MOUNTAIN BROOK CITY COUNCIL
MEETING AGENDA

CITY HALL COUNCIL CHAMBER
56 CHURCH STREET
MOUNTAIN BROOK, AL 35213

MONDAY, NOVEMBER 24, 2014, 7:00 P.M.

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1. Katherine Pittman Smith to present her book, Memories of Mountain Brook, to the City.

2. Consideration: Resolution expressing gratitude to Jesse S. Vogtle, Jr. for his service on the Mountain Brook City Council.

3. Approval of the minutes of the November 10, 2014 regular meeting of the City Council.

4. Consideration: Resolution authorizing the execution of a subscription agreement between the City and ESO Solutions, Inc., with respect to their provision of software and electronic patient care reporting services to the City's Fire Department.

5. Consideration: Resolution approving a lunch operation conditional use application in a Local Business District (2724 Cahaba Road in Mountain Brook Village) with respect to a smoothie/sandwich shop.

6. Public hearing: Consideration of an ordinance rezoning certain parcels on Vine Street from Professional and Residence D Districts to Local Business District with respect to the proposed Piggly Wiggly development.

7. Announcement: The next meeting of the City Council is December 8, 2014, at 7:00 p.m. in the Council Chamber of City Hall located at 56 Church Street, Mountain Brook, AL 35213.

8. Comments from residents.

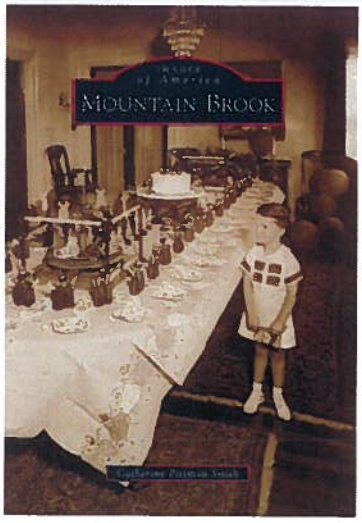
9. Adjourn.

For Immediate Release
Lydia Rollins
843.853.2070 x191
lrollins@arcadiapublishing.com

ARCADIA PUBLISHING

Local author and photographer presents new pictorial history to city

On Monday, November 24th, author and photographer Catherine Pittman Smith will present ***Mountain Brook*** to the City of Mountain Brook, Mountain Chamber of Commerce, and Emmett O'Neal Library. The newest addition to Arcadia Publishing's Images of America series, *Mountain Brook* contains more than 200 vintage images, many of which come from local families, capturing historical facts and stories spanning over 100 years. This photographic history has heart, soul, and lots of personality, and Smith looks forward to officially presenting her new book.



"Having grown up here, I have been a part of this community for almost 50 years and have loved the intimacy, the loyalty, the natural beauty, a strong sense of history, and the traditions," Smith said.

Praise for *Mountain Brook*

"If I thought I loved Mountain Brook before, that feeling doesn't compare to the deep admiration and respect I have for our city after reading The Mountain Brook Book by Catherine Pittman Smith."
– *New York Times* Bestselling author, Patti Callahan Henry

Join the author for a book signing!

Please check out
www.catherinepittmansmith.com
for a complete, updated list of events!

Available at area bookstores, independent retailers, and online retailers, or through Arcadia Publishing at (888)-313-2665 or online.

Arcadia Publishing is the leading publisher of local and regional history in the United States. Our mission is to make history accessible and meaningful through the publication of books on the heritage of America's people and places. Discover more than 9,000 small towns and downtowns at http://www.arcadiapublishing.com.

Catherine Pittman Smith has been telling stories through photography for over 20 years. A native of Birmingham, she holds a Bachelor of Arts in History and English from Converse College. Her work has been published in *Village Living, Birmingham Home & Garden, Style Blueprint,* and more. She is currently working on a coffee table book on Beaufort, SC. Her photography career has taken her all over the world, but she lives in Birmingham with her daughter and their cat.

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Mountain Brook
by Catherine Pittman Smith
Images of America Series
Price: $21.99
128 pages/ softcover
Available: **November 3, 2014**

Author inquires contact:
Lydia Rollins
843.853.2070 x191
lrollins@arcadiapublishing.com

ARCADIA PUBLISHING

Meet **Catherine Pittman Smith**
Author of ***Mountain Brook***

For over 20 years Catherine Pittman Smith has been capturing compelling images and telling stories through her photography. She now adds author to her portfolio as her first book, *Images of America: Mountain Brook*, a series published by Arcadia Publishing, is due out November 3, 2014.

What appears ordinary to the naked eye, Catherine captures on film revealing a more personal and far deeper meaning – without distraction. She is inspired by God and influenced by her southern roots. Consequently, she loves telling a story – art-focused storytelling – that is imprinted with texture, substance and a simplicity compelling you to look twice and think again.

A native of Birmingham, Catherine received her BA Degree from Converse College in History and English. She has photographed throughout Alabama, the Southeast, Midwest, New England, Europe, Bolivia and more recently Beaufort, SC where she is presently working on a coffee table book. Some of her work has been published and featured in *Precious Cargo*, *Flower Magazine*, *Birmingham Home & Garden*, *Style Blueprint*, *Go Haute*, and *Village Living*.

Her interest in photography began on a family trip to Charleston, SC in 1979 when she "borrowed" her father's Nikon camera and never gave it back. She gives credit to God for her gift and thanks Him for opening doors and shutting a few. She resides in Birmingham with her daughter, who is a miracle and a joy, along with their cat, John D.

What lasting impact do you hope your book will leave?
I am so excited to share my love, enthusiasm, and appreciation for Mountain Brook with the old and young alike. It is my prayer that the future generations of Mountain Brook will grow to appreciate the rich history steeped in honor, servant leadership, faith and tradition.

RESOLUTION

WHEREAS, Jesse S. Vogtle, Jr., served with distinction on the City Council of the City of Mountain Brook, Alabama from October 2, 2006 to November 3, 2014; and

WHEREAS, Jesse S. Vogtle, Jr., served as Council President Pro-Tempore from November 1, 2010 until November 5, 2012; and

WHEREAS, Jesse S. Vogtle, Jr., devoted considerable time and effort during his term on the City Council for the betterment of the community which resulted in many successful initiatives including, but not limited to: the adoption of a new Master Land Use Plan for the City's four villages in 2007; successfully defended the City's "Aa1" rating against Moody's contemplated downgrade in 2008; the elimination of the residential garbage fee in 2008; expansion of the City's walkway system to further promote health and safety and enhance connectivity; construction of the new municipal complex (2010-2012); the reconstruction of the Public Works facilities in 2010 and construction and relocation of the Park and Recreation facilities in 2011; approval of the Lane Parke Planned Unit Development in 2010; negotiating the purchase of 4.7 acres for the development of Cahaba River Park in 2011; and implementing the City's free, public WiFi network at public schoolyards, parks and commercial villages; and

WHEREAS, Jesse S. Vogtle, Jr., served as Council Liaison to the Finance Committee, the Mountain Brook Chamber of Commerce and the Emmet O'Neal Library Board; and

WHEREAS, Jesse S. Vogtle, Jr., worked tirelessly to faithfully execute the responsibilities of his office and has exercised caring leadership;

NOW, THEREFORE, BE IT RESOLVED that the Mayor and members of the City Council, on behalf of the residents of Mountain Brook, do publicly thank Jesse S. Vogtle, Jr., for his exemplary service and wish his well in future endeavors.

ADOPTED: The 24th day of November, 2014.

Virginia C. Smith, Council President

APPROVED: The 24th day of November, 2014.

Lawrence T. Oden, Mayor

2014-156

MOUNTAIN BROOK CITY COUNCIL
PRE-MEETING DISCUSSION
NOVEMBER 10, 2014

The City Council of the City of Mountain Brook, Alabama met in public session in the Pre-council Room (A106) of City Hall at 6:15 p.m. on Monday, the 10th day of November. The Council President called the meeting to order and the roll was called with the following results:

Present: Virginia C. Smith, Council President
William S. Pritchard, III, Council President Pro Tempore
Jack D. Carl
Lloyd C. Shelton
Alice B. Womack
Lawrence T. Oden, Mayor

Absent: None

Also present were City Attorney Whit Colvin, City Manager Sam Gaston, and City Clerk Steven Boone.

1. AGENDA

1. Allison Ingram (and Blair Lanier) to request a stop sign on Hastings Road at Laurel Lane (Appendix 1).

   Richard Caudle of Skipper Consulting, Inc. was asked to meet with Police officials and the Public Works Superintendent to obtain information about their observations and submit a proposal for a traffic study to the City Council for its consideration on November 24, 2014.

2. Mayor Oden to discuss a possible Barber Motor Sports event in Mountain Brook Village in May 2015.

   The event, if approved, will showcase antique racing cars and local car clubs on May 15, 2015. The members of the City Council expressed their consent to the event as described under the direction of the Chamber of Commerce and City public safety officials.

3. Cahaba River Park pedestrian crossing signals plans – Richard Caudle of Skipper Consultants (Appendix 2).

   The members of the City Council expressed that they preferred not to make any pedestrian crossing improvements to the intersection as they viewed the requirements being imposed by Jefferson County undesirable and too costly.

4. Requested research and possible amendment to the City's retiree medical trust to be performed by Maynard, Cooper & Gale.

   The members of the City Council agreed that Mr. Boone should pursue an amendment to the trust documents and opening another [custodial] investment account. The legal services engagement letter and new account application shall be presented to the City Council for consideration at a later date.

5. Review and discussion of the 7 p.m. City Council formal meeting agenda topics.

Upon conclusion of the City Council's review of the other formal [7 p.m.] agenda issues, Council President Smith adjourned the meeting.

_____
Steven Boone, City Clerk

MINUTES OF THE REGULAR MEETING OF THE CITY COUNCIL OF THE CITY OF MOUNTAIN BROOK, ALABAMA NOVEMBER 10, 2014

The City Council of the City of Mountain Brook, Alabama met in public session in the City Hall Council Chamber at 7:00 p.m. on Monday, the 10th day of November, 2014. The Council President called the meeting to order and the roll was called with the following results:

Present: Virginia C. Smith, Council President
William S. Pritchard, III, Council President Pro Tempore
Jack D. Carl
Lloyd C. Shelton
Alice B. Womack
Lawrence T. Oden, Mayor

Absent: None

Also present were City Attorney Whit Colvin, City Manager Sam Gaston, and City Clerk Steven Boone.

The City Council President stated that a quorum was present and that the meeting was open for the transaction of business.

1. RECOGNITION OF GUESTS

Council President Smith recognized several Boy Scouts from Troop 63 in attendance for their Citizenship in the Community merit badge.

2. PRESENTATION OF A RESOLUTION (NO. 2014-151) EXPRESSING GRATITUDE TO AMY G. CARTER FOR HER SERVICE ON THE MOUNTAIN BROOK CITY COUNCIL (EXHIBIT 1)

Mayor Oden read aloud the resolution and presented same to Ms. Amy Carter.

3. CONSENT AGENDA

Council President Smith announced that the following matters will be considered at one time on the consent agenda provided no one in attendance objects:

Approval of the minutes of the October 27, 2014 meetings of the City Council

Approval of the minutes of the November 3, 2014 organizational meeting of the City Council

2014-151	Expression of gratitude to Amy G. Carter for her service on the Mountain Brook City Council.	Exhibit 1
2014-152	Reappoint Sally Legg to the Tree Commission, to serve without compensation through November 28, 2017.	Exhibit 2
2014-153	Authorize the waiver of building permit fees for building projects attributable to City, Park Board, or Library Board building projects (contractors must comply with all applicable state and local building code laws and regulations to qualify for such fee waivers).	Exhibit 3

2014-154	Authorize the execution of a [commercial] Fire Protection and Emergency Medical Services agreement (3300 Cahaba Road).	Exhibit 4, Appendix 1
2014-155	Authorize the execution of the Business Associates Agreement between the City and TASC (formerly Benefit Elect of Alabama) with respect to the City's Flexible Benefit ("cafeteria") Plan administration services.	Exhibit 5, Appendix 2

Thereupon, the foregoing minutes and resolutions were introduced by Council President Smith and their immediate adoption was moved by Council member Shelton. The minutes and resolutions were then considered by the City Council. Council member Womack seconded the motion to adopt the foregoing minutes and resolutions. Then, upon the question being put and the roll called, the vote was recorded as follows:

Ayes: Virginia C. Smith, Council President
William S. Pritchard, III, Council President Pro Tempore
Jack D. Carl
Lloyd C. Shelton
Alice B. Womack

Nays: None

Council President Smith thereupon declared that said minutes and Resolution Nos. 2014-151 through 2014-155 are adopted by a vote of 5–0.

4. ANNOUNCEMENTS REGARDING THE NEXT REGULAR MEETING OF THE CITY COUNCIL

Council President Smith announced that the City Council will conduct a public hearing on November 24, 2014 at 7 p.m. to consider an ordinance rezoning certain parcels on Vine Street with respect to the proposed Piggly Wiggly development.

Council President Smith announced that the next meeting of the Mountain Brook City Council will be held on Monday, November 24, 2014 at 7:30 a.m. in the Council Chamber of City Hall located at 56 Church Street, Mountain Brook, AL 35213. Please visit the City's web site (www.mtnbrook.org) for more information.

5. EXECUTIVE SESSION AND ADJOURNMENT

There being no further business to come before the City Council, it was moved by Council member Pritchard that the City Council convene in executive session to discuss a matter involving a pending real estate negotiation. The motion was seconded by Council President Smith. The City Attorney certified that the subject matter of the executive session is allowed pursuant to the Open Meetings Act. Then, upon the question being put and the roll called, the vote was recorded as follows:

Ayes: Virginia C. Smith, Council President
William S. Pritchard, III, Council President Pro Tempore
Jack D. Carl
Lloyd C. Shelton
Alice B. Womack

Nays: None

Council President Smith declared that the motion carried by a vote of 5—0 and then asked that the members of the audience be excused. She also announced that the City Council shall not reconvene upon conclusion of the executive session.

RESOLUTION NO. 2014-157

BE IT RESOLVED by the City Council of the City of Mountain Brook, Alabama, that either the Mayor or the City Manager of the City is hereby authorized and directed, for and on behalf of the City, to execute the Subscription Agreement, in the form as attached hereto as Exhibit A, subject to such minor changes as may be determined appropriate by the City Attorney with respect to the Fire Department's access to and use of ESO's software and electronic patient care reporting services.

ADOPTED: This 24th day of November, 2014.

_____
Council President

APPROVED: This 24th day of November, 2014.

_____
Mayor

CERTIFICATION

I, Steven Boone, City Clerk of the City of the City of Mountain Brook, Alabama, hereby certify the above to be a true and correct copy of a resolution adopted by the City Council of the City of Mountain Brook at its meeting held on November 24, 2014, as same appears in the minutes of record of said meeting.

_____
City Clerk

SUBSCRIPTION AGREEMENT

This Subscription Agreement (the "*Agreement*") is entered into as of the ___ day of _____, 2014 (the "*Effective Date*") by and between ESO SOLUTIONS, INC., a Texas corporation with its principal place of business at 9020 N Capital of Texas Highway, Building II-300, Austin, Texas 78759 ("*ESO*"), and the City of Mountain Brook, Alabama, through its Fire Department/EMS Division, with its principal place of business at 102 Tibbett Street, Mountain Brook, AL, 35213 ("*Customer*") (each a "*Party*" and collectively the "*Parties*").

WHEREAS, ESO is in the business of providing software and electronic patient care reporting services (collectively, "*Services*") to businesses and municipalities; and

WHEREAS, Customer desires to obtain these Services from ESO, all upon the terms and conditions set forth herein.

NOW, THEREFORE, for and in consideration of covenants in the Agreement (including payments to be made by Customer), and other good and valuable consideration, the receipt and sufficiency of which is acknowledged, the Parties agree to the following:

1. Services. ESO agrees to provide Customer the Services selected by Customer on Exhibit A attached hereto and incorporated by reference herein. Customer agrees that Services purchased hereunder are neither contingent on the delivery of any future functionality or future features, nor dependent on any oral or written public comments made by ESO regarding future functionality or future features.

2. Term. The Term of this Agreement shall commence on the Effective Date and continue for one year ("*Initial Term*"). Thereafter, provided funding for the Services is appropriated by Customer's governing body, this Agreement shall remain in place for up to four (4) successive terms of one year each beginning at the conclusion of the Initial Term, unless one Party gives the other Party written notice to not renew the Agreement at least thirty (30) days prior to the end of the then current term.

3. **Subscription Fees, Invoices and Payment Terms.**

   a. Subscription Fees. Customer shall pay to ESO the fees for the Services as described in Exhibit A (the "*Subscription Fees*"). ESO may evaluate Customer's usage and adjust Customer's invoice based on changes in Customer usage as indicated in Exhibit A. ESO shall have the option to increase pricing, except during the Initial Term, as long as it provides at least sixty (60) days' notice of such increase to Customer prior to automatic renewal under Section 2 above and provided that the level of Subscription Fees does not increase for the renewal year more ten percent (10%) from the previous year's level.

   b. Payment of Invoices. Customer shall pay the full amount of invoices within thirty (30) days of receipt (the "*Due Date*"). Customer is responsible for providing complete and accurate billing and contact information to ESO and to notify ESO of any changes to such information.

   c. Disputed Invoices. If Customer in good faith disputes a portion of an invoice, Customer shall remit to ESO, by the Due Date, full payment of the undisputed portion of the invoice. In addition, Customer must submit written documentation: (i) identifying the disputed amount, (ii) an explanation as to why the Customer believes this amount is incorrect, (iii) what the correct amount should be, and (iv) written evidence supporting Customer's claim. **If Customer does not notify ESO of a disputed invoice by 90 days following the date of the invoice reflecting disputed amounts, Customer shall have waived its right to dispute that invoice. Any disputed amounts determined by the Parties to be owed shall be due within ten (10) days of such determination.**

   d. Non-Appropriation. Notwithstanding any other provision herein, Customer, effective upon provision of written notice to ESO, may terminate this Agreement without any liability, penalty or obligation to make payment for services after the effective date of termination if its governing body does not appropriate or allocate funds for payment of the services or work contemplated herein. In the event of such termination for non-appropriation, Customer shall remain obligated to pay for services or work provided prior to termination.

4. **Termination.**

   a. Termination by Customer for ESO Default. If ESO fails to perform a material obligation under this Agreement and does not remedy such failure within thirty (30) days following written notice from Customer ("*ESO Default*"), Customer may terminate this Agreement without incurring further liability, except for the payment of all accrued but unpaid Subscription Fees. If ESO is unable to provide Service(s) for ninety (90) consecutive days due to a Force Majeure event as defined in Section 16a, *Force Majeure,* Customer may terminate the affected Service(s) without liability to ESO. In addition, ESO agrees to pay Customer's reasonable expenses (including attorney and collection fees) incurred in enforcing Customer's rights in the event of a ESO Default

   b. Termination by ESO for Customer Default. ESO may terminate this Agreement with no further liability if (i) Customer fails to pay for Services as required by this Agreement and such failure remains uncorrected for twenty (20) days following written notice from ESO, or (ii) Customer fails to perform any other material obligation under this Agreement and does not remedy such failure within thirty (30) days following written notice from ESO (collectively referred to as "*Customer Default*"). In the event of a Customer Default, ESO shall have the right to (i) terminate this Agreement; (ii) suspend all Services being provided to Customer; (iii) terminate the right to use the Software on the web and/or mobile devices; (iv) offset any amounts that are owed to Customer by ESO against the past due amount then owed to ESO; and/or (vi) take any action in connection with any other right or remedy ESO may have under this Agreement, at law or in equity. If ESO terminates this Agreement due to a Customer Default, Customer shall

remain liable for all accrued Subscription Fees and other charges. In addition, Customer agrees to pay ESO's reasonable expenses (including attorney and collection fees) incurred in enforcing ESO's rights in the event of a Customer Default.

5. **Delivery of Data upon Expiration or Termination of Agreement**. If Customer requests its data within thirty (30) days of expiration of this Agreement, or the termination of this Agreement pursuant to Section 4 above, ESO shall deliver to Customer its data. ESO shall make reasonable and good faith efforts to accommodate Customer's preference for the type of media for delivery. Customer shall reimburse ESO for the cost of the media on which Customer's data is delivered to Customer.

6. **System Maintenance**. In the event ESO determines that it is necessary to interrupt the Services or that there is a potential for Services to be interrupted for the performance of system maintenance, ESO will use good-faith efforts to notify Customer prior to the performance of such maintenance and will schedule such maintenance during non-peak hours (midnight to 6 a.m. Central Standard Time). In no event shall interruption of Services for system maintenance constitute a failure of performance by ESO.

7. **Access to Internet**. Customer has sole responsibility for obtaining, maintaining, and securing its connections to the Internet, and ESO makes no representations to Customer regarding the reliability, performance or security of any particular network or provider.

8. **Mobile Software**. If Customer elects to use ESO's Mobile Software (the "***Software***"), the provisions of this Section shall apply.

   a. Use of Software. Subject to the terms, conditions and restrictions in this Agreement and in exchange for the Mobile Software Interface Fees and/or Subscription Fees, ESO hereby grants to Customer a non-exclusive, world-wide, non-transferable rights, for the Term of this Agreement, to use and copy (for installation and backup purposes only) the Software to the units for which the Mobile Software Interface has been purchased.

   b. Ownership and Restrictions. This Agreement does not convey any rights of ownership in or title to the Software or any copies thereof. All right, title and interest in the Software and any copies or derivative works thereof shall remain the property of ESO. Customer will not: (i) disassemble, reverse engineer or modify the Software; (ii) allow any third party to use the Software; (iii) use the Software as a component in any product or service provided by Customer to a third party; (iv) transfer, sell, assign, or otherwise convey the Software; (v) remove any proprietary notices placed on or contained within the Software; or (vi) copy the Software except for backup purposes. Customer agrees to keep the Software free and clear of all claims, liens, and encumbrances.

   c. Mobile Software Interface Fee. The Mobile Software Interface Fee is non-refundable. The Software shall be deemed accepted upon delivery to Customer.

   a. Title. ESO hereby represents and warrants to Customer that, with respect to any Software it furnishes Customer pursuant to this Agreement, ESO is the owner of that Software, has the right to all intellectual property interests related to that Software, or otherwise has the right to grant to Customer the rights to use the Software set forth in this Agreement. In the event of any breach or threatened breach of the foregoing representation and warranty, Customer's remedies are as follows: (i) ESO shall either procure, at ESO's expense, the right to use the Software, or replace the Software or any part thereof that is in breach and replace it with comparable functionality that does not cause any breach; and (ii) to the fullest extent permitted by law, ESO shall defend, indemnify, and hold harmless Customer (and its representatives) from and against all actions, damages, judgments, losses, expenses (including but not limited to attorneys' fees, expert fees, court costs and other litigation costs) and claims for patent, copyright or other infringement of intellectual property rights arising out of, related to, or resulting from ESO's breach of this warranty.

9. **Support and Updates.** During the Term of this Agreement, ESO shall provide Customer the support services and will meet the service levels as set forth in Exhibit B attached hereto and incorporated herein. ESO will also provide Updates to Customer, in accordance with Exhibit B.

10. **Other Services.** Upon request by Customer, ESO may provide services related to the Software other than the standard support described above at ESO's then-current labor rates. This may include on-site consultation, configuration, and initial technical assistance and training for the purpose of installing the Software and training selected personnel on the use and support of the Software. ESO shall undertake reasonable efforts to accommodate any written request by Customer for such professional services.

11. **Intentionally Omitted.**

12. **Liability Matters/Insurance**.

    (a) **Exclusion of Consequential Damages/Limitation of Liability**. NOTWITHSTANDING ANY OTHER PROVISION HEREOF, NEITHER PARTY SHALL BE LIABLE TO THE OTHER PARTY OR ANY THIRD PARTY FOR ANY INDIRECT, CONSEQUENTIAL, INCIDENTAL, RELIANCE, SPECIAL, EXEMPLARY OR PUNITIVE DAMAGES (INCLUDING BUT NOT LIMITED TO DAMAGES FOR LOST PROFITS, LOST REVENUES OR COST OF PURCHASING REPLACEMENT SERVICES) ARISING OUT OF OR RELATING TO THIS AGREEMENT.

ADDITIONALLY, ESO SHALL NOT BE LIABLE TO CUSTOMER FOR ANY ACTUAL DAMAGES IN EXCESS OF THREE TIMES THE AGGREGATE AMOUNT THAT ESO HAS, PRIOR TO SUCH TIME, COLLECTED FROM CUSTOMER WITH RESPECT TO SERVICES DELIVERED HEREUNDER. FURTHERMORE, IN NO EVENT SHALL EITHER PARTY BE LIABLE TO THE OTHER, EITHER IN CONTRACT OR IN TORT, FOR PROTECTION FROM UNAUTHORIZED ACCESS OF CUSTOMER DATA OR FROM UNAUTHORIZED ACCESS TO OR ALTERATION, THEFT OR DESTRUCTION OF CUSTOMER DATA FILES, PROGRAMS, PROCEDURES OR INFORMATION, NOT CONTROLLED BY ESO, THROUGH ACCIDENT OR FRAUDULENT MEANS OR DEVICES. THIS SECTION SHALL SURVIVE ANY TERMINATION OR EXPIRATION OF THIS AGREEMENT. EACH PARTY ACKNOWLEDGES THAT THIS LIMITATION OF LIABILITY WAS SPECIFICALLY BARGAINED FOR AND IS ACCEPTABLE TO CUSTOMER. FURTHER, EACH PARTY'S WILLINGNESS TO AGREE TO THE LIMITATIONS CONTAINED IN THIS SECTION WAS MATERIAL TO ENTERING INTO THIS AGREEMENT.

NOTHING IN THIS PROVISION SHALL LIMIT, MODIFY OR AFFECT THE INDEMNIFICATION OBLIGATIONS STATED BELOW IN SUBPART (d).

(b) Acknowledgements and Disclaimer of Warranties. Customer acknowledges that ESO cannot guarantee that there will never be any outages in ESO network and that no credits shall be given in the event Customer's access to ESO's network is interrupted. THE SERVICES ARE PROVIDED "AS IS." UNLESS OTHERWISE SPECIFIED HEREIN, ESO MAKES NO REPRESENTATION OR WARRANTY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY, WHETHER EXPRESS, IMPLIED OR STATUTORY, AS TO THE DESCRIPTION, QUALITY, MERCHANTABILITY, COMPLETENESS OR FITNESS FOR A PARTICULAR PURPOSE, OF ANY SERVICE OR SOFTWARE PROVIDED HEREUNDER OR DESCRIBED HEREIN, OR AS TO ANY OTHER MATTER (INCLUDING WITHOUT LIMITATION THAT THERE WILL BE NO IMPAIRMENT OF DATA OR THAT SERVICES WILL BE UNINTERRUPTED OR ERROR FREE), ALL OF WHICH WARRANTIES BY ESO ARE HEREBY EXCLUDED AND DISCLAIMED, TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW.

(c) **Insurance**. For the duration of the Agreement and for limits not less than stated below, ESO shall maintain the following insurance with a company(ies) lawfully authorized to do business in Alabama and reasonably acceptable to Customer:

-Comprehensive General Liability: Minimum One Million Dollars ($1,000,000) limits

ESO may use umbrella or excess liability insurance to achieve the required coverage for Comprehensive General Liability, provided that such umbrella or excess insurance results in the same type of coverage as required for the individual policies.

Before the execution of the Agreement, ESO shall provide Customer a certificate(s) of insurance evidencing compliance with the requirements in this section. The certificates shall name the City of Mountain Brook, and its officials and employees, as additional insureds on the Comprehensive General Liability and any applicable umbrella and excess policies.

(d) **Indemnification by ESO**. ESO agrees to defend, indemnify, and hold harmless the Customer, and its agents, employees and officials (hereinafter individually an "Indemnitee" or collectively the "Indemnitees") from and against all demands, actions, damages, judgments, expenses (including but not limited to attorneys' fees, expert fees, court costs and other litigation costs), losses, and claims (including those for bodily injury, sickness, disease or death, or to injury to, destruction or loss of use of tangible property) (collectively hereinafter "Claims") by any third parties (including Claims made by any employee, subcontractor or representative of ESO, hereafter a "ESO Representative") that arises out of, relates to, results from, or is attributable to any negligent act by an ESO Representative in performing or failing to perform its obligations under this Agreement; provided that nothing herein shall obligate ESO to indemnify the Indemnitees for any Claims that are caused by the negligence or willful misconduct of any of the Indemnitees. Customer agrees that the maximum amount for which ESO is obligated to indemnify Customer pursuant to this provision shall not exceed $300,000.

13. **Confidential Information**. "***Confidential Information***" shall mean all information disclosed in writing by one Party to the other Party that is clearly marked "CONFIDENTIAL" or "PROPRIETARY" by the disclosing Party at the time of disclosure or which reasonably should be understood to be confidential given the nature of the information and the circumstances of disclosure. Confidential Information does not include any information that (i) was already known by the receiving Party free of any obligation to keep it confidential at the time of its disclosure; (ii) becomes publicly known through no wrongful act of the receiving Party; (iii) is rightfully received from a third person without knowledge of any confidential obligation; (iv) is independently acquired or developed without violating any of the obligations under this Agreement; or (v) is approved for release by written authorization of the disclosing Party.

A recipient of Confidential Information shall not disclose the information to any person or entity except for the recipients and/or its employees, contractors and consultants who have a need to know such Confidential Information. The recipient may disclose

Confidential Information pursuant to a judicial or governmental request, requirement or order; provided that the recipient shall take all reasonable steps to give prior notice to the disclosing Party.

Confidential Information shall not be disclosed to any third party without the prior written consent of the owner of the Confidential Information. The recipient shall use Confidential Information only for purposes of this Agreement and shall protect Confidential Information from disclosure using the same degree of care used to protect its own Confidential Information, but in no event less than a reasonable degree of care. Confidential Information shall remain the property of the disclosing Party shall be returned to the disclosing Party or destroyed upon request of the disclosing Party. Because monetary damages may be insufficient in the event of a breach or threatened breach of the foregoing provisions, the affected Party may be entitled to seek an injunction or restraining order in addition to such other rights or remedies as may be available under this Agreement, at law or in equity, including but not limited to monetary damages.

ESO acknowledges that Customer is a governmental entity that may be obligated to disclose information to third parties who make requests for that information pursuant to the open or public records laws of the State of Alabama. Therefore, notwithstanding any provision in this Section to the contrary, to the extent that Customer determines, in the exercise of its reasonable discretion, that the disclosure of Confidential Information is required by state law, it does not commit to keep confidential all Information that ESO may designate as Confidential. However, if ESO designates information as "Confidential," before making any disclosure of that information to a third party who requests its disclosure, Customer will notify the party requesting disclosure of ESO's desire to protect the confidentiality of the that Information, and promptly notify ESO so that ESO, at its expense, will be afforded an opportunity to oppose the disclosure.

14. General Provisions.

a. Force Majeure. Neither Party shall be liable to the other, nor deemed in default under this Agreement if and to the extent that such Party's performance of this Agreement is delayed or prevented by reason of Force Majeure, which is defined to mean an event that is beyond the reasonable control of the affected Party and occurs without such Party's fault or negligence.

b. Entire Agreement. This Agreement, including all schedules, exhibits, addenda and any Business Associate Agreement (as that term is used in the Health Insurance Portability and Accountability Act and related regulations) (*see* Exhibit C) are incorporated herein by reference, constitutes the entire agreement between the Parties and supersedes all prior and contemporaneous agreements, proposals or representations, written or oral, concerning its subject matter. No modification, amendment, or waiver of any provision of this agreement shall be effective unless in writing and signed by the Party against whom the modification, amendment or waiver is asserted.

c. Governing Law. This Agreement shall be governed by the laws of the State of Alabama without regard to choice or conflict of law rules.

d. Dispute Resolution. The parties will use their good faith efforts to resolve any dispute or claim between them arising from the performance or failure to perform their respective obligations under this Agreement (a "***Dispute***"). Those efforts will include escalation of the Dispute to the senior manager/official level of each Party. However, if the Parties are unable to amicably resolve any Dispute, the dispute-resolution mechanism shall be litigation in a court that is located in Jefferson County, Alabama. If (i) either Party should employ attorneys or incur other expenses in any legal action regarding a Dispute, and (ii) one Party secures a final judgment before a court of competent jurisdiction or obtains other relief from an administrative body related thereto against the other Party, the losing Party will pay the prevailing Party its reasonable attorneys' fees and other reasonable expenses that are incurred in that action. THE PARTIES KNOWINGLY, VOLUNTARILY, AND IRREVOCABLY WAIVE THEIR RIGHT TO A TRIAL BY JURY IN ANY SUCH ACTION TAKEN TO RESOLVE A DISPUTE.

e. No Press Releases without Consent. Neither Party may use the other Party's name or trademarks, nor issue any publicity or public statements concerning the other Party or the existence or content of this Agreement, without the other Party's prior written consent. Notwithstanding, Customer agrees that ESO may use Customer's name and logo in ESO sales presentations, without Customer's prior written consent, during the Term of this Agreement, but only for the purposes of identifying the Customer as a customer of ESO. Likewise, Customer may use ESO's name and logo to identify ESO as a vendor of Customer.

f. Aggregate Data Reporting. Customer hereby grants ESO the right to collect and store its data for aggregate reporting purposes, but in no event shall ESO disclose Protected Health Information ("***PHI***") unless permitted by law. Moreover, ESO will not identify Customer without Customer's consent.

g. Compliance with Laws. Both Parties shall comply with and give all notices required by all applicable federal, state and local laws, ordinances, rules, regulations and lawful orders of any public authority bearing on the performance of this Agreement.

h. Waiver. No failure or delay by either Party in exercising any right under this Agreement shall constitute a waiver of that right. If Customer has made any change to the Agreement that Customer did not bring to ESO's attention in a way that is reasonably calculated to put ESO on notice of the change, the change shall not become part of the Agreement.

i. Severability. If any provision of this Agreement is held by a court of competent jurisdiction to be contrary to law, the provision shall be modified by the court and interpreted so as best to accomplish the objectives of the original provision to the fullest extent permitted by law, and the remaining provisions of this Agreement shall remain in effect.

j. Taxes and Fees. All taxes attributable to the transactions contemplated herein have been included in the prices stated on Exhibit A. The Parties acknowledge that, (i) pursuant to Alabama law, sales taxes are assessed on any transfer of goods to a municipality, and (ii) pursuant to Code of Alabama § 40-12-222, any use, privilege or lease taxes arising from the Software furnished to Customer hereunder may be included in the prices stated herein, but those taxes are not payable by Customer unless so included and may not later be passed on to Customer for payment. ESO is solely responsible to pay all taxes on income arising from the Services and/or Software provided to Customer.

k. Independent Contractor. Nothing in this Agreement shall be construed to create: (i) a partnership, joint venture or other joint business relationship between the Parties or any of their affiliates; or (ii) a relationship of employer and employee between the Parties. ESO is an independent contractor and not an agent of Customer.

l. Counterparts; Execution. This Agreement and any amendments hereto may be executed by the Parties individually or in any combination, in one or more counterparts, each of which shall be an original and all of which shall together constitute one and the same agreement. Execution and delivery of this Agreement and any amendments by the Parties shall be legally valid and effective through: (i) executing and delivering the paper copy of the document, (ii) transmitting the executed paper copy of the documents by facsimile transmission or electronic mail in "portable document format" ("*.pdf*") or other electronically scanned format, or (iii) creating, generating, sending, receiving or storing by electronic means this Agreement and any amendments, the execution of which is accomplished through use of an electronic process and executed or adopted by a Party with the intent to execute this Agreement (i.e. "***electronic signature***" through a process such as DocuSign®). In making proof of this Agreement, it shall not be necessary to produce or account for more than one such counterpart executed by the Party against whom enforcement of this Agreement is sought.

m. Notice. All notices, requests, demands and other communications required or permitted to be given or made under this Agreement shall be in writing, shall be effective upon receipt or attempted delivery, and shall be sent by (i) personal delivery; (ii) certified or registered United States mail, return receipt requested; (iii) overnight delivery service with proof of delivery, or (iv) fax. Notices shall be sent to the addresses above. No Party to this Agreement shall refuse delivery of any notice hereunder.

[***Signature Page Follows***]

IN WITNESS WHEREOF, the undersigned expressly agree and warrant that they are authorized to sign and enter into this Agreement on behalf of the Party for which they sign and have executed this Agreement as of the Effective Date.

ESO:	**CUSTOMER:**
[*Signature*]	[*Signature*]
Chris Dillie [*Printed Name*]	[*Printed Name*]
President and CEO [*Title*]	[*Title*]
[*Date*]	[*Date*]

EXHIBIT A
SCHEDULE OF SUBSCRIPTION FEES

Customer has selected the following Services, at the fees indicated:

Product	Quantity	List Price	Discounts	Total Price	Line Item Description
ePCR Suite w/Quality Management 600 - 1,250 Incidents	1.00	$4,495.00	$500.00	$3,995.00	ePCR Suite w/QM (Annual)
ePCR Mobile	8.00	$695.00	$2,760.00	$2,800.00	Mobile Licenses (Discounted)
Interface - CAD (Meets ESO API)	1.00	$5,995.00	$0.00	$5,995.00	New World CAD
Interface - Monitor	1.00	$3,995.00	$1,997.00	$1,998.00	ZOLL X Series (Discounted)
WAVE 2014 Annual User Conference Attendee Pass	2.00	$140.00	$280.00	$0.00	2 Free WAVE Passes
QuickSpeak	8.00	$99.00	$792.00	$0.00	Quick Speak
Services - Training	2.00	$995.00	$0.00	$1,990.00	2 Days Onsite Training
Services - Training Travel Costs	1.00	$1,250.00	$0.00	$1,250.00	Travel Expenses

Full Price	$24,357.00
Sum of Discounts	$6,329.00
Grand Total	$18,028.00

PAYMENT TERMS AND PAYMENT MILESTONES

The subscription year for Services shall begin as of the Effective Date or upon the commencement of active work on software implementation, whichever date comes later. The Subscription Fees are invoiced annually in advance commencing upon the beginning of the subscription year.

EXHIBIT B

SUPPORT SERVICES AND SERVICE LEVELS

This Exhibit describes the software support services ("***Support Services***") that ESO will provide and the service levels that ESO will meet.

1. **Definitions**. Unless defined otherwise herein, capitalized terms used in this Exhibit shall have the same meaning as set forth in the Agreement.

(a) "***Customer Service Representative***" shall be the person at ESO designated by ESO to receive notices of Errors encountered by Customer that Customer's Administrator has been unable to resolve.

(b) "***Error***" means any failure of the Software to conform in any material respect with its published specifications.

(c) "***Error Correction***" means a bug fix, patch, or other modification or addition that brings the Software into material conformity with its published performance specifications.

(d) "***Priority A Error***" means an Error that renders the Software inoperable or causes a complete failure of the Software.

(e) "***Priority B Error***" means an Error that substantially degrades the performance of the Software or materially restricts Customer's use of the Software.

(f) "***Priority C Error***" means an Error that causes only a minor impact on Customer's use of the Software.

(g) "***Update***" means any new commercially available or deployable version of the Software, which may include Error Corrections, enhancements or other modifications, issued by ESO from time to time to its Customers.

(h) "***Normal Business Hours***" means 7:00 am to 7:00 pm Monday through Friday, Central Time Zone.

2. **Customer Obligations**.

Customer will provide at least one administrative employee (the "***Administrator***" or "***Administrators***") who will handle all requests for first-level support from Customer's employees with respect to the Software. Such support is intended to be the "front line" for support and information about the Software to Customer's employees. ESO will provide training, documentation, and materials to the Administrators to enable the Administrators to provide technical support to Customer's employees. The Administrators will refer any Errors to ESO's Customer Service Representative that the Administrators cannot resolve, pursuant to Section 3 below; and the Administrators will assist ESO in gathering information to enable ESO to identify problems with respect to reported Errors.

3. **Support Services**.

(a) *Scope*. As further described herein, the Support Services consist of: (i) Error Corrections that the Administrator is unable to resolve and (ii) periodic delivery of Error Corrections and Updates. The Support Services will be available to Customer during normal business hours, to the extent practicable. Priority A Errors encountered outside normal business hours may be communicated to the Customer Service Representative via telephone or email. Priority B and C Errors encountered outside normal business hours shall be communicated via email.

(b) *Procedure*.

(i) *Report of Error*. In reporting any Error, the Customer's Administrator will describe to ESO's Customer Service Representative the Error in reasonable detail and the circumstances under which the Error occurred or is occurring; the Administrator will initially classify the Error as a Priority A, B or C Error. ESO reserves the right to reclassify the Priority of the Error.

(ii) *Efforts Required*. ESO shall exercise commercially reasonable efforts to correct any Error reported by the Administrator in accordance with the priority level assigned to such Error by the Administrator. Errors shall be communicated to ESO's Customer Service Representative after hours as indicated below, depending on the priority level of the Error. In the event of an Error, ESO will within the time periods set forth below, depending upon the priority level of the Error, commence verification of the Error; and, upon verification, will commence Error Correction. ESO will work diligently to verify the Error and, once an Error has been verified, and until an Error Correction has been provided to the Administrator, shall use commercially reasonable, diligent efforts to provide a workaround for the Error as soon as reasonably practicable. ESO will provide the Administrator with periodic reports on the status of the Error Correction on the frequency as indicated below.

Priority of Error	Communicating Error to ESO outside Normal Business Hours	Time in Which ESO Will Commence Verification	Frequency of Periodic Status Reports
Priority A	Telephone or email	Within 8 hours of notification	Every 4 hours until resolved
Priority B	Email	Within 1 business day of notification	Every 6 hours until resolved
Priority C	Email	Within two calendar weeks of notification	Every week until resolved

4. **ESO Server Administration**.

ESO is responsible for maintenance of Server hardware. Server administration includes:

(a) Monitoring and Response
(b) Service Availability Monitoring
(c) Backups
(d) Maintenance
    (i) Microsoft Patch Management
    (ii) Security patches to supported applications and related components
    (iii) Event Log Monitoring
    (iv) Log File Maintenance
    (v) Drive Space Monitoring
(e) Security
(f) Virus Definition & Prevention
(g) Firewall

EXHIBIT C

BUSINESS ASSOCIATE AGREEMENT

This Business Associate Agreement ("***Agreement***") is entered into as of the Effective Date of the Subscription Agreement by and between ESO (hereinafter "***Vendor***") and Customer (hereinafter "***Covered Entity***"), for the purpose of setting forth Business Associate Agreement terms between Covered Entity and Vendor. Covered Entity and Vendor each are referred to as a "***Party***" and collectively as the "***Parties***." This Agreement shall commence on the Effective Date set forth above.

WHEREAS, Covered Entity, owns, operates, manages, performs services for, otherwise are affiliated with or are themselves a Covered Entity as defined in the federal regulations at 45 C.F.R. Parts 160 and 164 (the "***Privacy Standards***") promulgated pursuant to the Health Insurance Portability and Accountability Act of 1996 ("***HIPAA***") and the Health Information Technology for Economic and Clinical Health Act of 2009 ("***HITECH***");

WHEREAS, pursuant to HIPAA and HITECH, the U.S. Department of Health & Human Services ("***HHS***") promulgated the Privacy Standards and the security standards at 45 C.F.R. Parts 160 and 164 (the "***Security Standards***") requiring certain individuals and entities subject to the Privacy Standards and/or the Security Standards to protect the privacy and security of certain individually identifiable health information ("***Protected Health Information***" or "***PHI***"), including electronic protected health information ("***EPHI***");

WHEREAS, the Parties wish to comply with Privacy Standards and Security Standards as amended by the HHS regulations promulgated on January 25, 2013, entitled the "Modifications to the HIPAA Privacy, Security, Enforcement, and Breach Notification Rules Under the Health Information Technology for Economic and Clinical Health Act and the Genetic Information Nondiscrimination Act," as such may be revised or amended by HHS from time to time:

WHEREAS, in connection with Vendor's performance under its agreement(s) or other documented arrangements between Vendor and Covered Entity, whether in effect as of the Effective Date or which become effective at any time during the term of this Agreement (collectively "***Business Arrangements***"), Vendor may provide services for, or on behalf of, Covered Entity that require Vendor to use, disclose, receive, access, create, maintain and/or transmit health information that is protected by state and/or federal law; and

WHEREAS, Vendor and Covered Entity desire that Vendor obtain access to PHI and EPHI in accordance with the terms specified herein;

NOW, THEREFORE, in consideration of the mutual promises set forth in this Agreement and the Business Arrangements, and other good and valuable consideration, the sufficiency and receipt of which are hereby severally acknowledged, the Parties agree as follows:

1. **Vendor Obligations**.

