0.90	0.85	0.82	0.88
Hourly flow rate (vph)	250	154	310	531	129	205
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						4
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume			404		1478	327
vC1, stage 1 conf vol					327	
vC2, stage 2 conf vol					1151	
vCu, unblocked vol			404		1478	327
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			73		39	71
cM capacity (veh/h)			1154		212	714

Direction, Lane #	EB 1	WB 1	WB 2	NB 1
Volume Total	404	310	531	334
Volume Left	0	310	0	129
Volume Right	154	0	0	205
cSH	1700	1154	1700	547
Volume to Capacity	0.24	0.27	0.31	0.61
Queue Length 95th (ft)	0	27	0	102
Control Delay (s)	0.0	9.3	0.0	25.0
Lane LOS		A		C
Approach Delay (s)	0.0	3.4		25.0
Approach LOS				C

Intersection Summary			
Average Delay	7.1		
Intersection Capacity Utilization	49.0%	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 (veh/h)	62	934	20	38	519	169	38	96	81	32	15	10
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	451	2302	97	351	1685	611	320	385	327	228	194	162
Arrive On Green	0.04	0.65	0.65	0.03	0.65	0.65	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1774	3550	150	1774	2612	946	1357	1863	1583	1105	941	784
Grp Volume(v), veh/h	93	598	589	64	474	432	52	135	135	48	0	44
Grp Sat Flow(s),veh/h/ln	1774	1863	1836	1774	1863	1696	1357	1863	1583	1105	0	1724
Q Serve(g_s), s	1.9	17.7	17.7	1.3	12.9	12.9	3.5	6.6	7.9	4.1	0.0	2.2
Cycle Q Clear(g_c), s	1.9	17.7	17.7	1.3	12.9	12.9	5.7	6.6	7.9	10.7	0.0	2.2
Prop In Lane	1.00		0.08	1.00		0.56	1.00		1.00	1.00		0.45
Lane Grp Cap(c), veh/h	451	1208	1191	351	1202	1094	320	385	327	228	0	357
V/C Ratio(X)	0.21	0.49	0.49	0.18	0.39	0.39	0.16	0.35	0.41	0.21	0.00	0.12
Avail Cap(c_a), veh/h	539	1208	1191	411	1202	1094	320	385	327	228	0	357
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.6	9.7	9.7	7.4	9.0	9.0	36.7	36.1	36.6	40.7	0.0	34.3
Incr Delay (d2), s/veh	0.2	1.4	1.5	0.2	1.0	1.1	1.1	2.5	3.8	2.1	0.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.7	7.5	7.4	0.5	5.3	4.9	1.3	3.4	3.4	1.3	0.0	1.0
Lane Grp Delay (d), s/veh	6.8	11.1	11.2	7.6	10.0	10.1	37.7	38.6	40.4	42.8	0.0	35.1
Lane Grp LOS	A	B	B	A	A	B	D	D	D	D		D
Approach Vol, veh/h		1280			970			322			92	
Approach Delay, s/veh		10.8			9.8			39.2			39.1	
Approach LOS		B			A			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.7	73.0		7.4	72.7			26.0			26.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	9.0	69.0		7.0	67.0			22.0			22.0	
Max Q Clear Time (g_c+I1), s	3.9	19.7		3.3	14.9			9.9			12.7	
Green Ext Time (p_c), s	0.1	21.6		0.0	22.0			1.4			1.2	

Intersection Summary	
HCM 2010 Ctrl Delay	14.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	28	845	19	72	1232	96	18	27	44	167	117	54
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	242	2148	54	385	2047	165	245	483	410	385	326	134
Arrive On Green	0.03	0.59	0.59	0.04	0.60	0.60	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3619	90	1774	3404	274	1156	1863	1583	1304	1256	515
Grp Volume(v), veh/h	48	494	490	92	731	716	28	36	52	184	0	220
Grp Sat Flow(s),veh/h/ln	1774	1863	1847	1774	1863	1814	1156	1863	1583	1304	0	1772
Q Serve(g_s), s	1.1	15.9	15.9	2.1	27.8	28.1	2.3	1.6	2.7	13.4	0.0	11.3
Cycle Q Clear(g_c), s	1.1	15.9	15.9	2.1	27.8	28.1	13.6	1.6	2.7	15.0	0.0	11.3
Prop In Lane	1.00		0.05	1.00		0.15	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	242	1106	1096	385	1121	1092	245	483	410	385	0	459
V/C Ratio(X)	0.20	0.45	0.45	0.24	0.65	0.66	0.11	0.07	0.13	0.48	0.00	0.48
Avail Cap(c_a), veh/h	274	1106	1096	420	1121	1092	245	483	410	385	0	459
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	11.9	12.1	12.1	9.0	14.1	14.2	39.6	30.2	30.7	35.9	0.0	33.9
Incr Delay (d2), s/veh	0.4	1.3	1.3	0.3	3.0	3.1	0.9	0.3	0.6	4.2	0.0	3.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.4	6.9	6.8	0.8	12.5	12.3	0.7	0.8	1.1	4.9	0.0	5.6
Lane Grp Delay (d), s/veh	12.3	13.4	13.5	9.3	17.1	17.3	40.6	30.5	31.3	40.1	0.0	37.4
Lane Grp LOS	B	B	B	A	B	B	D	C	C	D		D
Approach Vol, veh/h		1032			1539			116			404	
Approach Delay, s/veh		13.4			16.7			33.3			38.6	
Approach LOS		B			B			C			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.1	68.1		7.9	69.0			32.0			32.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	5.0	64.0		6.0	65.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s	3.1	17.9		4.1	30.1			15.6			17.0	
Green Ext Time (p_c), s	0.0	26.7		0.0	22.6			1.9			1.8	

Intersection Summary												
HCM 2010 Ctrl Delay			19.1									
HCM 2010 LOS			B									

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	80	934	20	38	519	199	38	105	81	47	19	19
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	432	2269	96	345	1560	666	310	403	342	230	165	202
Arrive On Green	0.04	0.64	0.64	0.03	0.63	0.63	0.22	0.22	0.22	0.22	0.22	0.22
Sat Flow, veh/h	1774	3550	150	1774	2480	1059	1326	1863	1583	1092	763	935
Grp Volume(v), veh/h	119	598	589	64	500	449	52	148	135	70	0	69
Grp Sat Flow(s),veh/h/ln	1774	1863	1836	1774	1863	1676	1326	1863	1583	1092	0	1698
Q Serve(g_s), s	2.4	18.1	18.2	1.3	14.5	14.5	3.5	7.2	7.8	6.2	0.0	3.5
Cycle Q Clear(g_c), s	2.4	18.1	18.2	1.3	14.5	14.5	7.1	7.2	7.8	13.4	0.0	3.5
Prop In Lane	1.00		0.08	1.00		0.63	1.00		1.00	1.00		0.55
Lane Grp Cap(c), veh/h	432	1191	1174	345	1172	1054	310	403	342	230	0	367
V/C Ratio(X)	0.28	0.50	0.50	0.19	0.43	0.43	0.17	0.37	0.39	0.30	0.00	0.19
Avail Cap(c_a), veh/h	575	1191	1174	405	1172	1054	310	403	342	230	0	367
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	7.2	10.2	10.2	7.9	10.0	10.0	37.0	35.5	35.7	41.2	0.0	34.1
Incr Delay (d2), s/veh	0.3	1.5	1.5	0.3	1.1	1.3	1.2	2.6	3.4	3.4	0.0	1.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.9	7.8	7.7	0.5	6.2	5.6	1.3	3.7	3.3	1.9	0.0	1.6
Lane Grp Delay (d), s/veh	7.6	11.7	11.7	8.2	11.1	11.3	38.1	38.1	39.1	44.6	0.0	35.2
Lane Grp LOS	A	B	B	A	B	B	D	D	D	D		D
Approach Vol, veh/h		1306			1013			335			139	
Approach Delay, s/veh		11.3			11.0			38.5			39.9	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	8.5	72.0		7.4	70.9			27.0			27.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	13.0	68.0		7.0	62.0			23.0			23.0	
Max Q Clear Time (g_c+I1), s	4.4	20.2		3.3	16.5			9.8			15.4	
Green Ext Time (p_c), s	0.2	22.1		0.0	21.6			1.8			1.3	

Intersection Summary	
HCM 2010 Ctrl Delay	15.9
HCM 2010 LOS	B

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	47	845	19	72	1232	127	18	36	44	208	129	78
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	230	2077	52	372	1910	203	232	517	440	400	316	171
Arrive On Green	0.03	0.57	0.57	0.04	0.58	0.58	0.28	0.28	0.28	0.28	0.28	0.28
Sat Flow, veh/h	1774	3619	90	1774	3312	352	1110	1863	1583	1290	1139	616
Grp Volume(v), veh/h	81	494	490	92	750	732	28	48	52	229	0	265
Grp Sat Flow(s),veh/h/ln	1774	1863	1847	1774	1863	1801	1110	1863	1583	1290	0	1754
Q Serve(g_s), s	2.0	16.6	16.6	2.3	30.8	31.3	2.4	2.1	2.6	17.3	0.0	13.9
Cycle Q Clear(g_c), s	2.0	16.6	16.6	2.3	30.8	31.3	16.3	2.1	2.6	19.4	0.0	13.9
Prop In Lane	1.00		0.05	1.00		0.20	1.00		1.00	1.00		0.35
Lane Grp Cap(c), veh/h	230	1069	1060	372	1074	1039	232	517	440	400	0	487
V/C Ratio(X)	0.35	0.46	0.46	0.25	0.70	0.70	0.12	0.09	0.12	0.57	0.00	0.54
Avail Cap(c_a), veh/h	316	1069	1060	404	1074	1039	232	517	440	400	0	487
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	14.4	13.3	13.3	10.1	16.2	16.3	40.1	28.9	29.1	36.1	0.0	33.2
Incr Delay (d2), s/veh	0.9	1.4	1.5	0.3	3.8	4.0	1.1	0.4	0.5	5.8	0.0	4.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	7.4	7.4	0.9	13.8	13.8	0.7	1.0	1.1	6.3	0.0	6.8
Lane Grp Delay (d), s/veh	15.4	14.8	14.8	10.4	20.0	20.3	41.2	29.3	29.7	41.9	0.0	37.5
Lane Grp LOS	B	B	B	B	B	C	D	C	C	D		D
Approach Vol, veh/h		1065			1574			128			494	
Approach Delay, s/veh		14.8			19.6			32.1			39.6	
Approach LOS		B			B			C			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.7	66.0		8.0	66.3			34.0			34.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	9.0	62.0		6.0	59.0			30.0			30.0	
Max Q Clear Time (g_c+I1), s	4.0	18.6		4.3	33.3			18.3			21.4	
Green Ext Time (p_c), s	0.1	26.4		0.0	18.6			2.3			2.0	

Intersection Summary	
HCM 2010 Ctrl Delay	21.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	79	1184	25	48	658	214	48	122	103	41	19	13
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	380	2365	98	279	1725	624	282	349	297	176	176	147
Arrive On Green	0.04	0.67	0.67	0.03	0.66	0.66	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	3552	147	1774	2613	945	1341	1863	1583	1032	938	786
Grp Volume(v), veh/h	118	756	748	81	601	549	66	172	172	61	0	57
Grp Sat Flow(s),veh/h/ln	1774	1863	1837	1774	1863	1696	1341	1863	1583	1032	0	1724
Q Serve(g_s), s	2.2	24.3	24.5	1.6	17.3	17.3	4.6	8.8	10.6	6.0	0.0	3.0
Cycle Q Clear(g_c), s	2.2	24.3	24.5	1.6	17.3	17.3	7.6	8.8	10.6	14.8	0.0	3.0
Prop In Lane	1.00		0.08	1.00		0.56	1.00		1.00	1.00		0.46
Lane Grp Cap(c), veh/h	380	1240	1223	279	1230	1120	282	349	297	176	0	323
V/C Ratio(X)	0.31	0.61	0.61	0.29	0.49	0.49	0.23	0.49	0.58	0.35	0.00	0.18
Avail Cap(c_a), veh/h	493	1240	1223	335	1230	1120	282	349	297	176	0	323
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	6.9	10.0	10.0	8.7	9.1	9.1	39.6	38.8	39.5	45.4	0.0	36.4
Incr Delay (d2), s/veh	0.5	2.2	2.3	0.6	1.4	1.5	1.9	4.9	8.0	5.3	0.0	1.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	10.2	10.1	0.6	7.3	6.7	1.7	4.7	4.8	1.9	0.0	1.4
Lane Grp Delay (d), s/veh	7.4	12.3	12.3	9.3	10.5	10.6	41.5	43.7	47.5	50.7	0.0	37.6
Lane Grp LOS	A	B	B	A	B	B	D	D	D	D		D
Approach Vol, veh/h		1622			1231			410			118	
Approach Delay, s/veh		11.9			10.5			44.9			44.4	
Approach LOS		B			B			D			D	
Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	8.2	75.0		7.6	74.4			24.0			24.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	11.0	71.0		7.0	67.0			20.0			20.0	
Max Q Clear Time (g_c+I1), s	4.2	26.5		3.6	19.3			12.6			16.8	
Green Ext Time (p_c), s	0.1	29.7		0.0	31.1			1.5			0.8	
Intersection Summary												
HCM 2010 Ctrl Delay			16.5									
HCM 2010 LOS			B									
Notes												

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	35	1071	24	91	1562	122	23	34	56	212	148	68
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	175	2176	54	318	2087	167	183	460	391	357	310	127
Arrive On Green	0.03	0.60	0.60	0.04	0.61	0.61	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1774	3621	89	1774	3406	272	1097	1863	1583	1277	1255	516
Grp Volume(v), veh/h	60	626	621	117	920	915	36	45	66	233	0	278
Grp Sat Flow(s),veh/h/ln	1774	1863	1847	1774	1863	1815	1097	1863	1583	1277	0	1772
Q Serve(g_s), s	1.4	22.1	22.1	2.7	41.3	43.1	3.3	2.0	3.6	18.8	0.0	15.3
Cycle Q Clear(g_c), s	1.4	22.1	22.1	2.7	41.3	43.1	18.6	2.0	3.6	20.9	0.0	15.3
Prop In Lane	1.00		0.05	1.00		0.15	1.00		1.00	1.00		0.29
Lane Grp Cap(c), veh/h	175	1120	1110	318	1141	1112	183	460	391	357	0	437
V/C Ratio(X)	0.34	0.56	0.56	0.37	0.81	0.82	0.20	0.10	0.17	0.65	0.00	0.64
Avail Cap(c_a), veh/h	186	1120	1110	389	1141	1112	183	460	391	357	0	437
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	18.2	13.1	13.1	10.4	16.2	16.5	45.1	31.8	32.4	39.8	0.0	36.8
Incr Delay (d2), s/veh	1.1	2.0	2.0	0.7	6.1	6.9	2.4	0.4	0.9	8.9	0.0	6.9
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	0.8	9.7	9.6	1.0	19.1	19.4	1.1	1.0	1.5	7.0	0.0	7.8
Lane Grp Delay (d), s/veh	19.3	15.1	15.1	11.1	22.3	23.5	47.5	32.2	33.3	48.8	0.0	43.7
Lane Grp LOS	B	B	B	B	C	C	D	C	C	D		D
Approach Vol, veh/h		1307			1952			147			511	
Approach Delay, s/veh		15.3			22.2			36.4			46.0	
Approach LOS		B			C			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	7.4	69.7		8.6	71.0			31.0			31.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	4.0	62.0		9.0	67.0			27.0			27.0	
Max Q Clear Time (g_c+I1), s	3.4	24.1		4.7	45.1			20.6			22.9	
Green Ext Time (p_c), s	0.0	31.2		0.1	19.4			1.7			1.2	

Intersection Summary	
HCM 2010 Ctrl Delay	23.5
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	97	1184	25	48	658	244	48	131	103	56	23	22
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	349	2232	93	257	1540	635	312	419	356	210	175	208
Arrive On Green	0.05	0.63	0.63	0.03	0.61	0.61	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1774	3552	147	1774	2509	1034	1312	1863	1583	1020	776	923
Grp Volume(v), veh/h	145	756	748	81	626	567	66	185	172	84	0	81
Grp Sat Flow(s),veh/h/ln	1774	1863	1837	1774	1863	1680	1312	1863	1583	1020	0	1700
Q Serve(g_s), s	3.1	27.1	27.2	1.8	20.8	21.0	4.6	9.1	10.1	8.2	0.0	4.1
Cycle Q Clear(g_c), s	3.1	27.1	27.2	1.8	20.8	21.0	8.7	9.1	10.1	17.3	0.0	4.1
Prop In Lane	1.00		0.08	1.00		0.62	1.00		1.00	1.00		0.54
Lane Grp Cap(c), veh/h	349	1170	1154	257	1143	1031	312	419	356	210	0	383
V/C Ratio(X)	0.42	0.65	0.65	0.31	0.55	0.55	0.21	0.44	0.48	0.40	0.00	0.21
Avail Cap(c_a), veh/h	462	1170	1154	313	1143	1031	312	419	356	210	0	383
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.5	12.4	12.4	11.0	12.0	12.0	37.2	35.5	35.9	43.0	0.0	33.6
Incr Delay (d2), s/veh	0.8	2.8	2.8	0.7	1.9	2.1	1.5	3.3	4.6	5.6	0.0	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	1.2	11.8	11.7	0.7	9.1	8.3	1.7	4.7	4.4	2.5	0.0	1.9
Lane Grp Delay (d), s/veh	10.3	15.2	15.3	11.7	13.9	14.1	38.7	38.9	40.5	48.6	0.0	34.9
Lane Grp LOS	B	B	B	B	B	B	D	D	D	D		C
Approach Vol, veh/h		1649			1274			423			165	
Approach Delay, s/veh		14.8			13.8			39.5			41.9	
Approach LOS		B			B			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	9.2	71.0		7.6	69.5			28.0			28.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	12.0	67.0		7.0	62.0			24.0			24.0	
Max Q Clear Time (g_c+I1), s	5.1	29.2		3.8	23.0			12.1			19.3	
Green Ext Time (p_c), s	0.2	27.1		0.0	27.7			2.1			1.2	