In accordance with this Agreement and the Business Arrangements, Vendor may use, disclose, access, create, maintain, transmit, and/or receive on behalf of Covered Entity health information that is protected under applicable state and/or federal law, including without limitation, PHI and EPHI. All capitalized terms not otherwise defined in this Agreement shall have the meanings set forth in the regulations promulgated by HHS in accordance with HIPPA and HITECH, including the Privacy Standards and Security Standards (collectively referred to hereinafter as the "***Confidentiality Requirements***"). All reference to PHI herein shall be construed to include EPHI. PHI shall mean only that PHI Vendor uses, discloses, accesses, creates, maintains, transmits and/or receives for or on behalf of Covered Entity pursuant to the Business Arrangements. The Parties hereby acknowledge that the definition of PHI includes "**Genetic Information**" as set forth at 45 C.F.R. §160.103. To the extent Vendor is to carry out an obligation of Covered Entity under the Confidentiality Requirements, Vendor shall comply with the provision(s) of the Confidentiality Requirements that would apply to Covered Entity (as applicable) in the performance of such obligations(s).

2. **Use of PHI**.

Except as otherwise required by law, Vendor shall use PHI in compliance with this Agreement and 45 C.F.R. §164.504(e). Vendor agrees not to use PHI in a manner that would violate the Confidentiality Requirements if the PHI were used by Covered Entity in the same manner. Furthermore, Vendor shall use PHI: (i) for the purpose of performing services for, or on behalf of, Covered Entity as such services are defined in the Business Arrangements; and (ii) as necessary for the proper management and administration of Vendor or to carry out its legal responsibilities; provided that such uses are permitted under federal and applicable state law. All de-identification of PHI must be performed in accordance with the Confidentiality Requirements, specifically 45 C.F.R. §164.514(b).

3. **Disclosure of PHI**.

3.1 Subject to any limitations in this Agreement, Vendor may disclose PHI to any third party as necessary to perform its obligations under the Business Arrangements and as permitted or required by applicable law. Vendor agrees not to disclose PHI in a manner that would violate the Confidentiality Requirements if the PHI was disclosed by the Covered Entity in the same manner. Further Vendor, may disclose PHI for the proper management and administration of Vendor; provided that: (i) such disclosures are required by law; or (ii) Vendor: (a) obtains reasonable assurances from any third

party to whom the PHI is disclosed that the PHI will be held confidential and used and disclosed only as required by law or for the purpose for which it was disclosed to third party, and (b) requires the third party to agree to immediately notify Vendor of any instances of which it is aware that PHI is being used or disclosed for a purpose that is not otherwise provided for in this Agreement or for a purpose not expressly permitted by the Confidentiality Requirements. Vendor shall report to Covered Entity any use or disclosure of PHI not permitted by this Agreement of which it becomes aware. Such report shall be made within five (5) business days of Vendor becoming aware of such use or disclosure.

3.2 If Vendor uses or contracts with any agent, including a subcontractor (collectively "***Subcontractors***") that uses, discloses, accesses, creates, receives, maintains or transmits PHI on behalf of Vendor, Vendor shall require all Subcontractors to agree in writing to substantially similar restrictions and conditions that apply to Vendor under this Agreement. In addition to Vendor's obligations under Section 9, Vendor agrees to mitigate, to the extent practical and unless otherwise requested by the Covered Entity, any harmful effect that is known to Vendor and is the result of a use or disclosure of PHI by Vendor or any Subcontractor in violation of this Agreement. Additionally, Vendor shall ensure that all disclosures of PHI by Vendor and its Subcontractors comply with the principle of "**minimum necessary use and disclosure,**" (i.e., in accordance with 45 C.F.R. §164.502(b), on the minimum PHI that is necessary to accomplish the intended purpose may be disclosed).

4. **Individual Rights Regarding Designated Record Sets.**

If Vendor maintains a Designated Record Set on behalf of Covered Entity, Vendor shall: (i) provide access to and permit inspection and copying of PHI by Covered Entity under conditions and limitations required under 45 C.F.R. §164.524, as it may be amended from time to time; and (ii) amend PHI maintained by Vendor as required by Covered Entity. Vendor shall respond to any request from Covered Entity for access by an Individual within ten (10) business days of such request and shall make any amendment requested by Covered Entity within twenty (20) business days of such request. Any information requested under this Section 4 shall be provided in a form or format requested, if it is readily producible in such form or format. Vendor may charge a reasonable fee based upon Vendor's labor costs in responding to a request for electronic information (or a cost-based fee for the production of non-electronic media copies). Vendor shall notify Covered Entity within ten (10) business days of receipt of any request for access or amendment by an Individual.

5. **Accounting of Disclosures.**

Vendor shall make available to Covered Entity within ten (10) business days of a request by Covered Entity the information required for an accounting of disclosures of PHI in accordance with 45 C.F.R. §164.528 (or such shorter time as may be required by state or federal law). Such accounting must be provided without cost if it is the first accounting requested within any twelve (12) month period. For subsequent accountings within the same twelve (12) month period, Vendor may charge a reasonable fee based upon Vendor's labor costs in responding to a request for electronic information (or a cost-based fee for the production of non-electronic media copies) only after Vendor informs Covered Entity and Covered Entity informs the Individual in advance of the fee, and the Individual is afforded an opportunity to withdraw or modify the request. Such accounting obligations shall survive termination or expiration of this Agreement and with respect to any disclosure, whether on or before the termination of this Agreement, shall continue for a minimum of seven (7) years following the date of such disclosure.

6. **Withdrawal of Authorization.**

If the use or disclosure of PHI under this Agreement is based upon an Individual's specific authorization regarding the use of his or her PHI, and: (i) the Individual revokes such authorization in writing; (ii) the effective date of such authorization has expired; or (iii) the authorization is found to be defective in any manner that renders it invalid for whatever reason, then Vendor agrees, if it has received notice from Covered Entity of such revocation or invalidity, to cease the use and disclosure of any such Individual's PHI except to the extent Vendor has relied on such use or disclosure, or where an exception under the Confidentiality Requirements expressly applies.

7. **Records and Audit.**

Vendor shall make available to HHS or its agents its internal practices, books, and records relating to the compliance of Vendor and Covered Entity with the Confidentiality Requirements, such internal practices, books and records to be provided in the time and manner designated by HHS or its agents. Except to the extent prohibited by law, Vendor agrees to notify Covered Entity immediately upon receipt by Vendor of any and all requests by or on behalf of any and all federal, state, and local government authorities served upon Vendor requesting PHI or investigating compliance with the Confidentiality Requirements.

8. **Implementation of Security Standards; Notice of Security Incidents.**

Vendor will comply with the Security Standards and, by way of example and not limitation, use appropriate safeguards to prevent the use or disclosure of PHI other than as expressly permitted under this Agreement. In accordance with the Security Standards, Vendor will implement administrative, physical, and technical safeguards that protect the confidentiality, integrity and availability of the PHI that is uses, discloses, accesses, creates, receives, maintains or transmits. To the extent feasible, Vendor will use commercially reasonable efforts to ensure that the technology safeguards used by Vendor to secure PHI will render such PHI unusable, unreadable and indecipherable to individuals unauthorized to acquire or otherwise have access to such PHI. Vendor will promptly report to Covered Entity any Security

Incident of which it becomes aware; provided, however, that Covered Entity acknowledges and shall be deemed to have received notice from Vendor that there are routine occurrences of: (i) unsuccessful attempt to penetrate computer networks or services maintained by Vendor; and (ii) immaterial incidents such as "pinging" or "denial of services" attacks. At the request of Covered Entity, Vendor shall identify: the date of the Security Incident, the scope of the Security Incident, Vendor's response to the Security Incident, and to the extent permitted by law, the identification of the party responsible for causing the Security Incident, if known.

9. **Data Breach Notification and Mitigation**.

9.1 HIPAA Data Breach Notification and Mitigation. Vendor agrees to implement reasonable systems for the discovery and prompt reporting of any "breach" of "unsecured PHI" as those terms are defined by 45 C.F.R. §164.402 ("***HIPAA Breach***"). The Parties acknowledge and agree that 45 C.F.R. §§164.404 and 164.410, as describe below in this **Section 9.1**, govern the determination of the date of a HIPAA Breach. In the event of any conflict between this **Section 9.1** and the Confidentiality Requirements, the more stringent requirements shall govern. Following the discovery of a HIIPAA Breach, Vendor will notify Covered Entity immediately and in no event later than five (5) business days after Vendor discovers such HIPAA Breach unless Vendor is prevented from doing so by 45 C.F.R. §164.412 concerning law enforcement investigations. For purposes of reporting a HIPAA Breach to Covered Entity, the discovery of a HIPAA Breach shall occur as of the first day on which such HIPAA Breach is known to Vendor or, by exercising reasonable diligence, would have been known to Vendor. Vendor will be considered to have had knowledge of a HIPAA Breach if the HIPAA Breach is known, or by exercising reasonable diligence would have been known, to any person (other than the person committing the HIPAA Breach) who is an employee, officer or other agent of Vendor. No later than ten (10) business days following a HIPAA Breach, Vendor shall provide Covered Entity with sufficient information to permit Covered Entity to comply with the HIPAA Breach notification requirements set forth at 45 C.F.R. §164.400 *et. seq*. This **Section 9.1** shall survive the expiration or termination of this Agreement and shall remain in effect for so long as Vendor maintains PHI.

9.2 Data Breach Notification and Mitigation Under Other Laws. In addition to the requirements of **Section 9.1**, Vendor agrees to implement reasonable systems for the discovery and prompt reporting of any breach of individually identifiable information (including, but not limited to, PHI and referred to hereinafter as "***Individually Identifiable Information***") that, if misused, disclosed, lost or stolen would trigger an obligation under one or more State data breach notification laws (each a "***State Breach***") to notify the individuals who are the subject of the information. Vendor agrees that in the event any Individually Identifiable Information is lost, stolen, used or disclosed in violation of one or more State data breach notification laws, Vendor shall promptly: (i) notify Covered Entity within five (5) business days of such misuse, disclosure, loss or theft; and (ii) cooperate and assist Covered Entity with any investigation into any State Breach or alleged State Breach. This **Section 9.2** shall survive the expiration or termination of this Agreement and shall remain in effect for so long as Vendor maintains PHI or Individually Identifiable Information.

10. **Obligations of Covered Entity**.

10.1 Notification Requirement. Covered Entity shall notify Vendor of:

a. Any limitation(s) in Covered Entity's notice of privacy practices in accordance with 45 CFR 164.520 to the extent that such changes may affect Vendor's use or disclosure of PHI;

b. Any changes in, or revocation of, permission by Individual to use or disclose PHI, to the extent that such changes may affect Vendor's use or disclosure of PHI; and

c. Any restriction to the use or disclosure if PHI that Covered Entity has agreed to in accordance with 45 CFR 164.522, to the extent that such restriction may affect Vendor's use or disclosure of PHI.

10.2 Permissible Requests. Covered Entity agrees that it will not request Vendor to use or disclose PHI in any manner that would not be permissible under the Confidentiality Requirements if done by Covered Entity.

11. **Terms and Termination**.

11.1 Termination. This Agreement shall remain in effect until terminated in accordance with the terms of this **Section 11**; provided, however, that termination shall not affect the respective obligations or rights of the Parties arising under this Agreement prior to the effective date of termination, all of which shall continue in accordance with their terms.

11.2 Termination with Cause. Either Party may immediately terminate this Agreement if either of the following events have occurred and are continuing to occur:

a. Vendor or Covered Entity fails to observe or perform any material covenant or obligation contained in this Agreement for thirty (30) days after written notice of such failure has been given; or

b. Vendor or Covered Entity violates any provision of the Confidentiality Requirement or applicable federal or state privacy law relating to its obligations under this Agreement.

11.3 May Terminate Business Arrangements in Event of for Cause Termination. Termination of this Agreement for either of the two reasons set forth in **Section 11.2** above shall be cause for immediate termination of any Business Arrangement pursuant to which Vendor uses, discloses, accesses, receives, creates, or transmits PHI for or on behalf of Covered Entity.

11.4 Return of PHI Upon Termination. Upon termination of this Agreement for any reason, Vendor agrees either to return all PHI or to destroy all PHI received from Covered Entity that is in the possession or control of Vendor or its Subcontractors. In the case of PHI for which it is not feasible to return or destroy, Vendor shall extend the protection of this Agreement to such PHI and limit further uses and disclosure of such PHI. Vendor shall comply with other applicable state or federal law, which may require a specific period of retention, redaction, or other treatment of such PHI. This **Section 11.4** shall survive the expiration or termination of this Agreement and shall remain in effect for so long as Vendor maintains PHI.

12. **No Warranty**.

PHI IS PROVIED SOLELY ON AN "AS IS" BASIS. THE PARTIES DISCLAIM ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, TO EACH OTHER CONCERNING THE FORM OR CONTENT OF PHI UTILIZED PURSUANT TO THIS AGREEMENT, INCLUDING BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

13. **Ineligible Persons**.

Vendor represents and warrants to Covered Entity that Vendor its director, officers, and key employees: (i) are not currently excluded, debarred, or otherwise ineligible to participate in the federal health care programs as defined in 42 U.S.C. § 1320a-7b(f) of any state healthcare program (collectively, the "***Healthcare Programs***"); (ii) have not been convicted of a criminal offense related to the provision of healthcare items or services but have not yet been excluded, debarred, or otherwise declared ineligible to participate in the Healthcare Programs; and (iii) are not under investigation or otherwise aware of any circumstances which may result in Vendor being excluded from participation in the Healthcare Programs (collectively, the "***Warranty of Non-exclusion***"). Vendor representations and warranties underlying the Warranty of Non-exclusion shall be ongoing during the term, and Vendor shall immediately notify Covered Entity of any change in the status of the representations and warranties set for in this **Section 13**. Any breach of this **Section 13** shall give Covered Entity the right to terminate this Agreement immediately.

14. **Equitable Relief**.

The Parties understand and acknowledge that any disclosure or misappropriation of any PHI in violation of this Agreement will cause irreparable harm, the amount of which may be difficult to ascertain, and therefore agree that either Party shall have the right to apply to a court of competent jurisdiction for specific performance and/or an order restraining and enjoining any such further disclosure or breach and for such other relief deemed appropriate. Such right shall be in addition to the remedies otherwise available at law or in equity.

15. **Entire Agreement**.

This Agreement constitutes the complete agreement between Vendor and Covered Entity relating to the matters specified in this Agreement and supersedes all prior representations or agreements, whether oral or written with respect to such matters. In the event of any conflict between the terms of this Agreement and the terms of the Business Arrangements or any such later agreement(s), the terms of this Agreement shall control unless the terms of such Business Arrangements are more strict with respect to PHI and comply with the Confidentiality Requirements, or the Parties specifically otherwise agree in writing. No oral modification or waiver of any of the provisions of this Agreement shall be binding on either Party to this Agreement; *provided, however* that upon the enactment of any law, regulation, court decision or relevant government publication and/or interpretive guidance or policy that Vendor believes in good faith will adversely impact the use or disclosure of PHI under this Agreement, Vendor may amend the Agreement to comply with such law, regulation, court decision or government publication, guidance or policy by delivering a written amendment to Covered Entity which shall be effective thirty (30) calendar days after receipt. This Agreement is for the benefit of, and shall be binding upon the Parties, their affiliates and respective successors and assigns.

RESOLUTION NO. 2014-158

BE IT RESOLVED by the City Council of the City of Mountain Brook, Alabama that the City Council hereby approves the conditional use application submitted by Graham Henderson for a conditional use (lunchtime smoothies and restaurant operation) at 2724 Cahaba Road in Mountain Brook Village.

ADOPTED: This 24th day of November, 2014.

_____
Council President

APPROVED: This 24th day of November, 2014.

_____
Mayor

CERTIFICATION

I, Steven Boone, City Clerk of the City of Mountain Brook, Alabama hereby certify the above to be a true and correct copy of a resolution adopted by the City Council of the City of Mountain Brook at its regular meeting held on November 24, 2014, as same appears in the minutes of record of said meeting.

_____
City Clerk

CITY OF MOUNTAIN BROOK

Dana O. Hazen, AICP
City Planner
56 Church Street
Mountain Brook, Alabama 35213
Telephone: 205/802-3821
Fax: 205.879.6913
hazend@mtnbrook.org
www.mtnbrook.org

MEMO

DATE: November 20, 2014

TO: Mayor, City Council
City Manager
City Attorney

FROM: Dana Hazen, City Planner

RE: Conditional Use for Smoothies & fast/casual Restaurant
2724 Cahaba Road, Mountain Brook Village

Request for approval of a smoothie & fast/casual restaurant in Mountain Brook Village, in the space previously occupied by Buckhead Interiors. As may be seen in attached letter of operational characteristics, the proposal is to be open for breakfast and lunch, and will involve "meals/entrees" in addition to smoothies.

The applicant has indicated that there will be 16 seats. Three employees will be on-site during peak lunch-time hours; two of which will park on-site at the rear of the store, and one will utilize the long term parking on Montevallo.

To: Ms. Dana Hazen
From: Mr. Graham Henderson

2724 Cahaba Road
Mountain Brook, AL 35223

We are planning on opening a small smoothie bar and restaurant. We will have five small tables with a maximum of 16 seats. The majority of our service will be take-out smoothies and teas accompanied by some quick service food items. We plan on being open for breakfast and lunch.

The number of employees we will have on staff between the hours 11am and 1pm will be a total of three (3). Two of our employees will park in the on site parking in the rear, and the third will utilize the long-term parking to the west of Starbucks along Montevallo Road.

A copy of our proposed menu is below also.

MENU
Breakfast
Fluffy homemade apple pancakes
Homemade potato pancakes
Two eggs scrambled, ham and sliced tomato plate
Granola, Greek yogurt and fresh fruit cup

Smoothies
Green sensation: spinach, celery, carrots, cucumber, orange, banana, pineapple, green tea
Tropical: pineapple, papaya, mango, orange, lime, green tea
Heavenly Healthy: spinach, red beet, celery, lime, ginger, pineapple

Lunch
Soups
Creamy Tomato-Basil soup with goat cheese and toast
Hot and Sour Barley and Ground Beef soup
Taco Chicken and Avocado soup
Red Beets soup served with creamy garlic mashed potato

Entree
Rice & Turkey patties served with sauté spinach and mushrooms
Grilled salmon with wild rice and black been mango salsa
Grilled chicken breast served with kale salad
Spicy Tuna salad served on buttery croissant with kale baked chips
Greek Orzo salad served with fajita beef and pita bread

Graham Henderson
205-965-5876
205-568-9129
hendeegrays@yahoo.com

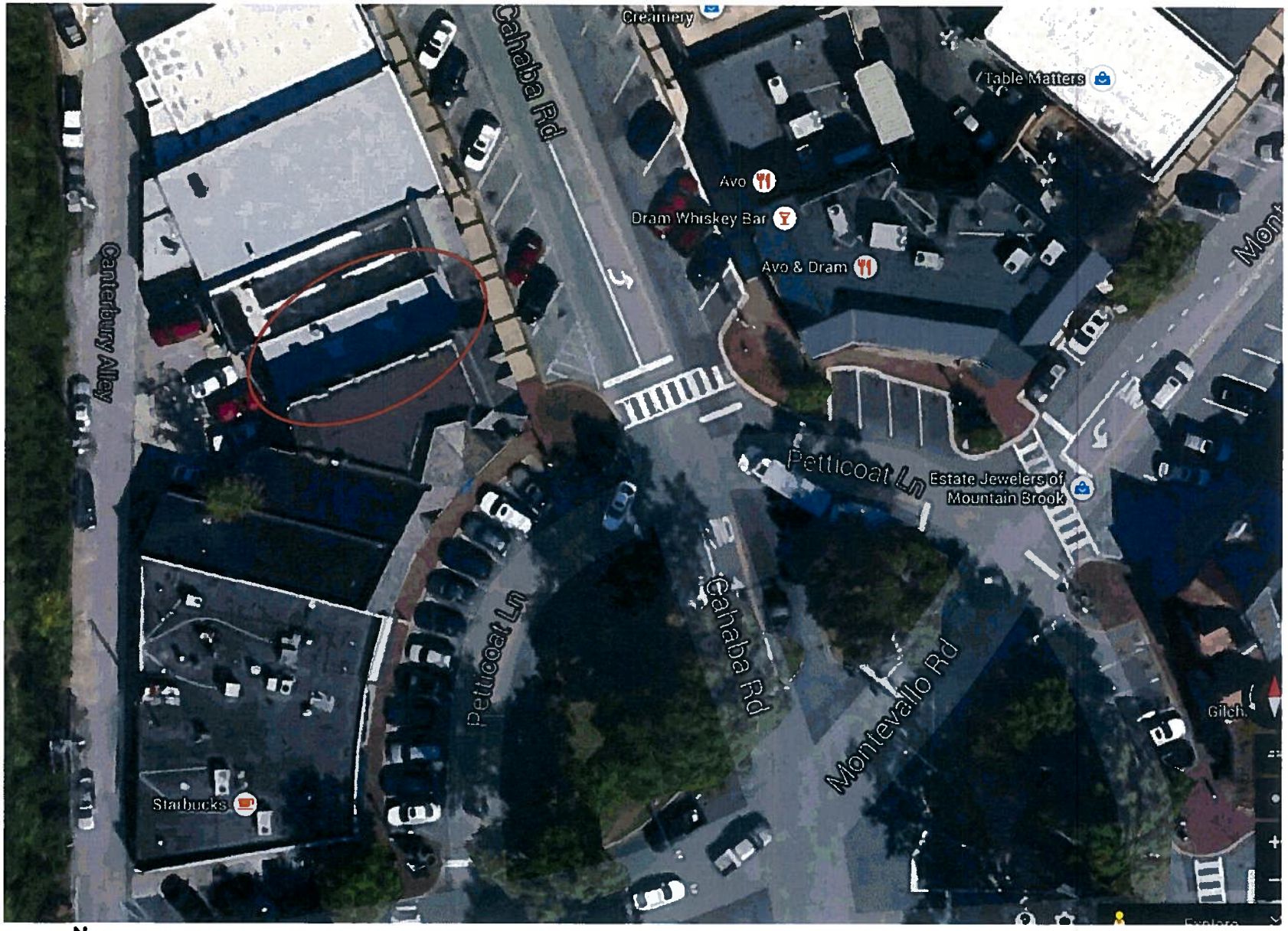
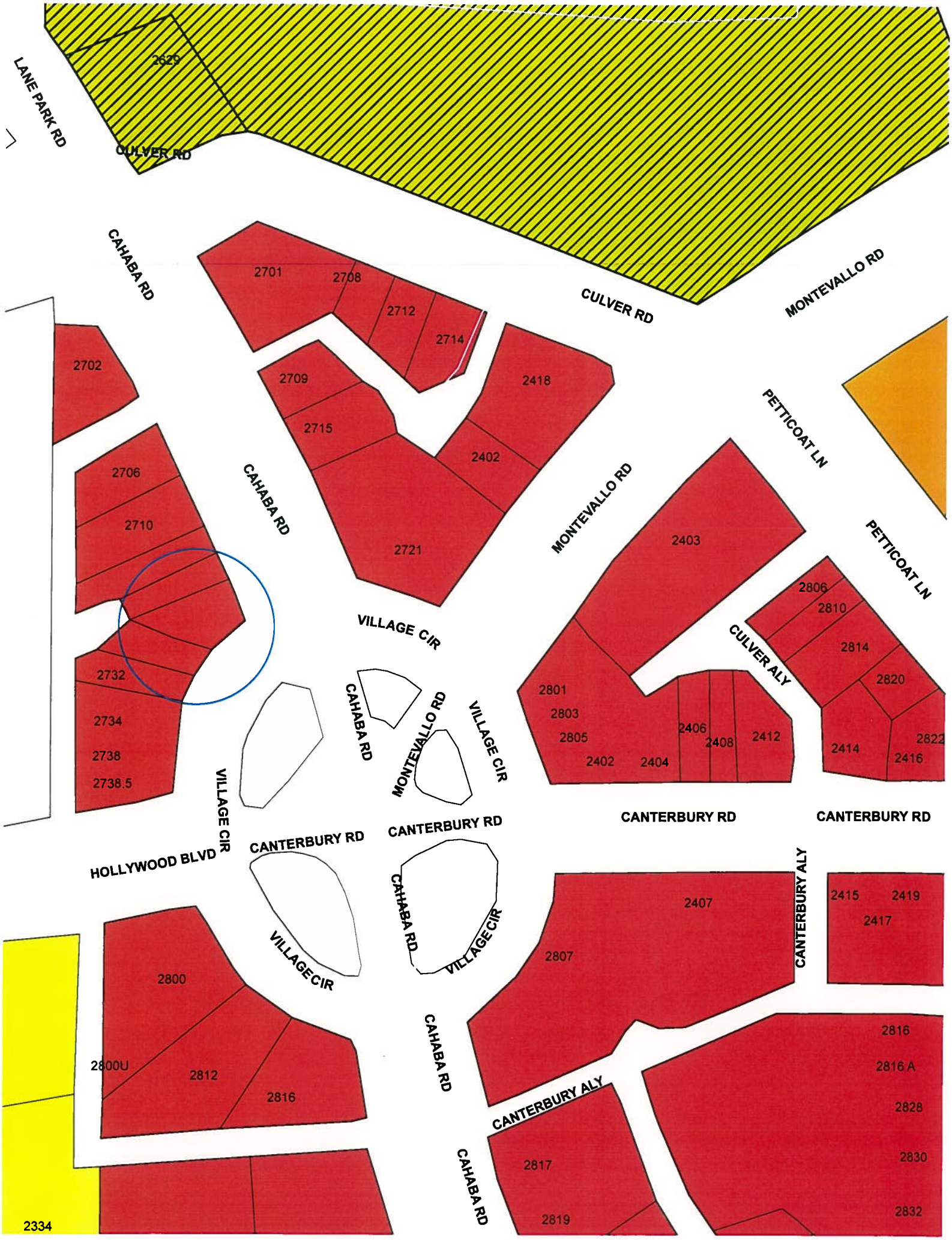


Table Matters
Avo
Dram Whiskey Bar
Avo & Dram
Estate Jewelers of Mountain Brook
Petticoat Ln
Cahaba Rd
Montevallo Rd
Creamery
Canterbury Alley
Starbucks
Gilch

N


LANE PARK RD
2629
CULVER RD
CAHABA RD
2701
2708
2712
2714
CULVER RD
MONTEVALLO RD
2702
2709
2418
2715
2402
PETTICOAT LN
2706
CAHABA RD
MONTEVALLO RD
2710
2721
2403
PETTICOAT LN
2806
2810
VILLAGE CIR
CULVER ALY
2814
2732
2820
CAHABA RD
MONTEVALLO RD
VILLAGE CIR
2801
2803
2805
2406
2408
2412
2822
2734
2414
2416
2402
2404
2738
2738.5
VILLAGE CIR
CANTERBURY RD
CANTERBURY RD
CANTERBURY RD
CANTERBURY RD
HOLLYWOOD BLVD
CANTERBURY ALY
2415
2419
2407
2417
CAHABA RD
VILLAGE CIR
VILLAGE CIR
2807
2800
CAHABA RD
2816
2800U
2812
2816
2816 A
CANTERBURY ALY
2828
2830
CAHABA RD
2817
2832
2819
2334

ORDINANCE NO. 1925

AN ORDINANCE TO REZONE CERTAIN PARCELS OF LAND IN THE CITY OF MOUNTAIN BROOK, ALABAMA FROM PROFESSIONAL DISTRICT AND RESIDENCE D DISTRICT TO LOCAL BUSINESS DISTRICT

WHEREAS, after due consideration, the City Council has determined that the zoning classification of the real estate owned by Beverly Ann McGill, Ben & Jean Buford, and Mountain Brook Pops, which is located along Vine Street, as more particularly described below, should be zoned Local Business District; such property being presently zoned Professional District and Residence D District.

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Mountain Brook as follows:

Section 1. Amendment of Zoning Map. The zoning map of the City of Mountain Brook, established under authority of Section 129-17, as amended from time to time, is hereby further amended by zoning to Local Business District the following described real property:

LOT 28A, ACCORDING TO A RESURVEY OF LOTS 28 AND 29, BLOCK 25, AS RECORDED IN MAP BOOK 174, PAGE 38 IN THE OFFICE OF THE JUDGE OF PROBATE OF JEFFERSON COUNTY - FROM PROFESSIONAL DISTRICT TO LOCAL BUSINESS DISTRICT, **48 VINE STREET,** BEVERLY ANN MCGILL.

AND

LOTS 27 & 26, BLOCK 25, ACCORDING TO THE SURVEY OF CRESTLINE HEIGHTS, AS RECORDED IN MAP BOOK 7, PAGE 16 IN THE OFFICE OF THE JUDGE OF PROBATE OF JEFFERSON COUNTY, ALABAMA - FROM RESIDENCE-D DISTRICT TO LOCAL BUSINESS DISTRICT - **50 AND 52 VINE STREET**, BEN & JEAN BUFORD AND MOUNTAIN BROOK POPS CLUB, INC.

Section 2. Repealer. All ordinances or parts of ordinances heretofore adopted by the City Council of the City of Mountain Brook, Alabama that are inconsistent with the provisions of this ordinance are hereby expressly repealed.

Section 3. Severability. The provisions of this ordinance are severable. If any provision of this ordinance is held by a court of competent jurisdiction to be invalid, such invalidity shall in no way affect the remaining provisions of this ordinance.

Section 4. Effective Date. This ordinance shall become effective immediately upon adoption and publication as provided by law.

ADOPTED: This 24th day of November, 2014.

_____
Council President

APPROVED: This 24th day of November, 2014.

_____
Mayor

1925

CERTIFICATION

I, Steven Boone, City Clerk of the City of Mountain Brook, Alabama, hereby certify the above to be a true and correct copy of an ordinance adopted by the City Council of the City of Mountain Brook, Alabama, as its meeting held on November 24, 2014, as same appears in the minutes of record of said meeting, and published by posting copies thereof on November ___, 2014, at the following public places, which copies remained posted for five (5) days as required by law.

City Hall, 56 Church Street
Gilchrist Pharmacy, 2850 Cahaba Road
Overton Park, 3020 Overton Road
The Invitation Place, 3150 Overton Road

_____
City Clerk

City of Mountain Brook

Steve Boone <boones@mtnbrook.org>

Council Report - The Pig

1 message

Dana Hazen <hazend@mtnbrook.org> Tue, Nov 11, 2014 at 2:29 PM
To: Terry Oden <lastvalhalla@aol.com>, Virginia Smith <wood967@aol.com>, Billy Pritchard <BillyP@pm-j.com>, Jack Carl <jdcarl@bellsouth.net>, Lloyd Shelton <lshelton@go2cpa.com>, "Womack,Alice B." <ALICEWOMACK@firstcommercialbank.com>, "Gaston, Sam" <gastons@mtnbrook.org>, Whit Colvin <wcolvin@bishopcolvin.com>, Steve Boone <boones@mtnbrook.org>, Dana Hazen <hazend@mtnbrook.org>

All,

Billy asked me to put together some information on The Pig and how it compares with the Village Master Plan and to the White Paper (Gould Evans's precursor to the Village Master Plan). Also he wanted me to break down the parking requirement formula and how it is applied to this project. He asked me to send this to you ASAP instead of waiting to include it in your packet for the meeting of November 24 (although Steve Boone may choose to incorporate it into your formal packet as well, so as to keep everything for that meeting in one document).

I have also included the following items:
An excerpt from the Village Master Plan (Crestline Section);
Site Plan
Survey
Elevations
Sain & Associates review of the Skipper Traffic Study
Skipper and Sain comments on Scout House relocation
Vicinity Zoning Map
Excerpts from the three rezoning applications

(refer to the bookmarks in the attached pdf for ease in finding certain pages of the Village Master Plan referred to in the report, as well as the other materials noted in the list above).

I will send the Traffic Study (with changes made prior to the P/C meeting highlighted in yellow) in a separate email, as the file is large.

Please let me know of any questions. I will be at a conference for the remainder of the week, but I will check my emails. Thanks!

–

Dana O. Hazen, MPA, AICP
City Planner

205/802-3821 phone
205/879-6913 fax
City of Mountain Brook
56 Church Street
Mountain Brook, AL 35213

The Pig - report to council 20141124.pdf
3799K

THE PIG REZONING CASES

Petition Summary
Request to rezone three contiguous properties on Vine Street from Professional District and Residence-D District to Local Business District for a retail grocery store.

Analysis
As may be seen on the attached site plan, the grocery building is proposed at 28,250 gross square feet. Required off-street parking is proposed on the adjoining two gravel lots (currently zoned Local Business) (49 spaces), and along Vine Street (27 spaces). Fourteen additional spaces are shown to be shared with Regions (between the alley and Church Street).

Local Business Zoning not Site Plan Driven
Unlike a PUD District, Local Business zoning is not "site plan driven." Therefore, the attached plans are preliminary and *conceptual*; and if the case is approved, the applicant would not necessarily be held to these exact plans, but would be permitted to revise the plans in accordance with applicable provisions of the zoning ordinance as it pertains to the Local Business District and the Village Overlay Standards. Likewise, staff review of these plans is also preliminary. Should these rezoning cases be approved, any plans submitted for building permits would then be reviewed for details not yet provided in this case review.

Parking

What's Required?
The attached site plan indicates 28,250 square feet of gross floor area. Section 129-555 of the Village Overlay requires 5 parking spaces per 1,000 square feet of "floor area." Floor area is further defined as "gross floor area, exclusive of basements or areas used exclusively for storage, mechanical equipment, and common interior areas."

Section 129-555 (a)(1) further stipulates that all new non-residential construction may be exempt from the parking requirement provided:

a. "The new building replaces existing square footage. For new buildings with expanded square footage beyond the existing square footage, parking for the expanded square footage shall be required at the rate specified in this section" (*or 5/1000 square feet in this case*);

b. "The new building does not eliminate existing parking" (*meaning that the number of parking spaces existing on the three subject sites today must be replaced on the site in addition to any new parking required for the expanded square footage*).

Also, Section 129-555(a)(2) allows new and additional on-street parking (provided by the developer) to be credited as part of the parking requirement for said development.

So, this development would be able to replace the existing square footage (of the Scout House, Please Reply and the Early Learning Center) at the same parking ratio that exists on those sites today; then any expanded square footage would have to be parked at the 5/1000 ratio. Also, the proposed 27 new spaces on Vine would be "credited" toward the on-site parking requirement, but would be for public use.

What's There Now?

The existing three buildings total approximately 8,080 square feet with 16 on-site parking spaces. The architect has indicated that the proposed floor area (exclusive of basements, storage and mechanical areas) is approximately 18,000 square feet (which would require 90 parking spaces), which when reduced by 8,080 square feet (existing on-site buildings) leaves approximately 9,920 square feet that must be parked at the required 5/1000 ratio (or 50 spaces). So, the requirement, based on these preliminary estimates, is: 16 (existing) + 50 (new) = 66 parking spaces.

What's to be Provided?

The attached site plan indicates 90 parking spaces to be constructed, including 49 on the adjoining gravel lots, 14 on the shared Regions lot, and the 27 new spaces adjoining the site along Vine Street. If detailed plans at the permit stage confirm that 66 spaces are required then the 14 shown to be shared with Regions will not be required to meet the parking ratio for this project, but are obviously desirable for shared ingress/egress.

Traffic Study

The traffic impact study that was submitted for the October 6, 2014 Planning Commission meeting was updated for the November 3, 2014 Planning Commission meeting. The attached traffic study shows changes highlighted in yellow, with some language struck out. Changes were made to the following pages: 1, 28, 36, 38 and Appendix B page 63.

Sain & Associate's review of the Skipper traffic study is also attached for council review.

White Paper

Prior to the drafting of the Village Master Plan, the City's planning consultant (Gould Evans Associates) put together a white paper of critical issues; the analysis contained therein was intended to foster an informed discussion, critical review and exploration of possibilities for the best policies and plan directions for each village.

Sources of Common Parking Problems

Section I of the White Paper addresses parking, and notes some common sources of parking problems:

One of the sources noted is a "perceived" shortage of spaces, where public parking spaces that are otherwise conveniently located and frequently available are either not known by the user or are perceived as a longer walk than they actually are. It has been shown that users of parking will walk 250-500 feet from a parking space to a destination.

As an aside, this projection has proved to be true in Crestline, as noted in recent staff surveys of Crestline Village merchants and employees. It was frequently noted in these surveys that users of long-term parking in Crestline are largely unaware that the City's gravel lot is open to the public. And many of those who knew of its existence perceived that it was too long of a walk, when it is actually only 500 feet from the City's gravel lot to at least half of Crestline (i.e., it is 500 feet from the gravel lot to the north side of Dexter).

The White Paper noted one solution to the "perceived" distance stigma is to install and emphasize a pathway to the parking lot: connecting the lot to the user destinations. In the instance of the subject rezoning case, the site plan projects a pedestrian pathway that would connect Church Street to the subject rezoning site, as well as to Vine Street and the playing fields, *which is in keeping with the recommendations of the White Paper.*

A second source of parking problems noted in the White Paper is a parking inefficiency created by privatizing parking resources, which results in otherwise frequently available spaces being taken out of the public parking supply. In the instance of the subject rezoning cases, while the existing gravel parking lot will be credited toward the grocery parking requirement, is to be preserved as public parking, rather than being privatized, *which is also in keeping with the recommendations of the White Paper.*

Policy Considerations to Promote Urban Infill

The White Paper discusses, at length, the fact that the City's parking regulations (at the time of the White Paper in 2006) were too onerous and would continue to serve as a deterrent to redevelopment in the villages. The parking requirements at the time did not provide for a flexible regulatory means of redevelopment in terms of parking.

Much of the village sites are largely covered with building footprint, and contain little to no on-site parking. At the time of the White Paper, the City's parking regulations would have required full conformance with the 5/1000 parking standard for commercial redevelopment and infill, which in most cases would preclude redevelopment and lead to an increasing prevalence of dilapidated buildings in the villages.

In this regard, the recommendation of the White Paper was three-fold:

1. Grandfather existing square footage;
2. Allow location sharing (of parking) within a reasonable walking distance;
3. Establish credits for public spaces.

All three of these recommendations were incorporated into the Zoning Ordinance (Village Overlay Standards) and are being utilized in conjunction with the proposed rezoning project. Therefore, *the proposed grocery project is in keeping with the White Paper by utilizing these recommendations for an urban infill project.*

Land Use and Urban Form

Section II of the White paper discusses the importance of "urban form" while diminishing the importance of the traditional planning practice of separating land uses; stating that the traditional approach of grouping similar uses together, and separating and distancing any uses that differ, can be detrimental to a community that seeks a pedestrian-scale, sustainable approach to urban character.

The report goes on to recommend regulatory approaches to building scale, such as matching building height, mass and orientation to the desired streetscape type, building sidewalks and pedestrian plazas, mixing uses to create synergy and human connections, and accepting that density may be an acceptable by-product of a successful place.

These recommendations have carried over into the City's Zoning Regulations in the form of the Village Overlay District, and the proposed project has been designed to conform with the Village Overlay zoning regulations with respect to mass, scale, height, setbacks, window transparency, and parking and *is in keeping with the recommendations of the White Paper with respect to building form.*

Village Master Plan

From the analysis and recommendations of the White Paper, the steering committee for the Village Master Plan took its direction and worked with the community to draft the Village Master Plan. One of the stated purposes in the Plan is that it is to be used to guide future decisions on zoning, public-infrastructure and facilities, and private development; but it also notes that it should be flexible, so that *"when conditions change or assumptions on which the plan are base are altered, it is still an effective guide for the day-to-day decision that occur with plan implementation."*

Attached is an excerpt of the Village Master Plan (adopted in 2007) as it pertains to Crestline Village. It is interesting to note that in the very first paragraph of the Crestline Village section of the Plan it is noted that "The businesses in Crestline Village are primarily neighborhood oriented, and are *anchored* by a small, full service grocery store." In the same paragraph it also states that "roughly 28% of the City's population is in neighborhoods conveniently served by Crestline Village." One might surmise by these two statements that it is important for Crestline Village to contain a small format grocery.

Page CV-2-2 indicates that the long-term parking on Vine Street was found be consistently available and under utilized.

Pages CV-3-4 and CV-3-5 address the subject area along Vine Street as "Special Policy Areas 1 & 2," and the two projected land uses are "Village Residential" and "Civic."

Section 4.0 addresses how the Plan is to be implemented (page CV-4-1). Section 4.1 addresses parking management in Crestline and indicates that the City-owned property on Vine should be reserved for future public/private parking.

Section 4.2 (page CV-4-3) discusses public improvements for Crestline and indicates that a new pedestrian passage from Church to Vine should be implemented, bisecting the block bounded by Jackson, Church, Vine and Dexter, to *"provide a new direct connection to the village from the school (and the many community functions at the athletic fields) as well as from any public parking that can be created on the block."*

The White Paper and the Village Master plan both discuss the importance of transitional areas in Crestline Village, and even designate that Vine Street as a transitional area that should be used for higher density residential uses and public parking. And while the proposed grocery project does not conform to the strict interpretation of this aspect of the

Village Master Plan it does conform to the spirit and intent of mixing compatible, neighborhood-oriented uses that create human interaction and synergy. Also, the proposed grocery plan employs many of the building form, parking and urban design strategies suggested in the Master Plan and the White Paper, while enhancing the existing public (gravel) parking lot on Vine, creating at least 27 additional long-term parking along Vine Street, and adding a much needed pedestrian connection from the village core to the perimeter, the elementary school and the athletic fields.

Other Potential Approvals:

Based on the attached preliminary site plan, the following additional approvals may be needed prior to any permit issuance.

Council – Waiver of parking design requirements (Section 129-555(d)(2) & (6) for the service drive to be 30 feet in lieu of the maximum 24 feet allowed.

Council - Off-site parking agreement: for required parking on adjoining gravel lots.

Council – Shared Parking Agreement: 14 parking spaces on the Regions parking lot between the alley and Church Street (if determined to be needed to meet minimum parking requirements).

VDR – approval of exterior elevations and signage.

Numbers

The previous Crestline Pig was 15,872 footprint;
The proposed Crestline Pit is 23,250 footprint (with a 5,000 mezzanine); 28,250 gross.
Publix on Overton is approximately 48,000 footprint.

Affected Regulation

Article XII, Local Business District; Section 129-192, Permitted Uses

Article XXXI, Village Overlay Standards; Section 129-553, Building Typology Standards; 129-555 Parking, Vehicle and Pedestrian Access Standards.

Appends

LOCATION: 48, 50 & 52 Vine Street

ZONING DISTRICT: Professional and Residence-D

OWNERS: Beverly Ann McGill (48 Vine Street)
Ben & Jean Burford (50 Vine Street)
Mountain Brook Pops Club, Inc. (52 Vine Street)

Crestline Village Master Plan

2.0 Existing Conditions
3.0 Village Master Plan
4.0 Existing Conditions

2.0 Existing Conditions

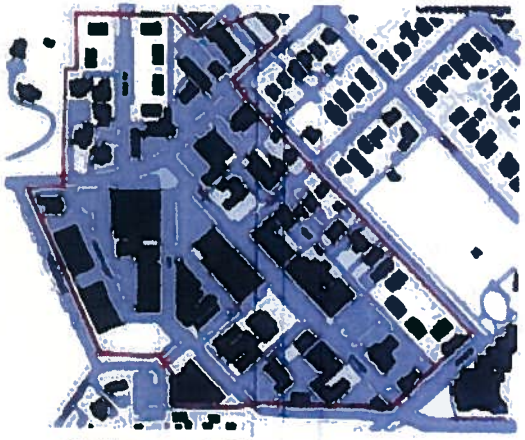
2.1 General Planning Area

Crestline Village is home for many civic and institutional uses, including City Hall, the Library, the Chamber of Commerce, Crestline Elementary School, and the recently planned School Board Offices. The businesses in Crestline Village are primarily neighborhood oriented, and anchored by a small, full service grocery store. A number of family- or children-oriented businesses and services also currently are located in this village. However, more recently a number of destination-type restaurants have also located in Crestline Village. The surrounding neighborhoods are very closely linked and connected to the village by local streets and alleys. Roughly twenty-eight percent of the City's population is in neighborhoods conveniently served by Crestline Village.

Crestline Village planning area.

2.2 Building Framework and Development Pattern

The existing building framework characteristic is a pattern of street front buildings – particularly the "storefront building" type for the primary commercial uses. Civic buildings – and particularly the City Hall - are appropriately free-standing and stepped back to provide enhanced civic open space at their frontages. Most of the residential buildings currently existing in the study area represent a pattern that tends to orient away from the village streetscape in a more "complex type" format. Additionally, there are some instances of commercial buildings that do not appropriately address the public streetscape – particularly the buildings on Oak street that orient inward in a strip-center format and have their backs on Oak Street, and the building on the northeast corner of Church and Oak that are set back to provide front parking and curb-cuts to the site. The north side of Euclid also demonstrates more individual, site-oriented buildings that do not reflect the predominant character and building patterns in the village.



Crestline Village building framework (2003).

2.3 Parking

Based on the total required parking spaces per the current ordinance standards, Crestline Village should provide approximately 1,050 parking spaces. Current supply is approximately 950 spaces. Based on observations, there are parking supply issues on the core streets of the village, with near 100 percent parking utilization frequently during the day. Although some parking spaces might be available at any given time, it may take some additional circulation to find one. Crestline core area streets have two hour time limits.

Longer-term parking is provided in the outlying areas, including Dan Watkins Drive and Vine Drive.

Observations found parking consistently available at these longer-term parking areas. These parking spaces tended to be under utilized. There is also some inefficiency in the fact that some of the off-street parking is provided privately for the sole use of a few parcels and is not available to the general public. A high percent of restaurant activities which tend to generate higher parking demand also contribute to parking problems during peak use times.

Crestline Village Parking Data

Area / Block	Zoning District	Building Floor Area		Required Spaces		Existing Parking Spaces			Existing Minus Required	
		Retail	Office	By Zoning District *	By Use**	Off-street	Public / On-street	Total	By Zoning District *	By Use**
2	Local Business [1]	13,796	5,295	95	90	30	7	37	-58	-53
3	Local Business [2]	17,258	12,158	147	134	85	15	100	-47	-34
4	Local Business [3]	21,260	5,637	134	128	214	129	343	209	215
5	Local Business	30,924	7,640	189	184	45	62	107	-82	-77
6	Local Business [4]		29,500	147	118	46	101	147	0	29
7	Local Business [3]	32,230	15,320	97	84	75	73	148	51	64
8	Local Business [3]	6,748	12,754	237	222	56	10	66	-171	-156
Total		122,216	88,304	1,046	960	551	397	948	-98	-12

2.4 Pedestrian and Vehicle Circulation

Based on observations, public input and discussions with the Mountain Brook Police Department and the City's Consulting Traffic Engineer, traffic and circulation generally operate well within Crestline Village. The sole signalized intersection at Euclid and Church operates with acceptable level of service and even during peak periods, traffic runs smoothly along Church.
The one traffic conflict within Crestline Village is northbound Oak traffic desiring to turn left onto Church. Because of the short distance between the Oak intersection and Fairway, vehicles often back up on Church from Fairway during the red cycle and restrict the left turns from Oak. A minor conflict also occurs when north-west bound Church traffic desiring to turn left on Oak can block traffic on Church that desires to go through the Oak intersection and turn left on Fairway.

"Euclid"?

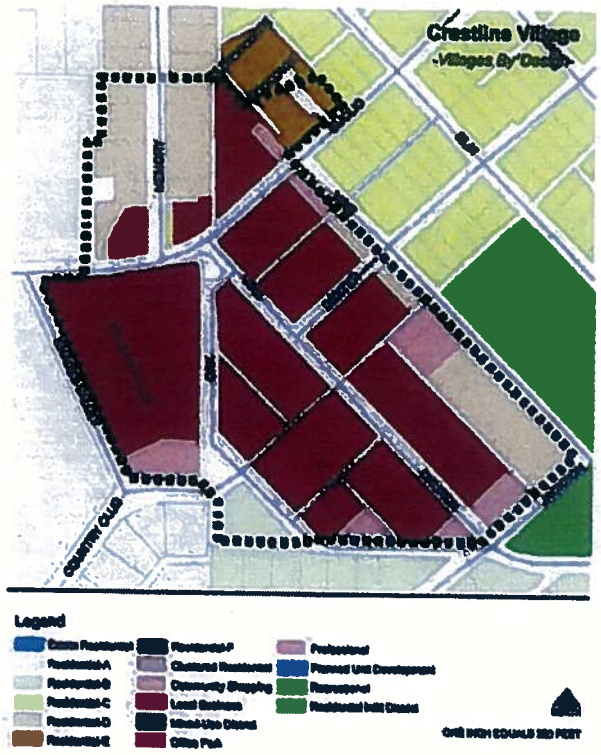
The bigger issue tends to be the conflict between pedestrians and vehicles. Currently there is a crosswalk on Church at Hoyt. Even with a crosswalk and overhead flashing yellow, compliance of vehicles yielding for pedestrians is low, particularly during the peak periods. Vehicle compliance for yielding to pedestrians at Church and Jackson was also noted as low.

The distances between crosswalks along Church are 600 plus feet between Fairway and Hoyt, and between Hoyt and Jackson. In a village area where the objective is to promote pedestrian mobility, an additional crosswalk should be provided between both locations.

One final concern is the line of sight for vehicles traveling south west on Dexter at Church. With parking permitted along Church, it can be difficult to see around parked vehicles, particularly for larger vans and trucks parking along the east side of Church.

Pedestrian and Vehicle Circulation Conditions

Existing Zoning



See official zoning map on file with the City for most current information.

2.5 Zoning and Land Use

Much of the Crestline Village Study area is currently zoned Local Business District, particularly on the main commercial street, Church Street. Some smaller individual parcels are zoned Professional District, and there are two areas of Residence D zoning on the edge of the study areas.

In general, the Local Business District zoning regulations do an adequate job or enabling development that preserves the village character of Crestline Village, however there are some weaknesses in these standards. Specifically, they do not address the following village specific issues adequately:

- *All new parking is required on site, with a vague provision for waivers.*
- *All buildings are required to be street-front, with a cumbersome process for exceptions.*
- *There are no regulatory requirements (other than the design guidelines) for street front buildings to appropriately address the public streetscape.*
- *Occurrences of zoning districts in the villages other than Local Business do not have similar building standards.*

[see Plan, Policy and Ordinance Evaluation Report, March 2006 prepared as part of the planning process for a more detailed analysis]

Additionally, the Residence D district, under its current standards may present difficulties in incorporating new smaller-scale, compact, residential formats in some of the transition areas on the edge of the village. The Professional District standards do not seem appropriate for the village, unless the building types and formats are altered or more specifically detailed to require smaller-format offices with better streetscape relationships.

3.0 Crestline Village Master Plan

The Crestline Village Master Plan is based primarily on the Vision, Value and Goals established through the public participation process. To achieve this Vision, all future development should be arranged and evaluated based upon three key plan components – (1) a future Land Use Policy Map (a plan for regulating use of land and buildings); (2) a Building and Development Regulating Plan (a plan for regulating building types and designs); and a Circulation and Urban Design Plan (a plan to guide coordinated public improvements and private site and building designs). Together these three components reflect a comprehensive approach to development in the Village, and guide the many private and public decisions that occur with new development in the Village.

3.1 Vision

Vision
The Heart of the City

Crestline Village is a civic destination and neighborhood village with retail and service uses that primarily serve the daily needs of the residents of adjacent neighborhoods. Crestline Village is also the civic center of the City, serving community-wide civic functions for all Mountain Brook residents.

Values

- Well-maintained common areas strengthening the image of the Village.
- A safe, nurturing, family-friendly environment where children can gather and explore.
- Civic events – whether educational, entertainment, cultural, or municipal.
- Pedestrian-friendly – joggers, walkers, and bicyclists add to the atmosphere of high activity in and around the Village.
- Local businesses – whether daily trips to "The Pig" or an evening out at a local restaurant.

Goals

- Determine the unifying design characteristic(s) to be applied to infill development throughout Crestline Village.
- Identify opportunities to expand streetscape, open space, and other public, quasi-public or private focal point improvements that support the design character of Crestline Village.
- Maintain the neighborhood scale throughout the Village – particularly at edges where the Village transitions to neighborhoods.
- Improve pedestrian connections to adjacent neighborhoods.
- Maintain the strong civic presence in the Village.
- Accommodate new residential opportunities (new dwelling types) provided it is consistent with the scale and intensity of a "village."
- Develop a district-wide parking strategy.

3.2 Land Use Policy Map

The Land Use Policy Map is a plan that recommends future uses of land and buildings. It guides future zoning decisions and assists in considering a variety of future regulatory strategies that could implement the physical and policy recommendations of the Master Plan.

The map reflects some of the following general categories which are part of the City's overall land use policy framework. Not all categories are currently represented or recommended in the Village planning area. Where these categories and descriptions differ from the City's overall master plan, the master plan is specifically amended to include these updated categories and descriptions.

General Commercial – The majority of the city's commercial uses fall into this category. There is an extensive list of uses in the Zoning Regulations. The appropriate building type in or adjacent to the Villages for this category is a low-scale (1 to 3 story) buildings, with street-level storefront designs. The appropriate implementation of this category is the Local Business District as modified by any specific applicable planning and design recommendations for buildings in the village.

General Commercial – Retail Dominant - Land uses in this category are the same as the General Commercial category, except due to the location on key sites and/or streets in the Village, ground-level uses that present a high degree of pedestrian activity are preferred. These are generally retail/restaurant-type uses. The appropriate building type for this category is a low-scale (1 to 3 story) buildings, with street-level storefront designs. The appropriate implementation of this category is the Local Business District as modified by any specific applicable planning and design recommendations for buildings in the Village, and further modified to incorporate policies or regulations to discourage, limit or prohibit ground level service and office uses at these key retail locations.

Office – Land uses in this category include any professional or business office use, regardless if it has a single office on a lot, multiple offices in a single building or multiple buildings in an office park. These uses may range in size depending on location and a variety of building types may be appropriate depending on context. Other compatible uses in this group include municipal buildings, fitness centers, gymnasiums, daycares, restaurants, and laboratories or any other business or service that primarily supports the employment focus. The appropriate implementation of this category is Professional District or Office Park District.

Heavy Commercial – There are only a few occurrences of these kinds of uses in Mountain Brook. This category includes the more intense commercial uses, such as hotels, large restaurants and fast-food restaurants, which generate a high amount of traffic and rely on a predominantly automobile oriented site design and infrastructure. The appropriate implementation of this category is through the Community Shopping District.

Multi-Use – Land uses in this category utilize buildings designed for a variety of uses – specifically general commercial uses on the ground level, and retail, office or residential uses on the upper levels. This category is generally only appropriate at defined locations in the Village, where the potential for upper level residential uses will not disrupt the primary retail function of the area, and can provide a broader public benefit to the Village as a whole. Multi-story buildings with street-level storefront designs are the appropriate building type for this category. The appropriate implementation of this category is the Local Business District, as modified by any specific applicable planning and design recommendations for buildings in the Village.

Multi-Use – Retail Dominant – Land uses, applicability, and building types in this category are the same as the Multi-Use category, except due to the location on key sites and/or streets in the Village, ground-level uses that present a high degree of pedestrian activity are preferred. These are generally retail/restaurant uses. Multi-story buildings with street-level storefront designs are the appropriate building type for this category. The appropriate implementation of this category is the Local Business District, as modified by any specific applicable planning and design recommendations for buildings in the Village, and further modified to incorporate policies or regulations to discourage, limit or prohibit ground level service and office uses.

Low Density Residential – Land uses in this category are primarily intended to be average-size residential lots and/or developments. These lots range from 10,000 square feet up to two acres in size. The majority of lots in this classification are zoned Residence A, Residence B and Cluster Residential, although this also includes Estate lots that are less than two acres and are adjacent to Residence A zoning. The compatible existing zoning districts are Estate, Residence A, Residence B and Cluster Residential.

Medium Density Residential – Land uses in this category include higher-density residential uses. They average three or more lots – or dwelling units – per acre of land. These lots range from 5,800 square feet to 9,680 square feet in size. The majority of the lots/developments in this classification are zoned Residence C, Residence D, and Residence E. They are single or attached dwelling units, but cannot be a single building containing three or more dwelling units. The appropriate implementation of this category is Residence C, Residence D, or Residence E.

High Density Residential – Land uses in this category are primarily intended to be single buildings containing a minimum of three dwelling units of apartments or condominiums (each). The appropriate implementation of this category is Residence D or Residence E.

Village Residential – Land uses in this category are primarily intended to be high-density, but are smaller-scale residential projects incorporated in or immediately adjacent to the Villages. Building forms are of primary importance in determining the compatibility with adjacent property. Density, parcel size and other non-design elements are of secondary importance. Village residential projects should include some civic or quasi-civic open space at the frontages, or otherwise provide formal residential frontages to fit in with the respective Village character and surrounding neighborhood. Townhomes and stacked flats are the appropriate building types in this category. The appropriate implementation of this category is Residence G, Residence F, Residence D or other higher-density residential districts, as modified by any specific applicable planning and design recommendations for buildings in the Village.

Mixed-unit ("Planned") Residential — Land uses in this category are primarily intended to be of an overall moderate density, but should reflect a wide range of dwelling and lot types designed as part of a single residential neighborhood design according to a plan. The goal is to present a mix of housing types in a compatible environment. Developments may include dwellings that range from large lot detached single-family to high-density multi-dwelling structures. Building size and scale is planned and located based upon topography and adjacent building scale and uses. Only large parcels or areas capable of presenting a critical mass to support a neighborhood plan and mixture of units are designated in this category. Single-family dwellings, duplexes, townhomes, and stacked flats are the appropriate building types for this category. The appropriate implementation of this category is a flexible or planned residential district (PUD), which should be guided by site-specific conditions and constraints, with the public or village-wide benefits identified in the specific site development plan for the area.

Civic – Land uses in this category are primarily public facilities, such as schools, playgrounds adjacent to schools, public parking, libraries, churches and public offices. The appropriate implementation of this category is the Recreation District and all others that allow schools, libraries, museums, churches and other public uses

Cultural / Recreation – Land uses in this category are primarily intended to be recreational parks, civic or quasi-civic opens spaces. This includes both large and small recreational parks. The appropriate implementation of this category is the Recreation District and any others that allow public uses and open spaces.

City of
MOUNTAIN BROOK

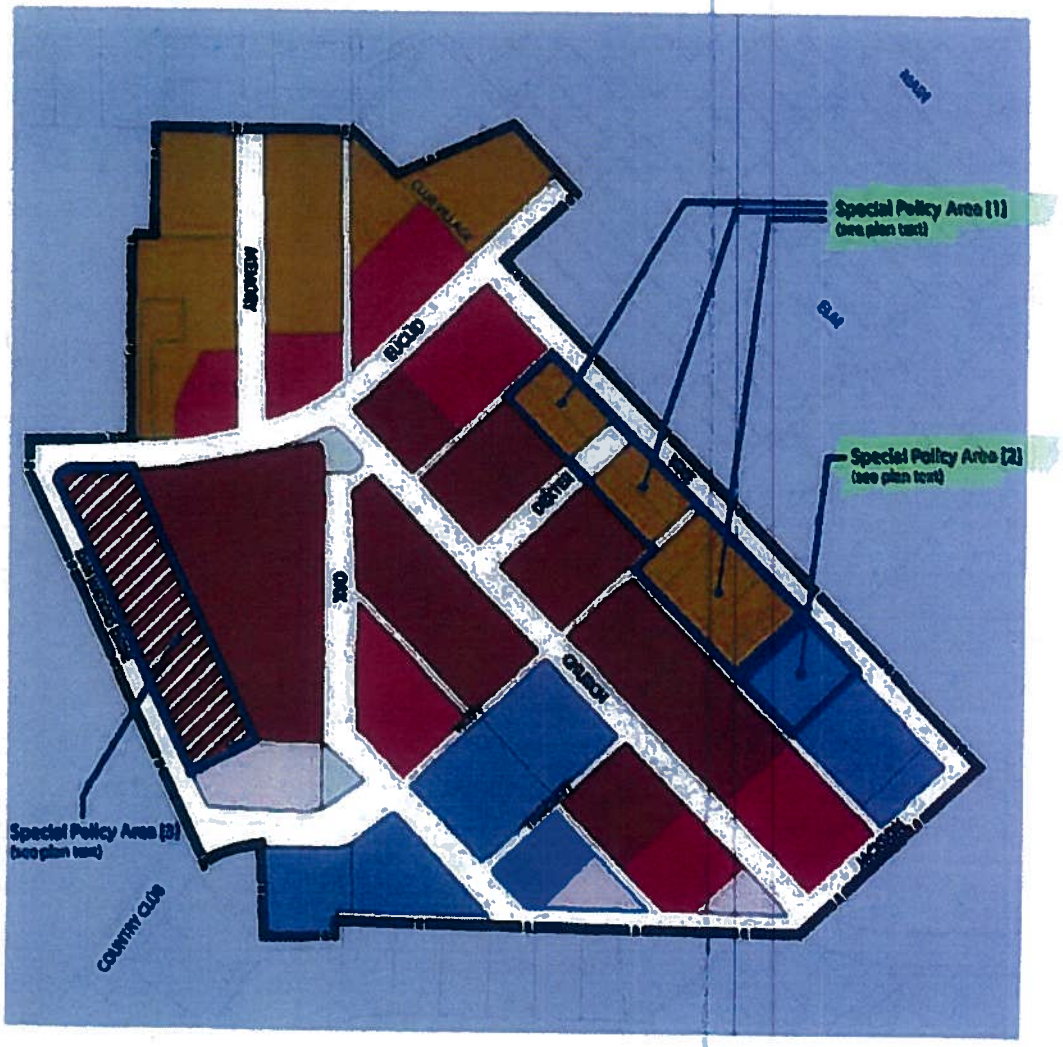
CRESTLINE VILLAGE

LAND USE POLICY MAP

PROPOSED LAND USE

- Village Residential
- General Commercial
- General Commercial - Retail Dominant
- Multi-Use - Retail Dominant
- Office
- Civic
- Cultural-Recreational
- Village Boundary Line
- Special Policy Area's Boundary

* for a complete set of future land use categories available city wide, see master plan



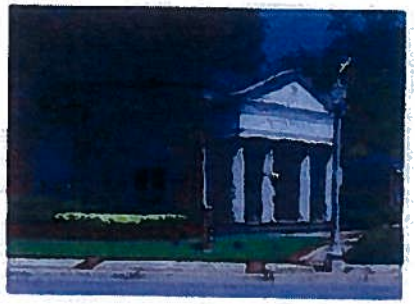
Crestline Village Special Policy Areas
The following areas in Crestline Village are specifically designated on the Land Use Policy Map. Because of their unique location in the Village, block, parcel, and lot configuration, they warrant the following special planning policies.

[1] *Special Policy Area 1* represents property fronting on Vine Street that is most appropriate for residential land uses in the future. However due to the longer street frontage along Vine Street and adjacency to the School and nearby neighborhoods, this area should only use the Townhouse building type enabled by the proposed new Residence F zoning district. Additionally, the Civic area further south and east along Vine Street is identified as a potential long-term parking solution for the Village, and the boundary line between these two *Special Policy Areas* may flex as specific opportunities and detailed designs for residential development and public parking occur in the future.

[2] *Special Policy Area 2* represents property fronting on Vine Street immediately north and west of the new School Board building. This property is currently City-owned, and is identified as part of a potential public parking solution for the Village. A number of different parking configurations may be possible utilizing this property as part of the solution. Any scenario should also emphasize a pedestrian connection directly to the Church Street frontage in the village (See Circulation and Urban Design Plan.) Any portions of this area which are not necessary for a public parking solution, or if a public parking solution is either not feasible on this site or is identified on another site, the remainder of this site may be appropriate for residential development under the Village Residential category of the future land use policy map, and as an extension of *Special Policy Area 1*.

[3] *Special Policy Area 3* represents part of the retail core of Crestline Village. However, opportunities to improve the frontage of the block that faces the Country Club and Dan Watkins Drive should also be considered in the future. This may allow the inclusion of upper level residential uses either fronting on or overlooking Dan Watkins Drive. Any future development should maintain a 3-story building height measured from Dan Watkins or 2-story when measured from the internal areas of the block.

Street-front Building Type



Free-standing Building Type

Townhouse Building Type

3.3 Building and Development Regulating Plan

The Building and Development Regulating Plan is a plan that recommends regulations for the kinds and classes of different building types, including the size, scale, orientation and basic design of each type. It is intended to supplement the base zoning district standards for specified portions of the study area, and ensure that appropriate building types and sizes are used in the Village regardless of the base zoning. This plan recommends modifications of the size, scale, orientation, and basic design of buildings which would otherwise be allowed under the general zoning regulations, based on a village-wide perspective, and the relationship of each building site to the public street and surrounding areas.

The Building and Development Regulating Plan is the basis for special zoning overlay standards that emphasizes building form (height, scale, façade design, and relationship to streets and open spaces) to better preserve the Village character, and may become official regulatory requirements upon official adoption of overlay standards by the City Council. The modifications and variations proposed by the Building and Development Regulating Plan are based upon a village-wide perspective, and address differences due to location and street types that parcels front on, as described by the following Frontage Types.

Primary Frontage – Primary frontages represent the pedestrian oriented core of the Villages where "permeable" street-front buildings with a first-level storefront design create an active streetscape environment supporting the Village character.

Secondary Frontage – Secondary frontages are important to the Village but building forms should not necessarily follow the higher design standards of Primary Frontages – possibly because locations need to accommodate automobile access to support the Village generally, or possibly because locations may accommodate building types for specific uses which cannot easily meet the Primary Frontage standards.

Support Frontage – Support frontages represent areas of the Village, that while important to the overall function of the Village, are not required to meet the Village building form standards due to use-specific needs for a site and/or building design, or to support other site utility functions such as vehicle and service access or access to parking.

Neighborhood Frontage – Neighborhood frontages represent residential areas that require some specific design transition from the streetscape area to the front building line. It is appropriate for townhouse or stacked flat buildings that feature entries through either a courtyard, a terrace, or stoop entrance. The required frontage design is typically based on site specific conditions taking into account the adjacent property and frontage designs on the opposite side of the street.

Colors of each line on respective block signify the building heights.

The plan and the frontages specified in the plan anticipate regulating for four principal building types, each of which there is precedent for in and around the villages.

Street-front Buildings – Buildings with immediate frontage on the street and most typically forming part of a group of buildings that for a continues block face or "street wall" along the block.

Free-standing Buildings – Buildings that may be set back from the street and occupy a lesser portion of a lot frontage due to other site needs at the location or for the uses in the building.

Townhouse Buildings – A group of buildings or building with a group of dwellings, each of which has a private entry from the street frontage and where lots for each building or dwelling may typically be independently owned despite the dwellings being joined.

Stacked Flat Buildings. A building for a group of dwellings which may share a common entrance and common internal space.

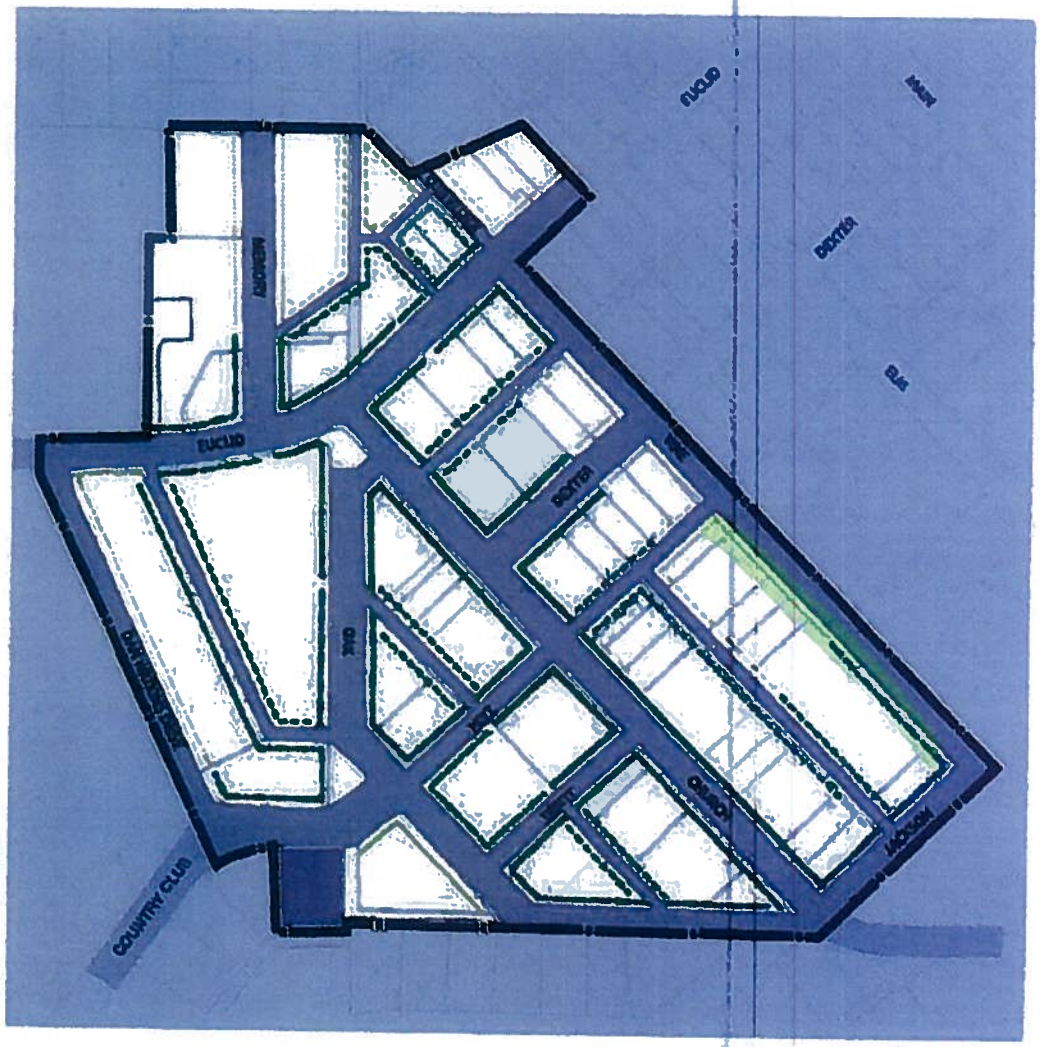
City of MOUNTAIN BROOK

CRESTLINE VILLAGE

BUILDING AND DEVELOPMENT REGULATING PLAN

BUILDING FRONTAGE TYPES

- Primary Frontage
  - 2 story
  - 3 story
- Secondary Frontage
  - 2 story
  - 3 story
- Support Frontage
  - 2 story
  - 3 story
- Residential ("Neighborhood") Frontage
  - 2 story
  - 3 story
- Village Boundary Line
- Area controlled by base zoning districts standards only



3.4 Circulation and Urban Design Plan

The Circulation and Urban Design Plan is a plan for guiding design of multiple projects that may occur in different areas or at different times in a coherent village-wide manner to achieve a consistent character for buildings, sites and public and private open spaces. It identifies things that, while they may not necessarily be regulated or required of private development in every case, they are important to the overall function and aesthetic character of the Village and therefore benefit from a Village-wide plan guiding their application.

The elements of the Circulation and Urban Design Plan deal primarily with the design of the public realm, or aspects of private site development that significantly impact the public realm. It includes the design of either public rights-of-way and open spaces which are not the subject of regulations on private development, but which are often impacted by or reconstructed in association with private development. In addition, it includes aspects of private site development which may be desired but not always mandatory, and which can benefit from considering them within the context of a Village-wide plan prior to incorporating them into individual sites. Elements on the Circulation and Urban Design Plan are:

Primary Village Street – A Primary Village Street is the most pedestrian oriented area of the Village. Vehicle lanes are narrow and balanced with wider sidewalks and maximized opportunities for on-street parking. It features frequent and more enhanced streetscape elements such as street-lights, benches, and landscape elements. Curb-cuts for vehicle access are limited or prohibited in favor of alleys or shared access provided off of Secondary or Support Streets.

Secondary Village Street – A Secondary Village Streets, while still reflecting the pedestrian character of the Village, may accommodate more automobile access and a lower level of streetscape enhancements. It performs a secondary circulation function in the Village.

Access or Service Alley – An Access or Service Alley is an area that accommodates service vehicles for businesses and secondary vehicle circulation or specific site access for vehicles. These areas may perform dual functions as a pedestrian Passage if enhanced design elements create a balance between pedestrians and vehicles or otherwise emphasize a priority for pedestrians through physical design elements.

Village Support Street – A Village Support Street is a street that is generally not designed to perform a commercial function or support immediately adjacent commercial uses. Typically these streets are residential, and the design should primarily emphasize residential characteristics and pedestrian access to the Villages. Additionally, although residential in nature these streets may also be key access points for vehicles into the villages from adjacent areas.

Passage – A Passage is a linear area primarily designed for pedestrian traffic or balanced pedestrian and vehicle traffic, often providing mid-block connections between Primary and Secondary Village Streets or access to public spaces internal to a block.

Greenway – A Greenway is a long, linear, and natural corridor that features a trail for pedestrians and/or bicycles.

Gateway – *A* Gateway is a small, pedestrian-scale, ornamental structure usually located along a roadway that signifies a transition or entry to a unique area. Gateways typically include common design themes at separate and remote locations that collectively define the uniform character of the area, but should contain variations on the theme in order to best fit into the specific location of the Gateway.

Public/Quasi-civic Open Space – Public or Quasi-Civic Open Spaces are small, well-designed spaces that

are in the right-of-way or are on private property as extensions of the streetscape. They include many pedestrian oriented elements and are areas that invite people to linger creating "gathering spaces" in the Village.

Landmark Architectural Feature – Landmark Architectural Features are minor elements of a building that, due to their enhanced ornamentation or differentiated mass, call attention to key points in the public realm. They are typically located at important corners or terminate views down a street corridor (i.e. at t-intersections or deflections in the street pattern). Landmark features should emphasize key architectural themes instrumental to the Village or building, and should never emphasize a specific use or corporation using a particular building.

Public/Private Parking – Public/Private Parking areas accommodate centralized surface or structured parking. These locations may be private, but are identified as ideal places for either privately shared parking arrangements, or for areas where public financial and/or policy participation in parking arrangements would be appropriate.

Enhanced Crosswalk – Enhanced Crosswalks are key crossing points where special attention to pedestrian amenities should be paid in the roadway and along the sidewalks. These are not necessarily the only crosswalks that should be located in the Villages, but that identify areas that due to high expected pedestrian traffic, or due to important interfaces between vehicles and pedestrians, may require a higher design emphasis than ordinary crosswalks.

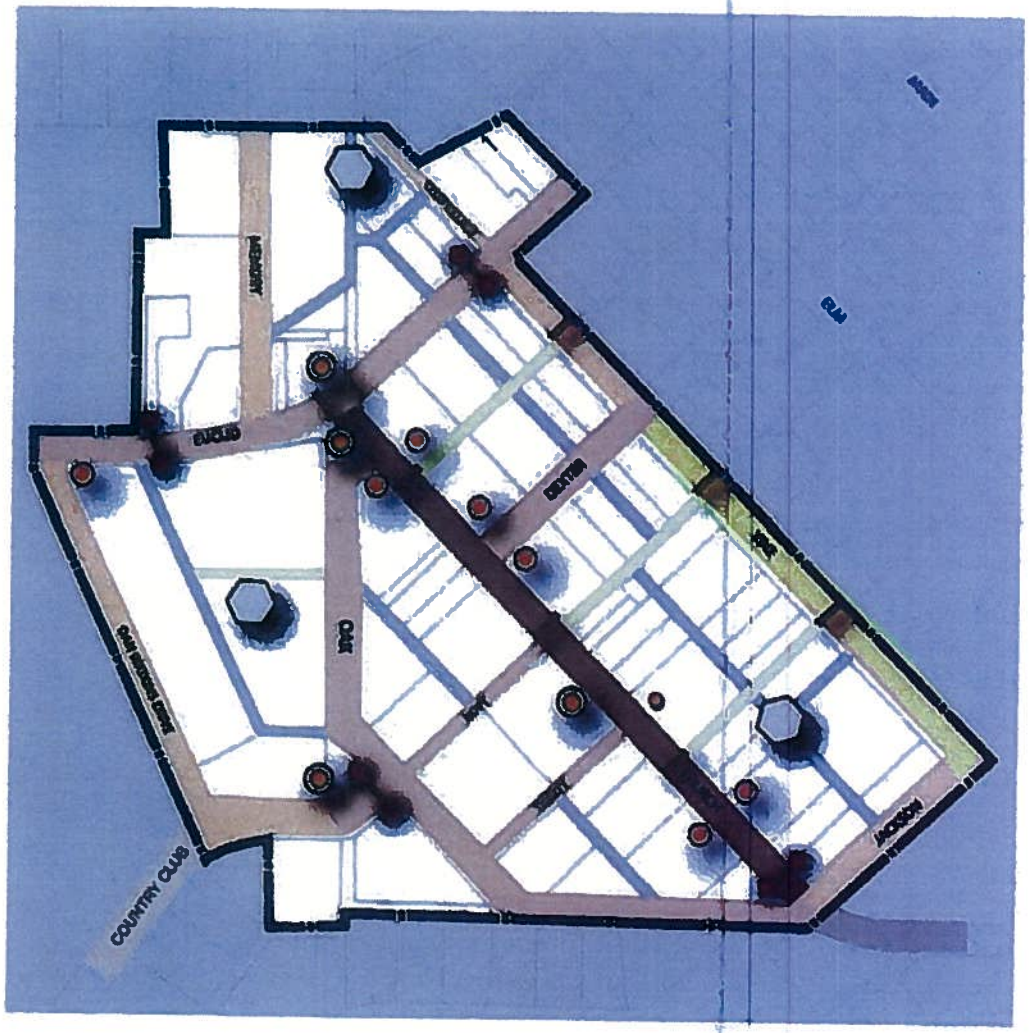
City of MOUNTAIN BROOK

CRESTLINE VILLAGE

CIRCULATION AND URBAN DESIGN PLAN

URBAN DESIGN ELEMENTS

- Primary Village Street
- Secondary Village Street
- Village Support Street
- Access-Service Alley
- Passage (Ped or Ped/Vehicle)
- Landmark
- Quasi-Civic / Public Open Space
- Open Space & Landmark
- Gateway
- Enhanced Crosswalk
- Public / Private Parking
- Village Boundary Line



4.0 Implementation

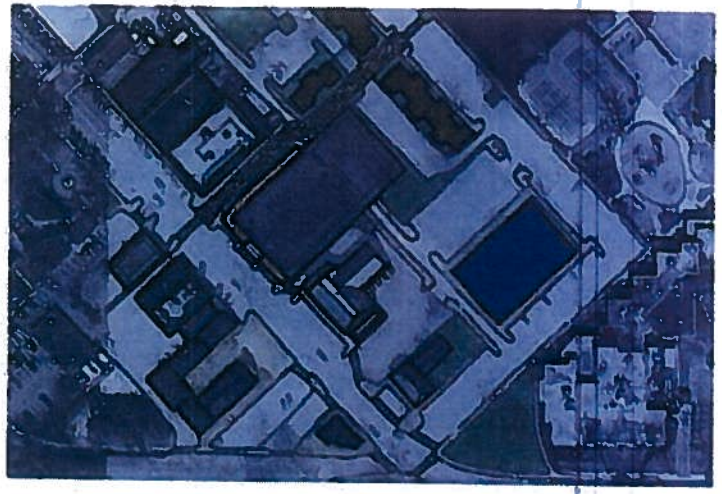
Implementation of the Village Master Plan is a long-term activity, but also occurs through the daily decisions made by the City, private property owners, developers, and businesses. The implementation strategies for Crestline Village arranged according to four key decision areas that are critical to the Village: Parking Management, Public Improvements, Regulatory Amendments, and Public/Private Partnerships.

4.1 Parking Management

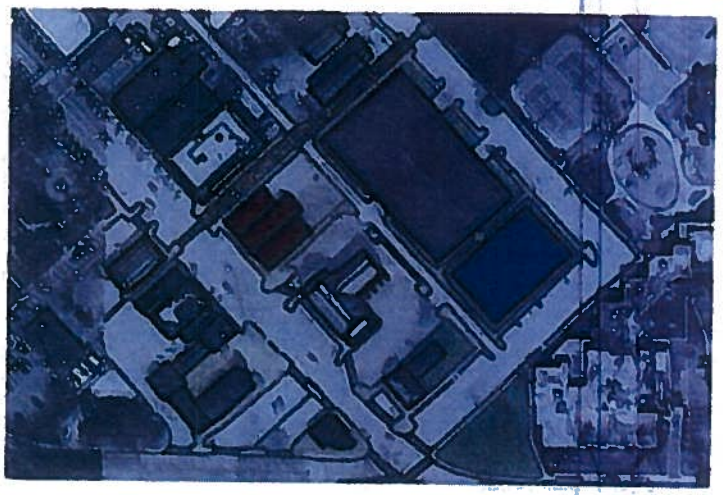
Parking Management contains a series of strategies that can address the parking problem in three significant aspects – a long-term solution, a village-wide approach, and finding the *optimal* parking supply, recognizing that both too much and too little parking are both problems for the Village and maintaining its pedestrian-oriented character.

Parking Management Implementation Strategies	Immediate	0-2 Years	3-5 Years	5+ Years
Implement a zone management strategy for regulating on-street parking, with priority spaces on Church in the shortest time period, and more remote spaces such as Vine Street and Dan Watkins in the longer-term category.	☑			
Begin preparing for a public/private partnership for a parking structure that is publicly accessible, and allows either publicly funded or en lieu parking fees for new development. Locations should be coordinated with redevelopment based upon the Circulation and Urban Design Plan. Funding, potential partners, and potential locations should begin to be identified.		☑		
Reserve the current city-owned property as a potential portion of a future public/private parking structure [See Option 1 and Option 2 regarding how this property could contribute to a structured parking solution.]	☑			
Monitor current escalating fine system in association with any new zone management strategy to ensure that enforcement has the maximum intended effect. Consider either shorter time periods of recurring fines before fees escalate, or higher escalation in enforcement continues to be an issue.			☑	
Continue discussions and consideration of pay parking programs (if management is not successful and opportunities for structures do not materialize). Proceeds would go to improved streetscape, and enforcement activities in the specific area.				☑
Adopt regulations that allow for the following: • Credits for any new on-street parking created with redevelopment activity. • "By right" 1 for 1 replacement of ground-level retail space for new development that does not remove any existing parking. • Options for off-site remote parking, possibly allowing for reduction in total requirements with shared parking agreements.	☑			

Concept – Parking Option 1. This concept shows a parking structure incorporated into the surface lot between the CVS and the Bank. (Grey is the proposed parking structure footprint; blue is the approximate location of the new School Board facility currently under construction). A pedestrian passage to the school site provides connectivity through this large block. Street level linear space fronts the structure along the Passage and Church Street (10' to 20' deep.) This space could supply display space for art or public information, or pedestrian-oriented aspects of the adjacent businesses (Bank ATM or outdoor display space for CVS, or other vendor elements.) The purpose of this space would be a utilization that animates the streetscape. This is a public/private partnership that would need to involve the current businesses and property owners. The remainder of the City's property on Vine Street is converted to town homes.



Concept – Parking Option 2. This concept shows a parking structure incorporated on the City's property and the School Board's surface parking lot. (Grey is the proposed parking structure footprint; blue is the approximate location of the new School Board facility currently under construction; red is potential new retail space freed up by a parking structure.) A pedestrian passage to the school site provides connectivity through this large block. This is a public partnership that would need to involve the School Board and the City. If an adequate public supply of parking is found for the village through this strategy (and other strategies), this could enable some of the surface lots currently on Church Street to eventually be filled in with street-front buildings at the property owners' discretion.



4.2 Public Improvements

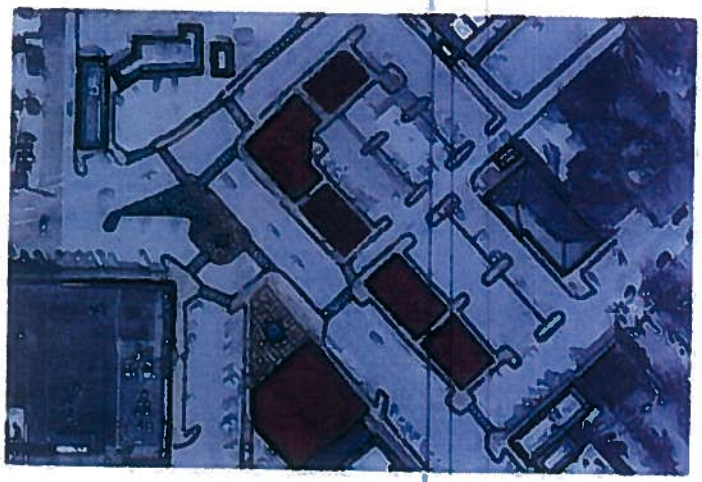
The Public Improvement strategies represent things that impact the "Public Realm" of the Village – most often the public rights-of-way. As construction projects are conducted, whether in association with new development, through normal repair and maintenance, or through more comprehensive streetscape improvement programs, attention to the detail designs of the Public Realm can have a significant impact on the Village. Refer to the Crestline Village Circulation and Urban Design Plan in Section 3.4.

Public Improvement Implementation Strategies	Immediate	0-2 Years	3-5 Years	5+ Years
Open Space across from Library: Reserve the triangular right-of-way at the corner of Oak Street and Country Club for public open space to mirror the Library's courtyard on the opposite corner. Consider acquisition of more of the parcel to the west for a larger open space – possibly incorporating outdoor events space – across the frontage opposite the Library. Acquisition could come through purchase, a land swap with other developable City-owned property (i.e. the remainder of any Vine Street property that is not part of a parking solution), or through a development rights transfer to other portions of the same parcel further towards Euclid if redevelopment occurs.	☑			
Crestline and Hoyt Crossing Treatment: Improve the pedestrian crosswalk treatment at the intersection of Crestline and Hoyt. The existing pedestrian crossing signal is always flashing and drivers have become complacent about yielding to pedestrians. Treatments to consider would be a pedestrian button activated flashing yield sign. *[See Image at the end of the section.]*	☑			
Church and Oak Crosswalk and Crossing Treatment: Add pedestrian crosswalk and pedestrian button activated flashing yield sign. This crosswalk should remove the primary crossing of Church out of the vehicular flow from Oak to Church to Euclid, and serve pedestrian flow from the alley between Dexter and Euclid. [See detail concept at the end of this section.]		☑*		
Church and Jackson: Add pedestrian button activated flashing yield sign where crosswalk currently exists.	☑			
Pedestrian Alley between Euclid and Dexter: Create a pedestrian connection that incorporates pavement design, brick, or cobblestone utilizing the alley between Euclid and Dexter approaching Church to promote the pedestrian prominence that is shared equally between pedestrian, bicycle, and vehicle.		☑		
Hoyt Pedestrian Alley between Euclid and Dexter: Create a pedestrian connection that incorporates pavement design, brick, or cobblestone utilizing the alley which is the extension of Hoyt Lane east of Church to promote the pedestrian prominence that is shared equally between pedestrian, bicycle, and vehicle.		☑		
Church Parking Restriction Signs Near Dexter: Sign parking spaces along Church on either side of the intersection with Dexter to prohibit van and truck parking to improve line of sight.		☑		
New Pedestrian Passage: Vine to Church. Implement a new pedestrian passage between Vine and Church to bisect the block bounded by Jackson, Church, Dexter, and Vine. This passage would provide a new direct connection to the village from the school (and the many community functions at the athletic fields) as well as from any public parking that can be created within this block. [See Options 1 and 2 for details associated with Parking Management strategies in the previous section.]			☑*	

* Indicates that strategy should be associated with new development on one of the adjacent sites, and may fall outside of the recommended timeframe.