Intersection Summary	
HCM 2010 Ctrl Delay	18.7
HCM 2010 LOS	B

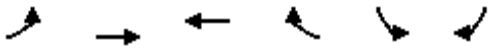
Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	54	1071	24	91	1562	153	23	43	56	253	160	92
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow veh/h/ln	186.3	186.3	190.0	186.3	186.3	190.0	186.3	186.3	186.3	186.3	186.3	190.0
Lanes	1	2	0	1	2	0	1	1	1	1	1	0
Cap, veh/h	171	2122	52	311	1975	197	164	483	410	365	300	155
Arrive On Green	0.04	0.59	0.59	0.04	0.59	0.59	0.26	0.26	0.26	0.26	0.26	0.26
Sat Flow, veh/h	1774	3621	89	1774	3334	333	1052	1863	1583	1263	1159	598
Grp Volume(v), veh/h	93	626	621	117	937	933	36	57	66	278	0	323
Grp Sat Flow(s),veh/h/ln	1774	1863	1847	1774	1863	1804	1052	1863	1583	1263	0	1757
Q Serve(g_s), s	2.3	22.6	22.7	2.8	44.6	47.1	3.5	2.5	3.5	23.3	0.0	18.0
Cycle Q Clear(g_c), s	2.3	22.6	22.7	2.8	44.6	47.1	21.5	2.5	3.5	25.8	0.0	18.0
Prop In Lane	1.00		0.05	1.00		0.18	1.00		1.00	1.00		0.34
Lane Grp Cap(c), veh/h	171	1092	1082	311	1104	1069	164	483	410	365	0	455
V/C Ratio(X)	0.54	0.57	0.57	0.38	0.85	0.87	0.22	0.12	0.16	0.76	0.00	0.71
Avail Cap(c_a), veh/h	203	1092	1082	382	1104	1069	164	483	410	365	0	455
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	23.2	13.9	13.9	11.1	18.1	18.6	46.1	30.6	30.9	40.4	0.0	36.3
Incr Delay (d2), s/veh	2.7	2.2	2.2	0.8	8.2	9.8	3.1	0.5	0.8	14.0	0.0	9.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile Back of Q (50%), veh/ln	2.6	10.1	10.0	1.1	21.3	22.1	1.1	1.3	1.5	8.9	0.0	9.2
Lane Grp Delay (d), s/veh	25.9	16.1	16.2	11.8	26.2	28.4	49.1	31.1	31.8	54.5	0.0	45.3
Lane Grp LOS	C	B	B	B	C	C	D	C	C	D		D
Approach Vol, veh/h		1340			1987			159			601	
Approach Delay, s/veh		16.8			26.4			35.4			49.6	
Approach LOS		B			C			D			D	

Timer												
Assigned Phs	7	4		3	8			2			6	
Phs Duration (G+Y+Rc), s	8.0	67.3		8.7	68.0			32.0			32.0	
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0			4.0			4.0	
Max Green Setting (Gmax), s	6.0	61.0		9.0	64.0			28.0			28.0	
Max Q Clear Time (g_c+I1), s	4.3	24.7		4.8	49.1			23.5			27.8	
Green Ext Time (p_c), s	0.0	30.5		0.1	13.7			1.6			0.1	

Intersection Summary												
HCM 2010 Ctrl Delay			27.0									
HCM 2010 LOS			C									

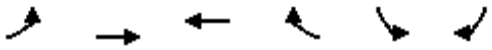
Notes



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	98	920	715	167	14	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	140	1122	917	220	20	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.82	
vC, conflicting volume	1136				1868	568
vC1, stage 1 conf vol					1027	
vC2, stage 2 conf vol					841	
vCu, unblocked vol	1136				1624	568
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	77				92	91
cM capacity (veh/h)	611				247	466

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	514	748	611	525	60
Volume Left	140	0	0	0	20
Volume Right	0	0	0	220	40
cSH	611	1700	1700	1700	359
Volume to Capacity	0.23	0.44	0.36	0.31	0.17
Queue Length 95th (ft)	22	0	0	0	15
Control Delay (s)	6.1	0.0	0.0	0.0	17.0
Lane LOS	A				C
Approach Delay (s)	2.5		0.0		17.0
Approach LOS					C

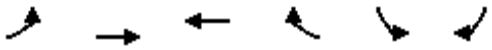
Intersection Summary			
Average Delay	1.7		
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	1074	1350	30	60	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	32	1167	1484	48	80	116
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.84	
vC, conflicting volume	1532				2155	766
vC1, stage 1 conf vol					1508	
vC2, stage 2 conf vol					647	
vCu, unblocked vol	1532				1998	766
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	93				50	66
cM capacity (veh/h)	430				161	345

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	421	778	989	543	196
Volume Left	32	0	0	0	80
Volume Right	0	0	0	48	116
cSH	430	1700	1700	1700	235
Volume to Capacity	0.07	0.46	0.58	0.32	0.83
Queue Length 95th (ft)	6	0	0	0	162
Control Delay (s)	2.3	0.0	0.0	0.0	67.6
Lane LOS	A				F
Approach Delay (s)	0.8		0.0		67.6
Approach LOS					F

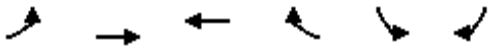
Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	98	935	745	181	21	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	140	1140	955	238	30	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.82	
vC, conflicting volume	1193				1924	597
vC1, stage 1 conf vol					1074	
vC2, stage 2 conf vol					850	
vCu, unblocked vol	1193				1685	597
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	76				87	91
cM capacity (veh/h)	581				235	446

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	520	760	637	557	30	40
Volume Left	140	0	0	0	30	0
Volume Right	0	0	0	238	0	40
cSH	581	1700	1700	1700	235	446
Volume to Capacity	0.24	0.45	0.37	0.33	0.13	0.09
Queue Length 95th (ft)	23	0	0	0	11	7
Control Delay (s)	6.5	0.0	0.0	0.0	22.6	13.9
Lane LOS	A				C	B
Approach Delay (s)	2.7		0.0		17.6	
Approach LOS					C	

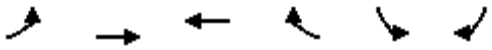
Intersection Summary			
Average Delay	1.8		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	1115	1381	45	79	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	32	1212	1518	73	105	116
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.84	
vC, conflicting volume	1590				2224	795
vC1, stage 1 conf vol					1554	
vC2, stage 2 conf vol					670	
vCu, unblocked vol	1590				2071	795
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				31	65
cM capacity (veh/h)	409				152	330

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	436	808	1012	578	105	116
Volume Left	32	0	0	0	105	0
Volume Right	0	0	0	73	0	116
cSH	409	1700	1700	1700	152	330
Volume to Capacity	0.08	0.48	0.60	0.34	0.69	0.35
Queue Length 95th (ft)	6	0	0	0	101	39
Control Delay (s)	2.4	0.0	0.0	0.0	70.1	21.7
Lane LOS	A				F	C
Approach Delay (s)	0.9		0.0		44.7	
Approach LOS					E	

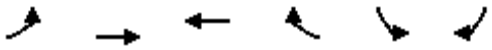
Intersection Summary			
Average Delay	3.6		
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	98	935	745	181	21	18
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	140	1140	955	238	30	40
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.82	
vC, conflicting volume	1193				1924	597
vC1, stage 1 conf vol					1074	
vC2, stage 2 conf vol					850	
vCu, unblocked vol	1193				1685	597
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	76				87	91
cM capacity (veh/h)	581				235	446

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	520	760	637	557	70
Volume Left	140	0	0	0	30
Volume Right	0	0	0	238	40
cSH	581	1700	1700	1700	322
Volume to Capacity	0.24	0.45	0.37	0.33	0.22
Queue Length 95th (ft)	23	0	0	0	20
Control Delay (s)	6.5	0.0	0.0	0.0	19.3
Lane LOS	A				C
Approach Delay (s)	2.7		0.0		19.3
Approach LOS					C

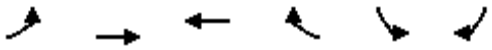
Intersection Summary			
Average Delay	1.9		
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	22	1115	1381	45	79	64
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	32	1212	1518	73	105	116
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.84	
vC, conflicting volume	1590				2224	795
vC1, stage 1 conf vol					1554	
vC2, stage 2 conf vol					670	
vCu, unblocked vol	1590				2071	795
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	92				31	65
cM capacity (veh/h)	409				152	330

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	436	808	1012	578	222
Volume Left	32	0	0	0	105
Volume Right	0	0	0	73	116
cSH	409	1700	1700	1700	212
Volume to Capacity	0.08	0.48	0.60	0.34	1.05
Queue Length 95th (ft)	6	0	0	0	244
Control Delay (s)	2.4	0.0	0.0	0.0	122.4
Lane LOS	A				F
Approach Delay (s)	0.9		0.0		122.4
Approach LOS					F

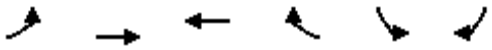
Intersection Summary			
Average Delay	9.2		
Intersection Capacity Utilization	61.5%	ICU Level of Service	B
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	124	1166	906	212	18	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	177	1422	1162	279	26	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.74	
vC, conflicting volume	1440				2366	720
vC1, stage 1 conf vol					1301	
vC2, stage 2 conf vol					1065	
vCu, unblocked vol	1440				2146	720
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	62				85	86
cM capacity (veh/h)	467				169	370

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	651	948	774	666	77
Volume Left	177	0	0	0	26
Volume Right	0	0	0	279	51
cSH	467	1700	1700	1700	265
Volume to Capacity	0.38	0.56	0.46	0.39	0.29
Queue Length 95th (ft)	44	0	0	0	29
Control Delay (s)	11.4	0.0	0.0	0.0	24.0
Lane LOS	B				C
Approach Delay (s)	4.6		0.0		24.0
Approach LOS					C

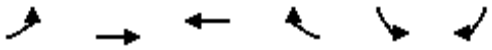
Intersection Summary			
Average Delay	3.0		
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	28	1361	1711	38	76	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	41	1479	1880	61	101	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.76	
vC, conflicting volume	1942				2732	971
vC1, stage 1 conf vol					1911	
vC2, stage 2 conf vol					821	
vCu, unblocked vol	1942				2647	971
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	42
cM capacity (veh/h)	298				98	253

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	534	986	1253	688	249
Volume Left	41	0	0	0	101
Volume Right	0	0	0	61	147
cSH	298	1700	1700	1700	153
Volume to Capacity	0.14	0.58	0.74	0.40	1.62
Queue Length 95th (ft)	12	0	0	0	433
Control Delay (s)	4.8	0.0	0.0	0.0	360.1
Lane LOS	A				F
Approach Delay (s)	1.7		0.0		360.1
Approach LOS					F

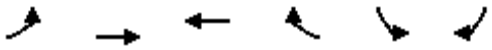
Intersection Summary			
Average Delay	24.8		
Intersection Capacity Utilization	73.4%	ICU Level of Service	D
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	124	1181	936	226	25	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	177	1440	1200	297	36	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.71	
vC, conflicting volume	1497				2423	749
vC1, stage 1 conf vol					1349	
vC2, stage 2 conf vol					1074	
vCu, unblocked vol	1497				2193	749
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	60				78	86
cM capacity (veh/h)	444				164	355

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	657	960	800	697	36	51
Volume Left	177	0	0	0	36	0
Volume Right	0	0	0	297	0	51
cSH	444	1700	1700	1700	164	355
Volume to Capacity	0.40	0.56	0.47	0.41	0.22	0.14
Queue Length 95th (ft)	47	0	0	0	20	12
Control Delay (s)	12.4	0.0	0.0	0.0	33.0	16.9
Lane LOS	B				D	C
Approach Delay (s)	5.1		0.0		23.5	
Approach LOS					C	

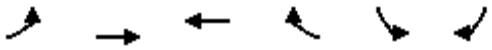
Intersection Summary			
Average Delay	3.2		
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	28	1402	1742	53	95	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	41	1524	1914	85	127	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.76	
vC, conflicting volume	2000				2800	1000
vC1, stage 1 conf vol					1957	
vC2, stage 2 conf vol					843	
vCu, unblocked vol	2000				2735	1000
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	39
cM capacity (veh/h)	283				92	242

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1	SB 2
Volume Total	549	1016	1276	724	127	147
Volume Left	41	0	0	0	127	0
Volume Right	0	0	0	85	0	147
cSH	283	1700	1700	1700	92	242
Volume to Capacity	0.14	0.60	0.75	0.43	1.38	0.61
Queue Length 95th (ft)	12	0	0	0	235	90
Control Delay (s)	5.2	0.0	0.0	0.0	306.3	40.7
Lane LOS	A				F	E
Approach Delay (s)	1.8		0.0		163.5	
Approach LOS					F	

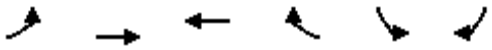
Intersection Summary			
Average Delay	12.4		
Intersection Capacity Utilization	70.6%	ICU Level of Service	C
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	124	1181	936	226	25	23
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.70	0.82	0.78	0.76	0.70	0.45
Hourly flow rate (vph)	177	1440	1200	297	36	51
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.71	
vC, conflicting volume	1497				2423	749
vC1, stage 1 conf vol					1349	
vC2, stage 2 conf vol					1074	
vCu, unblocked vol	1497				2193	749
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	60				78	86
cM capacity (veh/h)	444				164	355

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	657	960	800	697	87
Volume Left	177	0	0	0	36
Volume Right	0	0	0	297	51
cSH	444	1700	1700	1700	240
Volume to Capacity	0.40	0.56	0.47	0.41	0.36
Queue Length 95th (ft)	47	0	0	0	39
Control Delay (s)	12.4	0.0	0.0	0.0	28.3
Lane LOS	B				D
Approach Delay (s)	5.1		0.0		28.3
Approach LOS					D

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Volume (veh/h)	28	1402	1742	53	95	81
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.69	0.92	0.91	0.62	0.75	0.55
Hourly flow rate (vph)	41	1524	1914	85	127	147
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		TWLTL	TWLTL			
Median storage veh)		2	2			
Upstream signal (ft)		823				
pX, platoon unblocked					0.76	
vC, conflicting volume	2000				2800	1000
vC1, stage 1 conf vol					1957	
vC2, stage 2 conf vol					843	
vCu, unblocked vol	2000				2735	1000
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)	2.2				3.5	3.3
p0 queue free %	86				0	39
cM capacity (veh/h)	283				92	242

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	SB 1
Volume Total	549	1016	1276	724	274
Volume Left	41	0	0	0	127
Volume Right	0	0	0	85	147
cSH	283	1700	1700	1700	138
Volume to Capacity	0.14	0.60	0.75	0.43	1.99
Queue Length 95th (ft)	12	0	0	0	543
Control Delay (s)	5.2	0.0	0.0	0.0	522.6
Lane LOS	A				F
Approach Delay (s)	1.8		0.0		522.6
Approach LOS					F

Intersection Summary			
Average Delay	38.0		
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		

Intersection	
Intersection Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	3	3	10	181	88	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	38	38	50	72	96	53
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	8	8	20	251	92	32

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	399	108	124	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	291	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	607	946	1463	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	759	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	597	946	1463	-	-	-
Mov Capacity-2 Maneuver	597	-	-	-	-	-
Stage 1	916	-	-	-	-	-
Stage 2	747	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0.6	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1463	-	732	-	-
HCM Lane V/C Ratio	0.014	-	0.022	-	-
HCM Control Delay (s)	7.495	0	10	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.042	-	0.066	-	-

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

Intersection	
Intersection Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	9	7	4	150	261	7
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	58	100	81	89	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	16	12	4	185	293	8

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	490	297	301	0	-	0
Stage 1	297	-	-	-	-	-
Stage 2	193	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	537	742	1260	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	840	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	535	742	1260	-	-	-
Mov Capacity-2 Maneuver	535	-	-	-	-	-
Stage 1	754	-	-	-	-	-
Stage 2	837	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.2	0.2	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1260	-	608	-	-
HCM Lane V/C Ratio	0.003	-	0.046	-	-
HCM Control Delay (s)	7.866	0	11.2	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.01	-	0.145	-	-

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

Intersection	
Intersection Delay, s/veh	2.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	0	3	13	0	27	10	181	27	54	88	17
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	92	38	92	92	92	50	72	92	92	96	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	8	14	0	29	20	251	29	59	92	32

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	546	546	108	535	547	266	124	0	0	281	0	0
Stage 1	225	225	-	306	306	-	-	-	-	-	-	-
Stage 2	321	321	-	229	241	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	448	445	946	456	445	773	1463	-	-	1282	-	-
Stage 1	778	718	-	704	662	-	-	-	-	-	-	-
Stage 2	691	652	-	774	706	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	410	416	946	430	416	773	1463	-	-	1282	-	-
Mov Capacity-2 Maneuver	410	416	-	430	416	-	-	-	-	-	-	-
Stage 1	766	682	-	693	651	-	-	-	-	-	-	-
Stage 2	654	642	-	729	671	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.5	11.3	0.5	2.6
HCM LOS	B	B		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1463	-	-	572	614	1282	-	-
HCM Lane V/C Ratio	0.014	-	-	0.028	0.071	0.046	-	-
HCM Control Delay (s)	7.495	0	-	11.5	11.3	7.943	0	-
HCM Lane LOS	A	A		B	B	A	A	
HCM 95th %tile Q(veh)	0.042	-	-	0.085	0.228	0.144	-	-

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

Intersection	
Intersection Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	9	0	7	36	0	72	4	150	28	56	261	7
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	56	92	58	92	92	92	100	81	92	92	89	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	12	39	0	78	4	185	30	61	293	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	667	643	297	633	631	200	301	0	0	216	0	0
Stage 1	419	419	-	208	208	-	-	-	-	-	-	-
Stage 2	248	224	-	425	423	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	372	392	742	392	398	841	1260	-	-	1354	-	-
Stage 1	612	590	-	794	730	-	-	-	-	-	-	-
Stage 2	756	718	-	607	588	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	322	369	742	369	375	841	1260	-	-	1354	-	-
Mov Capacity-2 Maneuver	322	369	-	369	375	-	-	-	-	-	-	-
Stage 1	610	558	-	791	727	-	-	-	-	-	-	-
Stage 2	683	715	-	565	556	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.1	12.6	0.1	1.3
HCM LOS	B	B		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1260	-	-	425	590	1354	-	-
HCM Lane V/C Ratio	0.003	-	-	0.066	0.199	0.045	-	-
HCM Control Delay (s)	7.866	0	-	14.1	12.6	7.784	0	-
HCM Lane LOS	A	A		B	B	A	A	
HCM 95th %tile Q(veh)	0.01	-	-	0.212	0.736	0.141	-	-

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

Intersection	
Intersection Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	4	4	13	229	112	22
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	38	38	50	72	96	53
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	11	26	318	117	42

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	507	137	158	0	-	0
Stage 1	137	-	-	-	-	-
Stage 2	370	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	525	911	1422	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	699	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	513	911	1422	-	-	-
Mov Capacity-2 Maneuver	513	-	-	-	-	-
Stage 1	890	-	-	-	-	-
Stage 2	684	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.7	0.6	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1422	-	656	-	-
HCM Lane V/C Ratio	0.018	-	0.032	-	-
HCM Control Delay (s)	7.579	0	10.7	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.056	-	0.099	-	-

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

Intersection	
Intersection Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	11	9	5	190	331	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	56	58	100	81	89	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	20	16	5	235	372	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	622	377	382	0	-	0
Stage 1	377	-	-	-	-	-
Stage 2	245	-	-	-	-	-
Follow-up Headway	3.518	3.318	2.218	-	-	-
Pot Capacity-1 Maneuver	450	670	1176	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	796	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	448	670	1176	-	-	-
Mov Capacity-2 Maneuver	448	-	-	-	-	-
Stage 1	694	-	-	-	-	-
Stage 2	792	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.3	0.2	0
HCM LOS	B		

Minor Lane / Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1176	-	525	-	-
HCM Lane V/C Ratio	0.004	-	0.067	-	-
HCM Control Delay (s)	8.074	0	12.3	-	-
HCM Lane LOS	A	A	B		
HCM 95th %tile Q(veh)	0.013	-	0.215	-	-

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

Intersection	
Intersection Delay, s/veh	2.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	0	4	13	0	27	13	229	27	54	112	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	92	38	92	92	92	50	72	92	92	96	53
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	11	14	0	29	26	318	29	59	117	42

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	654	654	137	645	661	333	158	0	0	347	0	0
Stage 1	255	255	-	385	385	-	-	-	-	-	-	-
Stage 2	399	399	-	260	276	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	380	386	911	385	383	709	1422	-	-	1212	-	-
Stage 1	749	696	-	638	611	-	-	-	-	-	-	-
Stage 2	627	602	-	745	682	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	343	357	911	359	354	709	1422	-	-	1212	-	-
Mov Capacity-2 Maneuver	343	357	-	359	354	-	-	-	-	-	-	-
Stage 1	732	658	-	623	597	-	-	-	-	-	-	-
Stage 2	587	588	-	697	645	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	12.3	0.5	2.2
HCM LOS	B	B		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1422	-	-	498	538	1212	-	-
HCM Lane V/C Ratio	0.018	-	-	0.042	0.081	0.048	-	-
HCM Control Delay (s)	7.579	0	-	12.5	12.3	8.121	0	-
HCM Lane LOS	A	A		B	B	A	A	
HCM 95th %tile Q(veh)	0.056	-	-	0.132	0.263	0.153	-	-

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

Intersection	
Intersection Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	11	0	9	36	0	72	5	190	28	56	331	9
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	56	92	58	92	92	92	100	81	92	92	89	88
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	0	16	39	0	78	5	235	30	61	372	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	798	774	377	767	764	250	382	0	0	265	0	0
Stage 1	499	499	-	260	260	-	-	-	-	-	-	-
Stage 2	299	275	-	507	504	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	304	329	670	319	334	789	1176	-	-	1299	-	-
Stage 1	554	544	-	745	693	-	-	-	-	-	-	-
Stage 2	710	683	-	548	541	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	260	308	670	296	312	789	1176	-	-	1299	-	-
Mov Capacity-2 Maneuver	260	308	-	296	312	-	-	-	-	-	-	-
Stage 1	551	511	-	741	690	-	-	-	-	-	-	-
Stage 2	636	680	-	503	509	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.2	14.2	0.1	1.1
HCM LOS	C	B		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1176	-	-	356	507	1299	-	-
HCM Lane V/C Ratio	0.004	-	-	0.099	0.232	0.047	-	-
HCM Control Delay (s)	8.074	0	-	16.2	14.2	7.908	0	-
HCM Lane LOS	A	A		C	B	A	A	
HCM 95th %tile Q(veh)	0.013	-	-	0.326	0.888	0.147	-	-

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

Intersection	
Intersection Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	0	22	0	0	0	73	256	0	0	42	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	25	69	25	25	25	73	70	25	25	88	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	32	0	0	0	100	366	0	0	48	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	628	628	62	644	642	366	76	0	0	366	0	0
Stage 1	62	62	-	566	566	-	-	-	-	-	-	-
Stage 2	566	566	-	78	76	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	395	400	1003	386	392	679	1523	-	-	1193	-	-
Stage 1	949	843	-	509	507	-	-	-	-	-	-	-
Stage 2	509	507	-	931	832	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	375	374	1003	355	366	679	1523	-	-	1193	-	-
Mov Capacity-2 Maneuver	375	374	-	355	366	-	-	-	-	-	-	-
Stage 1	887	843	-	476	474	-	-	-	-	-	-	-
Stage 2	476	474	-	901	832	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10	0	1.6	0
HCM LOS	B	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1523	-	-	753	0	1193	-	-
HCM Lane V/C Ratio	0.066	-	-	0.053	+	-	-	-
HCM Control Delay (s)	7.53	-	-	10	0	0	-	-
HCM Lane LOS	A			B	A	A		
HCM 95th %tile Q(veh)	0.211	-	-	0.167	+	0	-	-

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

Intersection	
Intersection Delay, s/veh	3.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	0	86	0	0	0	35	118	0	0	253	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	25	90	25	25	25	73	89	25	25	87	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	96	0	0	0	48	133	0	0	291	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	531	531	303	579	543	133	315	0	0	133	0	0
Stage 1	303	303	-	228	228	-	-	-	-	-	-	-
Stage 2	228	228	-	351	315	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	459	454	737	426	447	916	1245	-	-	1452	-	-
Stage 1	706	664	-	775	715	-	-	-	-	-	-	-
Stage 2	775	715	-	666	656	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	445	436	737	360	430	916	1245	-	-	1452	-	-
Mov Capacity-2 Maneuver	445	436	-	360	430	-	-	-	-	-	-	-
Stage 1	679	664	-	745	687	-	-	-	-	-	-	-
Stage 2	745	687	-	580	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	0	2.1	0
HCM LOS	B	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1245	-	-	611	0	1452	-	-
HCM Lane V/C Ratio	0.039	-	-	0.228	+	-	-	-
HCM Control Delay (s)	8.007	-	-	12.6	0	0	-	-
HCM Lane LOS	A			B	A	A		
HCM 95th %tile Q(veh)	0.12	-	-	0.875	+	0	-	-

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

Intersection	
Intersection Delay, s/veh	2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	3	0	22	15	0	0	73	283	30	0	55	23
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	25	69	25	25	25	73	70	25	25	88	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	8	0	32	60	0	0	100	404	120	0	62	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	741	801	77	741	755	464	91	0	0	524	0	0
Stage 1	77	77	-	664	664	-	-	-	-	-	-	-
Stage 2	664	724	-	77	91	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	332	318	984	332	338	598	1504	-	-	1043	-	-
Stage 1	932	831	-	450	458	-	-	-	-	-	-	-
Stage 2	450	430	-	932	820	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	315	297	984	305	316	598	1504	-	-	1043	-	-
Mov Capacity-2 Maneuver	315	297	-	305	316	-	-	-	-	-	-	-
Stage 1	870	831	-	420	428	-	-	-	-	-	-	-
Stage 2	420	401	-	902	820	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	19.7	1.2	0
HCM LOS	B	C		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1504	-	-	516	984	305	1043	-	-
HCM Lane V/C Ratio	0.066	-	-	0.036	0.022	0.197	-	-	-
HCM Control Delay (s)	7.564	-	-	12.2	8.7	19.7	0	-	-
HCM Lane LOS	A			B	A	C	A		
HCM 95th %tile Q(veh)	0.213	-	-	0.112	0.066	0.718	0	-	-

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

Intersection	
Intersection Delay, s/veh	6.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	22	0	86	41	0	0	35	146	31	0	289	14
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	25	90	25	25	25	73	89	25	25	87	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	44	0	96	164	0	0	48	164	124	0	332	24

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	666	728	344	666	678	226	356	0	0	288	0	0
Stage 1	344	344	-	322	322	-	-	-	-	-	-	-
Stage 2	322	384	-	344	356	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	373	350	699	373	374	813	1203	-	-	1274	-	-
Stage 1	671	637	-	690	651	-	-	-	-	-	-	-
Stage 2	690	611	-	671	629	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	362	336	699	312	359	813	1203	-	-	1274	-	-
Mov Capacity-2 Maneuver	362	336	-	312	359	-	-	-	-	-	-	-
Stage 1	644	637	-	662	625	-	-	-	-	-	-	-
Stage 2	662	587	-	579	629	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.8	28.6	1.2	0
HCM LOS	B	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1203	-	-	454	699	312	1274	-	-
HCM Lane V/C Ratio	0.04	-	-	0.167	0.091	0.526	-	-	-
HCM Control Delay (s)	8.117	-	-	14.5	10.7	28.6	0	-	-
HCM Lane LOS	A			B	B	D	A		
HCM 95th %tile Q(veh)	0.124	-	-	0.594	0.3	2.877	0	-	-

Notes

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

Intersection	
Intersection Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	0	28	0	0	0	93	325	0	0	53	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	25	69	25	25	25	73	70	25	25	88	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	41	0	0	0	127	464	0	0	60	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	797	797	78	817	815	464	96	0	0	464	0	0
Stage 1	78	78	-	719	719	-	-	-	-	-	-	-
Stage 2	719	719	-	98	96	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	305	319	983	295	312	598	1498	-	-	1097	-	-
Stage 1	931	830	-	420	433	-	-	-	-	-	-	-
Stage 2	420	433	-	908	815	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	285	292	983	264	286	598	1498	-	-	1097	-	-
Mov Capacity-2 Maneuver	285	292	-	264	286	-	-	-	-	-	-	-
Stage 1	852	830	-	384	396	-	-	-	-	-	-	-
Stage 2	384	396	-	871	815	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11	0	1.6	0
HCM LOS	B	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1498	-	-	653	0	1097	-	-
HCM Lane V/C Ratio	0.085	-	-	0.078	+	-	-	-
HCM Control Delay (s)	7.626	-	-	11	0	0	-	-
HCM Lane LOS	A			B	A	A		
HCM 95th %tile Q(veh)	0.278	-	-	0.254	+	0	-	-

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

Intersection	
Intersection Delay, s/veh	4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	28	0	109	0	0	0	44	150	0	0	321	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	25	90	25	25	25	73	89	25	25	87	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	0	121	0	0	0	60	169	0	0	369	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	673	673	384	734	689	169	400	0	0	169	0	0
Stage 1	384	384	-	289	289	-	-	-	-	-	-	-
Stage 2	289	289	-	445	400	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	369	377	664	336	369	875	1159	-	-	1409	-	-
Stage 1	639	611	-	719	673	-	-	-	-	-	-	-
Stage 2	719	673	-	592	602	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	354	357	664	264	350	875	1159	-	-	1409	-	-
Mov Capacity-2 Maneuver	354	357	-	264	350	-	-	-	-	-	-	-
Stage 1	606	611	-	682	638	-	-	-	-	-	-	-
Stage 2	682	638	-	484	602	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.5	0	2.2	0
HCM LOS	C	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1159	-	-	520	0	1409	-	-
HCM Lane V/C Ratio	0.052	-	-	0.341	+	-	-	-
HCM Control Delay (s)	8.276	-	-	15.5	0	0	-	-
HCM Lane LOS	A			C	A	A		
HCM 95th %tile Q(veh)	0.164	-	-	1.497	+	0	-	-

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

Intersection	
Intersection Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	4	0	28	15	0	0	93	352	30	0	66	29
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	38	25	69	25	25	25	73	70	25	25	88	82
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	0	41	60	0	0	127	503	120	0	75	35

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	911	971	93	911	928	563	110	0	0	623	0	0
Stage 1	93	93	-	818	818	-	-	-	-	-	-	-
Stage 2	818	878	-	93	110	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	255	253	964	255	268	526	1480	-	-	958	-	-
Stage 1	914	818	-	370	390	-	-	-	-	-	-	-
Stage 2	370	366	-	914	804	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	238	231	964	228	245	526	1480	-	-	958	-	-
Mov Capacity-2 Maneuver	238	231	-	228	245	-	-	-	-	-	-	-
Stage 1	836	818	-	338	357	-	-	-	-	-	-	-
Stage 2	338	335	-	876	804	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.4	26.3	1.3	0
HCM LOS	B	D		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1480	-	-	413	964	228	958	-	-
HCM Lane V/C Ratio	0.086	-	-	0.058	0.028	0.263	-	-	-
HCM Control Delay (s)	7.661	-	-	14.3	8.8	26.3	0	-	-
HCM Lane LOS	A			B	A	D	A		
HCM 95th %tile Q(veh)	0.282	-	-	0.185	0.087	1.022	0	-	-

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

Intersection	
Intersection Delay, s/veh	9.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	28	0	109	41	0	0	44	178	31	0	357	18
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	0	-	-	-	75	-	-	100	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	50	25	90	25	25	25	73	89	25	25	87	58
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	56	0	121	164	0	0	60	200	124	0	410	31

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	809	871	426	809	824	262	441	0	0	324	0	0
Stage 1	426	426	-	383	383	-	-	-	-	-	-	-
Stage 2	383	445	-	426	441	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	299	289	628	299	308	777	1119	-	-	1236	-	-
Stage 1	606	586	-	640	612	-	-	-	-	-	-	-
Stage 2	640	575	-	606	577	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	287	274	628	231	291	777	1119	-	-	1236	-	-
Mov Capacity-2 Maneuver	287	274	-	231	291	-	-	-	-	-	-	-
Stage 1	574	586	-	606	579	-	-	-	-	-	-	-
Stage 2	606	544	-	489	577	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	15.1	51.4	1.3	0
HCM LOS	C	F		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1119	-	-	372	628	231	1236	-	-
HCM Lane V/C Ratio	0.054	-	-	0.259	0.129	0.71	-	-	-
HCM Control Delay (s)	8.4	-	-	18	11.6	51.4	0	-	-
HCM Lane LOS	A			C	B	F	A		
HCM 95th %tile Q(veh)	0.171	-	-	1.019	0.44	4.703	0	-	-

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

Intersection	
Intersection Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	9	18	590	18	36	220
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	20	641	20	39	239

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	968	651	0	0	661	0
Stage 1	651	-	-	-	-	-
Stage 2	317	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	282	469	-	-	927	-
Stage 1	519	-	-	-	-	-
Stage 2	738	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	270	469	-	-	927	-
Mov Capacity-2 Maneuver	270	-	-	-	-	-
Stage 1	519	-	-	-	-	-
Stage 2	707	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15.4	0	1.3
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	377	927	-
HCM Lane V/C Ratio	-	-	0.078	0.042	-
HCM Control Delay (s)	-	-	15.4	9.055	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.252	0.132	-

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

Intersection	
Intersection Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	24	48	302	19	37	561
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	52	328	21	40	610

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1029	339	0	0	349	0
Stage 1	339	-	-	-	-	-
Stage 2	690	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	259	703	-	-	1210	-
Stage 1	722	-	-	-	-	-
Stage 2	498	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	250	703	-	-	1210	-
Mov Capacity-2 Maneuver	250	-	-	-	-	-
Stage 1	722	-	-	-	-	-
Stage 2	482	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	15	0	0.5
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	438	1210	-
HCM Lane V/C Ratio	-	-	0.179	0.033	-
HCM Control Delay (s)	-	-	15	8.077	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.643	0.103	-

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

Intersection	
Intersection Delay, s/veh	0.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	9	18	745	18	36	274
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	20	810	20	39	298

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1196	820	0	0	829	0
Stage 1	820	-	-	-	-	-
Stage 2	376	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	206	375	-	-	803	-
Stage 1	433	-	-	-	-	-
Stage 2	694	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	196	375	-	-	803	-
Mov Capacity-2 Maneuver	196	-	-	-	-	-
Stage 1	433	-	-	-	-	-
Stage 2	660	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	19	0	1.1
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	287	803	-
HCM Lane V/C Ratio	-	-	0.102	0.049	-
HCM Control Delay (s)	-	-	19	9.713	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.338	0.153	-

Notes
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Intersection	
Intersection Delay, s/veh	1.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	24	48	376	19	37	706
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	100	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	26	52	409	21	40	767

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1267	419	0	0	429	0
Stage 1	419	-	-	-	-	-
Stage 2	848	-	-	-	-	-
Follow-up Headway	3.518	3.318	-	-	2.218	-
Pot Capacity-1 Maneuver	186	634	-	-	1130	-
Stage 1	664	-	-	-	-	-
Stage 2	420	-	-	-	-	-
Time blocked-Platoon, %			-	-		-
Mov Capacity-1 Maneuver	179	634	-	-	1130	-
Mov Capacity-2 Maneuver	179	-	-	-	-	-
Stage 1	664	-	-	-	-	-
Stage 2	405	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	18.6	0	0.4
HCM LOS	C		

Minor Lane / Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	343	1130	-
HCM Lane V/C Ratio	-	-	0.228	0.036	-
HCM Control Delay (s)	-	-	18.6	8.303	-
HCM Lane LOS			C	A	
HCM 95th %tile Q(veh)	-	-	0.864	0.111	-