Pedestrian button activated flashing yield sign. Research has indicated a very high compliance with this technique as it only flashes when a pedestrian is present. Additional enhancements might include crosswalk treatment and even an elevation of the crosswalk that also acts as a speed table.

Concept - Church/Oak / Euclid Pedestrian Crossings. This detail shows the context for how improved pedestrian crossings on Church work within the overall Circulation Plan of the Village (see Crestline Village Circulation and Urban Design Plan in Section 3.4.) This detail shows the crossing aligning with the alley between Dexter and Euclid, which could be improved as a Pedestrian Passage from the Neighborhoods, and also work in association with new street-front buildings developed on Church.



4.3 Regulatory Amendments

Regulatory Amendments reflect both recommended text changes to the current zoning regulations of the City, as well as potential rezoning of property that may occur with future redevelopment. All of the recommended regulatory amendments are efforts to be more prepared to implement the future Land Use Policy Map over the long-term life of the Village Master Plan. (Proposed regulatory amendments were included in an Appendix to all review drafts of the plans; refer to the City of Mountain Brook Zoning Ordinance for all official and current regulations.)

Regulatory Implementation Strategies	Immediate	0-2 Years	3-5 Years	5+ Years
Adopt the revised general Local Business District provisions and adopt the recommended Village Overlay Standards based on the Crestline Village Building and Development Regulating Plan in Section 3.3.	☑			
Adopt the new Residence F and G as a new districts appropriate for future application to "Village Residential" areas of the Future Land Use Policy Map.		☑*		

* Indicates that strategy should be associated with new development on one of the adjacent sites, and may fall outside of the recommended timeframe.

4.4 Public Private Partnerships

Public/Private Partnerships refer to those things that are the least likely to be City initiated. These elements refer to the partnerships that occur among many stakeholders in the Villages to result in a more coordinated decision-making methodology that keeps the Vision of the Villages at the forefront of those decisions.

In general, to assist with implementation of all of the Village Master Plans, a stronger business association should be developed for the City to represent all Villages. This association will be the starting point for taking the necessary steps to pursue some form of Business Improvement Districts within the Villages. Two options are highlighted in the Market Strategies Report, prepared in association with this planning process. They include a Main Street Program, possibly coordinated at the Birmingham Regional level, and pursuing state legislation to allow the state BID statutes to apply to smaller towns. Refer to the Market strategies report for more details on these programs and implementation strategies

SAIN associates
consulting engineers & surveyors

October 3, 2014

Mr. Sam Gaston
City Manager
City of Mountain Brook
Post Office Box 130009
Mountain Brook, AL 35213

Subject: Traffic Study Review for Piggly Wiggly Development on Vine Street
SA #14-0228

Dear Sam:

At the City's request, I conducted a review of the Traffic Impact Study prepared by Mr. Richard Caudle, P.E. of Skipper Consulting, Inc. for the proposed Crestline Piggly Wiggly development on Vine Street. Overall I found the study to be thorough, well documented, and in conformity with accepted traffic engineering practices.

Following is a summary of specific items that I believe are noteworthy in the Traffic Impact Study:

- Mr. Caudle used a conservatively high annual growth rate of 3.0% to predict background traffic conditions in the year 2019. My expectation is that the actual annual growth rate would be closer to 1%. This means that the traffic volume estimates may err on the high side by a slight amount.
- The study area included in the analysis is appropriate for the size and type of development.
- As noted in the report, there are existing level of service deficiencies at the intersections of Church Street with West Jackson Boulevard and with Montevallo Road that will be made slightly worse by the proposed grocery store. I agree with Mr. Caudle's assessment that there are no reasonable improvements to mitigate the traffic impacts at these locations.
- The traffic report recommends switching the orientation of stop signs at the intersection of Dexter Avenue and Vine Street. I agree with the recommendation.
- The report describes existing and future operational deficiencies at the intersection of Dexter Avenue and Church Street and recommends installation of a traffic signal to mitigate those deficiencies. I agree that traffic signal installation, if warranted according to the Manual on Uniform Traffic Control Devices, is an acceptable solution to achieve adequate levels of service. The City, however, will need to carefully consider the design implications of signalization and how installation may impact on-street parking that currently exists within the intersection as well as pedestrian crossing accommodations.
- Mr. Caudle has addressed in detail the challenges of accommodating truck deliveries to the proposed grocery store. The figures in the report clearly show that large trucks will encroach across travel lanes on Dexter Avenue and Church Street as they leave the store. These types of encroachments are typical in tight urban conditions and are a trade-off associated with urban

infill development. I concur with Mr. Caudle's recommendation that trucks be restricted from deliveries between the hours of 6:30 a.m. and 6:00 p.m. This will limit the occurrence of encroachments to hours when traffic and parking in the village is at its lowest levels.

- The report presents a review of one-way and two-way operation on West Jackson Boulevard and Vine Street. My recommendation is to maintain two-way flow during non-school hours on Vine Street from Dexter Avenue to the eastern edge of the Piggly Wiggly property in order to facilitate neighborhood access to the recreational field and retail establishments on Vine Street. The section of West Jackson Boulevard and Vine Street adjacent to the school and Board of Education building could be converted to 24-hour one-way flow if the City desires to make that change.
- Since my review of the traffic study report, the developer has revised the site plan to eliminate one driveway to the Piggly Wiggly on Vine Street and create a circulation loop within the parking lot. I believe these changes are a good modification to the plan.

I hope this summary will be helpful to the City as you consider the development request. If you have questions or need additional assistance, please contact me.

Sincerely,

Becky White

Becky White, PTP
Vice President / Organization Development

SAIN
associates

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SKIPPER Consulting, Inc.

3644 Vann Road, Suite 100
Birmingham, Alabama 35235
Phone (205) 655-8855 Fax (205) 655-8825

October 8, 2014

Ms. Dana Hazen, MPA, AICP
City Planner
City of Mountain Brook
56 Church Street
Mountain Brook, Alabama 35213

RE: Conditional Use Request
Pops Club, Inc. - Vine Street

Dear Ms. Hazen:

This letter was prepared to support a conditional use request for the relocation of Pops Club, Inc. from its current location on Vine Street to an existing lot on the opposite side of Vine Street and adjacent to the playing field for Crestline Elementary Club. It is our understanding that the primary use of Pops Club, Inc. is for the Girl Scouts of America, and is primarily used during the time period of 3:00 to 6:00 p.m. weekdays and is primarily used by students of Crestline Elementary School who walk to the building from the school and are then picked up at a later time.

Our understanding of the current proposal is that the existing structure which is occupied by Pops Club, Inc. will be moved to the vacant lot on the opposite side of Vine Street to make way for the construction of a proposed Piggly Wiggly grocery store. The traffic impacts of the proposed Piggly Wiggly grocery store are documented in a report prepared by Skipper Consulting, Inc. dated October 3, 2014. This traffic study included traffic counts performed within the study area (Vine Street, Church Street, and Dexter Avenue) in May, 2014. These counts were performed from 2:30 to 3:30 p.m. and 4:00 to 6:00 p.m. Since Pops Club, Inc. was in existence at that time, and no change in use is intended upon relocation of the building, the traffic generated by Pops Club, Inc. is already taken into account in the traffic impact study for the Piggly Wiggly. It is our opinion that relocation of Pops Club, Inc. to the opposite side of Vine Street will cause no change in traffic patterns within the study area.

For Skipper Consulting, Inc.

Richard L. Caudle, P.E.

cc: Jeffrey Brewer, GMC

City of Mountain Brook

Dana Hazen <hazend@mtnbrook.org>

RE: revised Pig cases

1 message

White, Becky <bwhite@sain.com> Wed, Oct 15, 2014 at 11:15 AM
To: Dana Hazen <hazend@mtnbrook.org>
Cc: "Gaston, Sam" <gastons@mtnbrook.org>

Dana and Sam,

I have reviewed the rezoning applications transmitted on Monday by Dana which includes Richard Caudle's letter concerning relocation of the Scout House. I agree with Mr. Caudle's assertion that the traffic impacts associated with the Scout House are already addressed in the traffic impact study previously submitted for the Piggly Wiggly development. I have no comments beyond those already stated in my previous letter (dated Oct. 3, 2014).

Becky White, PTP

From: White, Becky
Sent: Tuesday, October 14, 2014 8:09 AM
To: Dana Hazen; White, Becky
Cc: Gaston, Sam
Subject: RE: revised Pig cases

Dana,

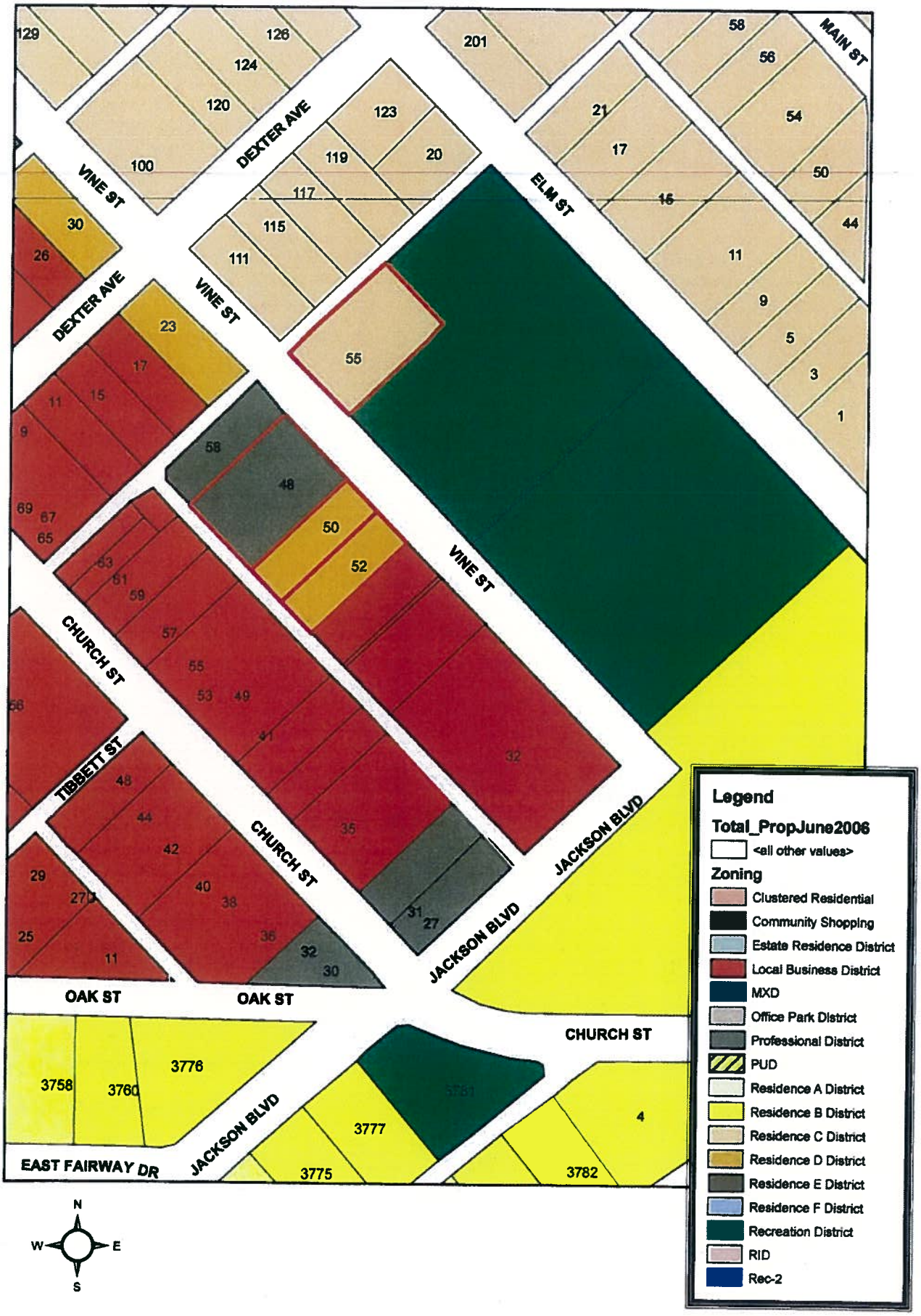
I've been out of the office and won't return until Wednesday. I'll look at the attachments then but from my conversations with Richard Caudle I don't anticipate it will alter my previous assessment.

Becky White

Sent from my Verizon Wireless 4G LTE smartphone

------ Original message ------
From: Dana Hazen <hazend@mtnbrook.org>
Date:10/13/2014 4:11 PM (GMT-05:00)
To: "White, Becky" <bwhite@sain.com>
Cc: "Gaston, Sam" <gastons@MTNBROOK.org>
Subject: revised Pig cases

1931-1934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DEXTER AVE
VINE ST
CHURCH ST
TIBBETT ST
JACKSON BLVD
OAK ST
EAST FAIRWAY DR
Legend
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<all other values>
Zoning
Clustered Residential
Community Shopping
Estate Residence District
Local Business District
MXD
Office Park District
Professional District
PUD
Residence A District
Residence B District
Residence C District
Residence D District
Residence E District
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Recreation District
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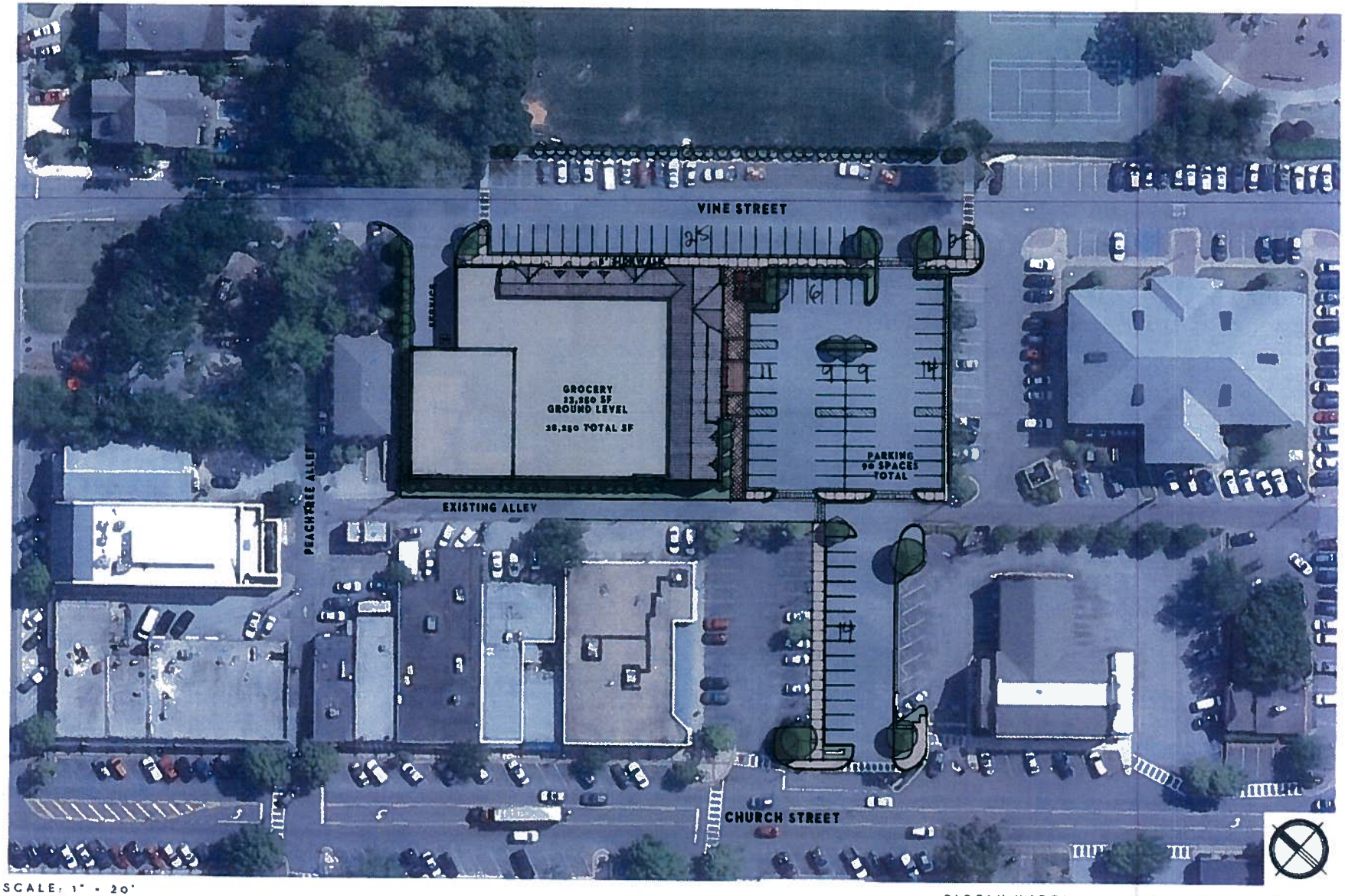
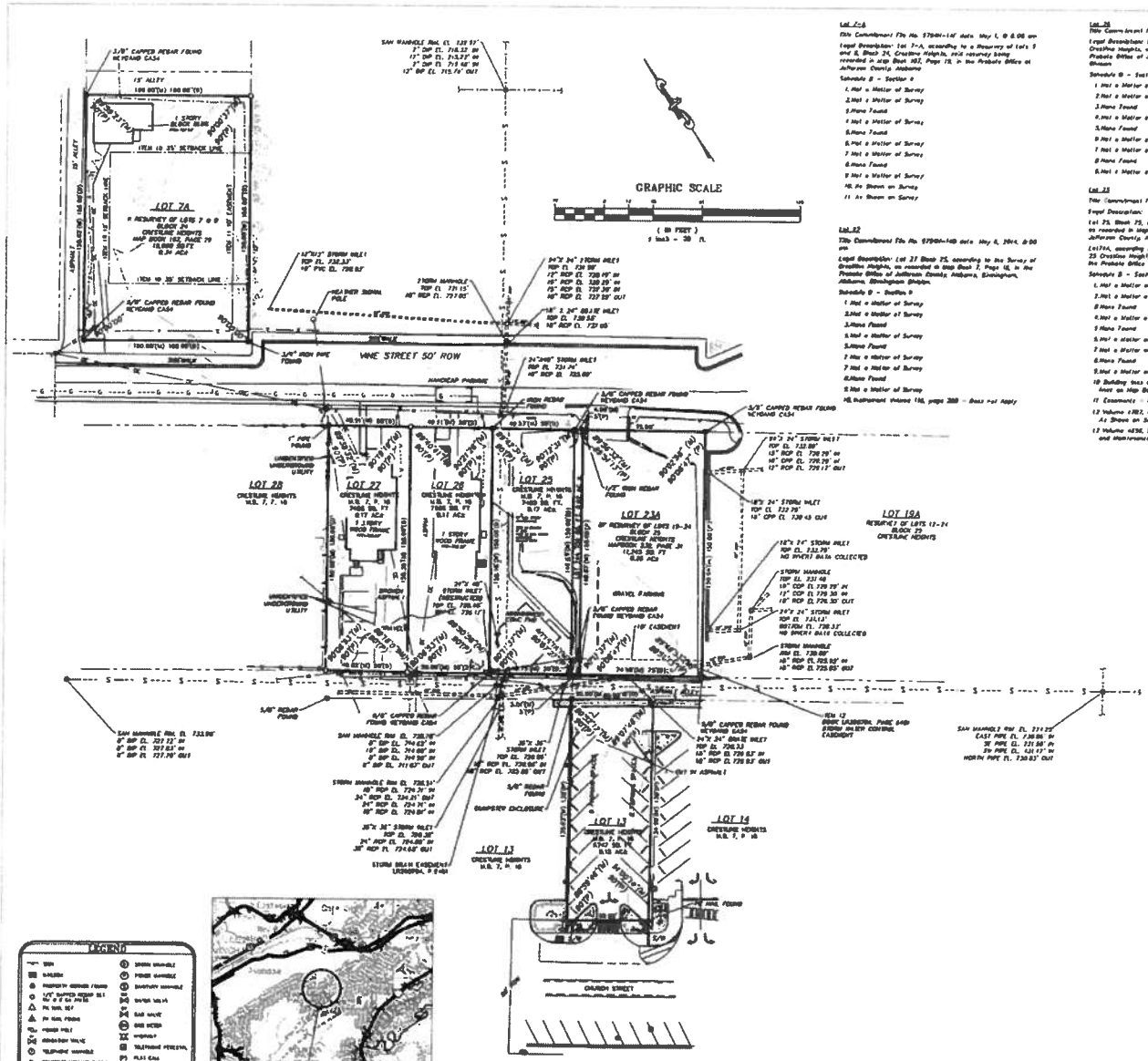


SCALE: 1" = 20'

PIGGLY WIGGLY CRESTLINE VILLAGE MOUNTAIN BROOK, AL

GOODWYN | MILLS | CAWOOD

PRELIMINARY SITE PLAN



ALTA/ACSM Land Title Survey

GOODWYN | MILLS | CAWOOD

2701 1st Ave South, Suite 100 | Birmingham, AL 35233
Tel 205.879.4461 | GMCNETWORK.COM

ISSUE	DATE
Issued	6.13.14

drawn by: ELS
checked by: VMP

CRESTLINE HEIGHTS RETAIL

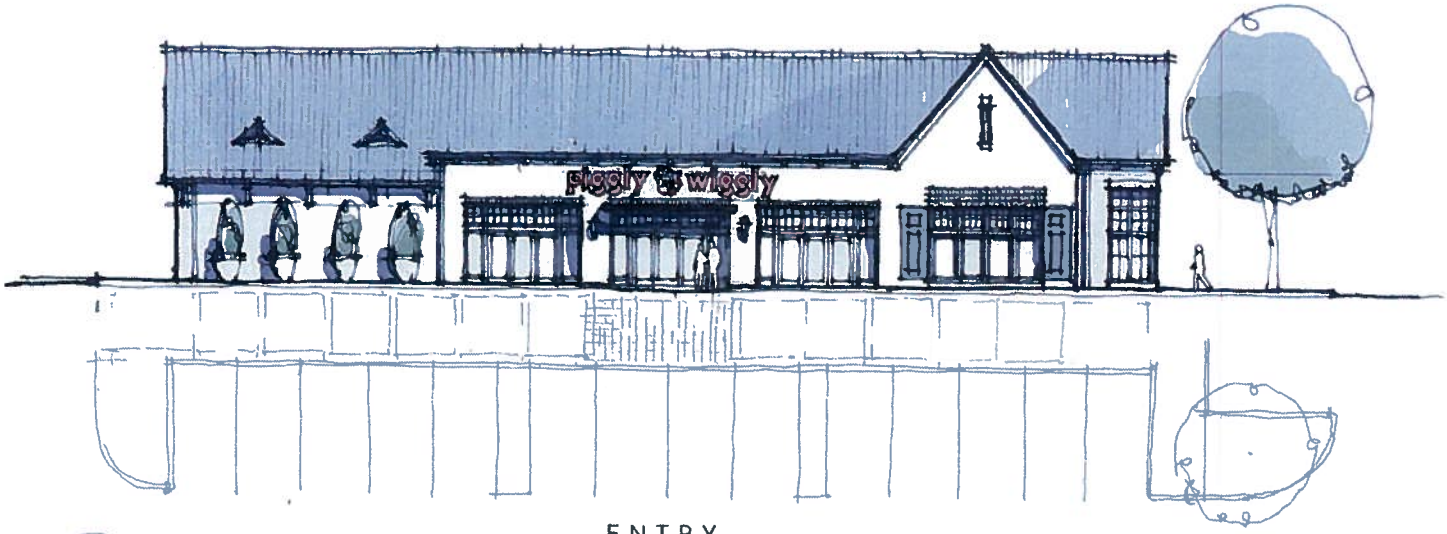
CBHM140067

ALTA/ACSM Land Title Survey

sheet 1 of 1

1931- 1933 #1934

1931 – 1933



ENTRY

VINE STREET

SCALE: 1" = 100'

PIGGLY WIGGLY · CRESTLINE VILLAGE

MOUNTAIN BROOK, AL

GOODWYN | MILLS | CAWOOD

PRELIMINARY ELEVATION STUDIES

piggly wiggly
CRESTLINE PIGGLY WIGGLY

1931

PLANNING COMMISSION
PART I

Project Data

Address of Property: 42 Vine Street, Mountain Brook, Alabama 35213 (per Tax records), aka 52 Vine Street, Mountain Brook, Alabama 35213 (per Zoning maps)

Zoning Classification: Residence D District

Name of Property Owner(s): The Mountain Brook Pop's Club, Inc.

Phone Number: (205) 807-2770

Name of Representative Agent (if applicable):

Ajlouny Investments, LLC, Naseem M. Ajlouny

Phone Number: (205) 531-7415

Property owner or representative agent must be present at hearing

Plans

See applicable Section of the Zoning Ordinance for submittal requirements pertaining to your particular application. Applicable Code Section may be found in Part II, list of application types. Contact City Planner with any specific questions as to required plans submittal. Preliminary and Final Plat submittal requirements are outlined *(generally)* below.

1931

Excerpt from Application

Lot 26 – Basic Requirements for Application for Rezoning

9. *A preliminary site plan consisting of, at a minimum, a dimensioned drawing of the parcel showing at least the location of:*
   a. *Existing and proposed buildings and other structures:*
      1. Footprints of existing buildings shown with a dashed line on PRELIMINARY SITE PLAN; all other existing structures are indicated on the property survey, which is ghosted on PRELIMINARY SITE PLAN. See attached separate SURVEY EXHIBIT for full detail.
      2. Footprint of proposed building shown on PRELIMINARY SITE PLAN with a solid line, filled orange, and labeled GROCERY.
   b. *Any existing or proposed easements or rights-of-way:*
      The existing 10' sewer easement on Lot 25, abutting the eastern edge of Lot 26, as shown on SURVEY EXHIBIT may be expanded to 20' with the construction of the future building, per Jefferson County Environmental Services.
   c. *Lot and yard areas, and how they are to be used:*
      1. Lot area is indicated with a divided line outlined in red on PRELIMINARY SITE PLAN.
         The lot area will be used for the construction of a retail grocery store
      2. Yard area: building setbacks for Street-Front Building Type, are indicated on PRELIMINARY SITE PLAN with a long dashed line and consist of the edge of the proposed sidewalk along Vine Street, 5' minimum side setback, and 10' minimum rear setback, along the alley.
         The yard areas will be used for pedestrian circulation and as a buffer to the alley, as shown on PRELIMINARY SITE PLAN.
   d. *Parking areas and the location or locations at which motor vehicles will have ingress to, and egress from, the parcel:*
      1. Parking will be provided in an adjacent parking lot located on Lot 23A, Lot 24A and Lot 25; by new on-street spaces along Vine Street; and by shared parking with Regions Bank in the parking lot on Lot 13, as shown on PRELIMINARY SITE PLAN.
      2. Vehicular ingress to and egress from the parking lot adjacent to the parcel will be by way of one parking lot access point from Vine Street and two access points from the alley, as shown on PRELIMINARY SITE PLAN. Ingress to and egress from the parking lot shared by Regions Bank on Lot 13 will be by one access point from Church Street and one access point from the alley, as shown on PRELIMINARY SITE PLAN.
   e. *Water supply facilities:*
      Existing water supply line along Vine Street is indicated on PRELIMINARY SITE PLAN with a blue line.
   f. *Sewage disposal facilities:*
      Existing sewer lines, along the alley and running north and south through Lot 25, are indicated on PRELIMINARY SITE PLAN with a brown line.

NOTE: Attached PRELIMINARY SITE PLAN shows the intended use of Lot 26, Lot 27, and Lot 28A (all to be submitted for application to be re-platted as one parcel if rezoning applications are granted) for the construction of a retail grocery store; and Lot 13, Lot 23A, Lot 24A and Lot 25 for parking.

1932

PLANNING COMMISSION
PART I

Project Data

Address of Property: 50 Vine Street, Mountain Brook, Alabama 35213

Zoning Classification: Residence D District

Name of Property Owner(s): Ben and Jean Burford

Phone Number: (205) 222-7716

Name of Representative Agent (if applicable):

Ajlouny Investments, LLC, Naseem M. Ajlouny

Phone Number: (205) 531-7415

☒ Property owner or representative agent must be present at hearing

Plans

☒ See applicable Section of the Zoning Ordinance for submittal requirements pertaining to your particular application. Applicable Code Section may be found in Part II, list of application types. Contact City Planner with any specific questions as to required plans submittal. Preliminary and Final Plat submittal requirements are outlined *(generally)* below.

Excerpt from Application 1932

Lot 27 – Basic Requirements for Application for Rezoning

9. *A preliminary site plan consisting of, at a minimum, a dimensioned drawing of the parcel showing at least the location of:*
   a. *Existing and proposed buildings and other structures:*
      1. Footprints of existing buildings shown with a dashed line on PRELIMINARY SITE PLAN; all other existing structures are indicated on the property survey, which is ghosted on PRELIMINARY SITE PLAN. See attached separate SURVEY EXHIBIT for full detail.
      2. Footprint of proposed building shown on PRELIMINARY SITE PLAN with a solid line, filled orange, and labeled GROCERY.
   b. *Any existing or proposed easements or rights-of-way:*
      There are no existing or proposed easements or rights-of-way on the parcel.
   c. *Lot and yard areas, and how they are to be used:*
      1. Lot area is indicated with a divided line outlined in red on PRELIMINARY SITE PLAN.
         The lot area will be used for the construction of a retail grocery store.
      2. Yard area: building setbacks for Street-Front Building Type are indicated on PRELIMINARY SITE PLAN with a long dashed line and consist of the edge of the proposed sidewalk along Vine Street, and 10' minimum rear setback, along the alley.
         The yard areas will be used for pedestrian circulation and as a buffer to the alley, as shown on PRELIMINARY SITE PLAN.
   d. *Parking areas and the location or locations at which motor vehicles will have ingress to, and egress from, the parcel:*
      1. Parking will be provided in an adjacent parking lot located on Lot 23A, Lot 24A and Lot 25; by new on-street spaces along Vine Street; and by shared parking with Regions Bank in the parking lot on Lot 13, as shown on PRELIMINARY SITE PLAN.
      2. Vehicular ingress to and egress from the parking adjacent to the parcel will be by way of one parking lot access point from Vine Street and two access points from the alley, as shown on PRELIMINARY SITE PLAN. Ingress to and egress from the parking lot shared by Regions Bank on Lot 13 will be by one access point from Church Street and one access point from the alley, as shown on PRELIMINARY SITE PLAN.
   e. *Water supply facilities:*
      Existing water supply line along Vine Street is indicated on PRELIMINARY SITE PLAN with a blue line.
   f. *Sewage disposal facilities:*
      Existing sewer lines, along the alley and running north and south through Lot 25, are indicated on PRELIMINARY SITE PLAN with a brown line.

NOTE: Attached preliminary site plan shows the intended use of Lot 26, Lot 27, and Lot 28A (all to be submitted for application to be re-platted as one parcel if rezoning applications are granted) for the construction of a retail grocery store; and Lot 13, Lot 23A, Lot 24A and Lot 25 for parking.

1933

PLANNING COMMISSION
PART I

Project Data

Address of Property: 48 Vine Street, Mountain Brook, Alabama 35213

Zoning Classification: Professional District

Name of Property Owner(s): Beverly Ann McGill aka Beverly M. Shaffer

Phone Number: (205) 427-8473

Name of Representative Agent (if applicable):

Ajlouny Investments, LLC, Naseem M. Ajlouny

Phone Number: (205) 531-7415

☒ Property owner or representative agent must be present at hearing

Plans

☒ See applicable Section of the Zoning Ordinance for submittal requirements pertaining to your particular application. Applicable Code Section may be found in Part II, list of application types. Contact City Planner with any specific questions as to required plans submittal. Preliminary and Final Plat submittal requirements are outlined *(generally)* below.

Excerpt from Application 1933

Lot 28A – Basic Requirements for Application for Rezoning

9. *A preliminary site plan consisting of, at a minimum, a dimensioned drawing of the parcel showing at least the location of:*
   a. *Existing and proposed buildings and other structures:*
      1. Footprints of existing buildings shown with a dashed line on PRELIMINARY SITE PLAN; all other existing structures are indicated on the property survey, which is ghosted on PRELIMINARY SITE PLAN. See attached separate SURVEY EXHIBIT for full detail.
      2. Footprint of proposed building shown on PRELIMINARY SITE PLAN with a solid line, filled orange, and labeled GROCERY; within this footprint is a proposed second-story storage mezzanine, labeled MEZZANINE.
   b. *Any existing or proposed easements or rights-of-way:*
      Existing utility easements of 10' along northern boundary (side) and western boundary (rear/alley) and 7.5' along southern boundary are shown on PRELIMINARY SITE PLAN and separate SURVEY EXHIBIT. These easements contain no existing utilities and are intended to be vacated.
   c. *Lot and yard areas, and how they are to be used:*
      1. Lot area is indicated with a divided line outlined in red on PRELIMINARY SITE PLAN.
         The lot area will be used for the construction of a retail grocery store and service access to said store.
      2. Yard area: building setbacks for Street-Front Building Type are indicated on PRELIMINARY SITE PLAN with a long dashed line and consist of the edge of the proposed sidewalk along Vine Street, 5' minimum side setback, and 10' minimum rear setback, along the alley.
         The yard areas will be used for pedestrian circulation and as a buffer to the alley and adjacent property, as well as for service access to the grocery store, as shown on PRELIMINARY SITE PLAN.
   d. *Parking areas and the location or locations at which motor vehicles will have ingress to, and egress from, the parcel:*
      1. Parking will be provided in an adjacent parking lot located on Lot 23A, Lot 24A and Lot 25; by new on-street spaces along Vine Street; and by shared parking with Regions Bank in the parking lot on Lot 13, as shown on PRELIMINARY SITE PLAN.
      2. Vehicular ingress to and egress from the parking lot adjacent to the parcel will be by way of one parking lot access point from Vine Street and two access points from the alley, as shown on PRELIMINARY SITE PLAN. Ingress to and egress from the parking lot shared by Regions Bank on Lot 13 will be by one access point from Church Street and one access point from the alley, as shown on PRELIMINARY SITE PLAN.
      3. Service access for the grocery store is from Vine Street, as shown on PRELIMINARY SITE PLAN.
   e. *Water supply facilities:*
      Existing water supply line along Vine Street is indicated on the preliminary site plan with a blue line.

f. Sewage disposal facilities:

Existing sewer lines, along the alley and running north and south through Lot 25, are indicated on the preliminary site plan with a brown line.

NOTE: Attached preliminary site plan shows the intended use of Lot 26, Lot 27, and Lot 28A (all to be submitted for application to be re-platted as one parcel if rezoning applications are granted) for the construction of a retail grocery store; and Lot 13, Lot 23A, Lot 24A and Lot 25 for parking.

Traffic Impact Study

Crestline Piggly Wiggly

Mountain Brook, Alabama

Prepared for:

Goodwyn, Mills and Cawood, Inc.
Birmingham, Alabama

SKIPPER CONSULTING INC.

September 2014
Revision 1 October 2014

Traffic Impact Study

Crestline Piggly Wiggly

Mountain Brook, Alabama

Prepared for:

Goodwyn, Mills, and Cawood, Inc.
2701 First Avenue South, Suite 100
Birmingham, Alabama 35223
Phone (205)879-4462
Fax (205) 879-4493

Prepared by:

Skipper Consulting, Inc.
3644 Vann Road, Suite 100
Birmingham, Alabama 35235
Phone (205) 655-8855
Fax (205) 655-8825

ALABAMA REGISTERED No. 20061 PROFESSIONAL ENGINEER RICHARD LYN CAUDLE

SIGNED: Richard Caudle
DATE: 10/3/14

SKIPPER CONSULTING INC.

September 2014
Revision 1 October 2014

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Appendix B Existing Intersection Turning Movement Traffic Counts
Appendix C Existing Intersection Capacity Analysis Worksheets
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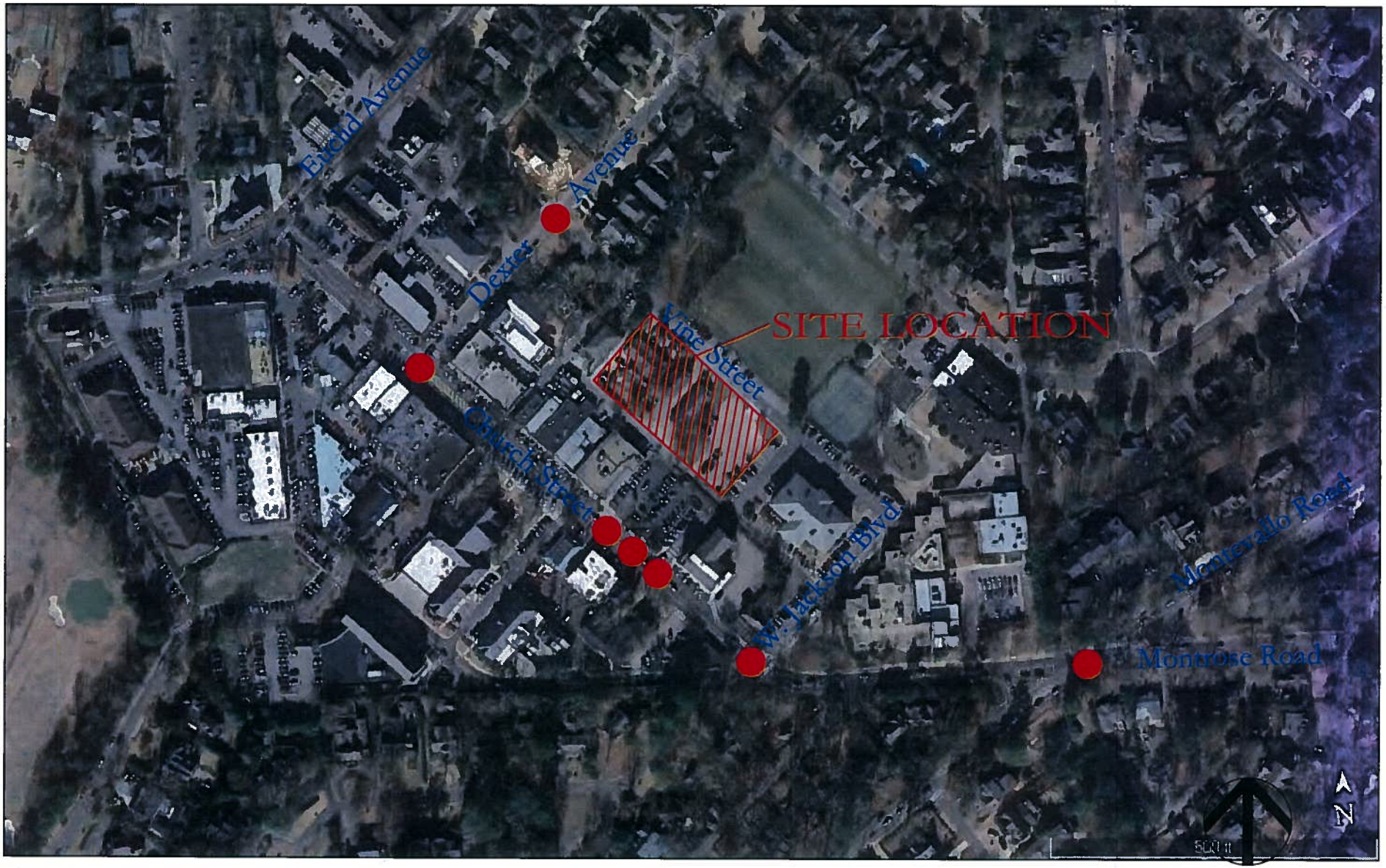
Introduction

This report documents a traffic impact study performed for a proposed grocery store to be located on Vine Street between Dexter Avenue and West Jackson Boulevard in Mountain Brook, Alabama. The location of the site with respect to the area roadway network is shown in Figure 1.

The proposed development will be constructed in a single phase. The buildout of the site will include a grocery store of approximately ~~27,932~~ 29,540 square feet of retail ~~space and a Girl Scout meeting facility of 1,760 square feet~~. The proposed development will occupy land which currently contains a daycare facility, an invitation printing business, a Girl Scout meeting facility, and a vacant lot. For the purposes of this study, an analysis year of 2019 was selected. The proposed development is to be accessed by driveways on Vine Street, on the alley between Vine Street and Church Street, and an access to Church Street at the location of an existing access to Regions Bank. The proposed site plan is included in Appendix A.

The purposes of this study are to:

- Analyze the existing traffic conditions on the roadways in the vicinity of the proposed development;
- Determine the projected growth in traffic to the year 2019;
- Analyze background traffic conditions without the proposed development for 2019 conditions on the roadways in the vicinity of the proposed development;
- Estimate the trip generation of the proposed development;
- Estimate the directional distribution of traffic generated by the proposed development;
- Assign site-generated traffic to the area roadway network and analyze the resultant traffic operations;
- Determine whether a right turn lane will be warranted on Church Street at the site access point;
- Estimate the queue lengths of turning traffic at the intersection of Church Street at the site access with the proposed development in place;
- Develop recommendations for site access and roadway improvements required to support the proposed development for buildout traffic conditions;



● - Study Intersection

North
Scale: n.t.s

SKIPPER CONSULTING INC.

Figure 1 - Site Location Map

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

- Analyze truck routes for delivery to the proposed development;
- Analyze pedestrian routes for the proposed development; and
- Develop specific site traffic circulation recommendations related to the interrelationship between the proposed development and Crestline Elementary School.

Sources of information used in this report included Goodwyn, Mills, and Cawood, Inc., the City of Mountain Brook, Mountain Brook City Schools, the Regional Planning Commission of Greater Birmingham, the Institute of Transportation Engineers, the Transportation Research Board, the National Cooperative Highway Research Program, and office files and field reconnaissance efforts of Skipper Consulting, Inc.

Background Information

Study Area and Intersections

The study area determined for the preparation of the traffic impact study includes the following intersections:

- Montevallo Road at Church Street/Montrose Road
- Church Street at West Jackson Boulevard
- The three driveways on Church Street between Regions Bank and CVS
- Church Street at Dexter Avenue
- Dexter Avenue at Vine Street

The locations of the study intersections are depicted in Figure 1.

Study Area Roadways

Montevallo Road. In the vicinity of the site, Montevallo Road is a two lane classified minor arterial roadway with a posted speed limit of 30 miles per hour. The intersection of Montevallo Road at Church Street/Montrose Road is controlled by a traffic signal.

Church Street. In the vicinity of the site, Church Street is a three lane local roadway with a posted speed limit of 20 miles per hour.

Vine Street. In the vicinity of the site, Vine Street is a two lane local roadway with a posted speed limit of 20 miles per hour. Vine Street is one way westbound from West Jackson Boulevard to Dexter Avenue during the hours of 7:20 a.m. to 4:00 p.m. to account for traffic operations of Crestline Elementary School.