Notes
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Intersection	
Intersection Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	7	10	0	10	14	77	10	10	99	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	11	0	11	15	84	11	11	108	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	254	254	108	253	249	89	108	0	0	95	0	0
Stage 1	129	129	-	120	120	-	-	-	-	-	-	-
Stage 2	125	125	-	133	129	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	699	650	946	700	654	969	1483	-	-	1499	-	-
Stage 1	875	789	-	884	796	-	-	-	-	-	-	-
Stage 2	879	792	-	870	789	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	681	638	946	684	642	969	1483	-	-	1499	-	-
Mov Capacity-2 Maneuver	681	638	-	684	642	-	-	-	-	-	-	-
Stage 1	865	783	-	874	787	-	-	-	-	-	-	-
Stage 2	860	783	-	856	783	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.6	1	0.7
HCM LOS	A	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1483	-	-	946	802	1499	-	-
HCM Lane V/C Ratio	0.01	-	-	0.008	0.027	0.007	-	-
HCM Control Delay (s)	7.453	0	-	8.8	9.6	7.419	0	-
HCM Lane LOS	A	A		A	A	A	A	
HCM 95th %tile Q(veh)	0.031	-	-	0.024	0.084	0.022	-	-

Notes
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Intersection	
Intersection Delay, s/veh	2.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	19	10	0	10	15	58	10	10	65	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	21	11	0	11	16	63	11	11	71	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	199	199	71	204	193	68	71	0	0	74	0	0
Stage 1	92	92	-	101	101	-	-	-	-	-	-	-
Stage 2	107	107	-	103	92	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	760	697	991	754	702	995	1529	-	-	1526	-	-
Stage 1	915	819	-	905	811	-	-	-	-	-	-	-
Stage 2	898	807	-	903	819	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	741	684	991	728	689	995	1529	-	-	1526	-	-
Mov Capacity-2 Maneuver	741	684	-	728	689	-	-	-	-	-	-	-
Stage 1	905	812	-	895	802	-	-	-	-	-	-	-
Stage 2	878	798	-	877	812	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.7	9.4	1.3	1
HCM LOS	A	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1529	-	-	991	841	1526	-	-
HCM Lane V/C Ratio	0.011	-	-	0.021	0.026	0.007	-	-
HCM Control Delay (s)	7.38	0	-	8.7	9.4	7.376	0	-
HCM Lane LOS	A	A		A	A	A	A	
HCM 95th %tile Q(veh)	0.032	-	-	0.064	0.08	0.022	-	-

Notes
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Intersection	
Intersection Delay, s/veh	1.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	7	10	0	10	14	100	10	10	129	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	8	11	0	11	15	109	11	11	140	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	312	312	140	311	307	114	140	0	0	120	0	0
Stage 1	162	162	-	145	145	-	-	-	-	-	-	-
Stage 2	150	150	-	166	162	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	641	603	908	642	607	939	1443	-	-	1468	-	-
Stage 1	840	764	-	858	777	-	-	-	-	-	-	-
Stage 2	853	773	-	836	764	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	624	592	908	627	596	939	1443	-	-	1468	-	-
Mov Capacity-2 Maneuver	624	592	-	627	596	-	-	-	-	-	-	-
Stage 1	831	758	-	849	768	-	-	-	-	-	-	-
Stage 2	834	764	-	822	758	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	9	9.9	0.8	0.5
HCM LOS	A	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1443	-	-	908	752	1468	-	-
HCM Lane V/C Ratio	0.011	-	-	0.008	0.029	0.007	-	-
HCM Control Delay (s)	7.521	0	-	9	9.9	7.471	0	-
HCM Lane LOS	A	A		A	A	A	A	
HCM 95th %tile Q(veh)	0.032	-	-	0.025	0.089	0.022	-	-

Notes
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Intersection	
Intersection Delay, s/veh	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	0	0	19	10	0	10	15	75	10	10	85	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	21	11	0	11	16	82	11	11	92	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	239	239	92	244	234	87	92	0	0	92	0	0
Stage 1	114	114	-	120	120	-	-	-	-	-	-	-
Stage 2	125	125	-	124	114	-	-	-	-	-	-	-
Follow-up Headway	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Capacity-1 Maneuver	715	662	965	710	666	971	1503	-	-	1503	-	-
Stage 1	891	801	-	884	796	-	-	-	-	-	-	-
Stage 2	879	792	-	880	801	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	697	649	965	685	653	971	1503	-	-	1503	-	-
Mov Capacity-2 Maneuver	697	649	-	685	653	-	-	-	-	-	-	-
Stage 1	881	795	-	874	787	-	-	-	-	-	-	-
Stage 2	860	783	-	854	795	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	8.8	9.6	1.1	0.8
HCM LOS	A	A		

Minor Lane / Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1503	-	-	965	803	1503	-	-
HCM Lane V/C Ratio	0.011	-	-	0.021	0.027	0.007	-	-
HCM Control Delay (s)	7.421	0	-	8.8	9.6	7.413	0	-
HCM Lane LOS	A	A		A	A	A	A	
HCM 95th %tile Q(veh)	0.033	-	-	0.066	0.083	0.022	-	-

Notes
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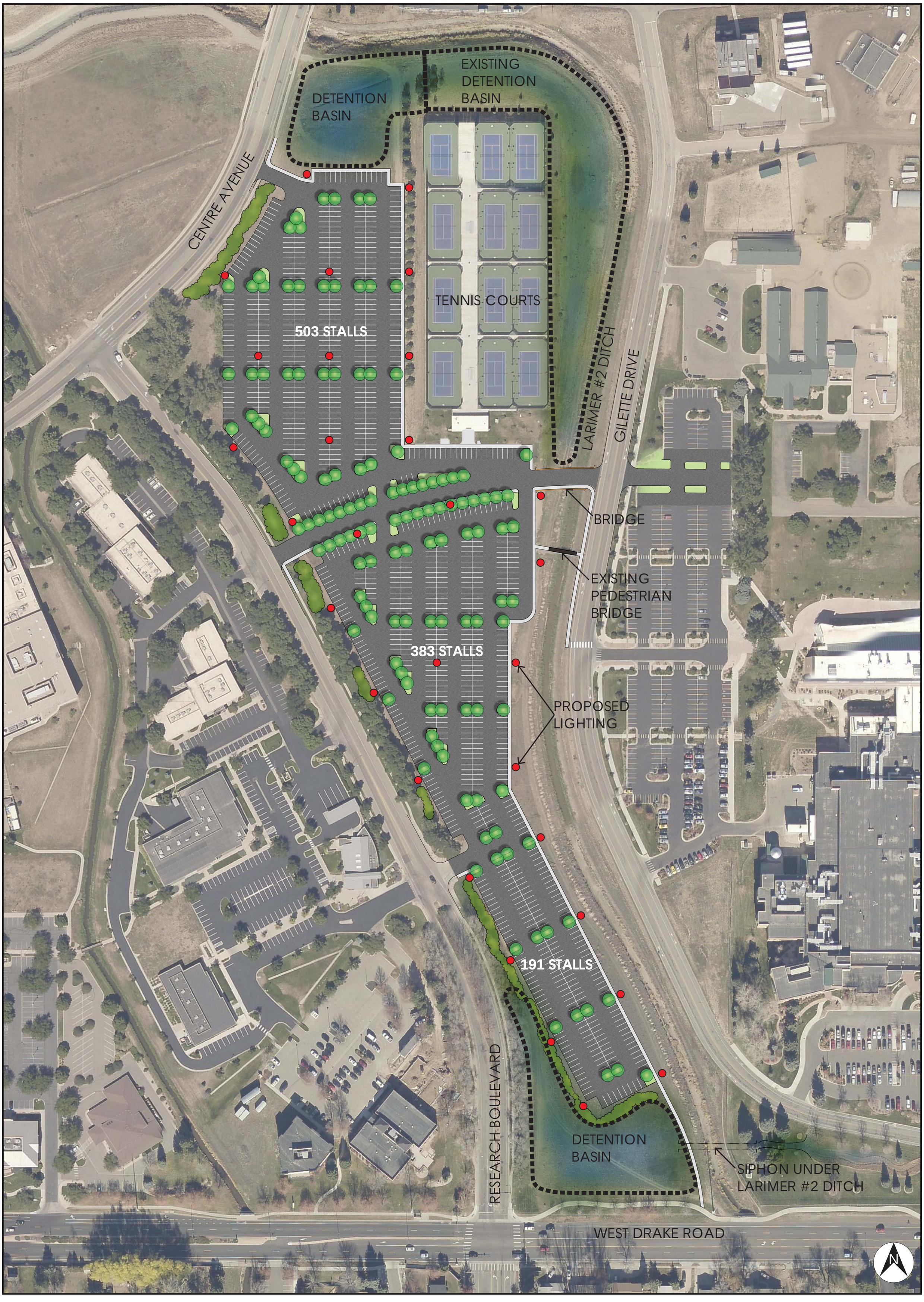
APPENDIX C

Conceptual Site Plan



SOUTH CAMPUS

SURFACE PARKING LOT CONCEPT

NOVEMBER 1, 2013

Community Development and Neighborhood Services
281 North College Avenue
PO Box 580
Fort Collins, CO 80522

970.221.6750
970.224.6134 - fax
fcgov.com

March 09, 2015

Fred Haberecht
Colorado State University
6030 Campus Delivery
Fort Collins, CO 80523

Re: CSU - Parking Lot
Description of project: This is a request to construct a surface parking lot at 2400 Research Blvd. (parcel #s 9723400906 and 9723300901). The parking lot will contain 1,077 parking stalls. The parking lot will have access points on Research Blvd., Centre Ave., and Gilette Dr. One parcel is located in the Employment (E) zone district while the other parcel is on CSU land. This project may be subject to Site Plan Advisory Review (SPAR).

Please see the following summary of comments regarding the project request referenced above. The comments offered informally by staff during the Conceptual Review will assist you in preparing the detailed components of the project application. Modifications and additions to these comments may be made at the time of formal review of this project. If you have any questions regarding these comments or the next steps in the review process, you may contact the individual commenter or direct your questions through the Project Planner, Jason Holland, at 970-224-6126 or jholland@fcgov.com.

Comment Summary:

Department: Zoning
Contact: Gary Lopez, 970-416-2338, glopez@fcgov.com

1. More landscaping is suggested within the parking lot and it's outer edges. This can be accomplished by a landscaping island ever 15 vehicle stalls in rows. A 5' landscaping buffer along the sides and rear and 15' landscaped buffer along the Center Street frontage.
2. What will the site lighting be comprised of.
3. Consider using LUC 3.2.2 as standards for your pedestrian access and circulation plans.

Department: Water-Wastewater Engineering
Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. It is not anticipated that water or sewer service will be required with this proposal. If that changes, please coordinate with Water Utilities Engineering.

Department: Traffic Operations

Contact: Martina Wilkinson, 970-221-6887, mwilkinson@fcgov.com

1. We appreciate CSUs completion of a traffic impact study for the proposed parking lot. Implementation of its recommendation in terms of roadway improvements are key. We are concerned about the intersection of Research and Drake, and believe that additional review is appropriate at this location.
2. Transportation Planning notes that this lot would be an excellent location for people to leave a car and use MAX from the Drake Station. There are pieces of pedestrian connectivity (sidewalk) missing between the parking lot and Drake and providing that connection would be very helpful.

Department: Stormwater Engineering

Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. A drainage report, erosion control report, and construction plans are required and they must be prepared by a Professional Engineer registered in Colorado. The drainage report must address the four-step process for selecting structural BMPs. Standard operating procedures (SOPs) for all onsite drainage facilities need to be prepared by the drainage engineer and there is a final site inspection required when the project is complete and the maintenance is handed over to an HOA or another maintenance organization. The erosion control report requirements are in the Fort Collins Stormwater Manual, Section 1.3.3, Volume 3, Chapter 7 of the Fort Collins Amendments. If you need clarification concerning this section, please contact the Erosion Control Inspector, Jesse Schlam at 224-6015 or jschlam@fcgov.com.
2. Onsite detention is required for the runoff volume difference between the 100 year developed inflow rate and the 2 year historic release rate. It is anticipated the release point will be the existing pond along Drake Road. The City does not allow runoff to be released into the ditch unless there are no other alternatives.
3. Fifty percent of the site runoff is required to be treated using the standard water quality treatment as described in the Fort Collins Stormwater Manual, Volume 3-Best Management Practices (BMPs). (http://www.fcgov.com/utilities/business/builders-and-developers/development-forms-guidelines-regulations/stormwater-criteria) Extended detention is the usual method selected for water quality treatment; however the use of any of the BMPs is encouraged.
4. Low Impact Development (LID) requirements are required on all new or redeveloping property which includes sites required to be brought into compliance with the Land Use Code. These require a higher degree of water quality treatment for 50% of the new impervious area and 25% of new paved areas must be pervious. For more information please refer to the City's website where additional information and links can be found at:

   http://www.fcgov.com/utilities/what-we-do/stormwater/stormwater-quality/low-impact-development
5. The city wide Stormwater development fee (PIF) is $7,817/acre ($0.1795 sq.-ft.) for new impervious area over 350 sq.-ft., and there is a $1,045.00/acre ($0.024/sq.-ft.) review fee. No fee is charged for existing impervious area. These fees are to be paid at the time each building permit is issued. Information on fees can be found on the City's web site at http://www.fcgov.com/utilities/business/builders-and-developers/plant-investment-development-fees or contact Jean Pakech at 221-6375 for questions on fees. There is also an erosion control escrow required before the Development Construction permit is issued. The amount of the escrow is determined by the design engineer, and is based on the site disturbance area, cost of the measures, or a minimum amount in accordance with the Fort Collins

Stormwater Manual.

6. The design of this site must conform to the drainage basin design of the Spring Creek Basin Master Drainage Plan as well the Fort Collins Stormwater Manual.

Department: Fire Authority

Contact: Jim Lynxwiler, 970-416-2869, jlynxwiler@poudre-fire.org

1. TURNING TEMPLATE
   A turning template is requested in order to verify that fire apparatus movements can be achieved along the central or key drive aisles within the site.

Department: Environmental Planning

Contact: Stephanie Blochowiak, 970-416-2401, sblochowiak@fcgov.com

1. An Ecological Characterization Study is required by Section 3.4.1 (D)(1) as the site is within 500 feet of a known natural habitat (irrigation ditch/wildlife corridor, wet meadows, pond). Please note the buffer zone standards range from 50 - 100' for these features, as identified in Section 3.4.1(E) of the Land Use Code, as you proceed with your site design process. Please note that the Ecological Characterization Study is due a minimum of 10 days prior to the PDP submittal.
2. Within the buffer zone, according to Article 3.4.1(E)(1)(g), the City has the ability to determine if the existing landscaping within the buffer zone is incompatible with the purposes of the buffer zone. Please ensure that your ECS discusses the existing vegetation and identifies potential restoration options. If it is determined to be insufficient, then restoration and mitigation measures will be required.
3. With respect to lighting, the City of Fort Collins Land Use Code, in Article 3.2.4(D)(6) requires that "natural areas and natural features shall be protected from light spillage from off site sources." Thus, lighting from the parking areas or other site amenities shall not spill over to the buffer areas.
4. With respect to landscaping and design, the City of Fort Collins Land Use Code, in Article 3.2.1 (E)(2)(3), requires that you use native plants and grasses in your landscaping or re landscaping and reduce bluegrass lawns as much as possible.
5. The applicant should make note of Article 3.2.1(C) that requires developments to submit plans that "...(4) protects significant trees, natural systems, and habitat". Note that a significant tree is defined as a tree having DBH (Diameter at Breast Height) of six inches or more. If any of the trees within this site have a DBH of greater than six inches, a review of the trees shall be conducted with Tim Buchanan, City Forester (221 6361) to determine the status of the existing trees and any mitigation requirements that could result from the proposed development. Looking down the road, please include a note on the tree mitigation plan or landscape plan, as appropriate, that requires a tree removal to occur outside of the migratory songbird nesting season (February 1-July 31), or that a survey be conducted prior to removal to ensure no active nests in the area.

Department: Engineering Development Review

Contact: Sheri Langenberger, 970-221-6573, slangenberger@fcgov.com

1. The City's Transportation Development Review Fee (TDRF) is due at the time of submittal. For additional information on these fees, please see: http://www.fcgov.com/engineering/dev-review.php
2. Any damaged curb, gutter and sidewalk existing prior to construction, as well as streets, sidewalks, curbs and gutters, destroyed, damaged or removed due to construction of this

project, shall be replaced or restored to City of Fort Collins standards at the Developer's expense prior to the acceptance of completed improvements.

3. All public sidewalk, driveways and ramps existing or proposed along Centre Ave and Research Blvd need to meet ADA standards, if they currently do not, they will need to be reconstructed so that they do meet current ADA standards as a part of this project. The existing driveway will need to be evaluated to determine if the slopes and width will meet ADA requirements or if they need to be reconstructed so that they do.
4. Any public improvements must be designed and built in accordance with the Larimer County Urban Area Street Standards (LCUASS). They are available online at: http://www.larimer.org/engineering/GMARdStds/UrbanSt.htm
5. This project is responsible for dedicating any right-of-way and easements that are necessary for this project.
6. Utility plans will be required.
   If the project is to be phased, the phasing needs to be shown on the plans.
   Final mylars in a 24 x 36 inch size will need to be submitted and approved by Utilities and Engineering.
7. The plans need to show the location of the proposed driveways, the proposed widths, driveway types, include the standard driveway detail, and show where the existing driveways are located on Centre Avenue and Research Ave. The existing driveway locations need to be shown so we can verify that the driveways either align or meet the separation requirements.
8. Larimer County #2 Canal will need to sign the plans.
9. Improvements to the Drake Road frontage (design and construction of curb and gutter) are needed. These improvements are required at such time as the parking lot is expanded south of the existing driveway cut or the detention pond shown in this location is constructed. The City is going to be working on a plan to replace the bridge on Drake, so it would be a great time and opportunity for CSU to work with the City to complete the curb and gutter along the Drake frontage.
10. A Development Construction Permit (DCP) will need to be obtained prior to starting any work within the right-of-way.
11. LCUASS parking setbacks (Figure 19-6) apply and will need to be followed depending on parking design. Right now everything shown will meet this standard.
12. If the City busses are going to run through the site than we will need to look at the turning movements through the parking lot to make sure the busses can navigate the site.

Department: Electric Engineering

Contact: Luke Unruh, 9704162724, lunruh@fcgov.com

1. Will CSU be providing power to the site internally? If not please contact Light and Power Engineering to coordinate transformer and meter locations. Please provide a one line diagram and a C-1 form to Light and Power Engineering. The C-1 form can be found at: http://zeus.fcgov.com/utils-procedures/files/EngWiki/WikiPdfs/C/C-1Form.pdf
2. Light and Power has three phase facilities on the west side of Centre Ave and along the west side of Research Blvd that could be utilized to provide power.
3. Please contact Light & Power Engineering if you have any questions at 221-6700. Please reference our policies, development charge processes, and use our fee estimator at http://www.fcgov.com/utilities/business/builders-and-developers

Planning Services

Contact: Jason Holland, 970-224-6126, jholland@fcgov.com

1. Incorporating canopy shade trees into developments to help reduce heat gain is an important goal for the city. Please consider incorporating additional shade trees through the use of 4' x 4' tree diamonds between parking space rows. These could be located between parking spaces to integrate additional irrigated trees without losing parking spaces. Four parking spaces surrounding each of the tree diamonds would have a shorter depth similar to compact space dimensions. Another option might be including landscape islands that are one parking space in size, in an offset pattern.
2. The proposed development project is subject to a Type 2 (Planning and Zoning Board) review and public hearing. The applicant for this development request is required to hold a neighborhood information meeting prior to formal submittal of the proposal. Neighborhood meetings offer an informal way to get feedback from your surrounding neighbors and discover any potential hiccups prior to the formal hearing. Please contact me, at 221-6750, to assist you in setting a date, time, and location. I and possibly other City staff, would be present to facilitate the meeting.
3. Please see the Development Review Guide at www.fcgov.com/drg. This online guide features a color coded flowchart with comprehensive, easy to read information on each step in the process. This guide includes links to just about every resource you need during development review.
4. This development proposal will be subject to all applicable standards of the Fort Collins Land Use Code (LUC), including Article 3 General Development Standards. The entire LUC is available for your review on the web at http://www.colocode.com/ftcollins/landuse/begin.htm.
5. If this proposal is unable to satisfy any of the requirements set forth in the LUC, a Modification of Standard Request will need to be submitted with your formal development proposal. Please see Section 2.8.2 of the LUC for more information on criteria to apply for a Modification of Standard.
6. Please see the Submittal Requirements and Checklist at: http://www.fcgov.com/developmentreview/applications.php.
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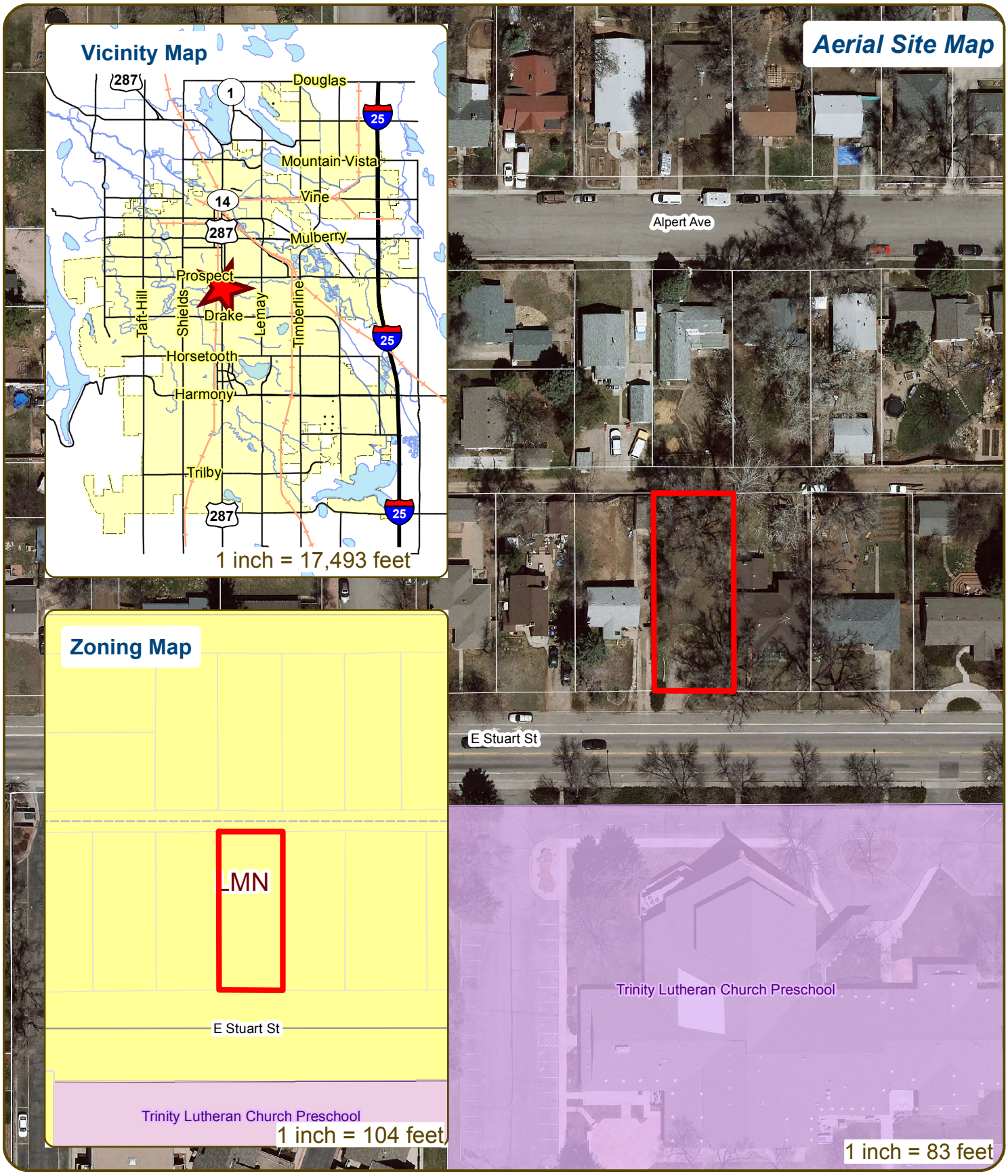
8. When you are ready to submit your formal plans, please make an appointment with Community Development and Neighborhood Services at (970)221-6750.

312 E Stuart
Duplex



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City of Fort Collins

Development Review Guide – STEP 2 of 8

CONCEPTUAL REVIEW: *APPLICATION*

General Information

All proposed development projects begin with Conceptual Review. Anyone with a development idea can schedule a Conceptual Review meeting to get feedback on prospective development ideas. At this stage, the development idea does not need to be finalized or professionally presented. However, a sketch plan and this application must be submitted to City Staff prior to the Conceptual Review meeting. The more information you are able to provide, the better feedback you are likely to get from the meeting. Please be aware that any information submitted may be considered a public record, available for review by anyone who requests it, including the media.

Conceptual Reviews are scheduled on three Monday mornings per month on a "first come, first served" basis. One 45 meeting is allocated per applicant and only three conceptual reviews are done each Monday morning. Conceptual Review is a free service. **Complete applications and sketch plans must be submitted to City Staff no later than 5 pm, two Tuesdays prior to the meeting date.** Application materials must be e-mailed to currentplanning@fcgov.com. If you do not have access to e-mail, other accommodations can be made upon request.

At Conceptual Review, you will meet with Staff from a number of City departments, such as Community Development and Neighborhood Services (Zoning, Current Planning, and Development Review Engineering), Light and Power, Stormwater, Water/Waste Water, Advance Planning (Long Range Planning and Transportation Planning) and Poudre Fire Authority. Comments are offered by staff to assist you in preparing the detailed components of the project application. There is no approval or denial of development proposals associated with Conceptual Review. At the meeting you will be presented with a letter from staff, summarizing comments on your proposal.

BOLDED ITEMS ARE REQUIRED *The more info provided, the more detailed your comments from staff will be.*

Contact Name(s) and Role(s) (Please identify whether Consultant or Owner, etc) Chandler Southur owner of parcel

Business Name (if applicable) _____

Your Mailing Address 2601 S. Lemay Suite 7 Unit 151 Fort Collins CO 80525

Phone Number 970-381-7699 Email Address chandler@hammersmithstructures.com

Site Address or Description (parcel # if no address) Lot 13 Block 2 312 E Stuart

Description of Proposal (attach additional sheets if necessary) General schematic design for intended use / size / scope + location. The Architectural Renderings are ~~[illegible]~~ Preliminary.

Proposed Use Duplex (side by side SF Dwelling) **Existing Use** _____

Total Building Square Footage 3600 S.F. Number of Stories 2 Lot Dimensions 50' x 128'

Age of any Existing Structures _____

Info available on Larimer County's Website: http://www.co.larimer.co.us/assessor/query/search.cfm

If any structures are 50+ years old, good quality, color photos of all sides of the structure are required for conceptual.

Is your property in a Flood Plain? ☐ Yes ☑ No If yes, then at what risk is it? _____

Info available on FC Maps: http://gisweb.fcgov.com/redirect/default.aspx?layerTheme=Floodplains.

Increase in Impervious Area Approx.- 2460 S.F. for Structure, 530 S.F. for Concrete Flat work S.F.

(Approximate amount of additional building, pavement, or etc. that will cover existing bare ground to be added to the site)

Suggested items for the Sketch Plan:

Property location and boundaries, surrounding land uses, proposed use(s), existing and proposed improvements (buildings, landscaping, parking/drive areas, water treatment/detention, drainage), existing natural features (water bodies, wetlands, large trees, wildlife, canals, irrigation ditches), utility line locations (if known), photographs (helpful but not required). Things to consider when making a proposal: How does the site drain now? Will it change? If so, what will change?

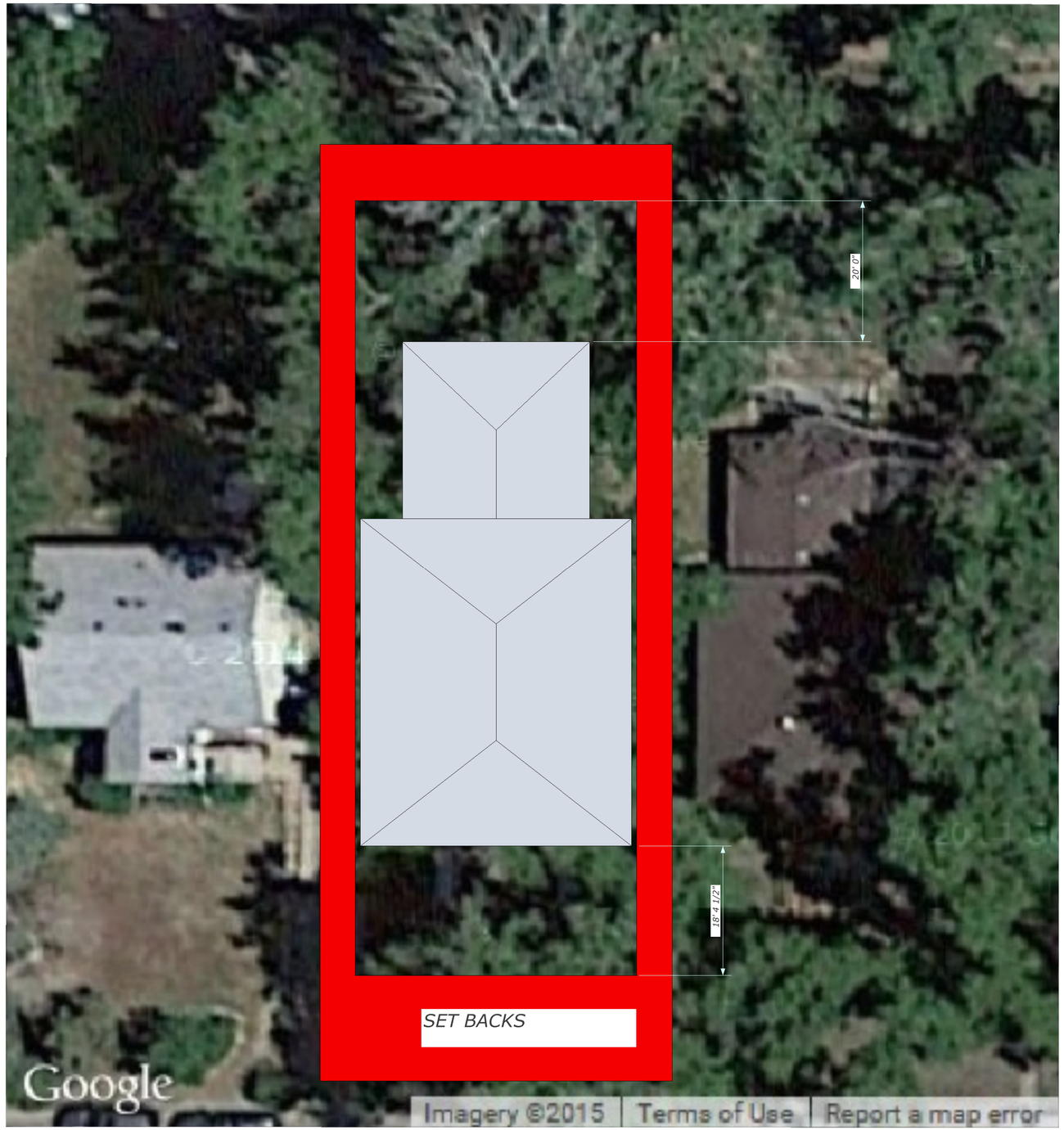
NOTE:

RED OUTLINE IS APPROX. SITE SET BACKS.

THE INTERIOR IS THE PORPOSED STRUCTURE.

<u>GREEN SPACE AND VEGITATION:</u>

THERE IS CURRENTLY SEVERAL TREES,
AND NO STRUCTURES THAT ARE USED FOR
DWELLINGS.



STREET VIEW OF PROPOSED PROJECT LOT.

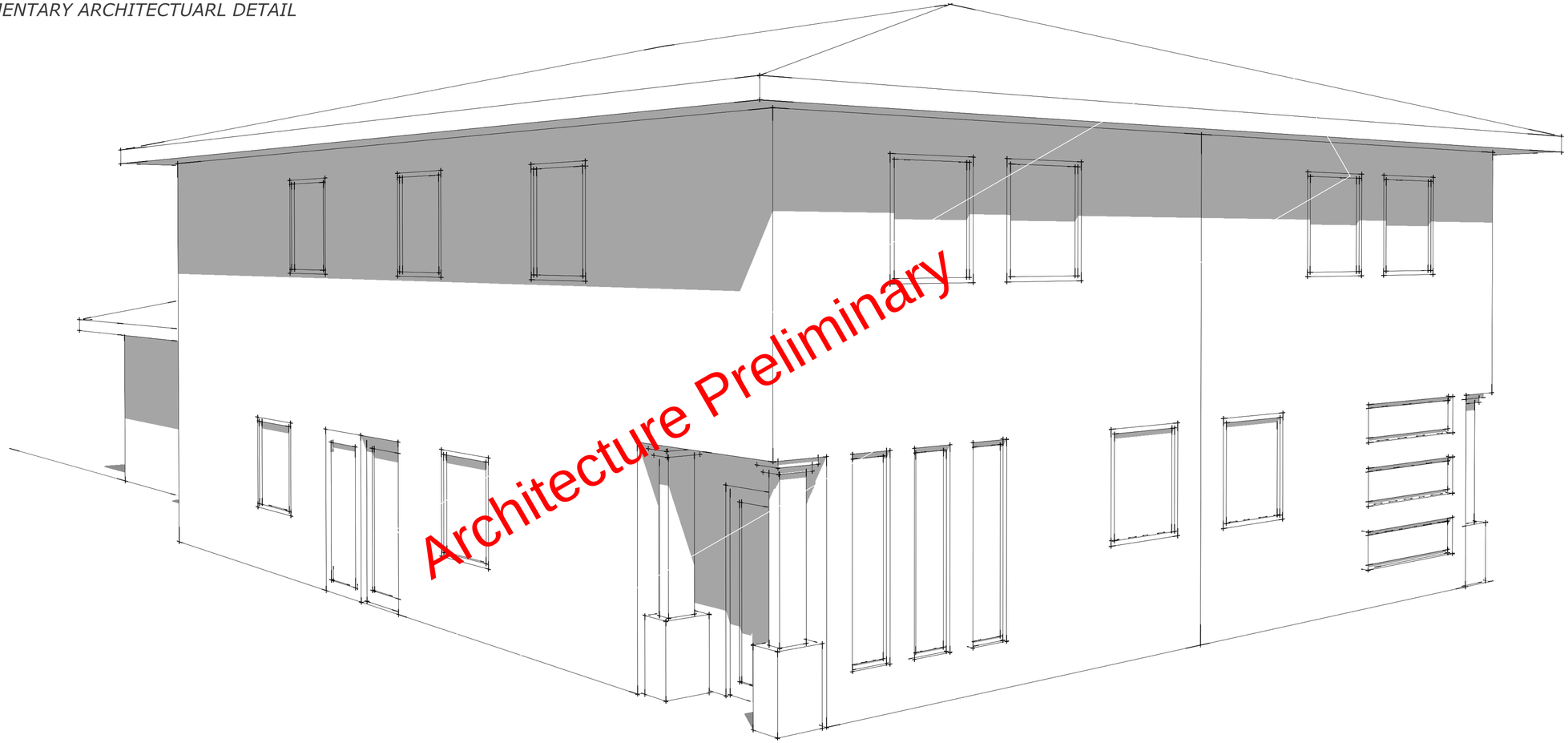
TWO SINGLE FAMILY RESIDENCE (DUPLEX);

TWO STORY STRUCTURE APPROX. 900 S.F. PER FLOOR PER UNIT
(2) 3 BEDROOM 2 BATH UNITS

SIMPLE STRUCTURE TO COMPLIMENT THE SURROUNDING STRUCTURES AND FITS WELL INTO LANDSCAPE OF AREA.