Dexter Avenue. In the vicinity of the site, Dexter Avenue is a two lane local roadway with a posted speed limit of 20 miles per hour.

West Jackson Boulevard. In the vicinity of the site, West Jackson Boulevard is a three lane local roadway with no posted speed limit. West Jackson Boulevard is one way northbound from Church Street to Vine Street during the hours of 7:20 a.m. to 4:00 p.m. to account for traffic operations of Crestline Elementary School. West Jackson Boulevard serves as a primary pick-up and drop-off area for Crestline Elementary School.

Existing Intersection Turning Movement Traffic Counts

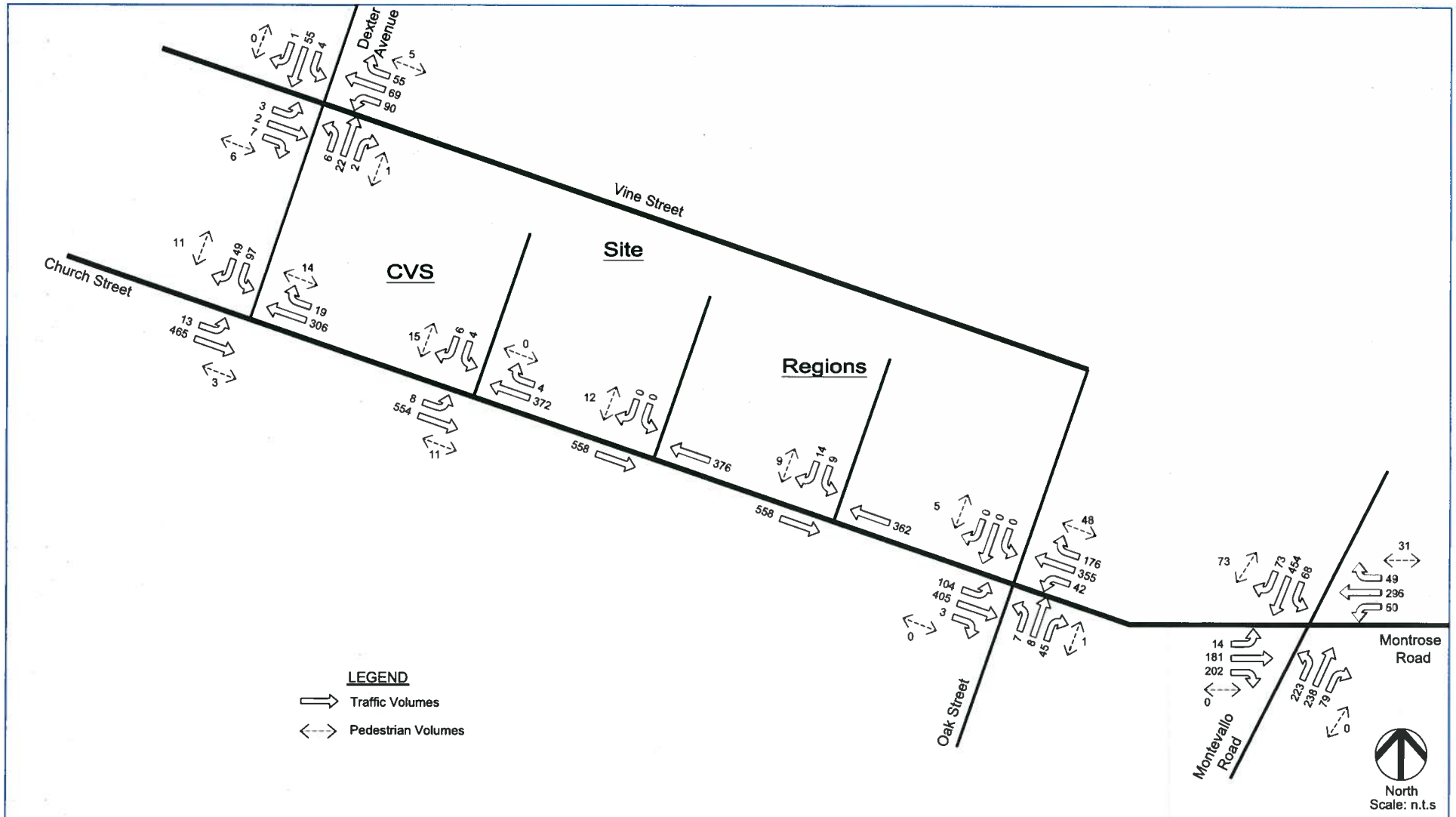
Existing intersection turning movement traffic counts were performed at the study area intersections on typical weekdays between Wednesday, May 14, 2014 and Wednesday, May 21, 2014 from 7:00 to 9:00 a.m., 2:30 to 3:30 p.m., and 4:00 to 6:00 p.m. by Traffic Data, LLC, on behalf of Skipper Consulting, Inc. The existing traffic counts are included in Appendix B. Existing a.m., afternoon school, and p.m. peak hour traffic counts were calculated using the traffic count data included in Appendix B. The existing a.m., afternoon school, and p.m. peak hour traffic volumes are included in Figures 2, 3, and 4.

Historical Traffic Growth

Existing average daily traffic counts were obtained from the Regional Planning Commission of Greater Birmingham for Montevallo Road in the vicinity of the site for various years between 1987 and 1999. An analysis was performed to determine the rate of historical traffic growth on Montevallo Road. The traffic counts and growth analysis are shown in Table 1. For the purposes of projecting background traffic volumes for the year 2019, a growth rate of +3.0% per year was applied to the existing traffic counts. The background 2019 a.m., afternoon school, and p.m. peak hour traffic volumes are included in Figures 5, 6, and 7.

Table 1
Historical Traffic Growth

Year	*Daily Traffic Count*	*Per Year Growth*
1987	9,500	--
1988	12,100	+27.3%
1993	11,400	-5.8%
1994	12,440	+9.1%
1999	13,000	+0.9%
Overall Growth 1987-1999: +3.0% per year		

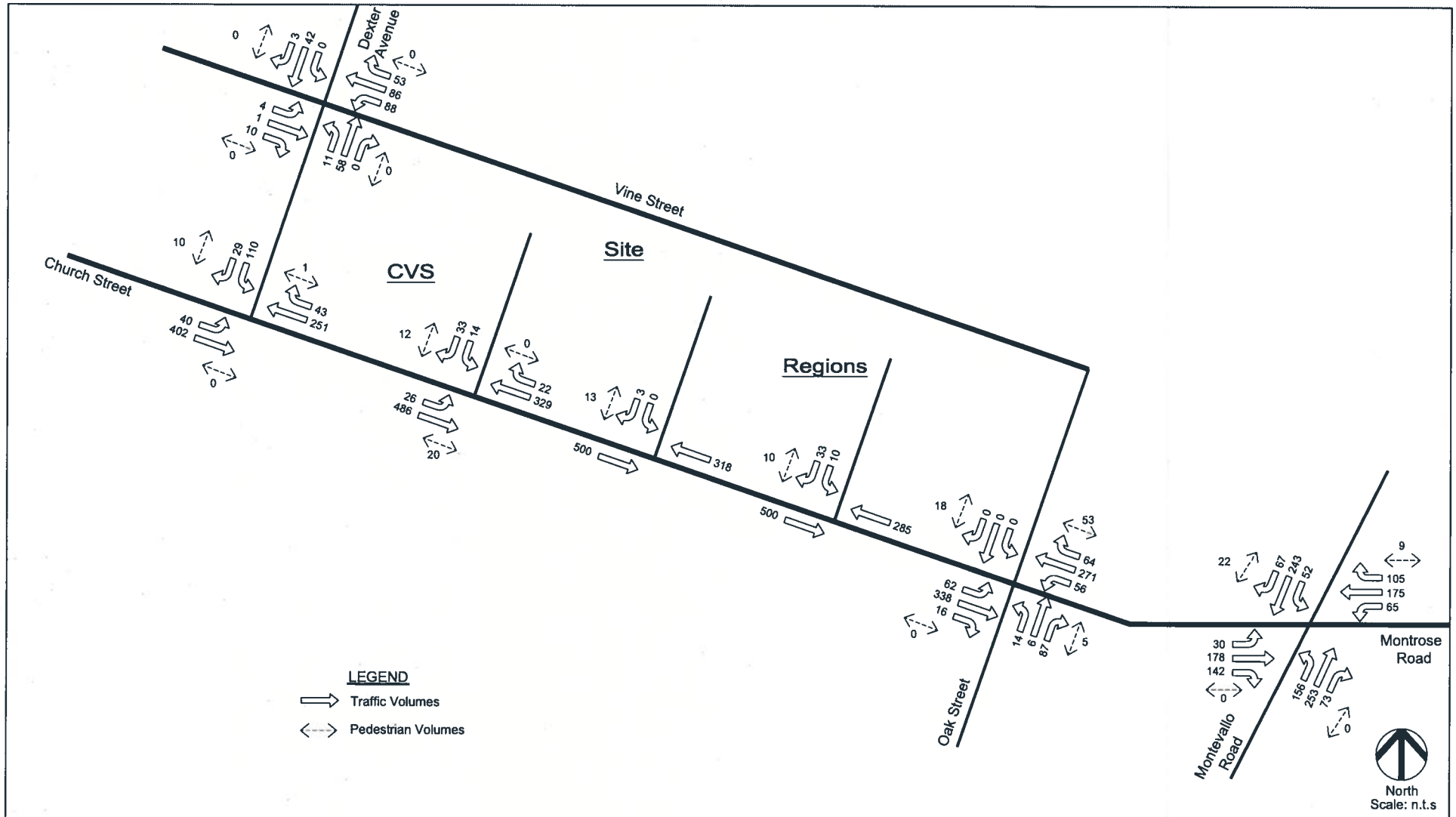


SKIPPER CONSULTING INC.

Existing Turning Movement Traffic Volumes A.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 2

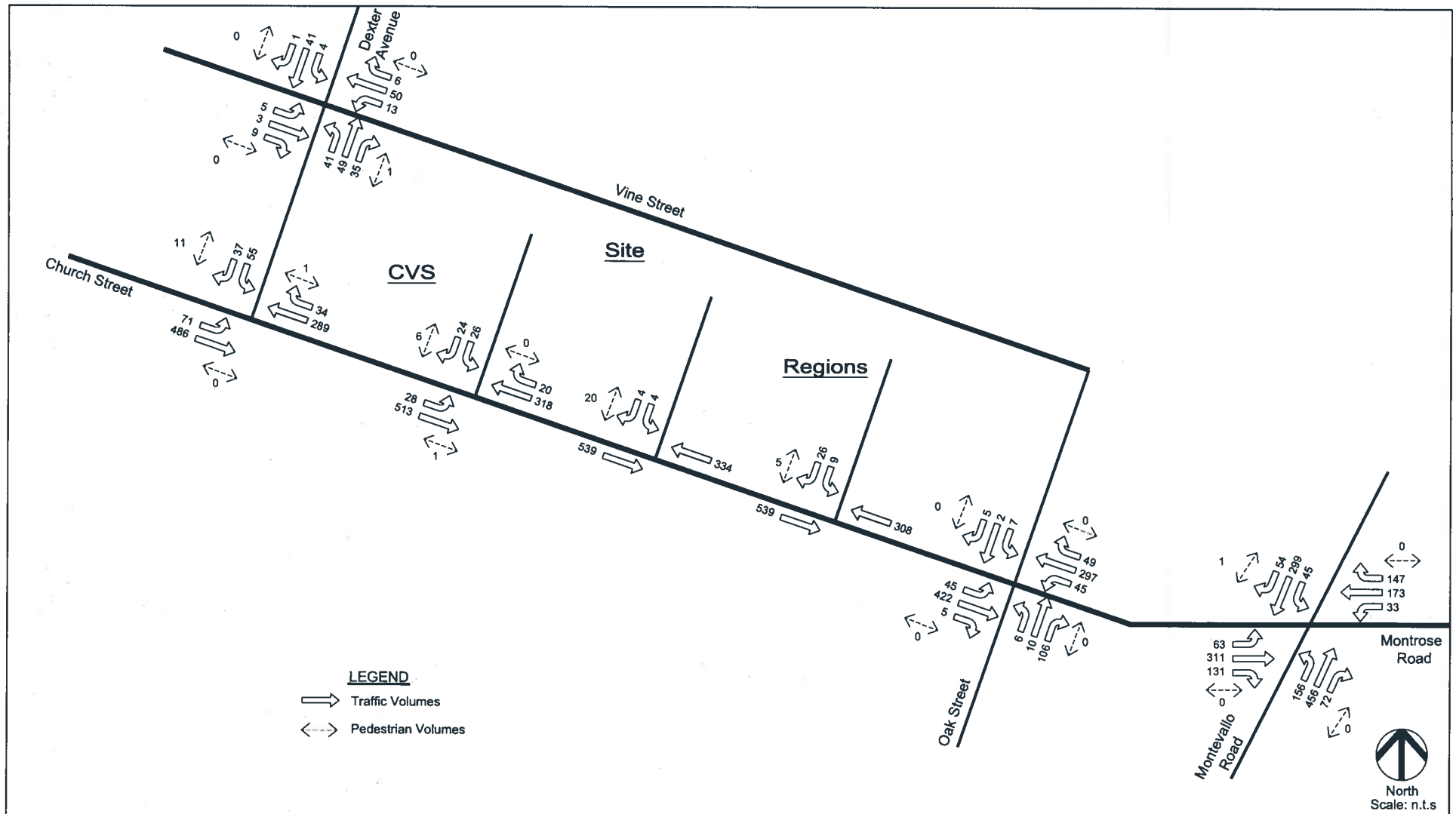


SKIPPER CONSULTING INC.

Existing Turning Movement Traffic Volumes Afternoon School Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 3

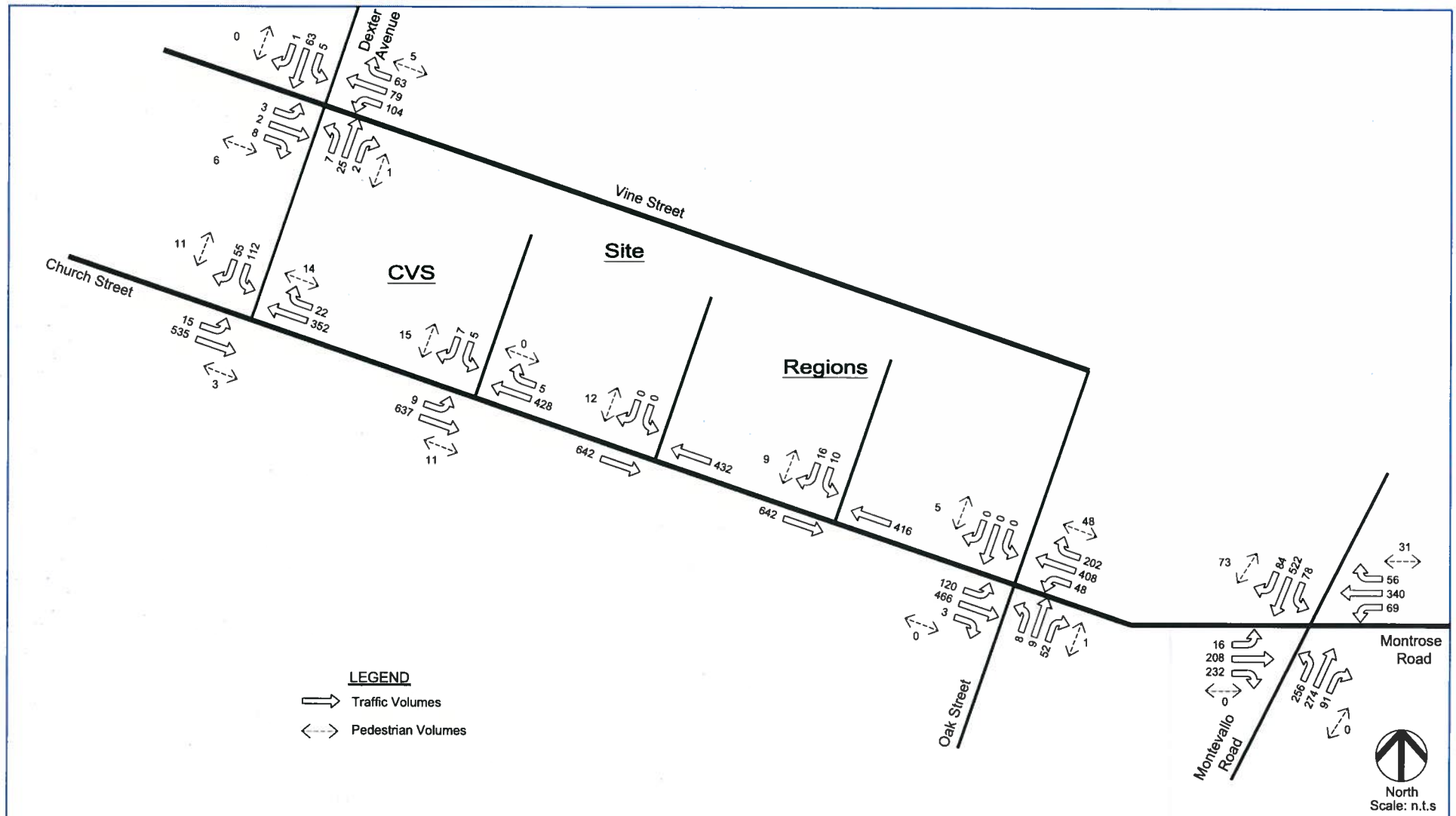


SKIPPER CONSULTING INC.

Existing Turning Movement Traffic Volumes P.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 4

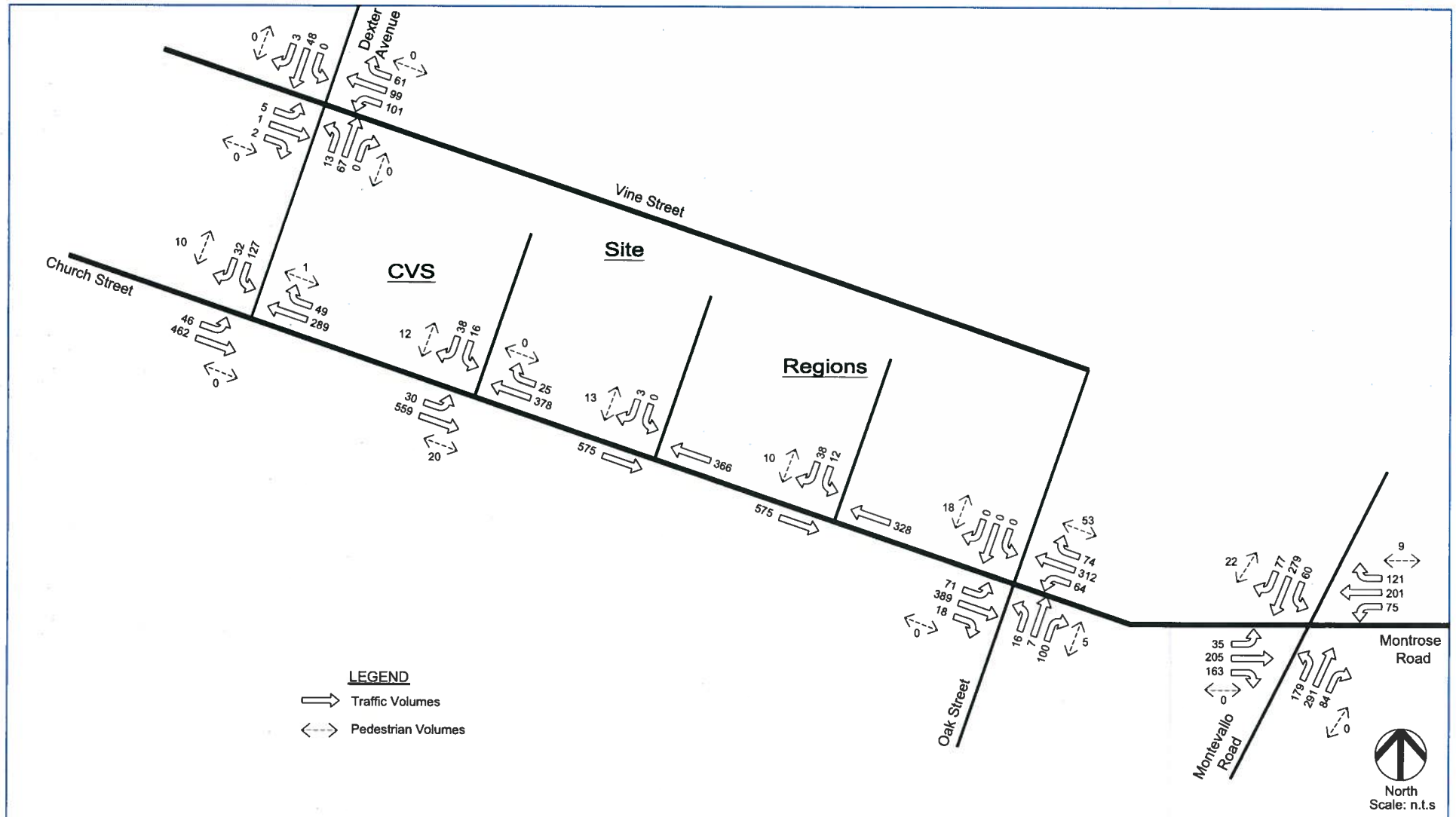


SKIPPER CONSULTING INC.

Background 2019 Turning Movement Traffic Volumes A.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 5

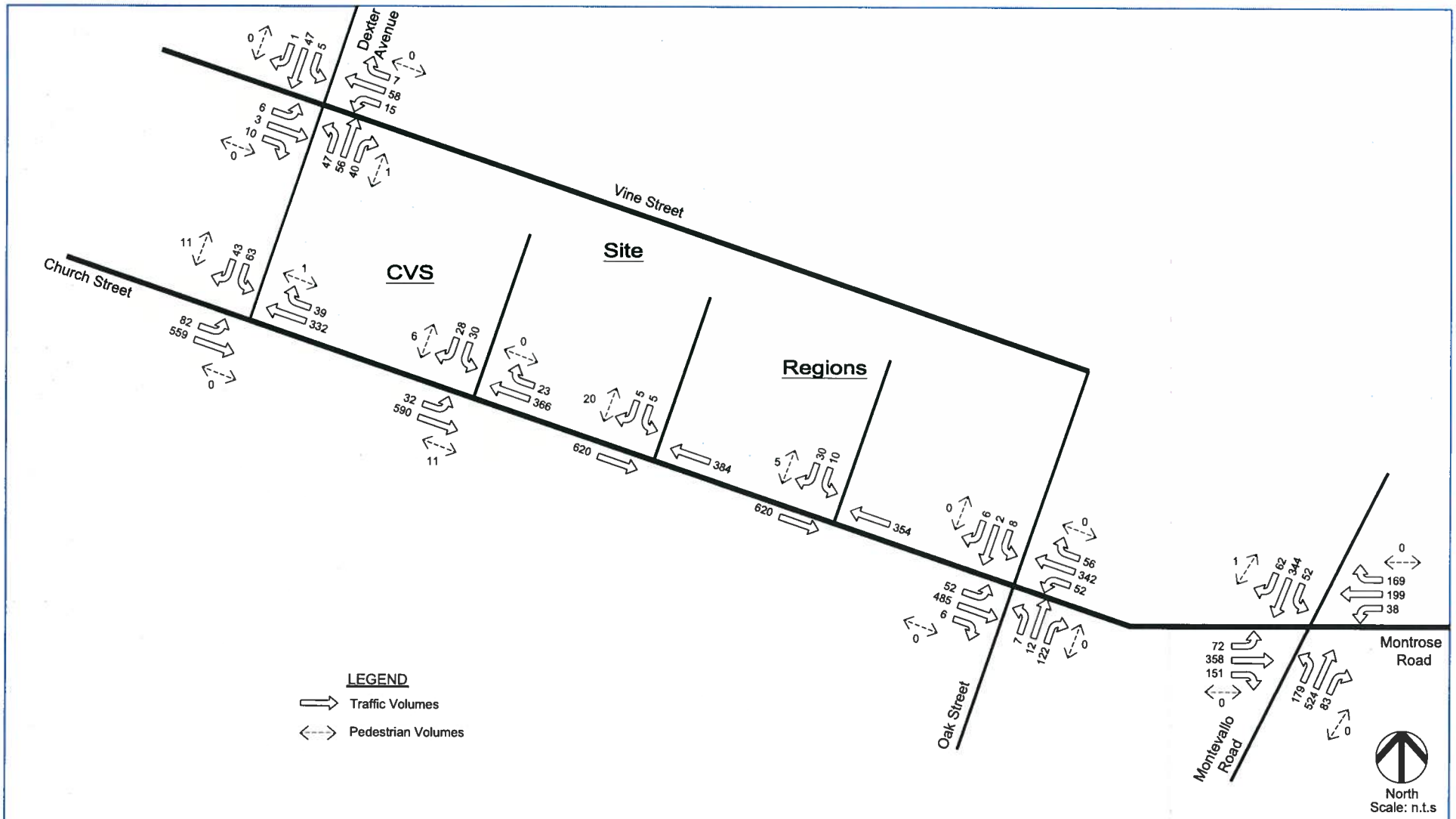


SKIPPER CONSULTING INC.

Background 2019 Turning Movement Traffic Volumes Afternoon School Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 6



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Background 2019 Turning Movement Traffic Volumes P.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 7

Analysis

Existing Intersection Capacity Analysis

Existing a.m., afternoon school, and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board. Capacities are expressed as levels of service, and range from a level of service "A" (highest quality of service) to a level of service "F" (jammed conditions). As a general rule, operation at a level of service "C" or better is desirable, with a level of service "D" considered acceptable during peak hours of traffic flow. The existing a.m., afternoon school, and p.m. peak hour intersection capacity analysis worksheets are included in Appendix C and are summarized in Table 2.

Background 2019 Intersection Capacity Analysis

Background 2019 (without the proposed development) a.m., afternoon school, and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board. Capacities are expressed as levels of service, and range from a level of service "A" (highest quality of service) to a level of service "F" (jammed conditions). As a general rule, operation at a level of service "C" or better is desirable, with a level of service "D" considered acceptable during peak hours of traffic flow. The background 2019 a.m., afternoon school, and p.m. peak hour intersection capacity analysis worksheets are included in Appendix D and are summarized in Table 3.

Table 2
Existing Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			AM	Aft. School	PM
Montevallo Road at Church Street/ Montrose Road	Church Street Eastbound	Left	C	C	C
		Through-Right	F	D	F
		Overall approach	*F*	*D*	*F*
	Montrose Road Westbound	Left	C	C	C
		Through-Right	D	D	E
		Overall approach	*D*	*D*	*E*
	Montevallo Road Northbound	Left	F	D	D
		Through-Right	C	C	E
		Overall approach	*F*	*C*	*E*
	Montevallo Road Southbound	Left-Through-Right	F	D	F
		Overall intersection	***F***	***D***	***F***
Church Street at West Jackson Boulevard	Church Street Eastbound	Left	B	A	A
	Church Street Westbound	Left	A	A	A
	West Jackson Boulevard Northbound	Left-Through-Right	E	C	C
	West Jackson Boulevard Southbound	Left-Through-Right	n/a	n/a	D
Church Street at Regions Bank	Regions Bank Driveway Southbound	Left	D	C	C
		Right	B	B	B
		Overall approach	*C*	*B*	*B*
Church Street at Site Access (Center Driveway)	Site Access Southbound	Left-Right	A	B	B
Church Street at CVS Driveway	Church Street Eastbound	Left	A	A	A
	CVS Driveway Southbound	Left-Right	C	C	C
Church Street at Dexter Avenue	Church Street Eastbound	Left	A	A	A
	Dexter Avenue Southbound	Left-Right	F	E	C
Dexter Avenue at Vine Street*	Vine Street Eastbound	Left-Through-Right	B	B	B
	Vine Street Westbound	Left-Through-Right	B	C	B
	Dexter Avenue Northbound	Left-Through-Right	A	A	A
	Dexter Avenue Southbound	Left-Through-Right	A	A	A

* See the detailed discussion concerning the capacity of intersection of Dexter Avenue at Vine Street beginning on page 26 of this report. The actual traffic conditions are not accurately reflected in the results of the capacity analysis.

Table 3
Background 2019 Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			AM	Aft. School	PM
Montevallo Road at Church Street/ Montrose Road	Church Street Eastbound	Left	C	C	C
		Through-Right	F	E	F
		Overall approach	*F*	*D*	*F*
	Montrose Road Westbound	Left	C	C	C
		Through-Right	E	E	F
		Overall approach	*E*	*D*	*E*
	Montevallo Road Northbound	Left	F	F	F
		Through-Right	C	D	F
		Overall approach	*F*	*E*	*F*
	Montevallo Road Southbound	Left-Through-Right	F	F	F
		Overall intersection	***F***	***F***	***F***
Church Street at West Jackson Boulevard	Church Street Eastbound	Left	B	A	A
	Church Street Westbound	Left	A	A	A
	West Jackson Boulevard Northbound	Left-Through-Right	F	D	C
	West Jackson Boulevard Southbound	Left-Through-Right	n/a	n/a	E
Church Street at Regions Bank	Regions Bank Driveway Southbound	Left	D	C	C
		Right	B	B	B
		Overall approach	*C*	*B*	*B*
Church Street at Site Access (Center Driveway)	Site Access Southbound	Left-Right	A	B	C
Church Street at CVS Driveway	Church Street Eastbound	Left	A	A	A
	CVS Driveway Southbound	Left-Right	C	C	C
Church Street at Dexter Avenue	Church Street Eastbound	Left	A	A	A
	Dexter Avenue Southbound	Left-Right	F	F	D
Dexter Avenue at Vine Street*	Vine Street Eastbound	Left-Through-Right	B	C	B
	Vine Street Westbound	Left-Through-Right	B	D	B
	Dexter Avenue Northbound	Left-Through-Right	A	A	A
	Dexter Avenue Southbound	Left-Through-Right	A	A	A

* See the detailed discussion concerning the capacity of intersection of Dexter Avenue at Vine Street beginning on page 26 of this report. The projected traffic conditions are not accurately reflected in the results of the capacity analysis.

Trip Generation

The trip generation of the proposed development for buildout traffic conditions was calculated based on information contained in the Institute of Transportation Engineers' publication *Trip Generation, Ninth Edition*. Trip generation calculations were performed for an average weekday and for the a.m., afternoon school, and p.m. peak hours of traffic flow. ITE Land Use code 850, "Supermarket" was used for the trip generation analysis.

A portion of the trips generated by the proposed development will be intercepted trips. Intercepted trips are those trips which are made by vehicles already on the adjacent roadway for another purpose, but stop at the site while enroute to their final destination. The intercept rate for this development, calculated using an Institute of Transportation Engineers' formula, is 36%.

It should be noted that the proposed land use displaces existing land uses. The Girl Scout building is being replaced in the proposed development. Traffic generated by the other two land uses being displaced (the invitation printing company and the daycare) are not subtracted from the trip generation of the proposed development.

The trip generation calculations for the proposed development are shown in Table 4.

Table 4
Trip Generation

Total Trips											
Daily			A.M. Peak Hour			Afternoon School Peak			P.M. Peak Hour		
In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
1,631	1,631	3,262	59	36	95	143	147	290	155	148	303
Intercept Trips											
Daily			A.M. Peak Hour			Afternoon School Peak			P.M. Peak Hour		
In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
587	587	1,174	21	13	44	51	53	104	56	53	109

Directional Distribution

The directional distribution of traffic generated by the proposed development was estimated based on traffic flow patterns on roadways within the vicinity of the site. The directional distribution is shown in Figure 8.

Traffic Assignment

Traffic generated by the proposed development for buildout conditions for the a.m., afternoon school, and p.m. peak hours of traffic flow was assigned to the study intersections based on the directional distribution and access usage assumptions. The resultant future 2019 traffic volumes are shown in Figures 9, 10, and 11.

Future 2019 Intersection Capacity Analysis

Future 2019 (with the proposed development) a.m., afternoon school, and p.m. peak hour intersection capacity analyses were performed for the study intersections using the method of analysis included in the 2010 *Highway Capacity Manual*, published by the Transportation Research Board. Capacities are expressed as levels of service, and range from a level of service "A" (highest quality of service) to a level of service "F" (jammed conditions). As a general rule, operation at a level of service "C" or better is desirable, with a level of service "D" considered acceptable during peak hours of traffic flow. The future 2019 a.m., afternoon school, and p.m. peak hour intersection capacity analysis worksheets are included in Appendix E and are summarized in Table 5.

North
Scale: n.t.s

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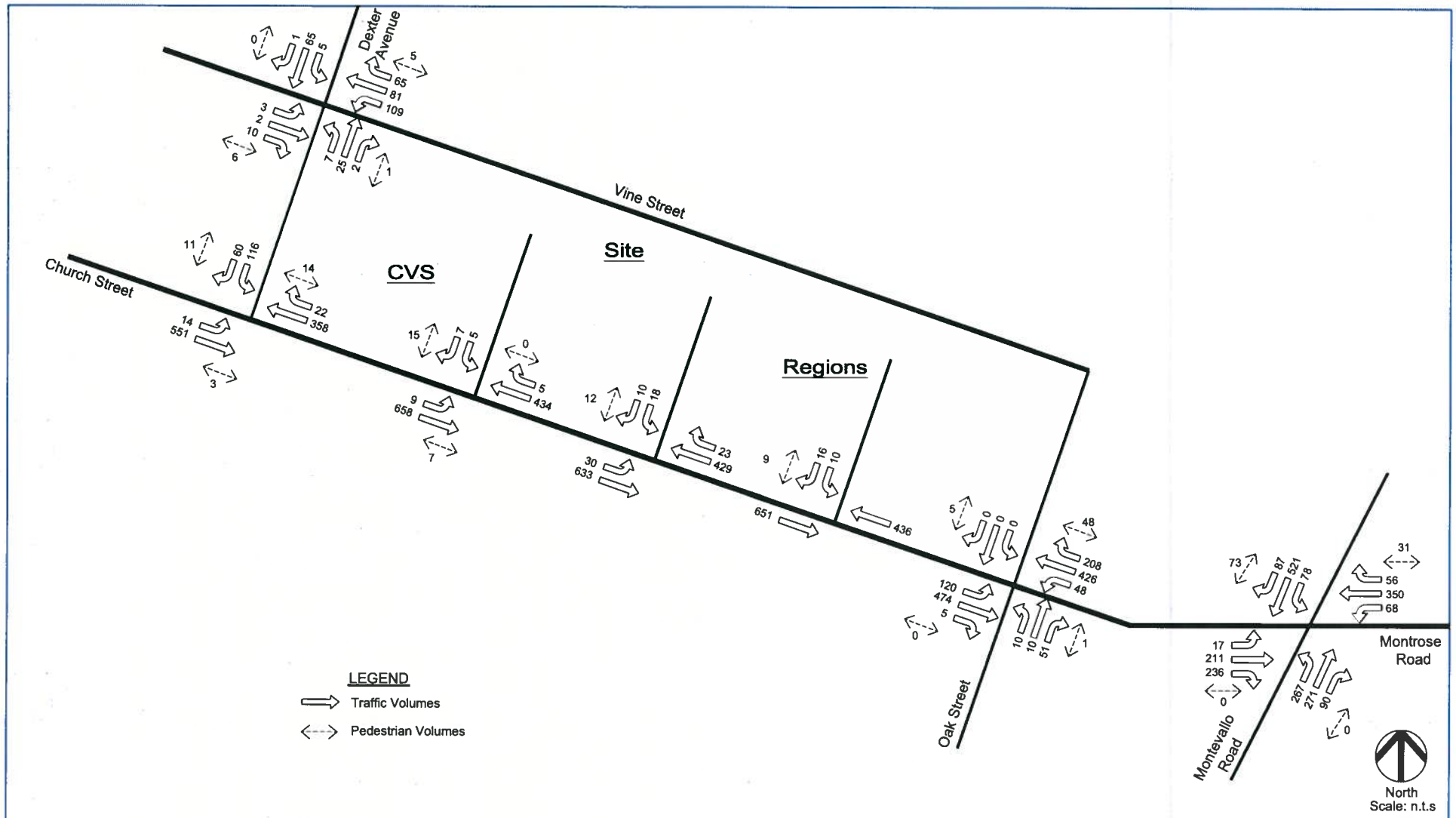
Figure 8 - Directional Distribution

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014



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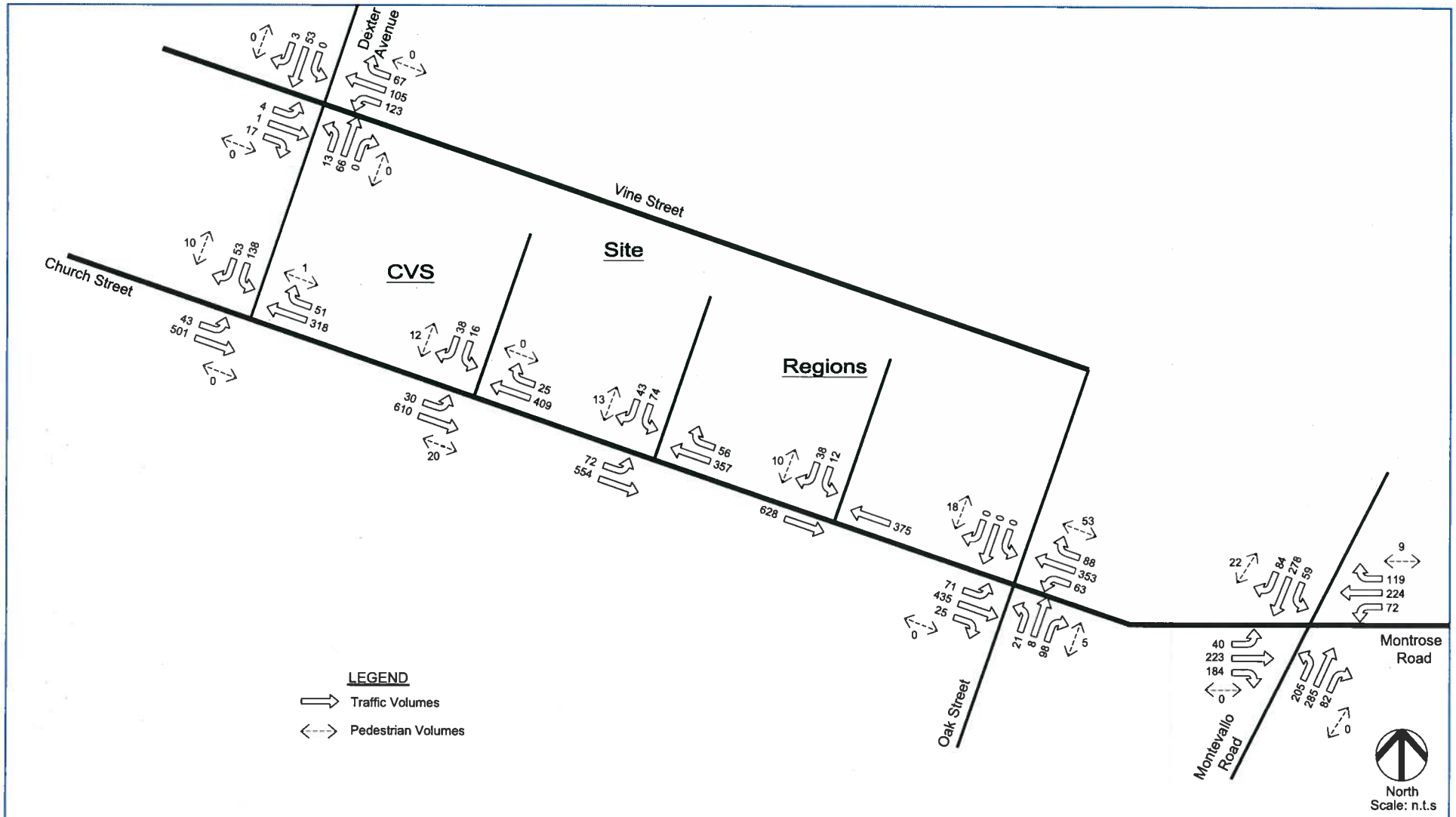
Future 2019 Turning Movement Traffic Volumes A.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 9



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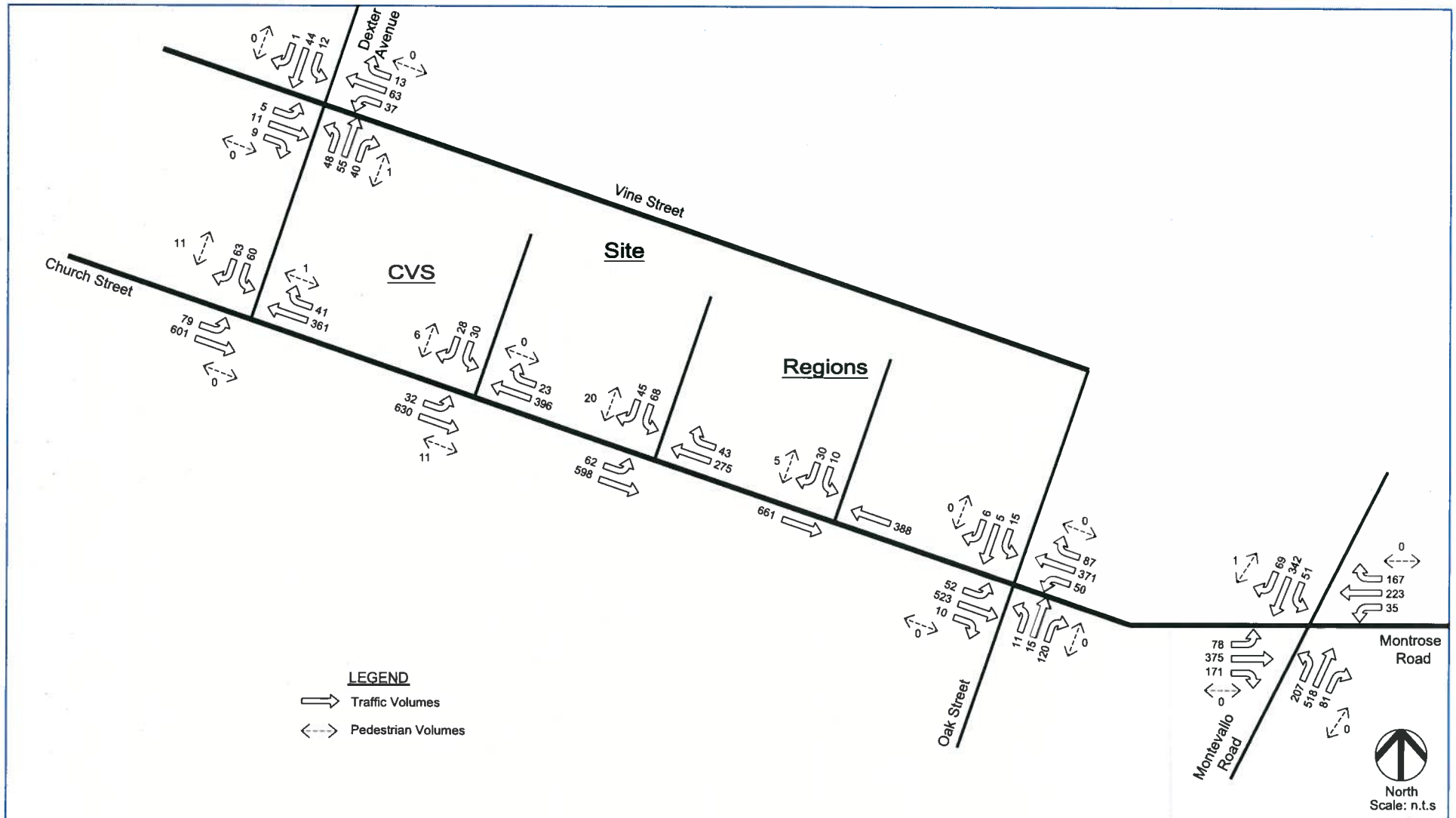
Future 2019 Turning Movement Traffic Volumes Afternoon School Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 10



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Future 2019 Turning Movement Traffic Volumes P.M. Peak Hour

Crestline Piggly Wiggly - Mountain Brook, Alabama Sept 2014

Figure 11

Table 5
Future 2019 Intersection Capacity Analysis

Intersection	Approach	Movement	Level of Service		
			AM	Aft. School	PM
Montevallo Road at Church Street/ Montrose Road	Church Street Eastbound	Left	C	C	C
		Through-Right	F	F	F
		Overall approach	*F*	*E*	*F*
	Montrose Road Westbound	Left	C	C	C
		Through-Right	F	E	F
		Overall approach	*E*	*E*	*F*
	Montevallo Road Northbound	Left	F	F	F
		Through-Right	C	D	F
		Overall approach	*F*	*F*	*F*
	Montevallo Road Southbound	Left-Through-Right	F	F	F
		Overall intersection	***F***	***F***	***F***
Church Street at West Jackson Boulevard	Church Street Eastbound	Left	B	A	A
	Church Street Westbound	Left	A	A	A
	West Jackson Boulevard Northbound	Left-Through-Right	F	E	D
	West Jackson Boulevard Southbound	Left-Through-Right	n/a	n/a	F
Church Street at Regions Bank	Regions Bank Driveway Southbound	Left	E	C	C
		Right	B	B	B
		Overall approach	*C*	*B*	*B*
Church Street at Site Access (Center Driveway)	Church Street Eastbound	Left	A	A	A
	Site Access Southbound	Left-Right	D	E	D
Church Street at CVS Driveway	Church Street Eastbound	Left	A	A	A
	CVS Driveway Southbound	Left-Right	C	C	C
Church Street at Dexter Avenue	Church Street Eastbound	Left	A	A	A
	Dexter Avenue Southbound	Left-Right	F	F	E
Dexter Avenue at Vine Street*	Vine Street Eastbound	Left-Through-Right	B	B	B
	Vine Street Westbound	Left-Through-Right	C	F	B
	Dexter Avenue Northbound	Left-Through-Right	A	A	A
	Dexter Avenue Southbound	Left-Through-Right	A	A	A

* See the detailed discussion concerning the capacity of intersection of Dexter Avenue at Vine Street beginning on page 26 of this report. The projected traffic conditions are not accurately reflected in the results of the capacity analysis.