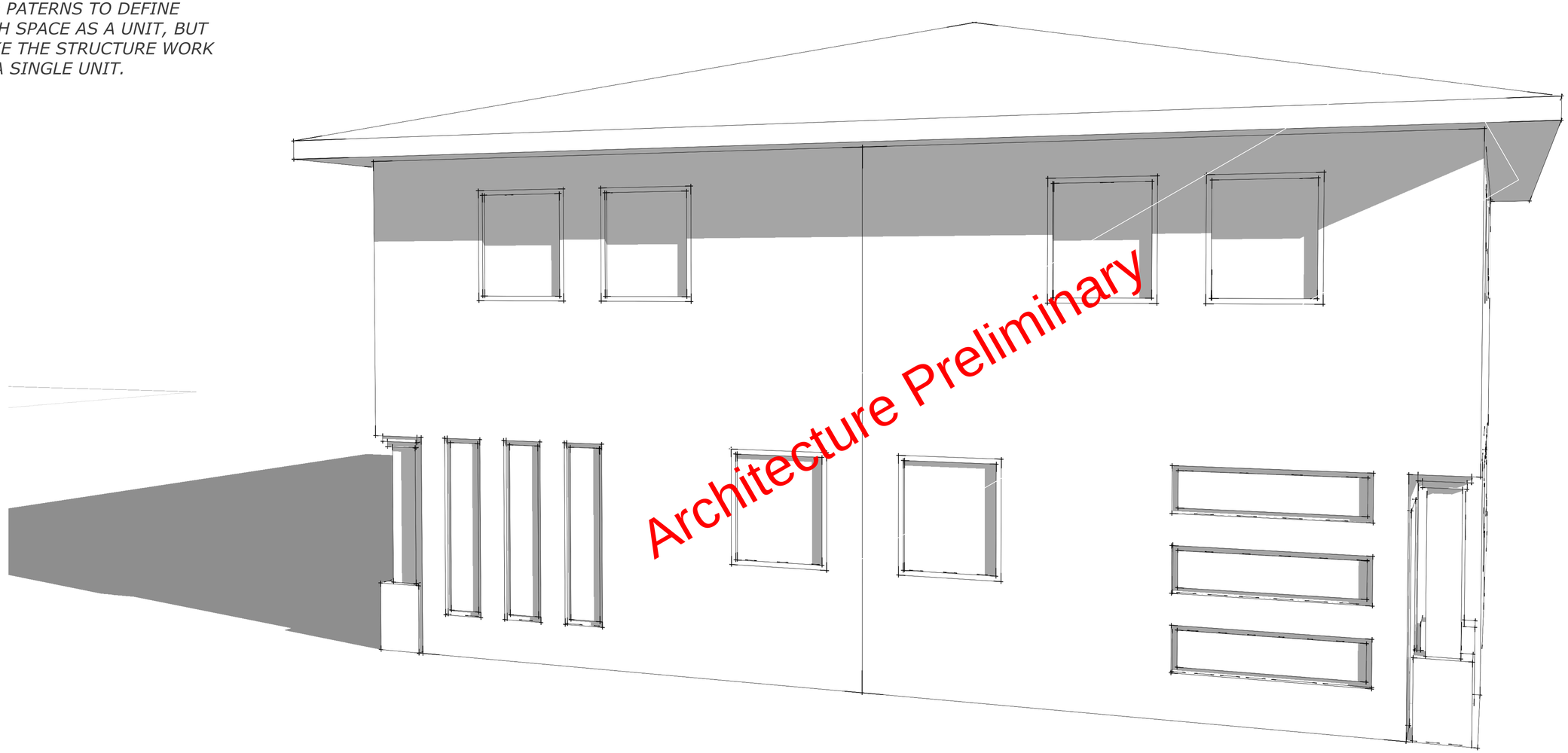
MATERIALS:

ASPHALT SHINGLE ROOF
LAP SIDING
ACCENT BRICK
COMPLIMENTARY ARCHITECTUARL DETAIL

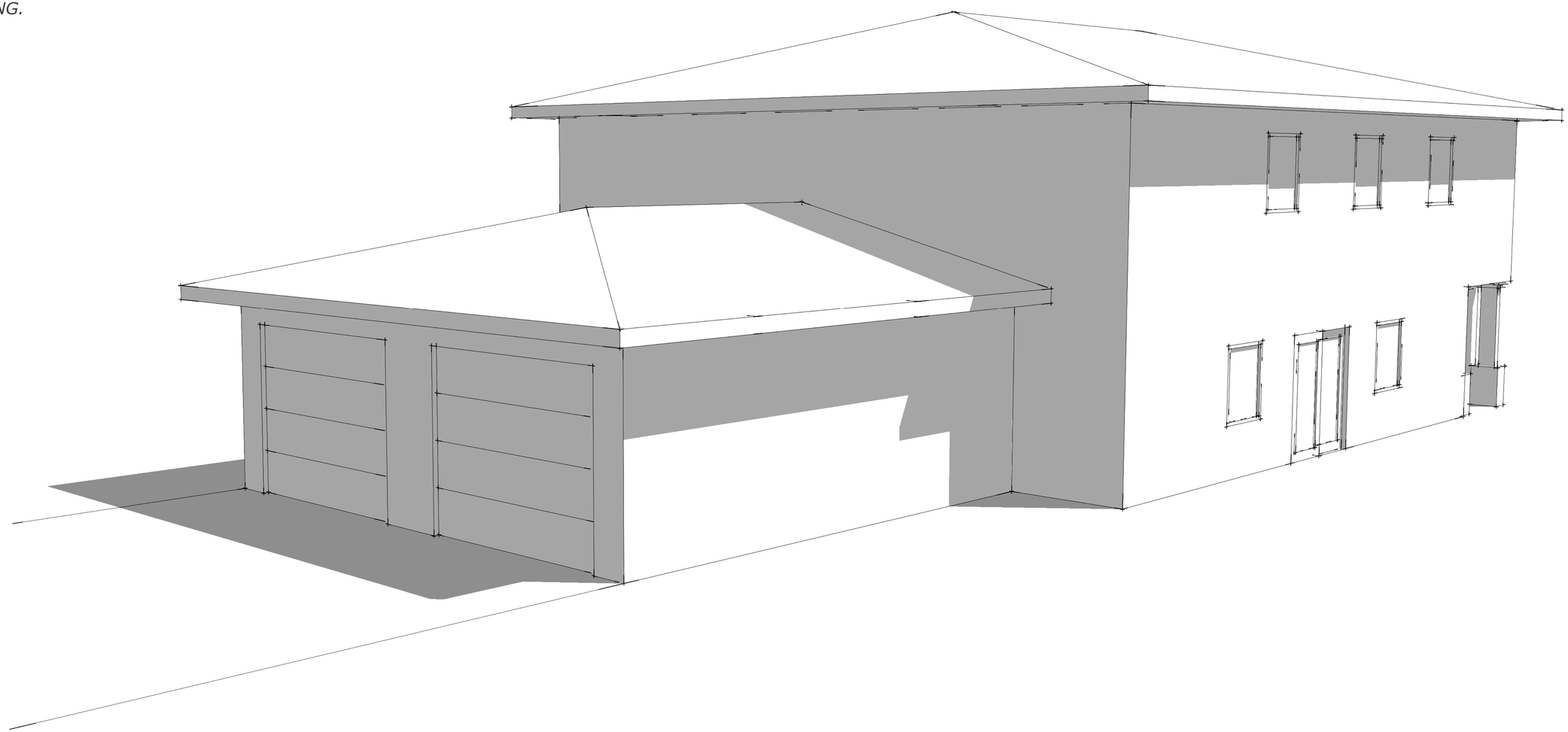


:: 1001A E. Harmony Rd. #407 :: Fort Collins, CO 80525 :: 02, 2015 ::

INCORPORATING RYTHMS AND PATERNS TO DEFINE EACH SPACE AS A UNIT, BUT MAKE THE STRUCTURE WORK AS A SINGLE UNIT.

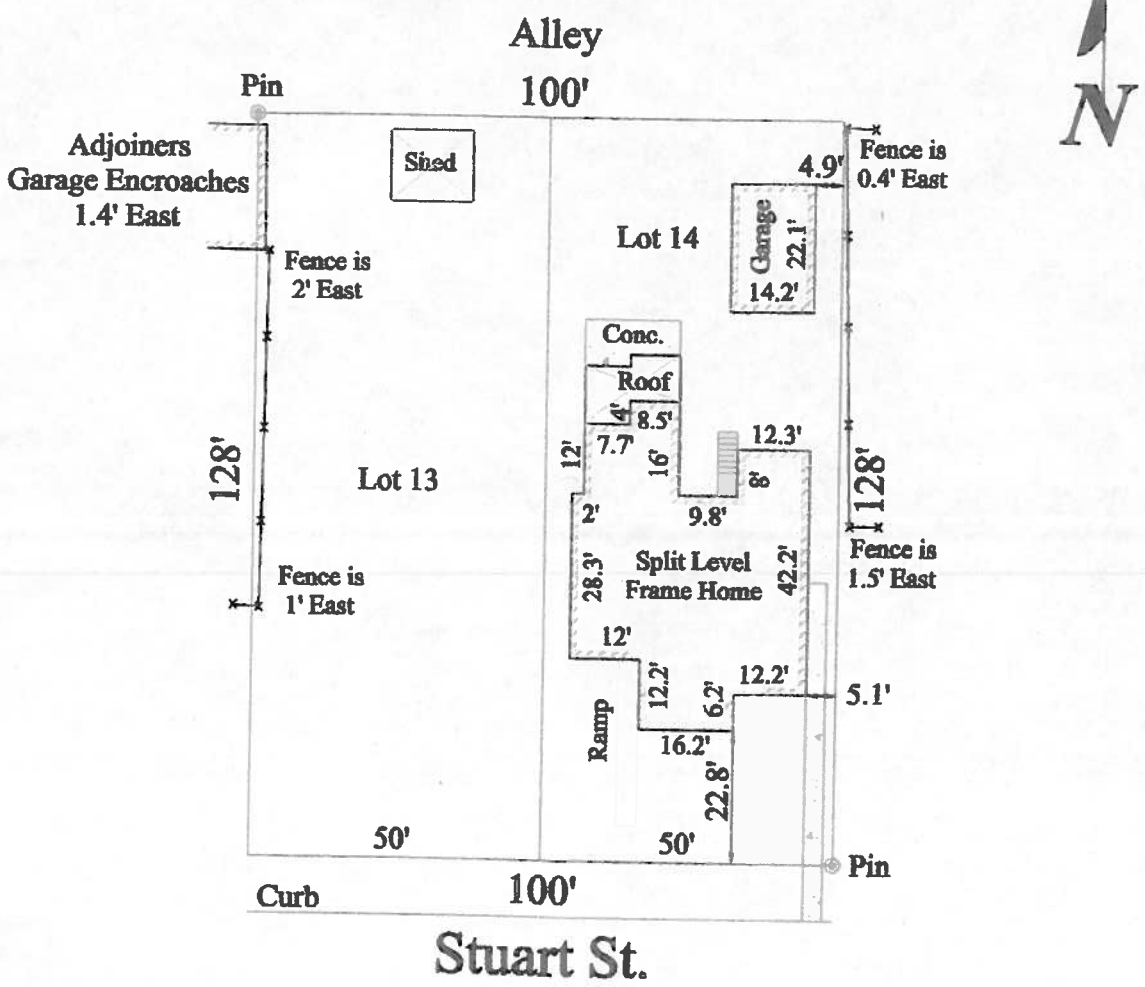


TRY AND MAXIMIZE PARKING ON SITE TO ATTEMPT TO ELIMINATE THE USE OF ON STREET PARKING.



IMPROVEMENT LOCATION CERTIFICATE

Patterson Partners
9176 ALJAN DRIVE LONGMONT, COLORADO 80503
PH (303) 678-7072 FAX (303) 678-9663



I hereby certify that this improvement location certificate was prepared for:
Re/Max (Ruedig)

THAT IT IS NOT A LAND SURVEY PLAT OR IMPROVEMENT SURVEY PLAT, and that it is not to be relied upon for the establishment of fence, bulding, or other future improvement lines. I further certify that the improvements on the above shown parcel on this date, **2/28/2014** except utility connections, are entirely within the boundaries of the parcel, except as shown, that there are no encroachments upon the described premises by improvements on any adjoining premises, except as indicated, and that there is no apparent evidence or sign of any easement crossing or burdening any part of said parcel, except as noted.

LEGAL DESCRIPTION:
Lots 13 and 14, Block 2,
Alpert Subdivision, County
of Larimer, State of Colorado.

COLORADO REGISTERED
ANDREW J PATTERSON
26971
PROFESSIONAL LAND SURVEYOR

Andrew J. Patterson, PLS 26971
Date: 2-28-14

Address: 314 E. Stuart St., Ft. Collins
Job No. :14-2-47-1620
Scale : 1"=30'
Easement Source: Recorded Subdivision Plat

Community Development and Neighborhood Services
281 North College Avenue
PO Box 580
Fort Collins, CO 80522

970.221.6750
970.224.6134 - fax
fcgov.com

March 02, 2015

Chandler Souther
2601 S Lemay
Suite 7
Unit 151
Fort Collins, CO 80525

Re: 312 E Stuart - Duplex
Description of project: This is a request to construct a duplex at 312 E Stuart (parcel #9724219013). The duplex will be two stories with approximately 900 sq. ft. of floor area per unit. Each unit will have its own garage. The site is located in the Low Density Mixed-Use Neighborhood (LMN) zone district. This proposal will be subject to Type I (Adminstrative) review.

Please see the following summary of comments regarding the project request referenced above. The comments offered informally by staff during the Conceptual Review will assist you in preparing the detailed components of the project application. Modifications and additions to these comments may be made at the time of formal review of this project. If you have any questions regarding these comments or the next steps in the review process, you may contact the individual commenter or direct your questions through the Project Planner, Clay Frickey, at 970-224-6045 or cfrickey@fcgov.com.

Comment Summary:

Department: Zoning
Contact: Gary Lopez, 970-416-2338, glopez@fcgov.com

1. The Low Density Mix Use Neighborhood (LMN) zoning district requires a maximum density of 9 dwelling units per acre. For a duplex or 2 family dwelling a lot would need to be at least 9,680 s.f. (or 4,840 s.f. per dwelling unit). Because the lot appears to be only 6400 s.f. per County records a modification is required to construct a duplex on this lot. (LUC 4.5[D][1][b])
2. It appears that garage storage for vehicles is accommodated to two vehicles. Please refer to LUC 3.2.2(K)(1)(a) for the minimum number of off-street parking spaces required based on the number of bedrooms in each unit. The parking lot will need to be hard surfaced. No stacked or cued parking is permitted.
3. The minimum setbacks required are 15' at the front, 5' at the sides and rear, and 8' at the rear if there is a front loaded (from alley) garage where the doors face the alley. (LUC 3.5.2[E])

Department: Water-Wastewater Engineering
Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. Existing water mains in the area include a 4" main in the alley north of the lot and an 8" main

in Stuart Street. Existing sanitary sewer mains include 8" mains in the alley and in Stuart Street.

2. It is unclear whether there are water or sewer services stubbed into the property. Any existing services will need to be located as part of this development and either used or abandoned at the main.
3. The water conservation standards for landscape and irrigation will apply. Information on these requirements can be found at: http://www.fcgov.com/standards
4. Development fees and water rights will be due at building permit.

Department: Traffic Operations

Contact: Martina Wilkinson, 970-221-6887, mwilkinson@fcgov.com

1. Please note that only one access will be allowed onto Stuart. The duplex needs to share an access.
2. Sidewalk is missing on the north side of the street, including along this frontage. Our standards would require the installatin of sidewalk.

Department: Stormwater Engineering

Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. If there is an increase in imperviousness greater than 1000 square feet a drainage report, erosion control report and construction plans are required and they must be prepared by a Professional Engineer registered in Colorado. The drainage report must address the four-step process for selecting structural BMPs. Standard operating procedures (SOPs) for all onsite drainage facilities need to be prepared by the drainage engineer. If there is less than 1,000 square feet of new impervious area on an existing development, a drainage letter along with a grading plan should be sufficient to document the existing and proposed drainage patterns. If there is less than 1,000 but more than 350 square feet of new impervious area; a site grading and erosion control plan is required instead of a complete construction plan set.
2. The outfall for this site is the Stuart Street right-of-way or the alley right-of-way. Ideally, the site should be designed so that as much of the developed runoff as possible is conveyed to Stuart Street to alleviate known drainage problems in the alley.
3. Typically, extended water quality treatment, 100-year detention, and Low Impact Development criteria would apply to a development such as this. However, due to the fact this is an infill lot, construction of a detention/water quality pond on a site like this would be unreasonable. Please have your design engineer coordinate with Water Utilities Engineering to determine an appropriate course of action to attain some water quality benefit from the site design, such as disconnected impervious areas and other appropriate water quality and LID treatments.
4. The city wide Stormwater development fee (PIF) is $7,817/acre ($0.1795 sq.-ft.) for new impervious area over 350 sq.-ft., and there is a $1,045.00/acre ($0.024/sq.-ft.) review fee. No fee is charged for existing impervious area. These fees are to be paid at the time each building permit is issued. Information on fees can be found on the City's web site at http://www.fcgov.com/utilities/business/builders-and-developers/plant-investment-development-fees or contact Jean Pakech at 221-6375 for questions on fees. There is also an erosion control escrow required before the Development Construction permit is issued. The amount of the escrow is determined by the design engineer, and is based on the site disturbance area, cost of the measures, or a minimum amount in accordance with the Fort Collins Stormwater Manual.

5. The design of this site must conform to the drainage basin design of the Spring Creek Basin Master Drainage Plan as well the Fort Collins Stormwater Manual.

Department: Fire Authority

Contact: Jim Lynxwiler, 970-416-2869, jlynxwiler@poudre-fire.org

1. FIRE ACCESS & WATER SUPPLY
   The building footprint and location on the lot appear to meet current code for fire access and water supply. No fire department comments are needed at this time.

Department: Environmental Planning

Contact: Stephanie Blochowiak, 970-416-2401, sblochowiak@fcgov.com

1. The applicant should make note of Article 3.2.1(C) that requires developments to submit plans that "...(4) protects significant trees, natural systems, and habitat". Note that a significant tree is defined as a tree having DBH (Diameter at Breast Height) of six inches or more. If any of the trees within this site have a DBH of greater than six inches, a review of the trees shall be conducted with Tim Buchanan, City Forester (221 6361) to determine the status of the existing trees and any mitigation requirements that could result from the proposed development.
2. Looking down the road, please include a note on the tree mitigation plan or landscape plan, as appropriate, that requires a tree removal to occur outside of the migratory songbird nesting season (February 1-July 31), or that a survey be conducted prior to removal to ensure no active nests in the area.
3. With respect to landscaping and design, the City of Fort Collins Land Use Code, in Article 3.2.1 (E)(2)(3), requires that you use native plants and grasses in your landscaping or re landscaping and reduce bluegrass lawns as much as possible.

Department: Engineering Development Review

Contact: Sheri Langenberger, 970-221-6573, slangenberger@fcgov.com

1. Larimer County Road Impact Fees and Street Oversizing Fees are due at the time of building permit. Please contact Matt Baker at 224-6108 if you have any questions.
2. The City's Transportation Development Review Fee (TDRF) is due at the time of submittal. For additional information on these fees, please see:
   http://www.fcgov.com/engineering/dev-review.php
3. Any damaged curb, gutter and sidewalk existing prior to construction, as well as streets, sidewalks, curbs and gutters, destroyed, damaged or removed due to construction of this project, shall be replaced or restored to City of Fort Collins standards at the Developer's expense prior to the acceptance of completed improvements and/or prior to the issuance of the first Certificate of Occupancy.
4. Per code requirements the property is responsible for improving the frontages of this property at the time of development or redevelopment. The alley is considered a street, so per the standards this would also need to be improved.
5. Detached sidewalk along the frontage of these lots will need to be installed with this development. A 4.5 foot sidewalk placed at the right-of-way line. Any driveways into the site are to be concrete to the property line and constructed per standard details.
6. Any public improvements must be designed and built in accordance with the Larimer County Urban Area Street Standards (LCUASS). They are available online at:
   http://www.larimer.org/engineering/GMARdStds/UrbanSt.htm

7. This project is responsible for dedicating any right-of-way and easements that are necessary for this project.
8. Utility plans will be required and a Development Agreement will be recorded once the project is finalized.
9. A Development Construction Permit (DCP) will need to be obtained prior to starting any work on the site.

Planning Services

Contact: Clay Frickey, 970-224-6045, cfrickey@fcgov.com

1. The density of this project exceeds the maximum allowed in the LMN zone district. The overall density of this project is 13.6 dwelling units per acre and the maximum allowed in LMN is 9 dwelling units per acre per section 4.5(D)(1)(b) of the Land Use Code. You will need to get a modification to the density standard to proceed with your proposal.
2. The parking required will be dependent on the number of bedrooms in each unit. How many bedrooms are you proposing? The standards for the amount of parking required can be found in section 3.2.2(K)(1)(a) of the Land Use Code.
3. The Stuart Street frontage will require a sidewalk and street trees. The trees currently in place may satisfy this requirement. The configuration of the sidewalk will be dependent on the trees that remain in place or are to be removed as a part of your proposal. For more information about the street tree standards, please reference section 3.2.1(D)(2) of the Land Use Code.
4. According to section 3.2.1(C) of the Land Use Code, trees that have a diameter at breast height of six inches or more should be protected. Please contact the City Forester, Tim Buchanan, for a review of on-site trees. Tim can be reached at 970.221.6361 or tbuchanan@fcgov.com.
5. The proposed development project is subject to a Type 1 review and public hearing, the decision maker for Type 1 hearings is an Administrative Hearing Officer. The applicant for this development request is not required to hold a neighborhood meeting for a Type 1 hearing, but if you would like to have one to notify your neighbors of the proposal, please let me know and I can help you in setting a date, time and location for a meeting. Neighborhood Meetings are a great way to get public feedback and avoid potential hiccups that may occur later in the review process.
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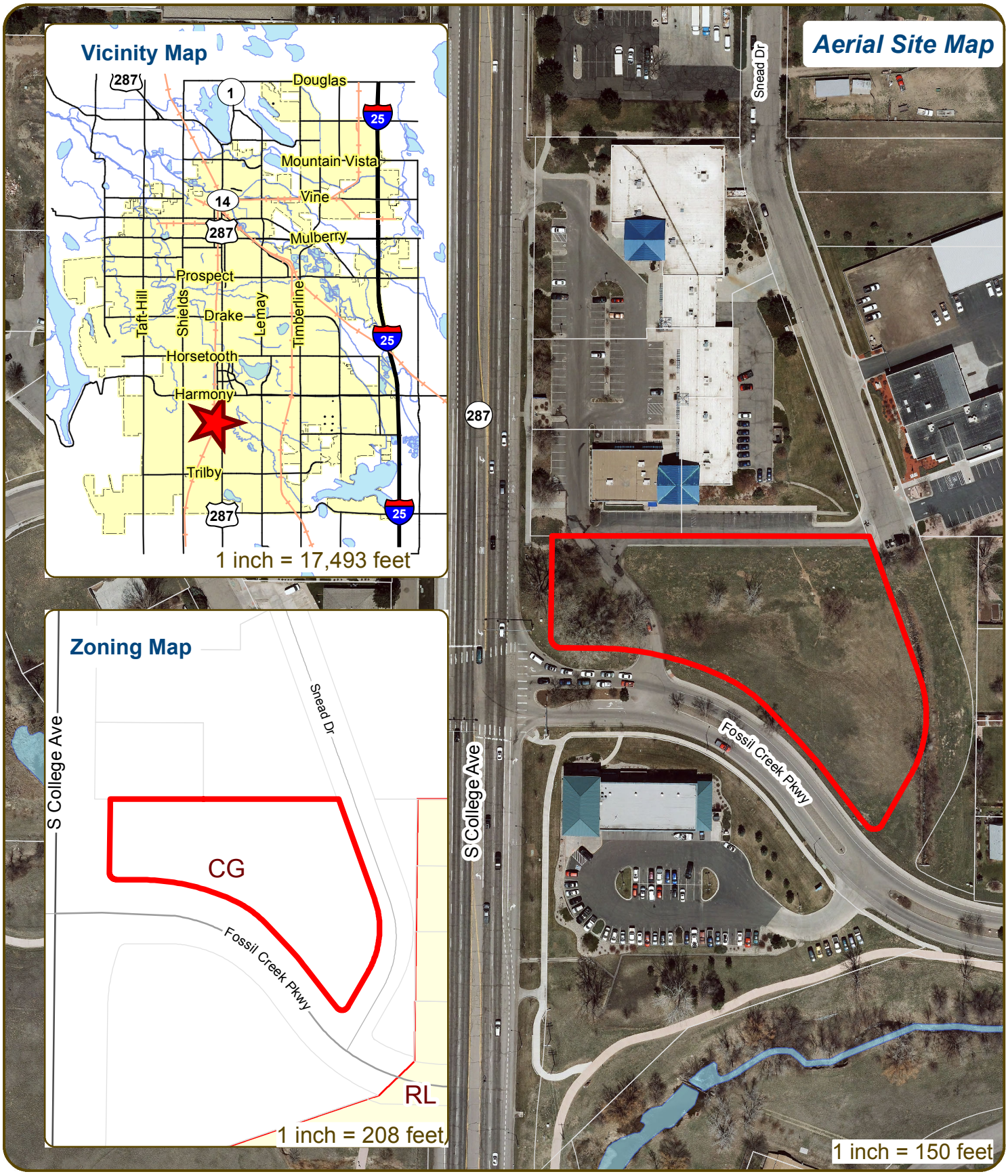
10. The request will be subject to the Development Review Fee Schedule that is available in the Community Development and Neighborhood Services office. The fees are due at the time of submittal of the required documents for the appropriate development review process by City staff and affected outside reviewing agencies. Also, the required Transportation Development Review Fee must be paid at time of submittal.

11. When you are ready to submit your formal plans, please make an appointment with Community Development and Neighborhood Services at (970)221-6750.

102 Fossil Creek
Auto Body Shop



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City of Fort Collins GIS

Development Review Guide – STEP 2 of 8

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APPLICATION

General Information
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BOLDED ITEMS ARE REQUIRED *The more info provided, the more detailed your comments from staff will be.*

Contact Name(s) and Role(s) (Please identify whether Consultant or Owner, etc) Mike Stults - Developer

Business Name (if applicable) Cross Development, LLC

Your Mailing Address 5317 Inverrary Drive

Phone Number 214-614-8252 Email Address mike@crossdevelopment.net

Site Address or Description (parcel # if no address) 9601335001

Description of Proposal (attach additional sheets if necessary) 11,500 SF auto body shop, along with associated parking, drive aisles, utilities, etc.

Proposed Use business/commercial **Existing Use** vacant/undeveloped

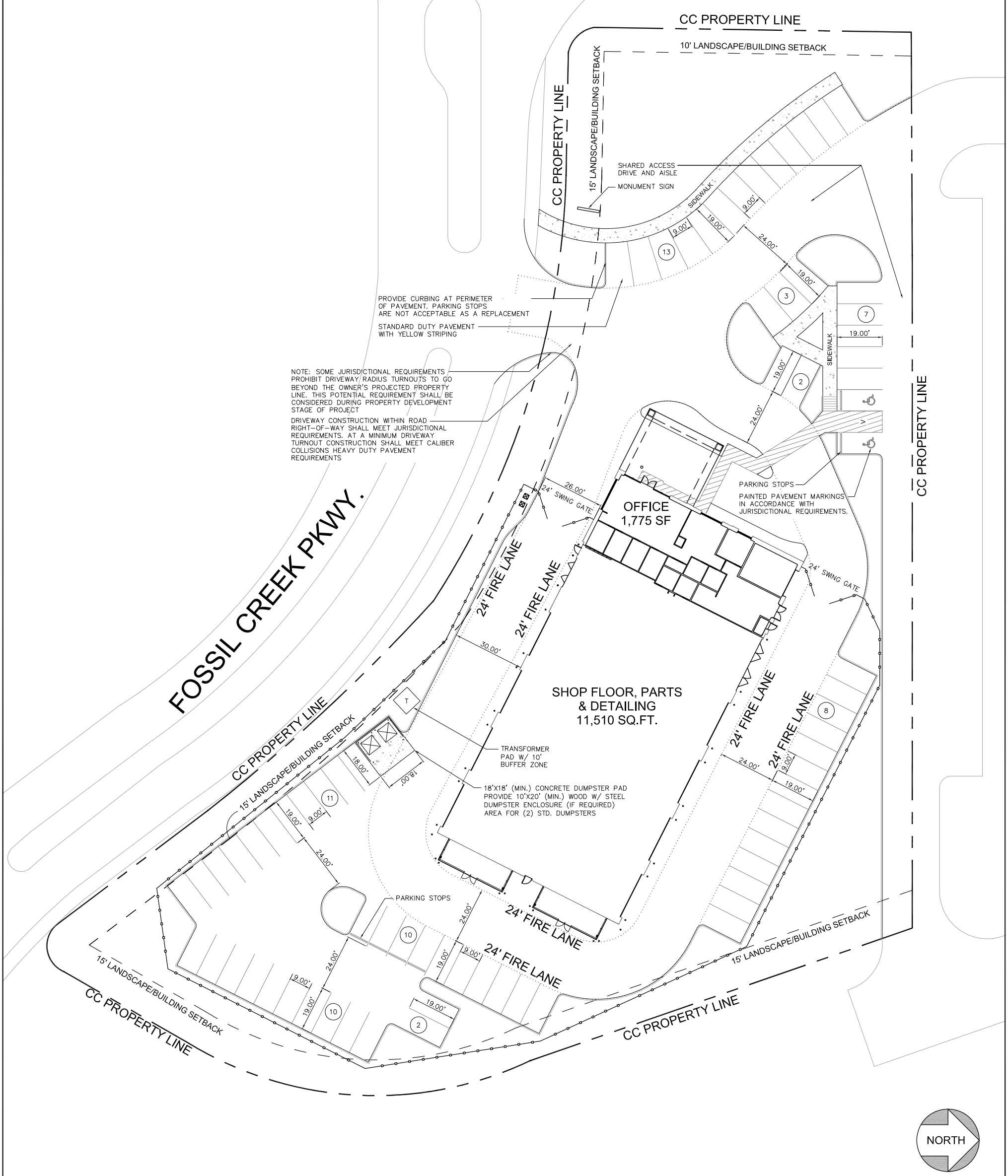
Total Building Square Footage 11,510 S.F. Number of Stories 1 Lot Dimensions 1.85 acres

Age of any Existing Structures n/a
Info available on Larimer County's Website: http://www.co.larimer.co.us/assessor/query/search.cfm
If any structures are 50+ years old, good quality, color photos of all sides of the structure are required for conceptual.

Is your property in a Flood Plain? ☒ Yes ☐ No If yes, then at what risk is it? portion in 100YR FP
Info available on FC Maps: http://gisweb.fcgov.com/redirect/default.aspx?layerTheme=Floodplains.

Increase in Impervious Area approx 65,000 SF S.F.
(Approximate amount of additional building, pavement, or etc. that will cover existing bare ground to be added to the site)

Suggested items for the Sketch Plan:
Property location and boundaries, surrounding land uses, proposed use(s), existing and proposed improvements (buildings, landscaping, parking/drive areas, water treatment/detention, drainage), existing natural features (water bodies, wetlands, large trees, wildlife, canals, irrigation ditches), utility line locations (if known), photographs (helpful but not required). Things to consider when making a proposal: How does the site drain now? Will it change? If so, what will change?



CALIBER COLLISION

PRELIMINARY SITE PLAN

CITY,STATE - STREET:

FT. COLLINS, CO - HWY 287 & FOSSIL CREEK PKWY.

0' 20' 40' 80'

SCALE = 1": 40'

DEVELOPER		DESIGNER				DATE:
CROSS DEVELOPMENT		*CROSS ARCHITECTS*		PROTOTYPE:	*GF*	
CONTACT:	*ROBERT VANN*	CONTACT:	*SHAWN OFFUTT*	BLDG SF:	*13,285*	*11/10/14*
PHONE #:	*214.893.4208*	PHONE #:	*972.398.6644*	ACREAGE:	*2.09*	
				PARKING #:	*72*	

NOTES:

1. SITE PLAN PREPARED WITHOUT BENEFIT OF TITLE OPINION, DEED RESTRICTION, OR SURVEY.
2. SITE SUBJECT TO CHANGE PENDING ALL STATE AND CITY ORDINANCES OR DEED RESTRICTIONS.
3. BUILDING AND SITE SIGN LOCATION, SQUARE FOOTAGE, AND TYPE SUBJECT TO CHANGE PENDING ALL STATE AND CITY ORDINANCES OR DEED RESTRICTIONS.

CALIBER COLLISION

PRELIMINARY SITE PLAN

CITY,STATE - STREET:

FT. COLLINS, CO - HWY 287 & FOSSIL CREEK PKWY.

0′ 100′ 200′ 400′

SCALE = 1": 200′

DEVELOPER		DESIGNER				DATE:
CROSS DEVELOPMENT		*CROSS ARCHITECTS*		PROTOTYPE:	*GF*	
				BLDG SF:	*13,285*	*11/10/14*
CONTACT:	*ROBERT VANN*	CONTACT:	*SHAWN OFFUTT*	ACREAGE:	*2.09*	
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Community Development and Neighborhood Services
281 North College Avenue
PO Box 580
Fort Collins, CO 80522

970.221.6750
970.224.6134 - fax
fcgov.com

March 02, 2015

Mike Stults
Cross Development
4328 Marsh Ridge Rd
Carrollton, Texas 75010

Re: 102 Fossil Creek - Auto Body Shop
Description of project: This is a request to build an auto body shop at 102 Fossil Creek (parcel #9601335001). The shop and office space will be housed in an 11,500 sq. ft. building. The shop will provide 70 parking spaces on-site. The parcel is located in the General Commercial (CG) zone district. This proposal will be subject to Administrative (Type I) review.

Please see the following summary of comments regarding the project request referenced above. The comments offered informally by staff during the Conceptual Review will assist you in preparing the detailed components of the project application. Modifications and additions to these comments may be made at the time of formal review of this project. If you have any questions regarding these comments or the next steps in the review process, you may contact the individual commenter or direct your questions through the Project Planner, Clay Frickey, at 970-224-6045 or cfrickey@fcgov.com.

Comment Summary:

Department: Zoning

Contact: Gary Lopez, 970-416-2338, glopez@fcgov.com

1. The Land Use Code (LUC) requires a build to line of no more than 15' from the College ROW line and no more than10' from Fossel Creek Pkwy. Modifications would be required if these cannot be met. No driveways or parking lot should be between the the public streets and the building. (LUC 3.5.3(C)(2).
2. There should be an access point from parking lot to the future Snead Dr.
3. We'd like to have a breakdown of vehicles awaiting repair or stored. Such vehicle rendered inoperable as well as any tow trucks or other specialized vehicles of the business will need to be stored within a screened walled area if they're not stored with the garage bays. By screened walls the code references a solid wall or fence made up of materials and color of the building. Gates should also be solid and painted to match the building. (LUC 3.5.1[I]). Long wall lengths need to be articularlated or similar treatment to break up the length.
4. All rooftop and ground mechanical units such as HVAC and special venting equipment shall be screened with a solid material. All roof and wall mounted vents, utility and other panel boxes, conduit, etc. will be painted to match the color of the wall or roof penetrated or attached to.
5. A minimum of 15' of landscaping is along S College between the front property line and the parking lot/driveways. Similarly, a minimum 10' landscaping strip is required between Fossil

Creek Dr. & the parking lot & driveways. A minimum 5' landscaping strip is required between all other property lines and the parking lot & driveways. (LUC 3.2.2[J]).