Future 2019 Turn Lane Warrant Analysis

The warranting of a right turn lane on Church Street westbound at the site access point was performed using the methodology contained in the National Cooperative Highway Research Program Report 457 *Evaluating Intersection Improvements*. Turn lane warrants are based on future 2019 peak hour traffic volumes. The right turn warrant analysis worksheets are included in Appendix F and are summarized in Table 6.

Table 6
Future 2019 Right Turn Lane Warrant Analysis
Church Street Westbound at Site Access

Peak Hour	*Movement*	*Volume*
A.M. Peak Hour	Advancing Volume	452 vph
	Right Turning Volume	23 vph
	Right Turn Lane is Not Warranted	
Afternoon School Peak Hour	Advancing Volume	413 vph
	Right Turning Volume	56 vph
	Right Turn Lane is Not Warranted	
PM Peak Hour	Advancing Volume	418 vph
	Right Turning Volume	43 vph
	Right Turn Lane is Not Warranted	

Future 2019 Queue Analysis

95th percentile queue lengths at the intersection of Church Street at the site access were evaluated using Synchro software and are included in the capacity analysis worksheets in Appendix E. Future 2019 a.m., afternoon school, and p.m. peak hour 95th percentile queue lengths are summarized in Table 7. The results of the queue analysis show that the left turn from Church Street into the site access will be accommodated within the center left turn lane without interfering with left turns into the CVS driveway. Also, the queue exiting the site access driveway will not extend past the end of the parking bay into the alley.

Table 7
Future 2019 Queue Analysis

Intersection	*Approach*	*Movement*	*Queue Length*		
			AM	*Aft. School*	*PM*
Church Street at Site Access	Church Street Eastbound	Left	0'	25'	25'
	Site Access Southbound	Left-Right	25'	85'	65'

Traffic Impacts of the Proposed Development

Montevallo Road at Church Street/Montrose Road

The intersection of Montevallo Road at Church Street/Montrose Road currently experiences inadequate levels of service during the a.m. and p.m. peak hours of traffic flow. With growth through the year 2019, the inadequate levels of service continue to decline and the afternoon school peak hour also begins to experience inadequate levels of service. The analyses indicate that the additional traffic generated by the proposed development will increase the average delay experienced by each vehicle by 4 to 11 seconds, dependent upon the hour of the day.

Church Street at West Jackson Street

The proposed development has negative traffic impacts to the intersection of Church Street at West Jackson Boulevard. During the a.m. peak hour, the northbound movement on West Jackson Boulevard is projected to operate at a level of service "F" for background 2019 conditions. The addition of site-generated traffic will significantly increase the delay on this movement. During the afternoon school peak hour, the additional site-generated traffic is projected to cause the level of service on the West Jackson Boulevard northbound approach to decline from a level of service "D" to a level of service "E". During the p.m. peak hour the additional site-generated traffic is projected to cause the level of service on the West Jackson Boulevard southbound approach to decline from a level of service "E" to a level of service "F". There are no reasonable improvements to mitigate these traffic impacts.

Church Street at Regions Driveway

During the a.m. peak hour the additional site-generated traffic is projected to cause the level of service on the left turn movement from the Regions driveway to decline from a level of service "D" to a level of service "E". There are no reasonable improvements to mitigate these traffic impacts.

Church Street at Site Access

During the afternoon school peak hour, the site access driveway is projected to experience a level of service "E". Altering the approach to have exclusive left and right turn lanes does not improve this deficiency. There are no reasonable improvements which would yield an acceptable level of service. Traffic signalization is not warranted for the intersection.

Church Street at CVS Access

All movements at the intersection of Church Street at the CVS access are projected to operate at acceptable levels of service for future 2019 traffic conditions.

Church Street at Dexter Avenue

The intersection of Church Street at Dexter Avenue currently operates with inadequate levels of service during the a.m. and afternoon school peak hours. Background traffic growth through the year 2019 increases the delay on Dexter Avenue, and the addition of site-generated traffic causes further increase in delay. Based on the limited traffic counts conducted, it appears that a traffic signal is warranted today. It is recommended that a traffic signal be installed at this intersection to correct existing deficiencies and mitigate the impacts of site-generated traffic. The future 2019 intersection capacity analysis for this intersection with traffic signalization is included in Appendix G and summarized in Table 8.

Table 8
Future 2019 Intersection Capacity Analysis with Improvements
Church Street at Dexter Avenue

Approach	Movement	Level of Service Signalized		
		AM Peak	Afternoon School	PM Peak
Church Street Eastbound	Left	A	A	A
	Through	B	B	A
	Overall approach	*B*	*B*	*A*
Church Street Westbound	Through-Right	A	A	A
Dexter Avenue Southbound	Left-Right	C	B	B
	Overall intersection	***B***	***B***	***A***

Dexter Avenue at Vine Street

The traffic conditions at the intersection of Dexter Avenue at Vine Street are abnormally influenced by the traffic pattern of Crestline Elementary School. The results of the existing intersection capacity analyses for the a.m. and afternoon school peak periods do not appear to accurately reflect traffic conditions at the intersection. Observations of traffic during these two peak periods indicate queues and delays which are significantly in excess of what is predicted by the capacity analysis methodology. This is likely due to the high degree of traffic attempting to exit onto Dexter Avenue in a very short amount of time. It is assumed that this same deficiency also predicts a better level of service for the Vine Street westbound movement for background 2019 and future 2019 conditions than will actually be present. Based on this, additional analyses were performed for future 2019 traffic conditions at the intersection of Dexter Street using a microsimulation model for the peak 15 minutes of traffic flow during the a.m. and afternoon school peak periods. The microsimulation model was calibrated to existing conditions based on observed queue lengths, and then projected forward to future 2019 conditions, including background traffic growth and traffic generated by the proposed development.

This microsimulation model was then used to determine the appropriate traffic control measure to apply at the intersection based on average queue lengths on each approach. Options which were evaluated included:

- The existing orientation of the stop signs on Vine Street and no stop signs on Dexter Avenue

- Reversing the position of the stops signs, such that Dexter Avenue has stop signs and Vine Street does not have stop signs
- Installing additional stop signs on Dexter Avenue to make the intersection a four-way stop
- Installing a traffic signal at the intersection

The results of these alternative analyses are documented in Table 9. As shown, the only viable options for appropriate traffic control which will minimize queues are Option 2 – Dexter Avenue Stop and Option 4 – Traffic Signal. Both the current configuration (Option 1) of the intersection and a four-way stop configuration (Option 3) yield extensive queues on Vine Street westbound. Based on the traffic flow characteristics, it is recommended that the intersection initially be configured as Option 2 – Dexter Avenue Stop. In the future, the City may wish to consider installation of a traffic signal at the intersection based on actual traffic volumes and crash experience.

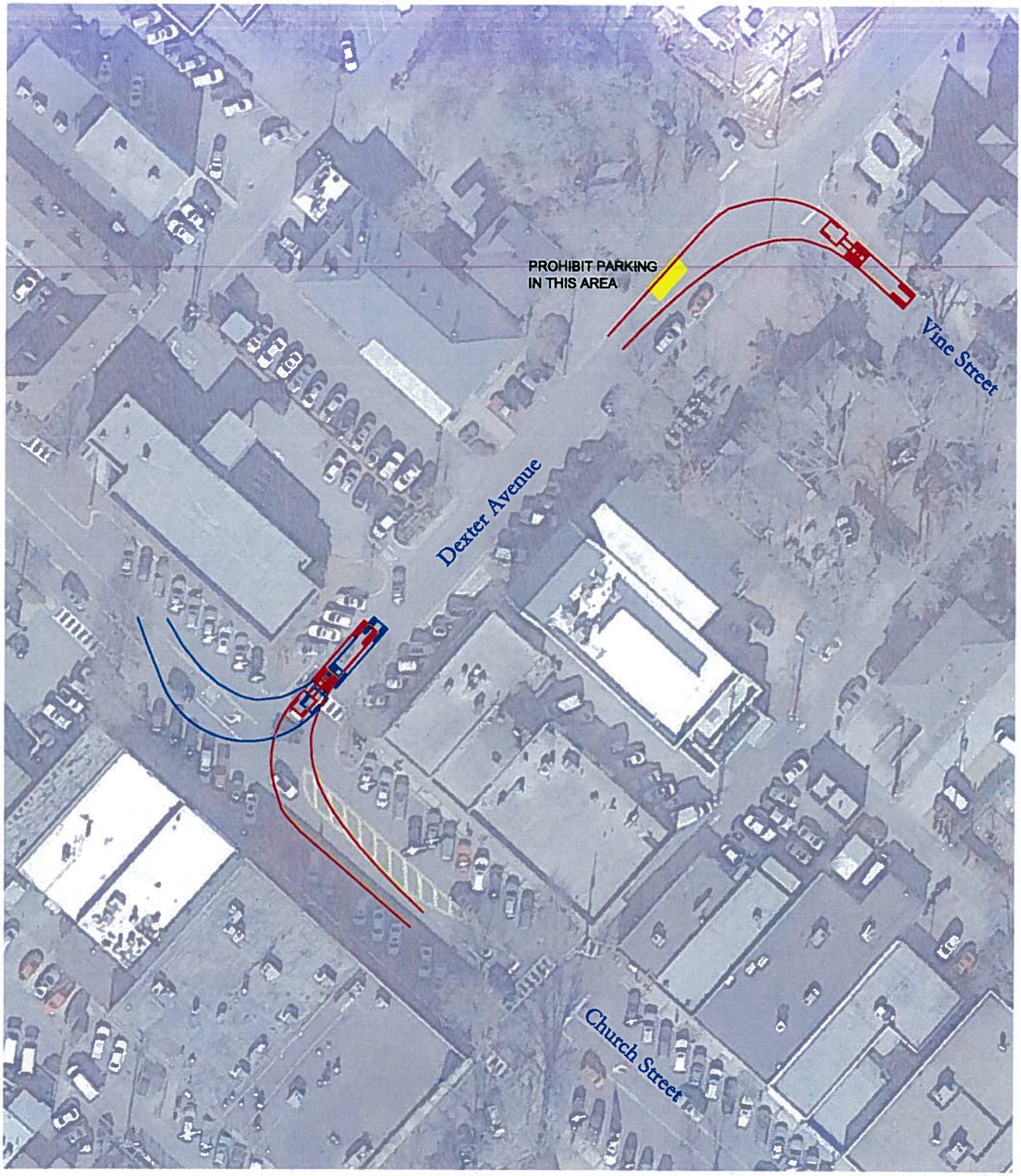
It should be noted that the results similar to either Option 2 or Option 4 could be achieved without any modification to the existing traffic control at the intersection by using a police officer to control the intersection during the two peak times for Crestline Elementary School. The required manpower to implement this alternative is considerable and would need to be carefully evaluated by the City and/or School Board before implementation.

Table 9
Future 2019 Microsimulation Model Comparison
Dexter Avenue at Vine Street

Peak Hour	Movement	Average Queue (number of vehicles)			
		Option 1 Vine Street Stop	Option 2 Dexter Avenue Stop	Option 3 Four Way Stop	Option 4 Traffic Signal
AM	Vine Street Eastbound	1	1	1	1
	Vine Street Westbound	21	2	2	6
	Dexter Avenue Northbound	1	2	2	1
	Dexter Avenue Southbound	0	3	3	3
Afternoon School	Vine Street Eastbound	1	1	1	1
	Vine Street Westbound	40	2	39	9
	Dexter Avenue Northbound	1	5	2	3
	Dexter Avenue Southbound	0	3	1	2

Delivery Truck Routing Analysis

An analysis was performed to determine the potential impacts of truck routing for deliveries to the proposed development. Negative impacts could include: 1) encroachment of the truck into adjacent lanes and 2) locations where parking will need to be prohibited. A WB-50 design vehicle was selected for the analysis. It is possible that the development could be serviced by larger vehicles. The analysis shows that a vehicle larger than a WB-50 will not be able to negotiate the required turns to access the loading dock. The analysis is depicted in Figures 12, 13, 14 and 15. As shown, a WB-50 design vehicle will require significant encroachment into adjacent travel lanes to negotiate the turns to access the loading dock of the proposed development. Additionally, parking will need to be prohibited in two locations where it is currently allowed in order for a WB-50 design vehicle to serve the development. If the 90 degree on street parking along the playing field is extended northward from its current terminus (as has been indicated on proposed changes to the site plan), then the potential parking conflict on Vine Street will be eliminated.



North
Scale: n.t.s

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Figure 12 - Truck Turning Templates - Dexter Avenue

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

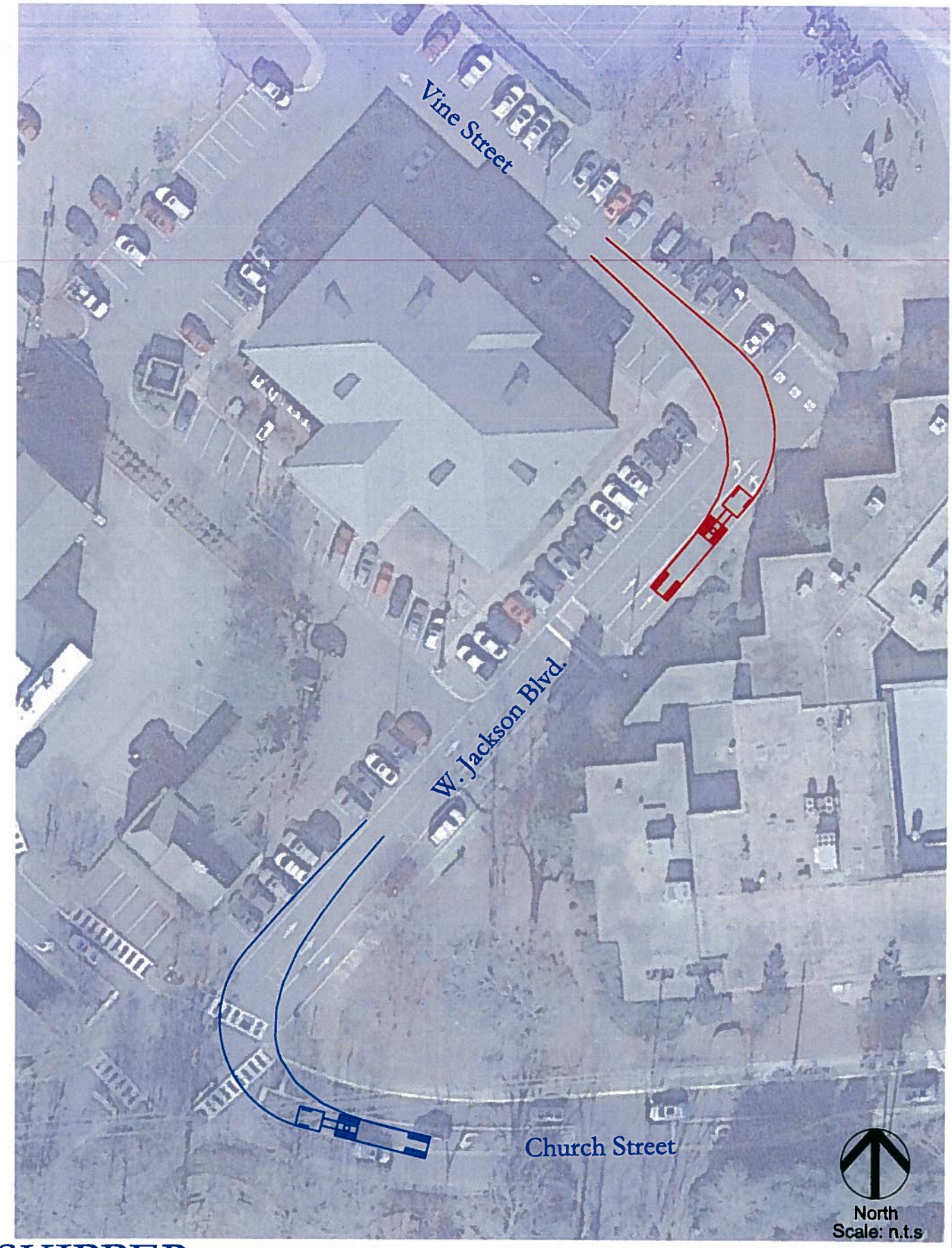

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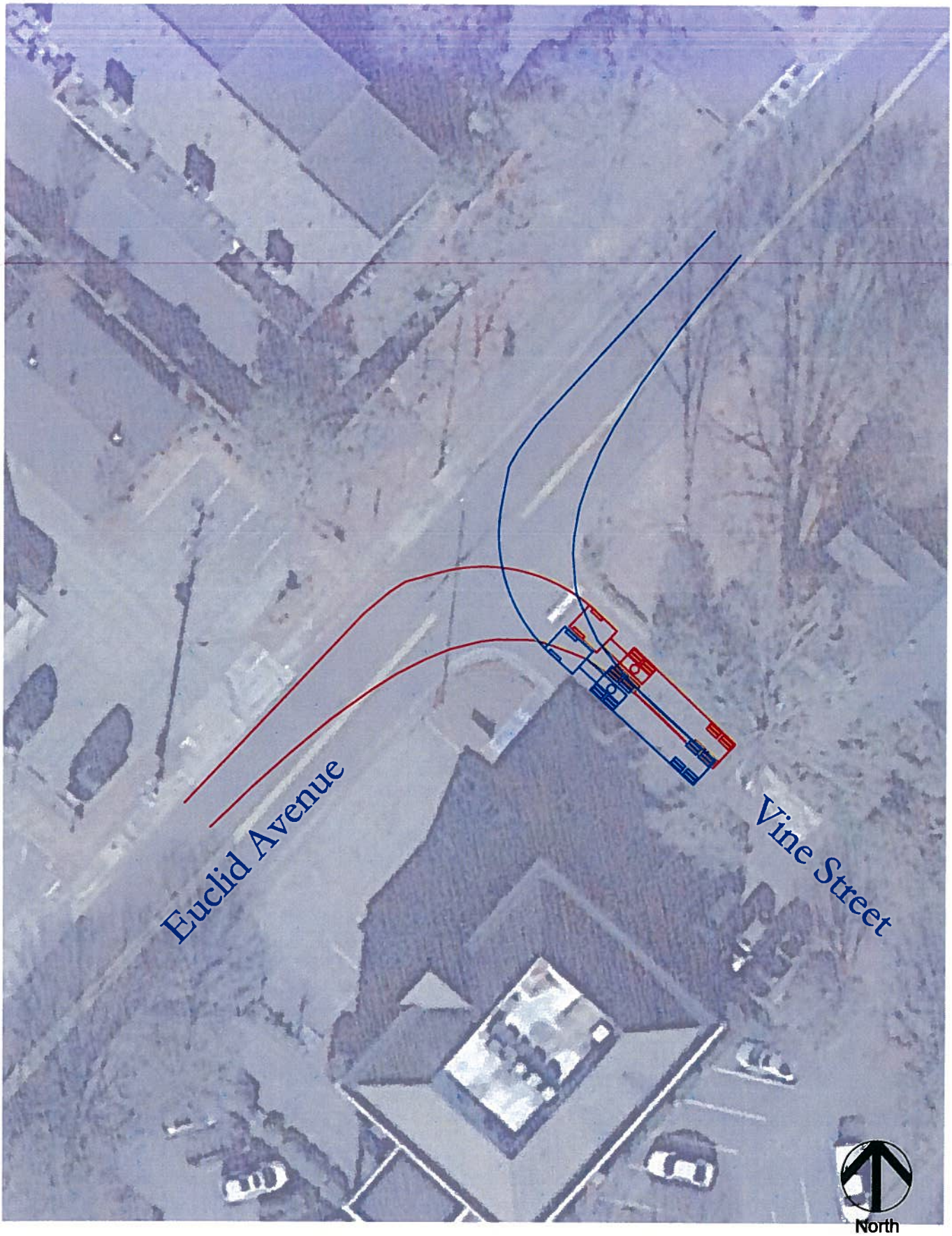
Figure 13 - Truck Turning Templates - West Jackson Blvd.

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014



North
Scale: n.t.s

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Figure 14 - Truck Turning Templates - Euclid Avenue

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

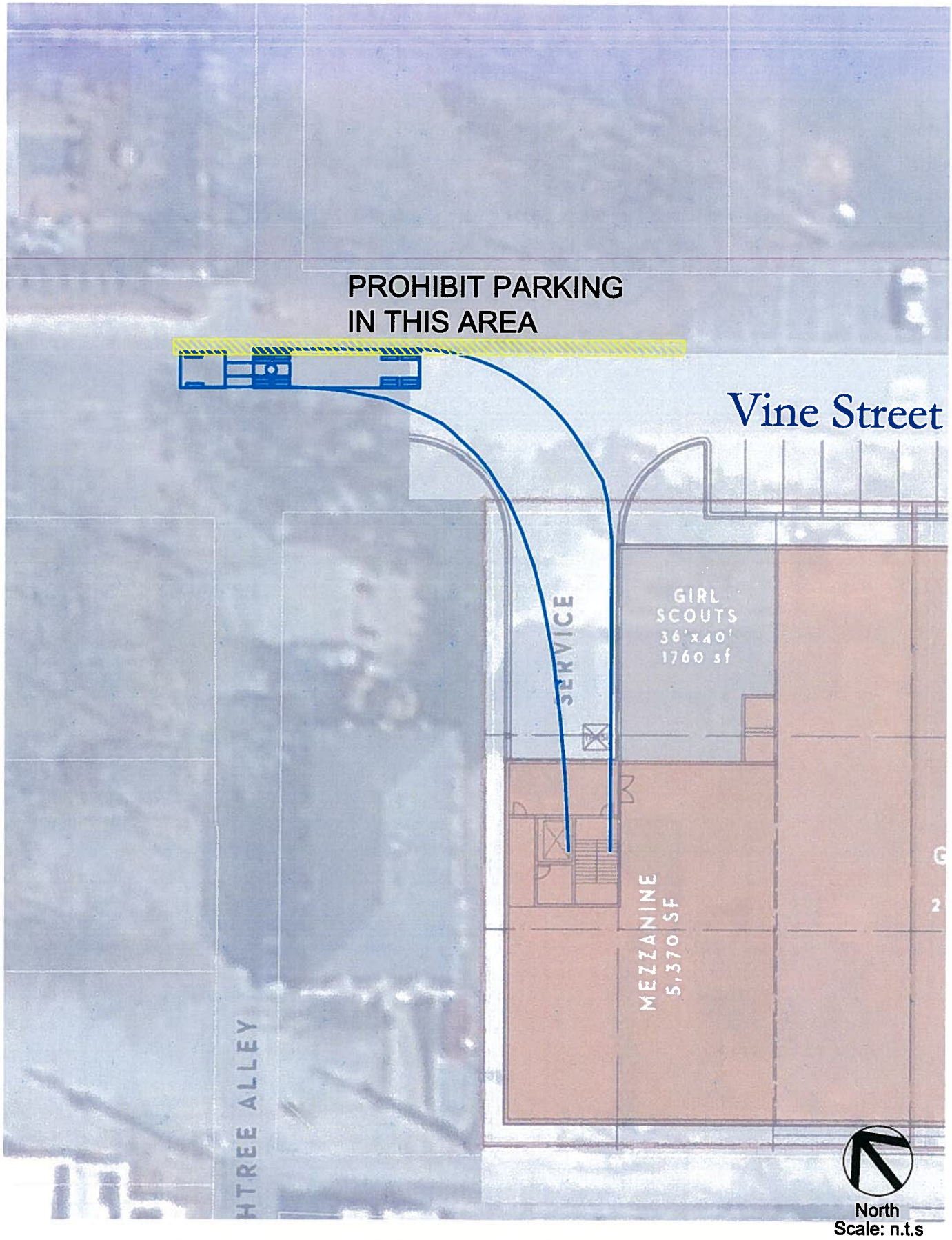

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Figure 15 - Truck Turning Template - Loading Dock

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

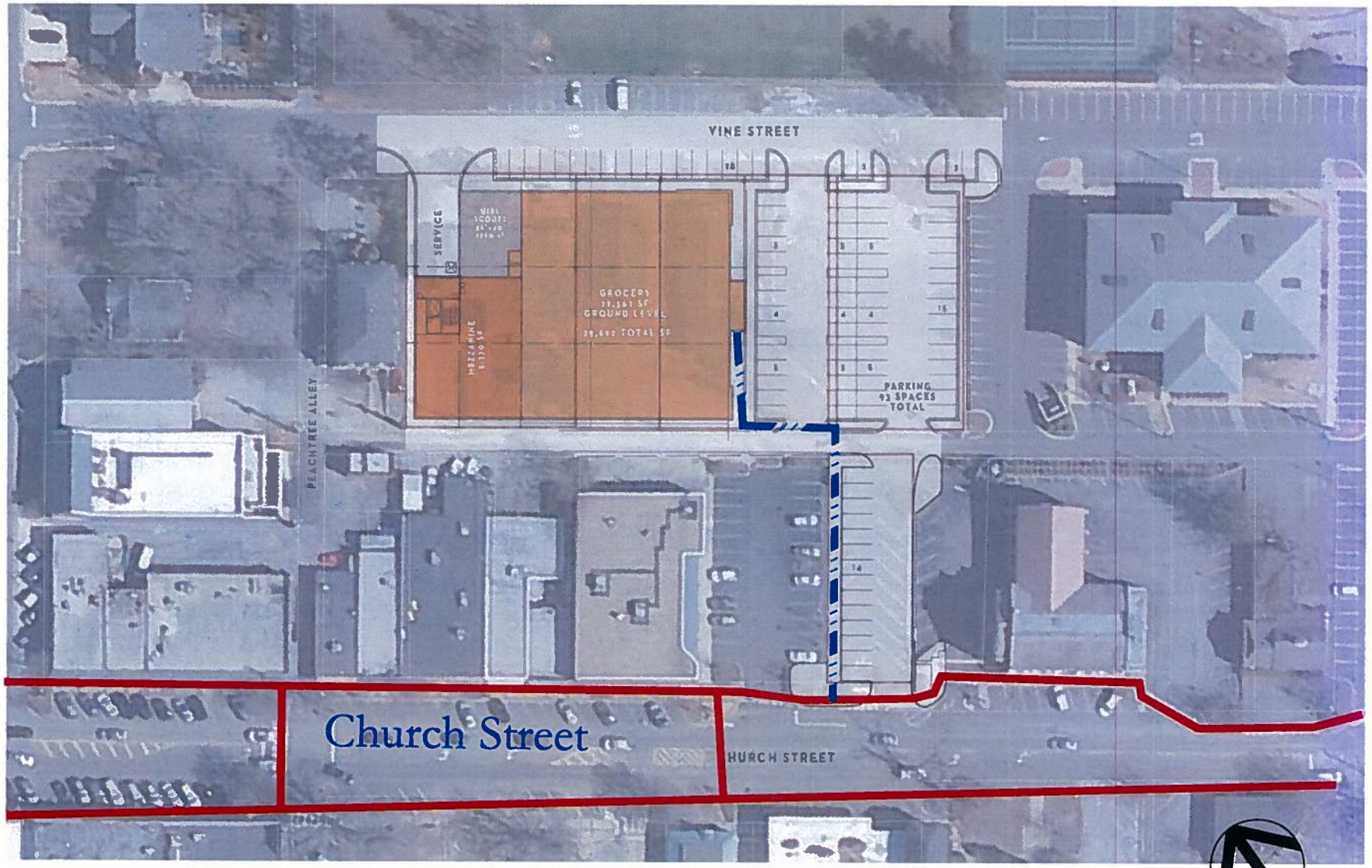
The traffic flow operations and pedestrian activity surrounding Crestline Elementary School on West Jackson Boulevard and Vine Street are not compatible with truck loading activities for the proposed development. It is therefore recommended that the owner place restrictions on times when deliveries may be made by trucks with more than six (6) wheels to the loading dock using either West Jackson Boulevard or Vine Street. In order to avoid most school-related activities, the preliminary hours of this truck restriction should be from 6:30 a.m. to 6:00 p.m. weekdays. The final hours should be discussed and agreed upon by the City and owner and made a condition of approval of the development. A sign should be posted at the south end of West Jackson Boulevard and west end of Vine Street noting this truck restriction and the hours it is in effect.

Pedestrian Access and Circulation Analysis

Pedestrian activity in the vicinity of the site is generated by two sources: 1) Crestline Elementary School, and, 2) commercial and institutional land uses within Crestline Village. For the second source (commercial and institutional land uses within Crestline Village), the pedestrian activity occurs mainly along Church Street from the intersection of Euclid Avenue to the intersection of West Jackson Boulevard. The location of the proposed development is isolated from this pedestrian corridor at the present time. The existing parking lots between the CVS and Regions Bank are configured to discourage pedestrian traffic beyond the alley which parallels Church Street and Vine Street.

The reconfiguration of the center parking lot to provide vehicular access for the Piggly Wiggly also provides an opportunity to improve pedestrian access which would allow the proposed development greater integration with the pedestrian system on Church Street. The current site plan shows an area between the between the center parking bay and the CVS parking which could be developed with a pedestrian walkway. The linkage between the existing pedestrian system and the proposed development using this corridor is illustrated in Figure 16.

The installation of the proposed signal at the intersection of Church Street at Dexter Avenue presents the opportunity to install a signalized crosswalk crossing Church Street. However, this would require removal of an existing parking space on the south side of Church Street. A concept for this crosswalk is illustrated in Figure 17.



Existing Pedestrian System
Proposed Pedestrian System

North
Scale: n.t.s

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Figure 16 - Pedestrian System Recommendations

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

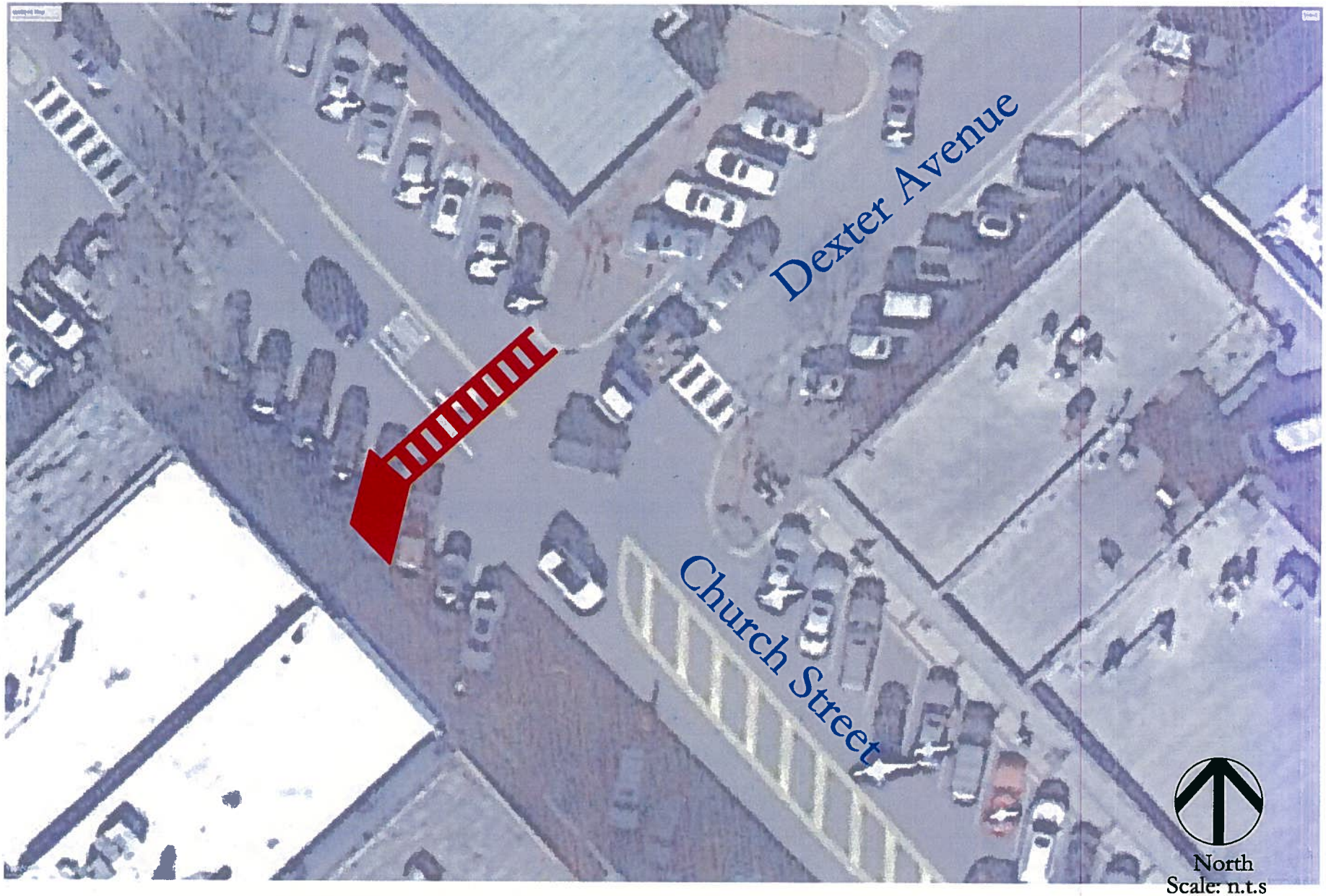

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Figure 17 - Pedestrian Crosswalk - Church Street at Dexter Avenue

Crestline Piggly Wiggly - Mountain Brook, Alabama

September 2014

Site Circulation Issues

The construction of the proposed development with the access system as shown in the latest site plan will result in certain traffic operational issues which should be addressed as part of the planning for the proposed development. These issues are addressed in the following paragraphs.

Crestline Elementary School

Crestline Elementary School relies heavily upon West Jackson Boulevard and Vine Street for vehicular drop off and pick up of students as well as paths for pedestrian flow. These vehicle and pedestrian activities are present throughout a typical weekday, and are heavy from 7:30 a.m. to 8:15 a.m. and from 2:30 p.m. to 3:15 p.m. Currently, the developments which access Vine Street are limited and generate a negligible amount of traffic during these time periods. The traffic which will be generated by the proposed development is greater in magnitude than the existing developments, particularly during the period of 2:30 p.m. to 3:15 p.m. In order to discourage use of West Jackson Boulevard and Vine Street by traffic generated by the proposed development, ~~two~~ three measures are recommended:

- The City should erect a sign on West Jackson Boulevard at the intersection of Church Street with the message "SCHOOL TRAFFIC ONLY" and a placard with time restrictions from ~~7:30 a.m. to 8:15 a.m. and from 2:30 p.m. to 3:15 p.m.~~ 7:20 a.m. to 4:00 p.m.

- The manager of the proposed grocery store should place a barricade (such as a sawhorse) with a sign which reads "NO EXIT" in the throat of the driveway entering Vine Street from 7:30 a.m. to 8:15 a.m. and from 2:30 p.m. to 3:15 p.m. on each day when school is in session. It is anticipated that after a period of time when the patrons of the proposed grocery store have learned traffic patterns these barricades will no longer be needed and their use should be reevaluated by the City, the School Board, and the owner.

- The City should consider posted a 15 mile per hour speed limit on West Jackson Boulevard.

West Jackson Boulevard/Vine Street One-Way

Currently, West Jackson Boulevard and Vine Street are one way only from 7:20 a.m. to 4:00 p.m. It has been suggested that perhaps this one way restriction should be extended to 24 hours a day, 7 days a week. An element of this discussion includes the limits of the section which should be one way, whether it should be the entire length of the roadway or just the section of West Jackson Boulevard and Vine Street in front of Crestline Elementary School. Existing traffic counts show the following traffic flows which could potentially be impacted by a 24/7 one-way restriction on West Jackson Boulevard and Vines Street:

	Vehicles Exiting W. Jackson Blvd.	Vehicles Entering Vine St.
7:00-9:00 AM	0	19
2:30-3:30 PM	2	1
4:00-6:00 PM	28	30

As shown, if West Jackson Boulevard were restricted to one-way operation 24/7, approximately 80 vehicles would be impacted over the five hours counted. Furthermore, there are businesses and other properties located on the western end of Vine Street which would have no effective inbound route that would not involve going in front of the school if Vine Street were one-way 24/7.

This traffic study assumes that a limited amount of outbound traffic from the proposed grocery store will use West Jackson Boulevard during the p.m. peak period (after 4:00 p.m.), specifically 7% of the outbound site-generate traffic is assigned to West Jackson Boulevard during the p.m. peak period. However, the site is not dependent upon exiting via West Jackson Boulevard to provide adequate access during the p.m. peak hour. These trips could be reassigned to the site access on Church Street and to Dexter Avenue without causing any significant decline in levels of service.

Two factors may influence the decision on whether to extend the one way restriction of West Jackson Boulevard and Vine Street:

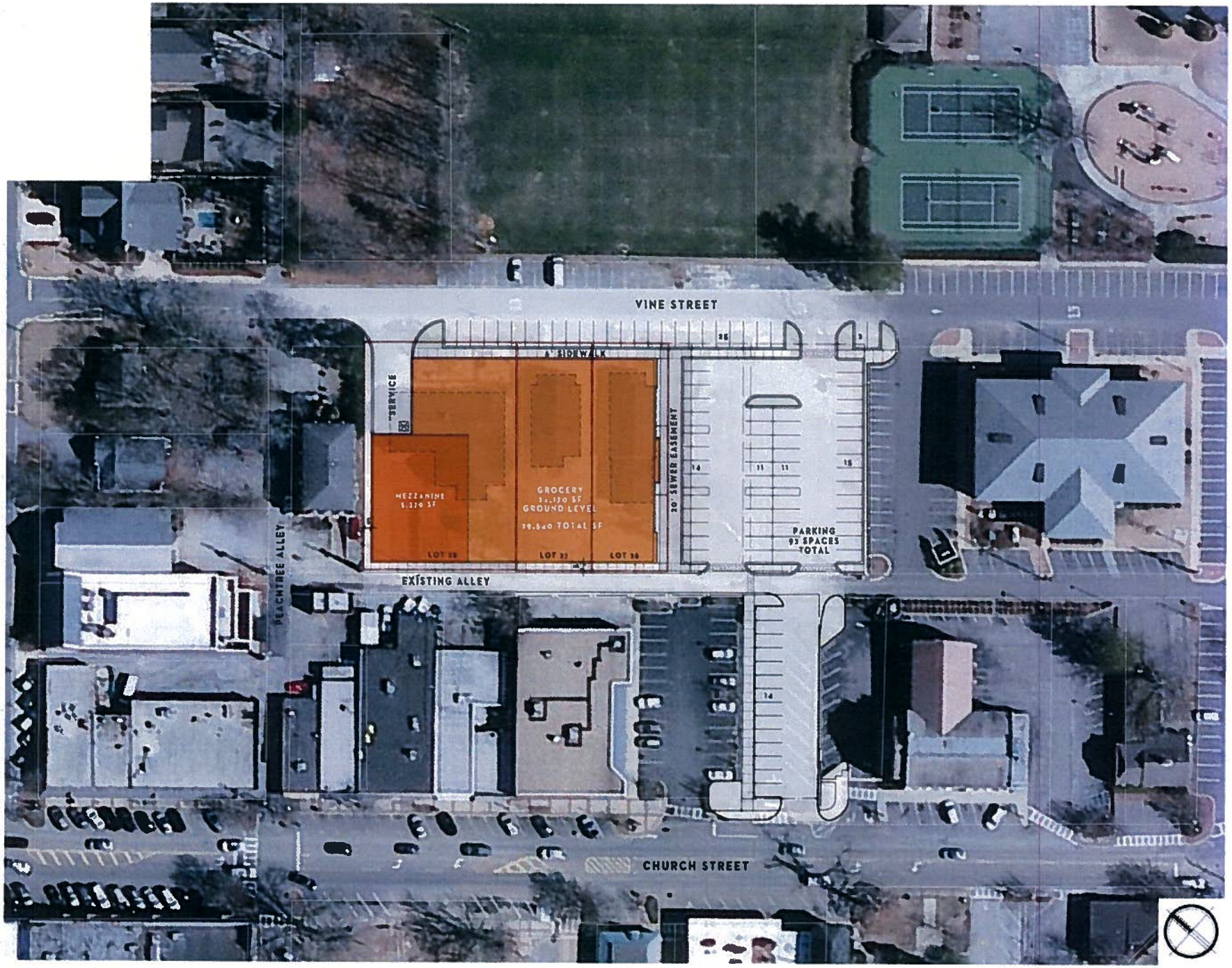
- The section of West Jackson Boulevard from Dexter Avenue to the Crestline Early Learning Center is narrow for two way operation, particularly when there are vehicles parked along the roadway; and
- The signing and striping on West Jackson Boulevard and Vine Street are not entirely appropriate and consistent for two way traffic operations, as shown in the following pictures:

Based on the traffic counts conducted, existing lane uses, striping and signing, ~~and~~ a review of property access constraints, and meetings with the City and Board of Education, this report recommends that the City consider the following restrictions to traffic on West Jackson Boulevard and Vine Street:

- West Jackson Boulevard should be considered for one way northbound operation 24 hours a day, 7 days a week along it entire length from Church Street to Vine Street.
- Vine Street should be considered for one way westbound operation 24 hours a day, 7 days a week from West Jackson Boulevard to the western edge of the Board of Education property.
- Vine Street should be considered for one way westbound operation during the period of ~~7:30 a.m. to 8:15 a.m. and 2:30 p.m. to 3:15 p.m.~~ 7:20 a.m. to 4:00 p.m. along its entire length from West Jackson Boulevard to Dexter Avenue (this is the current condition).

Appendix A

Site Plan



SCALE: 1" = 40'

PIGGLY WIGGLY CREEKLINE VILLAGE MOUNTAIN BROOK, AL

GOODWYN | MILLS | CAWOOD

Appendix B

Existing Intersection Turning Movement Traffic Counts

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mtnbrook02
Site Code : 00000000
Start Date : 05/14/2014
Page No : 1

Groups Printed- Unshifted

	MONTEVALLO RD Southbound				MONTOSE RD Westbound				MONTEVALLO RD Northbound				CHURCH ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
02:30 PM	6	55	21	0	19	53	21	0	47	52	15	0	5	26	28	0	348
02:45 PM	11	44	16	14	12	38	35	7	42	69	5	0	4	35	22	0	354
Total	17	99	37	14	31	91	56	7	89	121	20	0	9	61	50	0	702
03:00 PM	17	91	20	8	19	41	16	2	14	48	10	0	10	65	54	0	415
03:15 PM	18	53	10	0	15	43	33	0	53	84	43	0	11	52	38	0	453
Total	35	144	30	8	34	84	49	2	67	132	53	0	21	117	92	0	868
04:00 PM	5	45	9	1	10	41	17	1	36	98	10	0	11	36	43	0	363
04:15 PM	6	62	10	0	8	39	30	0	33	112	9	0	11	47	46	0	413
04:30 PM	12	77	8	0	4	31	19	0	36	116	18	0	13	48	38	0	420
04:45 PM	14	50	14	1	14	43	23	0	34	101	14	0	11	70	30	0	419
Total	37	234	41	2	36	154	89	1	139	427	51	0	46	201	157	0	1615
05:00 PM	19	76	11	0	10	45	30	0	43	109	20	0	17	65	42	0	487
05:15 PM	4	74	11	0	11	39	46	0	28	99	26	0	14	82	43	0	477
05:30 PM	11	78	22	1	5	42	40	0	45	131	18	0	15	75	23	0	506
05:45 PM	11	71	10	0	7	47	31	0	40	117	8	0	17	89	23	0	471
Total	45	299	54	1	33	173	147	0	156	456	72	0	63	311	131	0	1941
07:00 AM	19	89	10	3	12	38	11	0	32	41	8	0	5	27	31	0	324
07:15 AM	17	124	22	2	8	63	12	1	53	49	18	0	5	41	37	0	452
07:30 AM	12	109	10	50	9	65	3	28	64	53	11	0	1	69	66	0	550
07:45 AM	22	102	20	14	25	82	19	2	69	86	27	0	2	42	67	0	579
Total	70	424	62	69	54	246	45	31	218	229	64	0	13	179	201	0	1905
08:00 AM	17	119	21	7	18	86	15	0	37	50	23	0	6	29	32	0	460
08:15 AM	17	110	9	4	18	50	17	0	40	33	10	0	5	37	22	0	372
08:30 AM	17	110	14	4	10	35	8	2	47	51	5	0	5	30	29	0	367
08:45 AM	14	114	15	2	14	44	16	5	61	60	16	0	8	24	33	0	426
Total	65	453	59	17	60	215	56	7	185	194	54	0	24	120	116	0	1625
Grand Total	269	1653	283	111	248	963	442	48	854	1559	314	0	176	989	747	0	8656
Apprch %	11.6	71.4	12.2	4.8	14.6	56.6	26.0	2.8	31.3	57.2	11.5	0.0	9.2	51.7	39.1	0.0	
Total %	3.1	19.1	3.3	1.3	2.9	11.1	5.1	0.6	9.9	18.0	3.6	0.0	2.0	11.4	8.6	0.0	

	MONTEVALLO RD Southbound					MONTOSE RD Westbound					MONTEVALLO RD Northbound					CHURCH ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	45	299	54	1	399	33	173	147	0	353	156	456	72	0	684	63	311	131	0	505	1941
Percent	11.3	74.9	13.5	0.3		9.3	49.0	41.6	0.0		22.8	66.7	10.5	0.0		12.5	61.6	25.9	0.0		
05:30 Volume	11	78	22	1	112	5	42	40	0	87	45	131	18	0	194	15	75	23	0	113	506
Peak Factor																					0.959
High Int.	05:30 PM					05:15 PM					05:30 PM					05:15 PM					
Volume	11	78	22	1	112	11	39	46	0	96	45	131	18	0	194	14	82	43	0	139	
Peak Factor					0.891					0.919					0.881					0.908	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mtnbrook02
Site Code : 00000000
Start Date : 05/14/2014
Page No : 2

	MONTEVALLO RD Southbound					MONTOSE RD Westbound					MONTEVALLO RD Northbound					CHURCH ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					05:00 PM					05:00 PM					05:00 PM					
Volume	45	299	54	1	399	33	173	147	0	353	156	456	72	0	684	63	311	131	0	505	
Percent	11.3	74.9	13.5	0.3		9.3	49.0	41.6	0.0		22.8	66.7	10.5	0.0		12.5	61.6	25.9	0.0		
High Int.	05:30 PM					05:15 PM					05:30 PM					05:15 PM					
Volume	11	78	22	1	112	11	39	46	0	96	45	131	18	0	194	14	82	43	0	139	
Peak Factor					0.891					0.919					0.881					0.908	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	68	454	73	73	668	60	296	49	31	436	223	238	79	0	540	14	181	202	0	397	2041
Percent	10.2	68.0	10.9	10.9		13.8	67.9	11.2	7.1		41.3	44.1	14.6	0.0		3.5	45.6	50.9	0.0		
07:45 Volume	22	102	20	14	158	25	82	19	2	128	69	86	27	0	182	2	42	67	0	111	579
Peak Factor																					0.881
High Int.	07:30 AM					07:45 AM					07:45 AM					07:30 AM					
Volume	12	109	10	50	181	25	82	19	2	128	69	86	27	0	182	1	69	66	0	136	
Peak Factor					0.923					0.852					0.742					0.730	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
By Approach	07:15 AM					07:30 AM					07:15 AM					07:15 AM					
Volume	68	454	73	73	668	70	283	54	30	437	223	238	79	0	540	14	181	202	0	397	
Percent	10.2	68.0	10.9	10.9		16.0	64.8	12.4	6.9		41.3	44.1	14.6	0.0		3.5	45.6	50.9	0.0		
High Int.	07:30 AM					07:45 AM					07:45 AM					07:30 AM					
Volume	12	109	10	50	181	25	82	19	2	128	69	86	27	0	182	1	69	66	0	136	
Peak Factor					0.923					0.854					0.742					0.730	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mtnbrook01
Site Code : 00000000
Start Date : 05/14/2014
Page No : 1

Groups Printed- 1 - Unshifted

	CHURCH ST Southbound			DEXTER AVE Westbound			CHURCH ST Northbound			
Start Time	Left	Thru	Peds	Left	Right	Peds	Thru	Right	Peds	Int. Total
02:30 PM	12	88	0	17	7	4	54	20	1	203
02:45 PM	10	114	0	32	8	3	46	8	0	221
Total	22	202	0	49	15	7	100	28	1	424
03:00 PM	8	100	0	47	10	1	66	11	0	243
03:15 PM	10	100	0	14	4	2	85	4	0	219
Total	18	200	0	61	14	3	151	15	0	462
04:00 PM	5	87	0	8	6	1	64	1	0	172
04:15 PM	10	77	0	8	3	0	55	7	1	161
04:30 PM	9	97	1	8	5	1	55	5	3	184
04:45 PM	14	94	0	6	5	1	58	10	0	188
Total	38	355	1	30	19	3	232	23	4	705
05:00 PM	14	126	0	9	6	2	75	7	1	240
05:15 PM	15	119	0	12	8	0	70	6	0	230
05:30 PM	19	126	0	17	11	7	73	7	0	260
05:45 PM	23	115	0	17	12	2	71	14	0	254
Total	71	486	0	55	37	11	289	34	1	984
07:00 AM	3	71	0	5	2	1	42	2	0	126
07:15 AM	1	103	0	18	9	0	61	4	0	196
07:30 AM	2	165	0	25	14	5	62	5	8	286
07:45 AM	4	108	1	42	17	4	96	7	3	282
Total	10	447	1	90	42	10	261	18	11	890
08:00 AM	6	89	2	12	9	2	87	3	3	213
08:15 AM	2	64	0	8	4	8	64	3	1	154
08:30 AM	2	73	0	10	9	1	57	7	4	163
08:45 AM	3	82	1	14	8	7	89	5	10	219
Total	13	308	3	44	30	18	297	18	18	749
Grand Total	172	1998	5	329	157	52	1330	136	35	4214
Apprch %	7.9	91.9	0.2	61.2	29.2	9.7	88.6	9.1	2.3	
Total %	4.1	47.4	0.1	7.8	3.7	1.2	31.6	3.2	0.8	

	CHURCH ST Southbound				DEXTER AVE Westbound				CHURCH ST Northbound					
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1														
Intersection	05:00 PM													
Volume	71	486	0	557	55	37	11	103	289	34	1	324	0	984
Percent	12.7	87.3	0.0		53.4	35.9	10.7		89.2	10.5	0.3			
05:30 Volume	19	126	0	145	17	11	7	35	73	7	0	80	0	260
Peak Factor														0.946
High Int.	05:30 PM				05:30 PM				05:45 PM					
Volume	19	126	0	145	17	11	7	35	71	14	0	85		
Peak Factor				0.960				0.736				0.953		

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mtnbrook01
Site Code : 00000000
Start Date : 05/14/2014
Page No : 2

	CHURCH ST Southbound				DEXTER AVE Westbound				CHURCH ST Northbound					
Start Time	Left	Thru	Peds	App. Total	Left	Right	Peds	App. Total	Thru	Right	Peds	App. Total	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1														
By Approach	05:00 PM				05:00 PM				05:00 PM				04:00 PM	
Volume	71	486	0	557	55	37	11	103	289	34	1	324	0	
Percent	12.7	87.3	0.0		53.4	35.9	10.7		89.2	10.5	0.3			
High Int.	05:30 PM				05:30 PM				05:45 PM				-	
Volume	19	126	0	145	17	11	7	35	71	14	0	85	-	
Peak Factor				0.960				0.736				0.953	-	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1														
Intersection	07:15 AM													
Volume	13	465	3	481	97	49	11	157	306	19	14	339	0	977
Percent	2.7	96.7	0.6		61.8	31.2	7.0		90.3	5.6	4.1			
07:30 Volume	2	165	0	167	25	14	5	44	62	5	8	75	0	286
Peak Factor														0.854
High Int.	07:30 AM				07:45 AM				07:45 AM					
Volume	2	165	0	167	42	17	4	63	96	7	3	106		
Peak Factor				0.720				0.623				0.800		
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1														
By Approach	07:15 AM				07:15 AM				07:30 AM				07:00 AM	
Volume	13	465	3	481	97	49	11	157	309	18	15	342	0	
Percent	2.7	96.7	0.6		61.8	31.2	7.0		90.4	5.3	4.4			
High Int.	07:30 AM				07:45 AM				07:45 AM				-	
Volume	2	165	0	167	42	17	4	63	96	7	3	106	-	
Peak Factor				0.720				0.623				0.807	-	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mtnbrook03
Site Code : 00000000
Start Date : 05/14/2014
Page No : 1

Groups Printed- 1 - Unshifted

	CHURCH ST Southbound				JACKSON BLVD Westbound				CHURCH ST Northbound				OAK ST Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
02:30 PM	16	50	5	0	0	0	0	0	12	69	22	0	2	3	16	0	195
02:45 PM	19	83	3	0	0	0	0	16	12	46	24	47	1	3	23	4	281
Total	35	133	8	0	0	0	0	16	24	115	46	47	3	6	39	4	476
03:00 PM	23	120	1	0	0	0	0	2	15	68	13	5	2	0	25	0	274
03:15 PM	4	85	7	0	2	0	0	0	17	88	5	1	9	0	23	1	242
Total	27	205	8	0	2	0	0	2	32	156	18	6	11	0	48	1	516
04:00 PM	3	68	6	0	0	1	0	1	16	71	4	0	3	0	20	0	193
04:15 PM	3	84	3	0	5	1	0	0	19	60	10	0	2	3	18	0	208
04:30 PM	2	80	4	0	2	1	0	0	12	60	5	0	5	1	27	1	200
04:45 PM	3	90	2	0	4	0	0	0	15	73	13	0	2	1	21	0	224
Total	11	322	15	0	11	3	0	1	62	264	32	0	12	5	86	1	825
05:00 PM	6	105	0	0	0	1	0	0	13	75	8	0	1	1	31	0	241
05:15 PM	5	122	3	0	3	0	2	0	9	57	7	0	1	2	24	0	235
05:30 PM	18	95	1	0	1	1	2	0	10	83	18	0	1	4	23	0	257
05:45 PM	16	100	1	0	3	0	1	0	13	82	16	0	3	3	28	0	266
Total	45	422	5	0	7	2	5	0	45	297	49	0	6	10	106	0	999
07:00 AM	8	59	1	0	0	0	0	4	4	59	10	0	3	1	12	0	161
07:15 AM	20	88	2	0	0	0	0	0	6	78	44	0	1	0	9	0	248
07:30 AM	41	131	0	0	0	0	0	1	2	72	69	32	1	3	16	1	369
07:45 AM	32	112	1	0	0	0	0	1	11	105	40	11	3	2	11	0	329
Total	101	390	4	0	0	0	0	6	23	314	163	43	8	6	48	1	1107
08:00 AM	11	74	0	0	0	0	0	3	23	100	23	5	2	3	9	0	253
08:15 AM	8	54	1	1	0	0	0	2	11	71	15	1	3	3	9	1	180
08:30 AM	10	66	1	1	0	0	0	2	10	79	13	1	2	0	10	2	197
08:45 AM	12	67	3	1	0	0	0	2	15	100	7	2	1	1	6	1	218
Total	41	261	5	3	0	0	0	9	59	350	58	9	8	7	34	4	848
Grand Total	260	1733	45	3	20	5	5	34	245	1496	366	105	48	34	361	11	4771
Apprch %	12.7	84.9	2.2	0.1	31.3	7.8	7.8	53.1	11.1	67.6	16.5	4.7	10.6	7.5	79.5	2.4	
Total %	5.4	36.3	0.9	0.1	0.4	0.1	0.1	0.7	5.1	31.4	7.7	2.2	1.0	0.7	7.6	0.2	

	CHURCH ST Southbound					JACKSON BLVD Westbound					CHURCH ST Northbound					OAK ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	45	422	5	0	472	7	2	5	0	14	45	297	49	0	391	6	10	106	0	122	999
Percent	9.5	89.4	1.1	0.0		50.0	14.3	35.7	0.0		11.5	76.0	12.5	0.0		4.9	8.2	86.9	0.0		
05:45 Volume	16	100	1	0	117	3	0	1	0	4	13	82	16	0	111	3	3	28	0	34	266
Peak Factor																					0.939
High Int.	05:15 PM					05:15 PM					05:30 PM					05:45 PM					
Volume	5	122	3	0	130	3	0	2	0	5	10	83	18	0	111	3	3	28	0	34	
Peak Factor					0.908					0.700					0.881					0.897	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

File Name : mtnbrook03
Site Code : 00000000
Start Date : 05/14/2014
Page No : 2

	CHURCH ST Southbound					JACKSON BLVD Westbound					CHURCH ST Northbound					OAK ST Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	05:00 PM					04:00 PM					05:00 PM					05:00 PM					
Volume	45	422	5	0	472	11	3	0	1	15	45	297	49	0	391	6	10	106	0	122	
Percent	9.5	89.4	1.1	0.0		73.3	20.0	0.0	6.7		11.5	76.0	12.5	0.0		4.9	8.2	86.9	0.0		
High Int.	05:15 PM					04:15 PM					05:30 PM					05:45 PM					
Volume	5	122	3	0	130	5	1	0	0	6	10	83	18	0	111	3	3	28	0	34	
Peak Factor					0.908					0.625					0.881					0.897	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	104	405	3	0	512	0	0	0	5	5	42	355	176	48	621	7	8	45	1	61	1199
Percent	20.3	79.1	0.6	0.0		0.0	0.0	0.0	100.0		6.8	57.2	28.3	7.7		11.5	13.1	73.8	1.6		
07:30 Volume	41	131	0	0	172	0	0	0	1	1	2	72	69	32	175	1	3	16	1	21	369
Peak Factor																					0.812
High Int.	07:30 AM					08:00 AM					07:30 AM					07:30 AM					
Volume	41	131	0	0	172	0	0	0	3	3	2	72	69	32	175	1	3	16	1	21	
Peak Factor					0.744					0.417					0.887					0.726	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
By Approach	07:15 AM					08:00 AM					07:15 AM					07:30 AM					
Volume	104	405	3	0	512	0	0	0	9	9	42	355	176	48	621	9	11	45	2	67	
Percent	20.3	79.1	0.6	0.0		0.0	0.0	0.0	100.0		6.8	57.2	28.3	7.7		13.4	16.4	67.2	3.0		
High Int.	07:30 AM					08:00 AM					07:30 AM					07:30 AM					
Volume	41	131	0	0	172	0	0	0	3	3	2	72	69	32	175	1	3	16	1	21	
Peak Factor					0.744					0.750					0.887					0.798	

TRAFFIC DATA, LLC

1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mtnbrook04
Site Code : 00000000
Start Date : 05/14/2014
Page No : 1

Groups Printed- 1 - Unshifted

	VINE ST Southbound				DEXTER AVE Westbound				VINE ST Northbound				DEXTER AVE Eastbound				
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Int. Total
02:30 PM	0	0	2	0	0	7	0	0	11	10	2	0	3	25	0	0	60
02:45 PM	0	0	1	0	0	10	0	0	30	22	12	0	1	18	0	0	94
Total	0	0	3	0	0	17	0	0	41	32	14	0	4	43	0	0	154
03:00 PM	2	0	4	0	0	18	2	0	38	44	35	0	6	7	0	0	156
03:15 PM	2	1	3	0	0	7	1	0	9	10	4	0	1	8	0	0	46
Total	4	1	7	0	0	25	3	0	47	54	39	0	7	15	0	0	202
04:00 PM	0	2	3	0	1	5	0	0	3	8	1	0	1	0	0	0	24
04:15 PM	2	4	3	0	2	9	1	0	4	8	2	0	2	10	0	0	47
04:30 PM	0	1	1	0	1	8	0	0	4	16	2	0	3	4	2	0	42
04:45 PM	5	0	4	0	1	4	0	0	6	4	3	1	3	10	1	0	42
Total	7	7	11	0	5	26	1	0	17	36	8	1	9	24	3	0	155
05:00 PM	1	2	2	0	1	6	0	0	6	18	7	1	6	10	0	0	60
05:15 PM	2	1	0	0	0	7	0	0	7	7	3	0	4	12	3	0	46
05:30 PM	1	0	3	0	2	13	0	0	16	17	9	0	1	12	2	0	76
05:45 PM	1	0	4	0	1	15	1	0	12	7	16	0	2	16	1	0	76
Total	5	3	9	0	4	41	1	0	41	49	35	1	13	50	6	0	258
07:00 AM	0	2	0	1	0	4	1	1	3	0	3	2	0	2	1	0	20
07:15 AM	1	1	0	1	0	5	0	0	21	16	5	1	2	9	0	0	62
07:30 AM	1	0	1	2	1	19	0	0	32	25	19	2	0	5	1	1	109
07:45 AM	1	0	2	0	2	27	1	0	27	21	25	0	3	7	0	0	116
Total	3	3	3	4	3	55	2	1	83	62	52	5	5	23	2	1	307
08:00 AM	0	1	4	3	1	4	0	0	10	7	6	2	1	1	1	0	41
08:15 AM	1	1	2	1	2	8	0	0	5	8	1	5	1	4	0	0	39
08:30 AM	0	0	3	0	0	6	0	0	8	1	2	1	3	5	0	0	29
08:45 AM	0	1	3	2	1	10	1	1	8	4	8	0	1	1	3	0	44
Total	1	3	12	6	4	28	1	1	31	20	17	8	6	11	4	0	153
Grand Total	20	17	45	10	16	192	8	2	260	253	165	15	44	166	15	1	1229
Apprch %	21.7	18.5	48.9	10.9	7.3	88.1	3.7	0.9	37.5	36.5	23.8	2.2	19.5	73.5	6.6	0.4	
Total %	1.6	1.4	3.7	0.8	1.3	15.6	0.7	0.2	21.2	20.6	13.4	1.2	3.6	13.5	1.2	0.1	

	VINE ST Southbound					DEXTER AVE Westbound					VINE ST Northbound					DEXTER AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Intersection	05:00 PM																				
Volume	5	3	9	0	17	4	41	1	0	46	41	49	35	1	126	13	50	6	0	69	258
Percent	29.4	17.6	52.9	0.0		8.7	89.1	2.2	0.0		32.5	38.9	27.8	0.8		18.8	72.5	8.7	0.0		
05:45 Volume	1	0	4	0	5	1	15	1	0	17	12	7	16	0	35	2	16	1	0	19	76
Peak Factor																					0.849
High Int.	05:00 PM					05:45 PM					05:30 PM					05:15 PM					
Volume	1	2	2	0	5	1	15	1	0	17	16	17	9	0	42	4	12	3	0	19	
Peak Factor					0.850					0.676					0.750					0.908	

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Birmingham, AL 35216
205-824-0125

File Name : mtnbrook04
Site Code : 00000000
Start Date : 05/14/2014
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	VINE ST Southbound					DEXTER AVE Westbound					VINE ST Northbound					DEXTER AVE Eastbound					
Start Time	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Left	Thru	Right	Peds	App. Total	Int. Total
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1																					
By Approach	04:00 PM					05:00 PM					05:00 PM					05:00 PM					
Volume	7	7	11	0	25	4	41	1	0	46	41	49	35	1	126	13	50	6	0	69	
Percent	28.0	28.0	44.0	0.0		8.7	89.1	2.2	0.0		32.5	38.9	27.8	0.8		18.8	72.5	8.7	0.0		
High Int.	04:15 PM					05:45 PM					05:30 PM					05:15 PM					
Volume	2	4	3	0	9	1	15	1	0	17	16	17	9	0	42	4	12	3	0	19	
Peak Factor					0.694					0.676					0.750					0.908	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Intersection	07:15 AM																				
Volume	3	2	7	6	18	4	55	1	0	60	90	69	55	5	219	6	22	2	1	31	328
Percent	16.7	11.1	38.9	33.3		6.7	91.7	1.7	0.0		41.1	31.5	25.1	2.3		19.4	71.0	6.5	3.2		
07:45 Volume	1	0	2	0	3	2	27	1	0	30	27	21	25	0	73	3	7	0	0	10	116
Peak Factor																					0.707
High Int.	08:00 AM					07:45 AM					07:30 AM					07:15 AM					
Volume	0	1	4	3	8	2	27	1	0	30	32	25	19	2	78	2	9	0	0	11	
Peak Factor					0.563					0.500					0.702					0.705	
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1																					
By Approach	08:00 AM					07:30 AM					07:15 AM					07:00 AM					
Volume	1	3	12	6	22	6	58	1	0	65	90	69	55	5	219	5	23	2	1	31	
Percent	4.5	13.6	54.5	27.3		9.2	89.2	1.5	0.0		41.1	31.5	25.1	2.3		16.1	74.2	6.5	3.2		
High Int.	08:00 AM					07:45 AM					07:30 AM					07:15 AM					
Volume	0	1	4	3	8	2	27	1	0	30	32	25	19	2	78	2	9	0	0	11	
Peak Factor					0.688					0.542					0.702					0.705	

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1409 Turnham Lane
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Mountain Brook, AL

File Name : mtnbrook06
Site Code : 00000000
Start Date : 05/21/2014
Page No : 1

Groups Printed- Unshifted

	CHURCH ST Southbound	REGIONS/CVS (S) ACCESS Westbound			
Start Time	Left	Left	Right	Peds	Int. Total
07:00 AM	0	0	1	4	5
07:15 AM	1	0	1	1	3
07:30 AM	0	6	7	0	13
07:45 AM	0	2	5	3	10
Total	1	8	14	8	31
08:00 AM	0	1	0	3	4
08:15 AM	0	0	2	3	5
08:30 AM	0	1	2	5	8
08:45 AM	0	0	1	5	6
Total	0	2	5	16	23
02:30 PM	0	2	4	5	11
02:45 PM	0	2	15	1	18
Total	0	4	19	6	29
03:00 PM	0	2	10	2	14
03:15 PM	0	4	4	2	10
Total	0	6	14	4	24
04:00 PM	0	3	6	2	11
04:15 PM	0	1	4	1	6
04:30 PM	0	1	6	2	9
04:45 PM	0	4	10	0	14
Total	0	9	26	5	40
05:00 PM	1	1	4	0	6
05:15 PM	0	4	1	2	7
05:30 PM	0	0	0	5	5
05:45 PM	1	0	0	12	13
Total	2	5	5	19	31
Grand Total	3	34	83	58	178
Apprch %	100.0	19.4	47.4	33.1	
Total %	1.7	19.1	46.6	32.6	

	CHURCH ST Southbound		REGIONS/CVS (S) ACCESS Westbound						
Start Time	Left	App. Total	Left	Right	Peds	App. Total	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1									
Intersection	07:30 AM								
Volume	0	0	9	14	9	32	0	0	32
Percent	0.0		28.1	43.8	28.1				
07:30 Volume	0	0	6	7	0	13	0	0	13
Peak Factor									0.615
High Int.	6:45:00 AM		07:30 AM				6:45:00 AM	6:45:00 AM	
Volume	0	0	6	7	0	13			
Peak Factor						0.615			

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Birmingham, AL 35216
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Site Code : 00000000
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	CHURCH ST Southbound		REGIONS/CVS (S) ACCESS Westbound						
Start Time	Left	App. Total	Left	Right	Peds	App. Total	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1									
By Approach	07:00 AM		07:30 AM				07:00 AM	07:00 AM	
Volume	1	1	9	14	9	32	0	0	
Percent	100.0		28.1	43.8	28.1				
High Int.	07:15 AM		07:30 AM				-	-	
Volume	1	1	6	7	0	13	-	-	
Peak Factor		0.250				0.615	-	-	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1									
Intersection	04:00 PM								
Volume	0	0	9	26	5	40	0	0	40
Percent	0.0		22.5	65.0	12.5				
04:45 Volume	0	0	4	10	0	14	0	0	14
Peak Factor									0.714
High Int.			04:45 PM						
Volume	0	0	4	10	0	14			
Peak Factor						0.714			
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1									
By Approach	05:00 PM		04:00 PM				04:00 PM	04:00 PM	
Volume	2	2	9	26	5	40	0	0	
Percent	100.0		22.5	65.0	12.5				
High Int.	05:00 PM		04:45 PM				-	-	
Volume	1	1	4	10	0	14	-	-	
Peak Factor		0.500				0.714	-	-	

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1409 Turnham Lane
Birmingham, AL 35216
205-824-0125

Mountain Brook, AL

File Name : mtnbrook07
Site Code : 00000000
Start Date : 05/21/2014
Page No : 1

Groups Printed- Unshifted

	CHURCH ST Southbound	REGIONS/CVS (M) ACCESS Westbound			
Start Time	Left	Left	Right	Peds	Int. Total
07:00 AM	0	0	0	4	4
07:15 AM	0	0	0	1	1
07:45 AM	0	0	0	3	3
Total	0	0	0	8	8
08:00 AM	0	0	0	1	1
08:15 AM	0	0	0	3	3
08:30 AM	0	0	0	5	5
08:45 AM	0	0	0	2	2
Total	0	0	0	11	11
02:30 PM	0	0	1	5	6
02:45 PM	0	0	0	4	4
Total	0	0	1	9	10
03:00 PM	0	0	2	2	4
03:15 PM	0	0	0	2	2
Total	0	0	2	4	6
04:00 PM	0	1	0	2	3
04:15 PM	0	3	0	1	4
04:30 PM	0	1	0	2	3
04:45 PM	0	0	2	0	2
Total	0	5	2	5	12
05:00 PM	0	1	0	0	1
05:15 PM	1	3	1	2	7
05:30 PM	0	0	0	5	5
05:45 PM	2	0	3	13	18
Total	3	4	4	20	31
Grand Total	3	9	9	57	78
Apprch %	100.0	12.0	12.0	76.0	
Total %	3.8	11.5	11.5	73.1	

	CHURCH ST Southbound		REGIONS/CVS (M) ACCESS Westbound						
Start Time	Left	App. Total	Left	Right	Peds	App. Total	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1									
Intersection	07:45 AM								
Volume	0	0	0	0	12	12	0	0	12
Percent	0.0		0.0	0.0	100.0				
08:30 Volume	0	0	0	0	5	5	0	0	5
Peak Factor									0.600
High Int.	6:45:00 AM		08:30 AM				6:45:00 AM	6:45:00 AM	
Volume	0	0	0	0	5	5			
Peak Factor						0.600			

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	CHURCH ST Southbound		REGIONS/CVS (M) ACCESS Westbound						
Start Time	Left	App. Total	Left	Right	Peds	App. Total	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1									
By Approach	07:00 AM		07:45 AM				07:00 AM	07:00 AM	
Volume	0	0	0	0	12	12	0	0	
Percent	-		0.0	0.0	100.0				
High Int.	-		08:30 AM				-	-	
Volume	-	-	0	0	5	5	-	-	
Peak Factor		-				0.600	-	-	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1									
Intersection	05:00 PM								
Volume	3	3	4	4	20	28	0	0	31
Percent	100.0		14.3	14.3	71.4				
05:45 Volume	2	2	0	3	13	16	0	0	18
Peak Factor									0.431
High Int.	05:45 PM		05:45 PM						
Volume	2	2	0	3	13	16			
Peak Factor		0.375				0.438			
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1									
By Approach	05:00 PM		05:00 PM				04:00 PM	04:00 PM	
Volume	3	3	4	4	20	28	0	0	
Percent	100.0		14.3	14.3	71.4				
High Int.	05:45 PM		05:45 PM				-	-	
Volume	2	2	0	3	13	16	-	-	
Peak Factor		0.375				0.438	-	-	

TRAFFIC DATA, LLC

1409 Turnham Lane
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Mountain Brook, AL

File Name : mtnbrook05
Site Code : 00000000
Start Date : 05/21/2014
Page No : 1

Groups Printed- Unshifted

	CHURCH ST Southbound		CVS/REGIONS (N) ACCESS Westbound			CHURCH ST Northbound		
Start Time	Left	Peds	Left	Right	Peds	Right	Peds	Int. Total
07:00 AM	1	0	2	1	4	0	0	8
07:15 AM	0	0	0	0	1	1	0	2
07:30 AM	2	0	0	1	0	1	0	4
07:45 AM	2	0	1	2	3	0	0	8
Total	5	0	3	4	8	2	0	22
08:00 AM	1	1	0	1	2	0	0	5
08:15 AM	1	6	0	0	3	1	0	11
08:30 AM	2	2	2	1	5	0	0	12
08:45 AM	4	2	2	4	5	3	0	20
Total	8	11	4	6	15	4	0	48
02:30 PM	6	1	2	8	5	5	0	27
02:45 PM	8	3	5	9	2	6	0	33
Total	14	4	7	17	7	11	0	60
03:00 PM	4	7	6	6	3	7	0	33
03:15 PM	8	6	1	10	2	4	0	31
Total	12	13	7	16	5	11	0	64
04:00 PM	3	0	9	4	2	5	0	23
04:15 PM	7	1	5	5	1	8	0	27
04:30 PM	11	9	8	7	3	3	0	41
04:45 PM	7	1	4	8	0	4	0	24
Total	28	11	26	24	6	20	0	115
05:00 PM	4	2	3	7	0	4	0	20
05:15 PM	9	6	2	4	2	1	0	24
05:30 PM	6	6	0	6	5	4	0	27
05:45 PM	6	1	1	8	14	2	0	32
Total	25	15	6	25	21	11	0	103
Grand Total	92	54	53	92	62	59	0	412
Apprch %	63.0	37.0	25.6	44.4	30.0	100.0	0.0	
Total %	22.3	13.1	12.9	22.3	15.0	14.3	0.0	

	CHURCH ST Southbound			CVS/REGIONS (N) ACCESS Westbound				CHURCH ST Northbound				
Start Time	Left	Peds	App. Total	Left	Right	Peds	App. Total	Right	Peds	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1												
Intersection	08:00 AM											
Volume	8	11	19	4	6	15	25	4	0	4	0	48
Percent	42.1	57.9		16.0	24.0	60.0		100.0	0.0			
08:45 Volume	4	2	6	2	4	5	11	3	0	3	0	20
Peak Factor												0.600
High Int.	08:15 AM			08:45 AM				08:45 AM			6:45:00 AM	
Volume	1	6	7	2	4	5	11	3	0	3		
Peak Factor			0.679				0.568			0.333		

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Site Code : 00000000
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	CHURCH ST Southbound			CVS/REGIONS (N) ACCESS Westbound				CHURCH ST Northbound				
Start Time	Left	Peds	App. Total	Left	Right	Peds	App. Total	Right	Peds	App. Total	App. Total	Int. Total
Peak Hour From 07:00 AM to 08:45 AM - Peak 1 of 1												
By Approach	08:00 AM			08:00 AM				08:00 AM			07:00 AM	
Volume	8	11	19	4	6	15	25	4	0	4	0	
Percent	42.1	57.9		16.0	24.0	60.0		100.0	0.0			
High Int.	08:15 AM			08:45 AM				08:45 AM			-	
Volume	1	6	7	2	4	5	11	3	0	3	-	
Peak Factor			0.679				0.568			0.333	-	
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1												
Intersection	04:00 PM											
Volume	28	11	39	26	24	6	56	20	0	20	0	115
Percent	71.8	28.2		46.4	42.9	10.7		100.0	0.0			
04:30 Volume	11	9	20	8	7	3	18	3	0	3	0	41
Peak Factor												0.701
High Int.	04:30 PM			04:30 PM				04:15 PM				
Volume	11	9	20	8	7	3	18	8	0	8		
Peak Factor			0.488				0.778			0.625		
Peak Hour From 04:00 PM to 05:45 PM - Peak 1 of 1												
By Approach	04:30 PM			04:00 PM				04:00 PM			04:00 PM	
Volume	31	18	49	26	24	6	56	20	0	20	0	
Percent	63.3	36.7		46.4	42.9	10.7		100.0	0.0			
High Int.	04:30 PM			04:30 PM				04:15 PM			-	
Volume	11	9	20	8	7	3	18	8	0	8	-	
Peak Factor			0.613				0.778			0.625	-	

Appendix C

Existing Intersection Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	0.98			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1545		1770	1796		1770	1766			1749	
Flt Permitted	0.95	1.00		0.95	1.00		0.29	1.00			0.74	
Satd. Flow (perm)	1770	1545		1770	1796		532	1766			1298	
Volume (vph)	14	181	202	60	296	49	223	238	79	68	454	73
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	19	248	277	71	348	58	301	322	107	74	493	79
RTOR Reduction (vph)	0	40	0	0	6	0	0	12	0	0	5	0
Lane Group Flow (vph)	19	485	0	71	400	0	301	417	0	0	641	0
Confl. Peds. (#/hr)	104		73			31	73		15	31		104
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	20.0	20.0		23.8	23.8		40.0	40.0			40.0	
Effective Green, g (s)	21.0	21.0		24.8	24.8		41.0	41.0			41.0	
Actuated g/C Ratio	0.21	0.21		0.25	0.25		0.41	0.41			0.41	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	376	328		444	451		221	733			539	
v/s Ratio Prot	0.01	c0.31		0.04	c0.22			0.24				
v/s Ratio Perm							c0.57				0.49	
v/c Ratio	0.05	1.48		0.16	0.89		1.36	0.57			1.19	
Uniform Delay, d1	31.0	38.9		28.9	35.6		28.9	22.1			28.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	231.0		0.2	18.5		189.3	3.2			102.4	
Delay (s)	31.0	269.9		29.0	54.2		218.2	25.3			131.3	
Level of Service	C	F		C	D		F	C			F	
Approach Delay (s)		261.5			50.4			104.8			131.3	
Approach LOS		F			D			F			F	

Intersection Summary			
HCM Average Control Delay	136.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	98.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	104	405	3	42	355	176	7	8	45	0	0	0
Peak Hour Factor	0.74	0.74	0.74	0.89	0.89	0.89	0.73	0.73	0.73	0.90	0.90	0.90
Hourly flow rate (vph)	141	547	4	47	399	198	10	11	62	0	0	0
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.78						0.78	0.78		0.78	0.78	0.78
vC, conflicting volume	612			566			1354	1551	579	1518	1455	528
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			566			1456	1711	579	1668	1586	391
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	83			95			86	80	88	100	100	100
cM capacity (veh/h)	826			993			68	55	502	36	65	504

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	141	551	47	597	82
Volume Left	141	0	47	0	10
Volume Right	0	4	0	198	62
cSH	826	1700	993	1700	177
Volume to Capacity	0.17	0.32	0.05	0.35	0.46
Queue Length 95th (ft)	15	0	4	0	55
Control Delay (s)	10.3	0.0	8.8	0.0	41.9
Lane LOS	B		A		E
Approach Delay (s)	2.1		0.6		41.9
Approach LOS					E

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	558	362	0	9	14
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	0	775	452	0	15	23
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	468				1258	482
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	468				1258	482
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	96
cM capacity (veh/h)	1080				184	569

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	775	452	15	23
Volume Left	0	0	15	0
Volume Right	0	0	0	23
cSH	1700	1700	184	569
Volume to Capacity	0.46	0.27	0.08	0.04
Queue Length 95th (ft)	0	0	6	3
Control Delay (s)	0.0	0.0	26.2	11.6
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	17.3	
Approach LOS			C	

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑	↑		Y	
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	558	376	0	0	0
Peak Hour Factor	0.72	0.72	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	775	470	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	470				1245	470
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	470				1245	470
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1092				192	594

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	775	470	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.46	0.28	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	32.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	8	554	372	4	4	6
Peak Hour Factor	0.72	0.72	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	11	769	465	5	7	11
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	485				1289	498
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	485				1289	498
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				96	98
cM capacity (veh/h)	1064				174	558

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	11	769	470	18
Volume Left	11	0	0	7
Volume Right	0	0	5	11
cSH	1064	1700	1700	297
Volume to Capacity	0.01	0.45	0.28	0.06
Queue Length 95th (ft)	1	0	0	5
Control Delay (s)	8.4	0.0	0.0	17.9
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	17.9
Approach LOS				C

Intersection Summary			
Average Delay	0.3		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	14	465	306	19	97	49
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	19	646	382	24	156	79
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	421				1109	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	421				1109	424
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				30	87
cM capacity (veh/h)	1124				222	614

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	19	646	406	235
Volume Left	19	0	0	156
Volume Right	0	0	24	79
cSH	1124	1700	1700	283
Volume to Capacity	0.02	0.38	0.24	0.83
Queue Length 95th (ft)	1	0	0	172
Control Delay (s)	8.3	0.0	0.0	58.7
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	58.7
Approach LOS				F

Intersection Summary			
Average Delay	10.7		
Intersection Capacity Utilization	41.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	2	7	90	69	55	6	22	2	4	55	1
Peak Hour Factor	0.56	0.56	0.56	0.70	0.70	0.70	0.71	0.71	0.71	0.50	0.50	0.50
Hourly flow rate (vph)	5	4	12	129	99	79	8	31	3	8	110	2
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	334	208	141	221	207	62	127			49		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	334	208	141	221	207	62	127			49		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	81	85	92	99			99		
cM capacity (veh/h)	479	665	884	685	665	977	1441			1539		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	21	306	42	120
Volume Left	5	129	8	8
Volume Right	12	79	3	2
cSH	698	734	1441	1539
Volume to Capacity	0.03	0.42	0.01	0.01
Queue Length 95th (ft)	2	52	0	0
Control Delay (s)	10.3	13.4	1.5	0.5
Lane LOS	B	B	A	A
Approach Delay (s)	10.3	13.4	1.5	0.5
Approach LOS	B	B		

Intersection Summary			
Average Delay	9.1		
Intersection Capacity Utilization	33.0%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00			1.00	
Frt	1.00	0.93		1.00	0.94		1.00	0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1739		1770	1731		1735	1800			1771	
Flt Permitted	0.95	1.00		0.95	1.00		0.41	1.00			0.70	
Satd. Flow (perm)	1770	1739		1770	1731		746	1800			1253	
Volume (vph)	30	178	142	65	175	105	156	253	73	52	243	67
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	41	244	195	76	206	124	211	342	99	57	264	73
RTOR Reduction (vph)	0	33	0	0	24	0	0	11	0	0	9	0
Lane Group Flow (vph)	41	406	0	76	306	0	211	430	0	0	385	0
Confl. Peds. (#/hr)	31					9	22			9		31
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	22.1	22.1		17.6	17.6		30.2	30.2			30.2	
Effective Green, g (s)	23.1	23.1		18.6	18.6		31.2	31.2			31.2	
Actuated g/C Ratio	0.27	0.27		0.22	0.22		0.37	0.37			0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	482	473		388	379		274	661			460	
v/s Ratio Prot	0.02	c0.23		0.04	c0.18			0.24				
v/s Ratio Perm							0.28				c0.31	
v/c Ratio	0.09	0.86		0.20	0.81		0.77	0.65			0.84	
Uniform Delay, d1	23.0	29.4		27.0	31.4		23.7	22.3			24.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	14.4		0.2	11.9		18.6	4.9			16.4	
Delay (s)	23.1	43.7		27.3	43.3		42.3	27.2			41.0	
Level of Service	C	D		C	D		D	C			D	
Approach Delay (s)		41.9			40.3			32.1			41.0	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM Average Control Delay	38.1	HCM Level of Service	D
HCM Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	76.1%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	62	338	16	56	271	64	14	6	87	0	0	0
Peak Hour Factor	0.72	0.72	0.72	0.89	0.89	0.89	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	86	469	22	63	304	72	17	7	104	0	0	0
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	1.00						1.00	1.00		1.00	1.00	1.00
vC, conflicting volume	396			512			1123	1195	521	1255	1170	380
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	394			512			1124	1196	521	1256	1171	378
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	93			94			89	95	81	100	100	100
cM capacity (veh/h)	1160			1036			157	159	537	101	164	655

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	86	492	63	376	127
Volume Left	86	0	63	0	17
Volume Right	0	22	0	72	104
cSH	1160	1700	1036	1700	370
Volume to Capacity	0.07	0.29	0.06	0.22	0.34
Queue Length 95th (ft)	6	0	5	0	38
Control Delay (s)	8.4	0.0	8.7	0.0	19.8
Lane LOS	A		A		C
Approach Delay (s)	1.2		1.2		19.8
Approach LOS					C

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	500	285	0	10	33
Peak Hour Factor	0.89	0.89	0.83	0.83	0.77	0.77
Hourly flow rate (vph)	0	562	343	0	13	43
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	363				945	383
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	363				945	383
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				95	93
cM capacity (veh/h)	1175				281	642

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	562	343	13	43
Volume Left	0	0	13	0
Volume Right	0	0	0	43
cSH	1700	1700	281	642
Volume to Capacity	0.33	0.20	0.05	0.07
Queue Length 95th (ft)	0	0	4	5
Control Delay (s)	0.0	0.0	18.4	11.0
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.7	
Approach LOS			B	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	500	318	0	0	3
Peak Hour Factor	0.89	0.89	0.83	0.83	0.90	0.90
Hourly flow rate (vph)	0	562	383	0	0	3
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	403				985	423
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	403				985	423
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1136				266	610

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	562	383	3
Volume Left	0	0	0
Volume Right	0	0	3
cSH	1700	1700	610
Volume to Capacity	0.33	0.23	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	10.9
Lane LOS			B
Approach Delay (s)	0.0	0.0	10.9
Approach LOS			B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	41.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	26	486	329	22	14	33
Peak Hour Factor	0.89	0.89	0.83	0.83	0.85	0.85
Hourly flow rate (vph)	29	546	396	27	16	39
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	443				1054	450
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	443				1054	450
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				93	93
cM capacity (veh/h)	1099				235	589