6. Trash/recycling enclosures should be no closer than 20' from any public sidewalk, street or internal pedestrian way. (LUC 3.5.1[I][1]) In addition trash/recycling enclosures must also be solidly screened and durably constructed of materials such as masonry & compatible with the building's material/color. Doors should be metal and compatibly painted with the building's color. These should also be designed & constructed to provide walk in access without the need for the main doors to be opened. In addition the enclosure should accommodate all refuse and recyclables. (LUC 3.2.5[C])
7. The property is located in the Transportation Overlay District. This district requires both minimum an maximum parking requirements. A minimum of 2.5 vehicles spaces is required for every 1000 s.f. of building area. A maximum of 5 vehicle spaces is required for every 1000 s.f. of building area. Those vehicle spaces within the outdoor containment of inoperable vehicles and specialized business vehicles will not be counted in this number. (LUC 3.2.2[K])
8. In addition an exterior/secured bicycle rack for a min. of 4 bicycles is required. (LUC 3.2.2[C][4])

Department: Water-Wastewater Engineering

Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. This site is not served by City of Fort Collins water or sewer. Please coordinate with the Fort Collins-Loveland Water District and South Fort Collins Sanitation District for service information.

Department: Traffic Operations

Contact: Martina Wilkinson, 970-221-6887, mwilkinson@fcgov.com

1. The anticipated trip generation from this use will require some sort of traffic review - likely just a traffic memorandum. Have your traffic engineer contact me to scope the study.
2. The connection of Snead Drive is anticipated to ultimately provide access to the north, instead of the current connection closer to College. It would be our interest to ultimately be able to close that existing access to left turning traffic (its too close to College). How the Snead connection is expected to be implemented should be discussed as a part of this project.
3. Transportation Planning notes that the project needs to plan on adjacent street sidewalks connections, including a sidewalk along College Avenue.

Department: Stormwater Engineering

Contact: Shane Boyle, 970-221-6339, sboyle@fcgov.com

1. A drainage report, erosion control report, and construction plans are required and they must be prepared by a Professional Engineer registered in Colorado. The drainage report must address the four-step process for selecting structural BMPs. Standard operating procedures (SOPs) for all onsite drainage facilities need to be prepared by the drainage engineer and there is a final site inspection required when the project is complete and the maintenance is handed over to an HOA or another maintenance organization. The erosion control report requirements are in the Fort Collins Stormwater Manual, Section 1.3.3, Volume 3, Chapter 7 of the Fort Collins Amendments. If you need clarification concerning this section, please contact the Erosion Control Inspector, Jesse Schlam at 224-6015 or jschlam@fcgov.com.

2. Onsite detention is required for the runoff volume difference between the 100 year developed inflow rate and the 2 year historic release rate. The outfall for this site is Fossil Creek. It is the responsibility of the developer to show adequate conveyance to Fossil Creek for the detained flow, most likely in the existing Snead Drive culvert.
3. There is a significant amount of offsite drainage that must be accommodated by this development. Runoff from Collage Avenue enters this site and is conveyed through the site to the Snead Drive culvert into Fossil Creek. In addition, runoff from the development to the north enters the site at the northeast corner and is conveyed in an open channel to the Snead Drive culvert into Fossil Creek. Both runoff sources will need to be accommodated and safely passed through the site.
4. The open channel in the Snead Drive right-of-way was installed as a temporary measure when this property originally developed. It is the responsibility of the developer to extend the culvert under Snead Drive or provide other adequate means of conveyance for the drainage in this channel.
5. Fifty percent of the site runoff is required to be treated using the standard water quality treatment as described in the Fort Collins Stormwater Manual, Volume 3-Best Management Practices (BMPs). (http://www.fcgov.com/utilities/business/builders-and-developers/development-forms-guidelines-regulations/stormwater-criteria) Extended detention is the usual method selected for water quality treatment; however the use of any of the BMPs is encouraged.
6. Low Impact Development (LID) requirements are required on all new or redeveloping property which includes sites required to be brought into compliance with the Land Use Code. These require a higher degree of water quality treatment for 50% of the new impervious area and 25% of new paved areas must be pervious. For more information please refer to the City's website where additional information and links can be found at:

   http://www.fcgov.com/utilities/what-we-do/stormwater/stormwater-quality/low-impact-development
7. The city wide Stormwater development fee (PIF) is $7,817/acre ($0.1795 sq.-ft.) for new impervious area over 350 sq.-ft., and there is a $1,045.00/acre ($0.024/sq.-ft.) review fee. No fee is charged for existing impervious area. These fees are to be paid at the time each building permit is issued. Information on fees can be found on the City's web site at http://www.fcgov.com/utilities/business/builders-and-developers/plant-investment-development-fees or contact Jean Pakech at 221-6375 for questions on fees. There is also an erosion control escrow required before the Development Construction permit is issued. The amount of the escrow is determined by the design engineer, and is based on the site disturbance area, cost of the measures, or a minimum amount in accordance with the Fort Collins Stormwater Manual.
8. The design of this site must conform to the drainage basin design of the Fossil Creek Basin Master Drainage Plan as well the Fort Collins Stormwater Manual.

Department: Fire Authority

Contact: Jim Lynxwiler, 970-416-2869, jlynxwiler@poudre-fire.org

1. PUBLIC-SAFETY RADIO AMPLIFICATION SYSTEM
   New buildings require a fire department, emergency communication system evaluation after the core/shell but prior to final build out. For the purposes of this section, fire walls shall not be used to define separate buildings. Where adequate radio coverage cannot be established within a building, public-safety radio amplification systems shall be designed and installed in accordance with criteria established by the Poudre Fire Authority. Poudre Fire Authority Bureau Admin Policy #07-01
2. FIRE LANE SPECIFICATIONS
   An Emergency Access Easement is required. In addition to the design criteria already

contained in relevant standards and policies, any new fire lane must meet the following general requirements:
> Shall be designated on the plat as an Emergency Access Easement.
> Maintain the required 20 foot minimum unobstructed width & 14 foot minimum overhead clearance.
> Be designed as a flat, hard, all-weather driving surface capable of supporting 40 tons.
> The required turning radii of a fire apparatus access road shall be a minimum of 25 feet inside and 50 feet outside. Turning radii shall be detailed on submitted plans.
> Be visible by painting and/or signage, and maintained unobstructed at all times.
> Additional access requirements exist for buildings greater than 30' in height. Refer to Appendix D of the 2012 IFC or contact PFA for details.
International Fire Code 503.2.3, 503.2.4, 503.2.5, 503.3, 503.4 and Appendix D; FCLUC 3.6.2(B)2006 and Local Amendments.

3. WATER SUPPLY
Hydrant spacing and flow must meet minimum requirements based on type of occupancy. A hydrant shall be within 300' of the building as measured along the route a fire engine would travel. The applicant shall verify that the existing utility infrastructure supports the code requirement. Code language provided below.

> IFC 508.1 and Appendix B: COMMERCIAL REQUIREMENTS: Hydrants to provide 1,500 gpm at 20 psi residual pressure, spaced not further than 300 feet to the building.

4. FIRE CONTAINMENT
The building exceeds 5000 square feet and shall be sprinklered or fire contained. If containment is used, the containment construction shall be reviewed and approved by the Poudre Fire Authority prior to installation. Be advised, the storage of tires or other high piled storage in conjunction with an auto repair facility may prompt a fire sprinkler requirement at time of building permit.

5. STORAGE TANKS
The installation of above ground or under ground storage tanks are approved under a separate permit.

6. HAZARDOUS MATERIALS - GENERAL STANDARD
FCLU 3.4.5(B): If any use on the development site may entail the use or storage of hazardous materials (including hazardous wastes) on-site, the project shall be designed to comply with all safety, fire and building codes for the use and storage of the hazardous materials involved. Adequate precautions shall be taken to protect against negative off-site impacts of a hazardous materials release, using the best available technology. A Hazardous Materials Impact Analysis may be required at time of building permit.

Department: Environmental Planning

Contact: Stephanie Blochowiak, 970-416-2401, sblochowiak@fcgov.com

1. The applicant should make note of Article 3.2.1(C) that requires developments to submit plans that "...(4) protects significant trees, natural systems, and habitat". Note that a significant tree is defined as a tree having DBH (Diameter at Breast Height) of six inches or more. If any of the trees within this site have a DBH of greater than six inches, a review of the trees shall be conducted with Tim Buchanan, City Forester (221 6361) to determine the status of the existing trees and any mitigation requirements that could result from the proposed development.
2. Looking down the road, please include a note on the tree mitigation plan or landscape plan, as appropriate, that requires a tree removal to occur outside of the migratory songbird nesting season (February 1-July 31), or that a survey be conducted prior to removal to ensure no active nests in the area.

3. With respect to landscaping and design, the City of Fort Collins Land Use Code, in Article 3.2.1 (E)(2)(3), requires that you use native plants and grasses in your landscaping or re landscaping and reduce bluegrass lawns as much as possible.

Department: Engineering Development Review

Contact: Sheri Langenberger, 970-221-6573, slangenberger@fcgov.com

1. Larimer County Road Impact Fees and Street Oversizing Fees are due at the time of building permit. Please contact Matt Baker at 224-6108 if you have any questions.
2. The City's Transportation Development Review Fee (TDRF) is due at the time of submittal. For additional information on these fees, please see: http://www.fcgov.com/engineering/dev-review.php
3. Any damaged curb, gutter and sidewalk existing prior to construction, as well as streets, sidewalks, curbs and gutters, destroyed, damaged or removed due to construction of this project, shall be replaced or restored to City of Fort Collins standards at the Developer's expense prior to the acceptance of completed improvements and/or prior to the issuance of the first Certificate of Occupancy.
4. All public sidewalk, driveways and ramps existing or proposed adjacent or within the site need to meet ADA standards, if they currently do not, they will need to be reconstructed so that they do meet current ADA standards as a part of this project.
5. The temporary driveway connection to Fossil Creek Parkway has always been considered a temporary connection that will go away at such time as Snead Drive is constructed. It will need to be removed with this project.
6. The extension of and completion of Snead Drive will need to be designed and constructed with this project. This includes the installation of sidewalk along both sides of the roadway.
7. The project will need to install sidewalk along the College Avenue frontage, Fossil Creek Parkway frontage, and the extension of Snead Drive. The sidewalk along Snead shall be a 4.5 foot detached sidewalk.
8. We will need to look at the location of any new proposed assess points out to Snead Drive to make sure that they meet separation requirements and that adequate sight distance easements are provided.
9. Additional improvements may be required in order to mitigate the traffic impacts of the development.
10. Any public improvements must be designed and built in accordance with the Larimer County Urban Area Street Standards (LCUASS). They are available online at: http://www.larimer.org/engineering/GMARdStds/UrbanSt.htm
11. This project is responsible for dedicating any right-of-way and easements that are necessary for this project. Additional right-of-way will be needed at the corner of College and Fossil Creek Parkway in order to accommodate the sidewalk system and ramps. Additional right-of-way along Snead Street will likely be needed in order to accommodate the standard detached sidewalk and parkway.
12. Utility plans will be required and a Development Agreement will be recorded once the project is finalized.
13. This site is adjacent to CDOT roadway and all access to the site is governed by an access control plan. The access control plan will need to be followed and implemented with any project. Plans will be routed to CDOT for review and approval and the applicant may need to obtain access permits from CDOT.
14. A Development Construction Permit (DCP) will need to be obtained prior to starting any work on the site.

15. LCUASS parking setbacks (Figure 19-6) apply and will need to be followed depending on parking design.

Department: Electric Engineering

Contact: Luke Unruh, 9704162724, lunruh@fcgov.com

1. Light & Power has three phase and single phase electric facilities on the south side of the property that could be utilized to provide power.
2. System modification, development and capacity charges will apply at owner's expense.
3. Contact Light and Power Engineering to coordinate the transformer and electric meter locations, please show the locations on the utility plans.
4. Please contact Light & Power Engineering if you have any questions at 221-6700. Please reference our policies, development charge processes, and use our fee estimator at http://www.fcgov.com/utilities/business/builders-and-developers

Planning Services

Contact: Clay Frickey, 970-224-6045, cfrickey@fcgov.com

1. According to section 3.2.1(C) of the Land Use Code, trees that have a diameter at breast height of six inches or more should be protected. Please contact the City Forester, Tim Buchanan, for a review of on-site trees. Tim can be reached at 970.221.6361 or tbuchanan@fcgov.com.
2. You will also need to provide street trees in accordance to section 3.2.1(D)(2) of the Land Use Code.
3. All landscape areas shall comply with section 3.2.1(E)(1) of the Land Use Code.
4. The parking lot shall have perimeter and interior landscaping that meet the standards set forth in sections 3.2.1(E)(4)-(5) of the Land Use Code. 6% of the interior area of the parking lot shall be landscaped. The perimeter of the parking lot shall have one tree per 25 feet on lot lines and one tree per 40 feet along public streets.
5. You will need to provide a four space bike rack per section 3.2.2(C)(4) of the Land Use Code.
6. The site must provide connecting walkways throughout the parking area per section 3.2.2(C)(5) of the Land Use Code. These walkways must be raised and enhanced to clearly delineate the walkways from the drive aisle. These walkways also must connect to the off-site sidewalk network.
7. Furthermore, the on-site pedestrian network must tie into the off-site pedestrian and bike network per section 3.2.2(C)(6). This will ensure the site contributes to the bike and pedestrian network throughout the City.
8. The current site plan shows 72 parking spaces. The maximum amount of parking allowed per section 3.2.2(K)(2) is 63 (5 spaces per 1,000 sq. feet of vehicle repair space and 3 spaces per 1,000 sq. ft. of office space). You will need to seek a modification to the parking standards to achieve the 72 parking spaces shown.
9. You will need to provide an additional handicapped parking space in accordance with section 3.2.2(K)(5) of the Land Use Code. The current site plan only shows 2 handicapped parking spaces but 3 are required if the parking lot contains 51-75 parking spots.
10. As noted on the site plan, a trash and recycling enclosure will be required per section 3.2.5 of the Land Use Code. The enclosure must be designed to allow walk-in access without

opening the main service gates. The enclosure must also be designed to match the materials used for the main building.

11. At least one main entrance must open directly onto a connecting walkway with pedestrian frontage per section 3.5.3(C)(1).

12. This project must meet all of the other standards contained in section 3.5.3 of the Land Use Code including building massing, orientation to build-to lines, and the standards outling the character and image of the development.

13. This project must also meet all relevant standards contained in section 4.21 of the Land Use Code.

14. The proposed development project is subject to a Type 1 review and public hearing, the decision maker for Type 1 hearings is an Administrative Hearing Officer. The applicant for this development request is not required to hold a neighborhood meeting for a Type 1 hearing, but if you would like to have one to notify your neighbors of the proposal, please let me know and I can help you in setting a date, time and location for a meeting. Neighborhood Meetings are a great way to get public feedback and avoid potential hiccups that may occur later in the review process.

15. Please see the Development Review Guide at www.fcgov.com/drg. This online guide features a color coded flowchart with comprehensive, easy to read information on each step in the process. This guide includes links to just about every resource you need during development review.

16. This development proposal will be subject to all applicable standards of the Fort Collins Land Use Code (LUC), including Article 3 General Development Standards. The entire LUC is available for your review on the web at http://www.colocode.com/ftcollins/landuse/begin.htm.

17. If this proposal is unable to satisfy any of the requirements set forth in the LUC, a Modification of Standard Request will need to be submitted with your formal development proposal. Please see Section 2.8.2 of the LUC for more information on criteria to apply for a Modification of Standard.

18. Please see the Submittal Requirements and Checklist at: http://www.fcgov.com/developmentreview/applications.php.

19. The request will be subject to the Development Review Fee Schedule that is available in the Community Development and Neighborhood Services office. The fees are due at the time of submittal of the required documents for the appropriate development review process by City staff and affected outside reviewing agencies. Also, the required Transportation Development Review Fee must be paid at time of submittal.

20. When you are ready to submit your formal plans, please make an appointment with Community Development and Neighborhood Services at (970)221-6750.

Pre-Submittal Meetings for Building Permits

Pre-Submittal meetings are offered to assist the designer/builder by assuring, early on in the design, that the new commercial or multi-family projects are on track to complying with all of the adopted City codes and Standards listed below. The proposed project should be in the early to mid-design stage for this meeting to be effective and is typically scheduled after the Current Planning conceptual review meeting.

Applicants of new commercial or multi-family projects are advised to call 970-416-2341 to schedule a pre-submittal meeting. Applicants should be prepared to present site plans, floor plans, and elevations and be able to discuss code issues of occupancy, square footage and type of construction being proposed.

Construction shall comply with the following adopted codes as amended:

20012 International Building Code (IBC)
2012 International Residential Code (IRC)
20012 International Energy Conservation Code (IECC)
2012 International Mechanical Code (IMC)
2012 International Fuel Gas Code (IFGC)
2012 International Plumbing Code (IPC) as amended by the State of Colorado
2014 National Electrical Code (NEC) as amended by the State of Colorado

Accessibility: State Law CRS 9-5 & ICC/ANSI A117.1-2009.
Snow Load Live Load: 30 PSF / Ground Snow Load 30 PSF.
Frost Depth: 30 inches.
Wind Load: 100- MPH 3 Second Gust Exposure B.
Seismic Design: Category B.
Climate Zone: Zone 5.
Energy Code Use

1. Single Family; Duplex; Townhomes*: 2012 IRC* Chapter 11 or *2012 IECC* Chapter 4.
2. Multi-family and Condominiums 3 stories max: *2012 IECC* Chapter 4 Residential Provisions.
3. Commercial and Multi-family 4 stories and taller: *2012 IECC* Chapter 4 Commercial Provisions.

Fort Collins Green Code Amendments effective starting 2/17/2014. A copy of these requirements can be obtained at the Building Office or contact the above phone number.

City of Fort Collins
Building Services
Plan Review
970-416-2341