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	546	423	55
Volume Left	29	0	0	16
Volume Right	0	0	27	39
cSH	1099	1700	1700	407
Volume to Capacity	0.03	0.32	0.25	0.14
Queue Length 95th (ft)	2	0	0	12
Control Delay (s)	8.4	0.0	0.0	15.2
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	15.2
Approach LOS				C

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	40.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	40	402	251	43	110	29
Peak Hour Factor	0.89	0.89	0.83	0.83	0.61	0.61
Hourly flow rate (vph)	45	452	302	52	180	48
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	374				910	368
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	374				910	368
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				36	93
cM capacity (veh/h)	1165				283	655

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	45	452	354	228
Volume Left	45	0	0	180
Volume Right	0	0	52	48
cSH	1165	1700	1700	321
Volume to Capacity	0.04	0.27	0.21	0.71
Queue Length 95th (ft)	3	0	0	127
Control Delay (s)	8.2	0.0	0.0	39.4
Lane LOS	A			E
Approach Delay (s)	0.7		0.0	39.4
Approach LOS				E

Intersection Summary			
Average Delay	8.7		
Intersection Capacity Utilization	40.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	1	10	88	86	53	11	58	0	0	42	3
Peak Hour Factor	0.63	0.63	0.63	0.49	0.49	0.49	0.61	0.61	0.61	0.56	0.56	0.56
Hourly flow rate (vph)	6	2	16	180	176	108	18	95	0	0	75	5
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	445	249	118	265	252	135	100			115		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	445	249	118	265	252	135	100			115		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	98	71	72	88	99			100		
cM capacity (veh/h)	336	624	903	629	622	884	1467			1449		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	24	463	113	80
Volume Left	6	180	18	0
Volume Right	16	108	0	5
cSH	610	672	1467	1449
Volume to Capacity	0.04	0.69	0.01	0.00
Queue Length 95th (ft)	3	138	1	0
Control Delay (s)	11.1	21.4	1.3	0.0
Lane LOS	B	C	A	
Approach Delay (s)	11.1	21.4	1.3	0.0
Approach LOS	B	C		

Intersection Summary			
Average Delay	15.2		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1780		1770	1735		1770	1825			1818	
Flt Permitted	0.95	1.00		0.95	1.00		0.37	1.00			0.24	
Satd. Flow (perm)	1770	1780		1770	1735		689	1825			437	
Volume (vph)	63	311	131	33	173	147	156	456	72	45	299	54
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	86	426	179	39	204	173	211	616	97	49	325	59
RTOR Reduction (vph)	0	14	0	0	28	0	0	5	0	0	5	0
Lane Group Flow (vph)	86	591	0	39	349	0	211	708	0	0	428	0
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	30.0	30.0		23.7	23.7		40.0	40.0			40.0	
Effective Green, g (s)	31.0	31.0		24.7	24.7		41.0	41.0			41.0	
Actuated g/C Ratio	0.29	0.29		0.23	0.23		0.38	0.38			0.38	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	505	508		402	394		260	688			165	
v/s Ratio Prot	0.05	c0.33		0.02	c0.20			0.39				
v/s Ratio Perm							0.31				c0.98	
v/c Ratio	0.17	1.16		0.10	0.89		0.81	1.03			2.59	
Uniform Delay, d1	29.2	38.9		33.2	40.6		30.4	33.9			33.9	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	93.7		0.1	20.5		23.4	42.0			734.7	
Delay (s)	29.3	132.6		33.3	61.2		53.8	75.8			768.5	
Level of Service	C	F		C	E		D	E			F	
Approach Delay (s)		119.7			58.6			70.8			768.5	
Approach LOS		F			E			E			F	

Intersection Summary			
HCM Average Control Delay	205.0	HCM Level of Service	F
HCM Volume to Capacity ratio	1.70		
Actuated Cycle Length (s)	108.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	45	422	5	45	297	49	6	10	106	7	2	5
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.90	0.90	0.90	0.70	0.70	0.70
Hourly flow rate (vph)	49	464	5	51	338	56	7	11	118	10	3	7
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.96						0.96	0.96		0.96	0.96	0.96
vC, conflicting volume	413			489			1054	1101	506	1194	1076	405
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	389			489			1056	1105	506	1202	1079	381
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	96			95			96	94	78	90	98	99
cM capacity (veh/h)	1104			1056			167	178	547	102	184	619

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	49	469	51	393	136	20
Volume Left	49	0	51	0	7	10
Volume Right	0	5	0	56	118	7
cSH	1104	1700	1056	1700	427	160
Volume to Capacity	0.04	0.28	0.05	0.23	0.32	0.13
Queue Length 95th (ft)	4	0	4	0	34	10
Control Delay (s)	8.4	0.0	8.6	0.0	17.3	30.8
Lane LOS	A		A		C	D
Approach Delay (s)	0.8		1.0		17.3	30.8
Approach LOS					C	D

Intersection Summary			
Average Delay	3.4		
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	539	308	0	9	26
Peak Hour Factor	0.96	0.96	0.95	0.95	0.71	0.71
Hourly flow rate (vph)	0	561	324	0	13	37
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	344				926	364
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	344				926	364
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				96	94
cM capacity (veh/h)	1195				289	658

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	561	324	13	37
Volume Left	0	0	13	0
Volume Right	0	0	0	37
cSH	1700	1700	289	658
Volume to Capacity	0.33	0.19	0.04	0.06
Queue Length 95th (ft)	0	0	3	4
Control Delay (s)	0.0	0.0	18.0	10.8
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	12.7	
Approach LOS			B	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	539	334	0	4	4
Peak Hour Factor	0.96	0.96	0.95	0.95	0.90	0.90
Hourly flow rate (vph)	0	561	352	0	4	4
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	372				953	392
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	372				953	392
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1167				278	635

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	561	352	9
Volume Left	0	0	4
Volume Right	0	0	4
cSH	1700	1700	387
Volume to Capacity	0.33	0.21	0.02
Queue Length 95th (ft)	0	0	2
Control Delay (s)	0.0	0.0	14.5
Lane LOS			B
Approach Delay (s)	0.0	0.0	14.5
Approach LOS			B

Intersection Summary			
Average Delay	0.1		
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	28	513	318	20	26	24
Peak Hour Factor	0.96	0.96	0.95	0.95	0.78	0.78
Hourly flow rate (vph)	29	534	335	21	33	31
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	376				978	385
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	376				978	385
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				87	95
cM capacity (veh/h)	1163				262	641

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	29	534	356	64
Volume Left	29	0	0	33
Volume Right	0	0	21	31
cSH	1163	1700	1700	366
Volume to Capacity	0.03	0.31	0.21	0.18
Queue Length 95th (ft)	2	0	0	16
Control Delay (s)	8.2	0.0	0.0	16.9
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	16.9
Approach LOS				C

Intersection Summary			
Average Delay	1.3		
Intersection Capacity Utilization	42.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	71	486	289	34	55	37
Peak Hour Factor	0.96	0.96	0.95	0.95	0.74	0.74
Hourly flow rate (vph)	74	506	304	36	74	50
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	360				1016	362
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	360				1016	362
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				69	92
cM capacity (veh/h)	1179				239	660

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	74	506	340	124
Volume Left	74	0	0	74
Volume Right	0	0	36	50
cSH	1179	1700	1700	321
Volume to Capacity	0.06	0.30	0.20	0.39
Queue Length 95th (ft)	5	0	0	44
Control Delay (s)	8.3	0.0	0.0	23.1
Lane LOS	A			C
Approach Delay (s)	1.1		0.0	23.1
Approach LOS				C

Intersection Summary			
Average Delay	3.3		
Intersection Capacity Utilization	41.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	3	9	13	50	6	41	49	35	4	41	1
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.75	0.75	0.75	0.68	0.68	0.68
Hourly flow rate (vph)	6	4	11	14	55	7	55	65	47	6	60	1
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	345	334	101	323	312	129	82			132		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	345	334	101	323	312	129	82			132		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	99	97	90	99	96			100		
cM capacity (veh/h)	512	544	923	566	560	891	1490			1429		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	20	76	167	68
Volume Left	6	14	55	6
Volume Right	11	7	47	1
cSH	679	580	1490	1429
Volume to Capacity	0.03	0.13	0.04	0.00
Queue Length 95th (ft)	2	11	3	0
Control Delay (s)	10.5	12.1	2.7	0.7
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	12.1	2.7	0.7
Approach LOS	B	B		

Intersection Summary			
Average Delay	4.9		
Intersection Capacity Utilization	29.7%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix D

Background 2019 Intersection Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	0.98			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1543		1770	1796		1770	1766			1754	
Flt Permitted	0.95	1.00		0.95	1.00		0.24	1.00			0.61	
Satd. Flow (perm)	1770	1543		1770	1796		454	1766			1074	
Volume (vph)	16	208	232	69	340	56	256	274	91	78	522	84
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	22	285	318	81	400	66	346	370	123	85	567	91
RTOR Reduction (vph)	0	40	0	0	6	0	0	12	0	0	5	0
Lane Group Flow (vph)	22	563	0	81	460	0	346	481	0	0	738	0
Confl. Peds. (#/hr)	104		73			31	73		15	31		104
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	20.0	20.0		25.0	25.0		40.0	40.0			40.0	
Effective Green, g (s)	21.0	21.0		26.0	26.0		41.0	41.0			41.0	
Actuated g/C Ratio	0.21	0.21		0.26	0.26		0.41	0.41			0.41	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	372	324		460	467		186	724			440	
v/s Ratio Prot	0.01	c0.36		0.05	c0.26			0.27				
v/s Ratio Perm							c0.76				0.69	
v/c Ratio	0.06	1.74		0.18	0.99		1.86	0.66			1.68	
Uniform Delay, d1	31.6	39.5		28.7	36.8		29.5	23.9			29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	344.2		0.2	37.5		407.0	4.8			314.3	
Delay (s)	31.7	383.7		28.9	74.3		436.5	28.7			343.8	
Level of Service	C	F		C	E		F	C			F	
Approach Delay (s)		371.3			67.6			196.9			343.8	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	250.4	HCM Level of Service	F
HCM Volume to Capacity ratio	1.57		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	120	466	3	48	408	202	8	9	52	0	0	0
Peak Hour Factor	0.74	0.74	0.74	0.89	0.89	0.89	0.73	0.73	0.73	0.90	0.90	0.90
Hourly flow rate (vph)	162	630	4	54	458	227	11	12	71	0	0	0
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.71						0.71	0.71		0.71	0.71	0.71
vC, conflicting volume	700			649			1552	1779	662	1741	1668	602
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	578			649			1778	2098	662	2044	1941	439
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	77			94			68	53	84	100	100	100
cM capacity (veh/h)	707			925			35	26	450	12	33	433

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	162	634	54	685	95
Volume Left	162	0	54	0	11
Volume Right	0	4	0	227	71
cSH	707	1700	925	1700	100
Volume to Capacity	0.23	0.37	0.06	0.40	0.94
Queue Length 95th (ft)	22	0	5	0	140
Control Delay (s)	11.6	0.0	9.1	0.0	151.5
Lane LOS	B		A		F
Approach Delay (s)	2.4		0.7		151.5
Approach LOS					F

Intersection Summary			
Average Delay	10.2		
Intersection Capacity Utilization	59.4%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	642	416	0	10	16
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	0	892	520	0	16	26
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	535				1442	550
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	535				1442	550
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				89	95
cM capacity (veh/h)	1020				142	521

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	892	520	16	26
Volume Left	0	0	16	0
Volume Right	0	0	0	26
cSH	1700	1700	142	521
Volume to Capacity	0.52	0.31	0.11	0.05
Queue Length 95th (ft)	0	0	9	4
Control Delay (s)	0.0	0.0	33.5	12.3
Lane LOS			D	B
Approach Delay (s)	0.0	0.0	20.4	
Approach LOS			C	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	642	432	0	0	0
Peak Hour Factor	0.72	0.72	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	0	892	540	0	0	0
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	540				1432	540
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	540				1432	540
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	100
cM capacity (veh/h)	1028				148	542

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	892	540	0
Volume Left	0	0	0
Volume Right	0	0	0
cSH	1700	1700	1700
Volume to Capacity	0.52	0.32	0.00
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	0.0
Lane LOS			A
Approach Delay (s)	0.0	0.0	0.0
Approach LOS			A

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	37.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	637	428	5	5	7
Peak Hour Factor	0.72	0.72	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	12	885	535	6	9	12
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	556				1478	568
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	556				1478	568
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	1002				134	509

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	12	885	541	21
Volume Left	12	0	0	9
Volume Right	0	0	6	12
cSH	1002	1700	1700	234
Volume to Capacity	0.01	0.52	0.32	0.09
Queue Length 95th (ft)	1	0	0	7
Control Delay (s)	8.6	0.0	0.0	21.9
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	21.9
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	15	535	352	22	112	55
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	21	743	440	28	181	89
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	482				1268	484
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	482				1268	484
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				0	84
cM capacity (veh/h)	1067				178	569

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	21	743	468	269
Volume Left	21	0	0	181
Volume Right	0	0	28	89
cSH	1067	1700	1700	230
Volume to Capacity	0.02	0.44	0.28	1.17
Queue Length 95th (ft)	1	0	0	321
Control Delay (s)	8.4	0.0	0.0	158.3
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	158.3
Approach LOS				F

Intersection Summary			
Average Delay	28.5		
Intersection Capacity Utilization	46.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	2	8	104	79	63	7	25	2	5	63	1
Peak Hour Factor	0.56	0.56	0.56	0.70	0.70	0.70	0.71	0.71	0.71	0.50	0.50	0.50
Hourly flow rate (vph)	5	4	14	149	113	90	10	35	3	10	126	2
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	380	235	157	249	234	67	143			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	380	235	157	249	234	67	143			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	98	77	82	91	99			99		
cM capacity (veh/h)	430	640	866	653	641	972	1422			1533		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	23	351	48	138
Volume Left	5	149	10	10
Volume Right	14	90	3	2
cSH	672	708	1422	1533
Volume to Capacity	0.03	0.50	0.01	0.01
Queue Length 95th (ft)	3	70	1	0
Control Delay (s)	10.5	15.0	1.6	0.6
Lane LOS	B	B	A	A
Approach Delay (s)	10.5	15.0	1.6	0.6
Approach LOS	B	B		

Intersection Summary			
Average Delay	10.1		
Intersection Capacity Utilization	35.2%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road 9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.98		1.00	1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00			1.00	
Frt	1.00	0.93		1.00	0.94		1.00	0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1739		1770	1730		1741	1800			1771	
Flt Permitted	0.95	1.00		0.95	1.00		0.35	1.00			0.51	
Satd. Flow (perm)	1770	1739		1770	1730		643	1800			907	
Volume (vph)	35	205	163	75	201	121	179	291	84	60	279	77
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	48	281	223	88	236	142	242	393	114	65	303	84
RTOR Reduction (vph)	0	32	0	0	24	0	0	12	0	0	9	0
Lane Group Flow (vph)	48	472	0	88	354	0	242	495	0	0	443	0
Confl. Peds. (#/hr)	31					9	22			9		31
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	24.6	24.6		19.3	19.3		30.0	30.0			30.0	
Effective Green, g (s)	25.6	25.6		20.3	20.3		31.0	31.0			31.0	
Actuated g/C Ratio	0.29	0.29		0.23	0.23		0.35	0.35			0.35	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	510	501		404	395		224	628			316	
v/s Ratio Prot	0.03	c0.27		0.05	c0.20			0.28				
v/s Ratio Perm							0.38				c0.49	
v/c Ratio	0.09	0.94		0.22	0.90		1.08	0.79			1.40	
Uniform Delay, d1	23.2	30.9		27.9	33.3		29.0	26.0			29.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	26.3		0.3	22.1		83.1	9.7			198.8	
Delay (s)	23.2	57.2		28.1	55.3		112.1	35.7			227.7	
Level of Service	C	E		C	E		F	D			F	
Approach Delay (s)		54.3			50.2			60.4			227.7	
Approach LOS		D			D			E			F	

Intersection Summary			
HCM Average Control Delay	90.8	HCM Level of Service	F
HCM Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	88.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	71	389	18	64	312	74	16	7	100	0	0	0
Peak Hour Factor	0.72	0.72	0.72	0.89	0.89	0.89	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	99	540	25	72	351	83	19	8	119	0	0	0
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.97						0.97	0.97		0.97	0.97	0.97
vC, conflicting volume	454			585			1284	1368	593	1437	1338	432
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	435			585			1294	1380	593	1452	1350	413
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	91			93			83	93	76	100	100	100
cM capacity (veh/h)	1087			973			113	116	489	64	120	608

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	99	565	72	434	146
Volume Left	99	0	72	0	19
Volume Right	0	25	0	83	119
cSH	1087	1700	973	1700	303
Volume to Capacity	0.09	0.33	0.07	0.26	0.48
Queue Length 95th (ft)	7	0	6	0	62
Control Delay (s)	8.6	0.0	9.0	0.0	27.6
Lane LOS	A		A		D
Approach Delay (s)	1.3		1.3		27.6
Approach LOS					D

Intersection Summary			
Average Delay	4.2		
Intersection Capacity Utilization	46.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	575	328	0	12	38
Peak Hour Factor	0.89	0.89	0.83	0.83	0.77	0.77
Hourly flow rate (vph)	0	646	395	0	16	49
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	415				1081	435
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415				1081	435
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	92
cM capacity (veh/h)	1125				233	600

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	646	395	16	49
Volume Left	0	0	16	0
Volume Right	0	0	0	49
cSH	1700	1700	233	600
Volume to Capacity	0.38	0.23	0.07	0.08
Queue Length 95th (ft)	0	0	5	7
Control Delay (s)	0.0	0.0	21.6	11.5
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	13.9	
Approach LOS			B	

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	575	366	0	0	3
Peak Hour Factor	0.89	0.89	0.83	0.83	0.90	0.90
Hourly flow rate (vph)	0	646	441	0	0	3
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	461				1127	481
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461				1127	481
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				100	99
cM capacity (veh/h)	1082				219	566

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	646	441	3
Volume Left	0	0	0
Volume Right	0	0	3
cSH	1700	1700	566
Volume to Capacity	0.38	0.26	0.01
Queue Length 95th (ft)	0	0	0
Control Delay (s)	0.0	0.0	11.4
Lane LOS			B
Approach Delay (s)	0.0	0.0	11.4
Approach LOS			B

Intersection Summary			
Average Delay	0.0		
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	559	378	25	16	38
Peak Hour Factor	0.89	0.89	0.83	0.83	0.85	0.85
Hourly flow rate (vph)	34	628	455	30	19	45
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	506				1206	510
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	506				1206	510
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				90	92
cM capacity (veh/h)	1041				190	544

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	34	628	486	64
Volume Left	34	0	0	19
Volume Right	0	0	30	45
cSH	1041	1700	1700	350
Volume to Capacity	0.03	0.37	0.29	0.18
Queue Length 95th (ft)	3	0	0	16
Control Delay (s)	8.6	0.0	0.0	17.5
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	17.5
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	44.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	46	462	289	49	127	32
Peak Hour Factor	0.89	0.89	0.83	0.83	0.61	0.61
Hourly flow rate (vph)	52	519	348	59	208	52
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	427				1040	418
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	427				1040	418
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	95				11	91
cM capacity (veh/h)	1113				235	614

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	52	519	407	261
Volume Left	52	0	0	208
Volume Right	0	0	59	52
cSH	1113	1700	1700	268
Volume to Capacity	0.05	0.31	0.24	0.97
Queue Length 95th (ft)	4	0	0	235
Control Delay (s)	8.4	0.0	0.0	88.7
Lane LOS	A			F
Approach Delay (s)	0.8		0.0	88.7
Approach LOS				F

Intersection Summary			
Average Delay	19.0		
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: Vine Street & Dexter Avenue

9/9/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	1	2	101	99	61	13	67	0	0	48	3
Peak Hour Factor	0.63	0.63	0.63	0.49	0.49	0.49	0.61	0.61	0.61	0.56	0.56	0.56
Hourly flow rate (vph)	8	2	3	206	202	124	21	110	0	0	86	5
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	506	281	128	285	284	150	111			130		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	506	281	128	285	284	150	111			130		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	100	100	67	66	86	99			100		
cM capacity (veh/h)	281	598	891	619	596	867	1454			1431		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	13	533	131	91
Volume Left	8	206	21	0
Volume Right	3	124	0	5
cSH	368	653	1454	1431
Volume to Capacity	0.03	0.82	0.01	0.00
Queue Length 95th (ft)	3	212	1	0
Control Delay (s)	15.1	30.2	1.3	0.0
Lane LOS	C	D	A	
Approach Delay (s)	15.1	30.2	1.3	0.0
Approach LOS	C	D		

Intersection Summary			
Average Delay	21.5		
Intersection Capacity Utilization	34.5%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.96		1.00	0.93		1.00	0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1780		1770	1734		1770	1825			1819	
Flt Permitted	0.95	1.00		0.95	1.00		0.33	1.00			0.19	
Satd. Flow (perm)	1770	1780		1770	1734		607	1825			349	
Volume (vph)	72	358	151	38	199	169	179	524	83	52	344	62
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	99	490	207	45	234	199	242	708	112	57	374	67
RTOR Reduction (vph)	0	14	0	0	27	0	0	5	0	0	5	0
Lane Group Flow (vph)	99	683	0	45	406	0	242	815	0	0	493	0
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	30.0	30.0		25.0	25.0		40.0	40.0			40.0	
Effective Green, g (s)	31.0	31.0		26.0	26.0		41.0	41.0			41.0	
Actuated g/C Ratio	0.28	0.28		0.24	0.24		0.37	0.37			0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	499	502		418	410		226	680			130	
v/s Ratio Prot	0.06	c0.38		0.03	c0.23			0.45				
v/s Ratio Perm							0.40				c1.41	
v/c Ratio	0.20	1.36		0.11	0.99		1.07	1.20			3.79	
Uniform Delay, d1	30.0	39.5		32.9	41.9		34.5	34.5			34.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	175.1		0.1	41.1		79.9	103.2			1275.0	
Delay (s)	30.2	214.6		33.0	83.0		114.4	137.7			1309.5	
Level of Service	C	F		C	F		F	F			F	
Approach Delay (s)		191.7			78.3			132.4			1309.5	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	346.7	HCM Level of Service	F
HCM Volume to Capacity ratio	2.28		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	105.4%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	52	485	6	52	342	56	7	12	122	8	2	6
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.90	0.90	0.90	0.70	0.70	0.70
Hourly flow rate (vph)	57	533	7	59	389	64	8	13	136	11	3	9
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	472			560			1207	1261	576	1368	1232	460
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	439			560			1221	1278	576	1391	1247	426
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			94			94	90	73	83	98	98
cM capacity (veh/h)	1037			995			123	134	500	65	140	571

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	57	540	59	452	157	23
Volume Left	57	0	59	0	8	11
Volume Right	0	7	0	64	136	9
cSH	1037	1700	995	1700	361	109
Volume to Capacity	0.06	0.32	0.06	0.27	0.43	0.21
Queue Length 95th (ft)	4	0	5	0	53	19
Control Delay (s)	8.7	0.0	8.8	0.0	22.4	46.7
Lane LOS	A		A		C	E
Approach Delay (s)	0.8		1.0		22.4	46.7
Approach LOS					C	E

Intersection Summary			
Average Delay	4.3		
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	620	354	0	10	30
Peak Hour Factor	0.96	0.96	0.95	0.95	0.71	0.71
Hourly flow rate (vph)	0	646	373	0	14	42
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	393				1058	413
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	393				1058	413
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				94	93
cM capacity (veh/h)	1146				240	618

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	646	373	14	42
Volume Left	0	0	14	0
Volume Right	0	0	0	42
cSH	1700	1700	240	618
Volume to Capacity	0.38	0.22	0.06	0.07
Queue Length 95th (ft)	0	0	5	5
Control Delay (s)	0.0	0.0	20.9	11.2
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	13.7	
Approach LOS			B	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	620	384	0	5	5
Peak Hour Factor	0.96	0.96	0.95	0.95	0.90	0.90
Hourly flow rate (vph)	0	646	404	0	6	6
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	424				1090	444
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	424				1090	444
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				98	99
cM capacity (veh/h)	1116				230	593

Direction, Lane #	EB 1	WB 1	SB 1
Volume Total	646	404	11
Volume Left	0	0	6
Volume Right	0	0	6
cSH	1700	1700	332
Volume to Capacity	0.38	0.24	0.03
Queue Length 95th (ft)	0	0	3
Control Delay (s)	0.0	0.0	16.2
Lane LOS			C
Approach Delay (s)	0.0	0.0	16.2
Approach LOS			C

Intersection Summary			
Average Delay	0.2		
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	32	590	366	23	30	28
Peak Hour Factor	0.96	0.96	0.95	0.95	0.78	0.78
Hourly flow rate (vph)	33	615	385	24	38	36
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	429				1119	437
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	429				1119	437
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				82	94
cM capacity (veh/h)	1111				215	599

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	33	615	409	74
Volume Left	33	0	0	38
Volume Right	0	0	24	36
cSH	1111	1700	1700	311
Volume to Capacity	0.03	0.36	0.24	0.24
Queue Length 95th (ft)	2	0	0	23
Control Delay (s)	8.3	0.0	0.0	20.2
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	20.2
Approach LOS				C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	82	559	332	39	63	43
Peak Hour Factor	0.96	0.96	0.95	0.95	0.74	0.74
Hourly flow rate (vph)	85	582	349	41	85	58
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	411				1163	410
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	411				1163	410
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				56	91
cM capacity (veh/h)	1129				192	620

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	85	582	391	143
Volume Left	85	0	0	85
Volume Right	0	0	41	58
cSH	1129	1700	1700	267
Volume to Capacity	0.08	0.34	0.23	0.54
Queue Length 95th (ft)	6	0	0	73
Control Delay (s)	8.4	0.0	0.0	33.0
Lane LOS	A			D
Approach Delay (s)	1.1		0.0	33.0
Approach LOS				D

Intersection Summary			
Average Delay	4.5		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: Vine Street & Dexter Avenue 9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	6	3	10	15	58	7	47	56	40	5	47	1
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.75	0.75	0.75	0.68	0.68	0.68
Hourly flow rate (vph)	7	4	12	16	64	8	63	75	53	7	69	1
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	391	378	110	365	352	141	91			148		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	391	378	110	365	352	141	91			148		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	99	99	97	88	99	96			99		
cM capacity (veh/h)	465	510	912	528	528	877	1479			1410		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	22	88	191	78
Volume Left	7	16	63	7
Volume Right	12	8	53	1
cSH	639	547	1479	1410
Volume to Capacity	0.03	0.16	0.04	0.01
Queue Length 95th (ft)	3	14	3	0
Control Delay (s)	10.8	12.8	2.7	0.8
Lane LOS	B	B	A	A
Approach Delay (s)	10.8	12.8	2.7	0.8
Approach LOS	B	B		

Intersection Summary			
Average Delay	5.1		
Intersection Capacity Utilization	31.0%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix E

Future 2019 Intersection Capacity Analysis Worksheets

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road 9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	0.90		1.00	0.99		1.00	0.98			0.96	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.92		1.00	0.98		1.00	0.96			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1543		1770	1798		1770	1766			1746	
Flt Permitted	0.95	1.00		0.95	1.00		0.24	1.00			0.62	
Satd. Flow (perm)	1770	1543		1770	1798		451	1766			1082	
Volume (vph)	17	211	236	68	350	56	267	271	90	78	521	87
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	23	289	323	80	412	66	361	366	122	85	566	95
RTOR Reduction (vph)	0	40	0	0	6	0	0	12	0	0	5	0
Lane Group Flow (vph)	23	572	0	80	472	0	361	476	0	0	741	0
Confl. Peds. (#/hr)	104		73			31	73		15	31		104
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	20.0	20.0		25.0	25.0		40.0	40.0			40.0	
Effective Green, g (s)	21.0	21.0		26.0	26.0		41.0	41.0			41.0	
Actuated g/C Ratio	0.21	0.21		0.26	0.26		0.41	0.41			0.41	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	372	324		460	467		185	724			444	
v/s Ratio Prot	0.01	c0.37		0.05	c0.26			0.27				
v/s Ratio Perm							c0.80				0.68	
v/c Ratio	0.06	1.76		0.17	1.01		1.95	0.66			1.67	
Uniform Delay, d1	31.6	39.5		28.7	37.0		29.5	23.8			29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	356.4		0.2	44.4		447.2	4.6			310.5	
Delay (s)	31.7	395.9		28.9	81.4		476.7	28.5			340.0	
Level of Service	C	F		C	F		F	C			F	
Approach Delay (s)		382.7			73.9			219.1			340.0	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM Average Control Delay	259.6	HCM Level of Service	F
HCM Volume to Capacity ratio	1.63		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	106.1%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	120	474	5	48	426	208	10	10	51	0	0	0
Peak Hour Factor	0.74	0.74	0.74	0.89	0.89	0.89	0.73	0.73	0.73	0.90	0.90	0.90
Hourly flow rate (vph)	162	641	7	54	479	234	14	14	70	0	0	0
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.69						0.69	0.69		0.69	0.69	0.69
vC, conflicting volume	727			662			1585	1818	674	1775	1705	626
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	606			662			1845	2182	674	2119	2018	459
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	76			94			54	39	84	100	100	100
cM capacity (veh/h)	673			915			30	22	443	9	28	412

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	162	647	54	712	97
Volume Left	162	0	54	0	14
Volume Right	0	7	0	234	70
cSH	673	1700	915	1700	79
Volume to Capacity	0.24	0.38	0.06	0.42	1.23
Queue Length 95th (ft)	23	0	5	0	182
Control Delay (s)	12.0	0.0	9.2	0.0	267.2
Lane LOS	B		A		F
Approach Delay (s)	2.4		0.6		267.2
Approach LOS					F

Intersection Summary			
Average Delay	17.0		
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	651	436	0	10	16
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	0	904	545	0	16	26
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	560				1479	575
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	560				1479	575
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				88	95
cM capacity (veh/h)	998				135	505

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	904	545	16	26
Volume Left	0	0	16	0
Volume Right	0	0	0	26
cSH	1700	1700	135	505
Volume to Capacity	0.53	0.32	0.12	0.05
Queue Length 95th (ft)	0	0	10	4
Control Delay (s)	0.0	0.0	35.3	12.5
Lane LOS			E	B
Approach Delay (s)	0.0	0.0	21.3	
Approach LOS			C	

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	633	429	23	18	10
Peak Hour Factor	0.72	0.72	0.80	0.80	0.90	0.90
Hourly flow rate (vph)	42	879	536	29	20	11
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	565				1513	551
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	565				1513	551
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				84	98
cM capacity (veh/h)	1007				126	534

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	42	879	565	31
Volume Left	42	0	0	20
Volume Right	0	0	29	11
cSH	1007	1700	1700	174
Volume to Capacity	0.04	0.52	0.33	0.18
Queue Length 95th (ft)	3	0	0	16
Control Delay (s)	8.7	0.0	0.0	30.2
Lane LOS	A			D
Approach Delay (s)	0.4		0.0	30.2
Approach LOS				D

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	43.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	9	658	434	5	5	7
Peak Hour Factor	0.72	0.72	0.80	0.80	0.57	0.57
Hourly flow rate (vph)	12	914	542	6	9	12
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	564				1515	576
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	564				1515	576
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	99				93	98
cM capacity (veh/h)	995				127	504

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	12	914	549	21
Volume Left	12	0	0	9
Volume Right	0	0	6	12
cSH	995	1700	1700	225
Volume to Capacity	0.01	0.54	0.32	0.09
Queue Length 95th (ft)	1	0	0	8
Control Delay (s)	8.7	0.0	0.0	22.6
Lane LOS	A			C
Approach Delay (s)	0.1		0.0	22.6
Approach LOS				C

Intersection Summary			
Average Delay	0.4		
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	14	551	358	22	116	60
Peak Hour Factor	0.72	0.72	0.80	0.80	0.62	0.62
Hourly flow rate (vph)	19	765	448	28	187	97
Pedestrians		15	15		15	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		1	1		1	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	490				1295	491
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	490				1295	491
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	98				0	83
cM capacity (veh/h)	1060				171	563

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	19	765	475	284
Volume Left	19	0	0	187
Volume Right	0	0	28	97
cSH	1060	1700	1700	225
Volume to Capacity	0.02	0.45	0.28	1.26
Queue Length 95th (ft)	1	0	0	367
Control Delay (s)	8.5	0.0	0.0	192.7
Lane LOS	A			F
Approach Delay (s)	0.2		0.0	192.7
Approach LOS				F

Intersection Summary			
Average Delay	35.5		
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: Vine Street & Dexter Avenue

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	3	2	10	109	81	65	7	25	2	5	65	1
Peak Hour Factor	0.56	0.56	0.56	0.70	0.70	0.70	0.71	0.71	0.71	0.50	0.50	0.50
Hourly flow rate (vph)	5	4	18	156	116	93	10	35	3	10	130	2
Pedestrians		15			15			15			15	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			1			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	388	239	161	257	238	67	147			53		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	388	239	161	257	238	67	147			53		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	99	98	76	82	90	99			99		
cM capacity (veh/h)	421	637	862	643	638	972	1417			1533		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	27	364	48	142
Volume Left	5	156	10	10
Volume Right	18	93	3	2
cSH	686	702	1417	1533
Volume to Capacity	0.04	0.52	0.01	0.01
Queue Length 95th (ft)	3	76	1	0
Control Delay (s)	10.5	15.5	1.6	0.6
Lane LOS	B	C	A	A
Approach Delay (s)	10.5	15.5	1.6	0.6
Approach LOS	B	C		

Intersection Summary			
Average Delay	10.5		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frpb, ped/bikes	1.00	1.00		1.00	0.99		1.00	1.00			0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00		0.98	1.00			1.00	
Frt	1.00	0.93		1.00	0.95		1.00	0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1736		1770	1740		1741	1800			1766	
Flt Permitted	0.95	1.00		0.95	1.00		0.34	1.00			0.54	
Satd. Flow (perm)	1770	1736		1770	1740		627	1800			960	
Volume (vph)	40	223	184	72	224	119	205	285	82	54	278	84
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	55	305	252	85	264	140	277	385	111	59	302	91
RTOR Reduction (vph)	0	33	0	0	21	0	0	12	0	0	10	0
Lane Group Flow (vph)	55	524	0	85	383	0	277	484	0	0	442	0
Confl. Peds. (#/hr)	31					9	22			9		31
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	25.0	25.0		20.0	20.0		30.0	30.0			30.0	
Effective Green, g (s)	26.0	26.0		21.0	21.0		31.0	31.0			31.0	
Actuated g/C Ratio	0.29	0.29		0.23	0.23		0.34	0.34			0.34	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	511	502		413	406		216	620			331	
v/s Ratio Prot	0.03	c0.30		0.05	c0.22			0.27				
v/s Ratio Perm							0.44				c0.46	
v/c Ratio	0.11	1.04		0.21	0.94		1.28	0.78			1.34	
Uniform Delay, d1	23.5	32.0		27.8	33.9		29.5	26.5			29.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.1	52.2		0.2	30.2		157.6	9.4			170.3	
Delay (s)	23.6	84.2		28.0	64.1		187.1	35.9			199.8	
Level of Service	C	F		C	E		F	D			F	
Approach Delay (s)		78.8			57.9			90.1			199.8	
Approach LOS		E			E			F			F	

Intersection Summary			
HCM Average Control Delay	101.7	HCM Level of Service	F
HCM Volume to Capacity ratio	1.13		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/12/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	71	435	25	63	353	88	21	8	98	0	0	0
Peak Hour Factor	0.72	0.72	0.72	0.89	0.89	0.89	0.84	0.84	0.84	0.90	0.90	0.90
Hourly flow rate (vph)	99	604	35	71	397	99	25	10	117	0	0	0
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			0.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			0	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.94						0.94	0.94		0.94	0.94	0.94
vC, conflicting volume	516			659			1397	1496	662	1550	1464	486
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	484			659			1423	1528	662	1586	1494	453
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	90			92			72	89	74	100	100	100
cM capacity (veh/h)	1013			914			89	90	447	47	95	561

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1
Volume Total	99	639	71	496	151
Volume Left	99	0	71	0	25
Volume Right	0	35	0	99	117
cSH	1013	1700	914	1700	233
Volume to Capacity	0.10	0.38	0.08	0.29	0.65
Queue Length 95th (ft)	8	0	6	0	100
Control Delay (s)	8.9	0.0	9.3	0.0	45.0
Lane LOS	A		A		E
Approach Delay (s)	1.2		1.2		45.0
Approach LOS					E

Intersection Summary			
Average Delay	5.7		
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	628	375	0	12	38
Peak Hour Factor	0.89	0.89	0.83	0.83	0.77	0.77
Hourly flow rate (vph)	0	706	452	0	16	49
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	472				1197	492
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	472				1197	492
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				92	91
cM capacity (veh/h)	1072				198	558

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	706	452	16	49
Volume Left	0	0	16	0
Volume Right	0	0	0	49
cSH	1700	1700	198	558
Volume to Capacity	0.42	0.27	0.08	0.09
Queue Length 95th (ft)	0	0	6	7
Control Delay (s)	0.0	0.0	24.7	12.1
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	15.1	
Approach LOS			C	

Intersection Summary			
Average Delay	0.8		
Intersection Capacity Utilization	47.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	72	554	357	56	74	43
Peak Hour Factor	0.89	0.89	0.83	0.83	0.90	0.90
Hourly flow rate (vph)	81	622	430	67	82	48
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	518				1288	504
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	518				1288	504
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	92				49	91
cM capacity (veh/h)	1031				161	549

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	81	622	498	130
Volume Left	81	0	0	82
Volume Right	0	0	67	48
cSH	1031	1700	1700	218
Volume to Capacity	0.08	0.37	0.29	0.60
Queue Length 95th (ft)	6	0	0	85
Control Delay (s)	8.8	0.0	0.0	43.4
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	43.4
Approach LOS				E

Intersection Summary			
Average Delay	4.8		
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	30	610	409	25	16	38
Peak Hour Factor	0.89	0.89	0.83	0.83	0.85	0.85
Hourly flow rate (vph)	34	685	493	30	19	45
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	543				1301	548
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	543				1301	548
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				89	91
cM capacity (veh/h)	1009				166	519

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	34	685	523	64
Volume Left	34	0	0	19
Volume Right	0	0	30	45
cSH	1009	1700	1700	318
Volume to Capacity	0.03	0.40	0.31	0.20
Queue Length 95th (ft)	3	0	0	18
Control Delay (s)	8.7	0.0	0.0	19.1
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	19.1
Approach LOS				C

Intersection Summary			
Average Delay	1.2		
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	43	501	318	51	138	53
Peak Hour Factor	0.89	0.89	0.83	0.83	0.61	0.61
Hourly flow rate (vph)	48	563	383	61	226	87
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	465				1113	454
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	465				1113	454
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	96				0	85
cM capacity (veh/h)	1078				213	586

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	48	563	445	313
Volume Left	48	0	0	226
Volume Right	0	0	61	87
cSH	1078	1700	1700	259
Volume to Capacity	0.04	0.33	0.26	1.21
Queue Length 95th (ft)	4	0	0	369
Control Delay (s)	8.5	0.0	0.0	165.5
Lane LOS	A			F
Approach Delay (s)	0.7		0.0	165.5
Approach LOS				F

Intersection Summary			
Average Delay	38.2		
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Unsignalized Intersection Capacity Analysis
7: Vine Street & Dexter Avenue

9/12/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	4	1	17	123	105	67	13	66	0	0	53	3
Peak Hour Factor	0.63	0.63	0.63	0.49	0.49	0.49	0.61	0.61	0.61	0.56	0.56	0.56
Hourly flow rate (vph)	6	2	27	251	214	137	21	108	0	0	95	5
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	532	288	137	316	291	148	120			128		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	532	288	137	316	291	148	120			128		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	98	100	97	56	64	84	99			100		
cM capacity (veh/h)	259	592	881	574	590	869	1443			1433		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	35	602	130	100
Volume Left	6	251	21	0
Volume Right	27	137	0	5
cSH	604	629	1443	1433
Volume to Capacity	0.06	0.96	0.01	0.00
Queue Length 95th (ft)	5	336	1	0
Control Delay (s)	11.3	51.8	1.3	0.0
Lane LOS	B	F	A	
Approach Delay (s)	11.3	51.8	1.3	0.0
Approach LOS	B	F		

Intersection Summary			
Average Delay	36.6		
Intersection Capacity Utilization	42.3%	ICU Level of Service	A
Analysis Period (min)	15		

HCM Signalized Intersection Capacity Analysis
1: Church Street & Montevallo Road

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0			4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Frt	1.00	0.95		1.00	0.94		1.00	0.98			0.98	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.99	
Satd. Flow (prot)	1770	1775		1770	1743		1770	1825			1815	
Flt Permitted	0.95	1.00		0.95	1.00		0.32	1.00			0.20	
Satd. Flow (perm)	1770	1775		1770	1743		600	1825			363	
Volume (vph)	78	375	171	35	223	167	207	518	81	51	342	69
Peak-hour factor, PHF	0.73	0.73	0.73	0.85	0.85	0.85	0.74	0.74	0.74	0.92	0.92	0.92
Adj. Flow (vph)	107	514	234	41	262	196	280	700	109	55	372	75
RTOR Reduction (vph)	0	15	0	0	24	0	0	5	0	0	6	0
Lane Group Flow (vph)	107	733	0	41	434	0	280	804	0	0	496	0
Turn Type	Split			Split			Perm			Perm		
Protected Phases	3	3		4	4			2			2	
Permitted Phases							2			2		
Actuated Green, G (s)	30.0	30.0		25.0	25.0		40.0	40.0			40.0	
Effective Green, g (s)	31.0	31.0		26.0	26.0		41.0	41.0			41.0	
Actuated g/C Ratio	0.28	0.28		0.24	0.24		0.37	0.37			0.37	
Clearance Time (s)	5.0	5.0		5.0	5.0		5.0	5.0			5.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	499	500		418	412		224	680			135	
v/s Ratio Prot	0.06	c0.41		0.02	c0.25			0.44				
v/s Ratio Perm							0.47				c1.37	
v/c Ratio	0.21	1.47		0.10	1.05		1.25	1.18			3.68	
Uniform Delay, d1	30.2	39.5		32.8	42.0		34.5	34.5			34.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00			1.00	
Incremental Delay, d2	0.2	220.4		0.1	58.8		143.9	96.6			1222.6	
Delay (s)	30.4	259.9		32.9	100.8		178.4	131.1			1257.1	
Level of Service	C	F		C	F		F	F			F	
Approach Delay (s)		231.2			95.2			143.3			1257.1	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM Average Control Delay	350.5	HCM Level of Service	F
HCM Volume to Capacity ratio	2.28		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
2: Church Street & West Jackson Boulevard

9/10/2014

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Volume (veh/h)	52	523	10	50	371	87	11	15	120	15	5	6
Peak Hour Factor	0.91	0.91	0.91	0.88	0.88	0.88	0.90	0.90	0.90	0.70	0.70	0.70
Hourly flow rate (vph)	57	575	11	57	422	99	12	17	133	21	7	9
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type								None			None	
Median storage veh)												
Upstream signal (ft)					600							
pX, platoon unblocked	0.92						0.92	0.92		0.92	0.92	0.92
vC, conflicting volume	540			606			1282	1369	620	1455	1325	511
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	499			606			1308	1402	620	1497	1354	467
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	94			94			88	85	72	58	94	98
cM capacity (veh/h)	960			956			101	110	472	51	117	528

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1
Volume Total	57	586	57	520	162	37
Volume Left	57	0	57	0	12	21
Volume Right	0	11	0	99	133	9
cSH	960	1700	956	1700	292	74
Volume to Capacity	0.06	0.34	0.06	0.31	0.56	0.50
Queue Length 95th (ft)	5	0	5	0	79	52
Control Delay (s)	9.0	0.0	9.0	0.0	31.7	94.8
Lane LOS	A		A		D	F
Approach Delay (s)	0.8		0.9		31.7	94.8
Approach LOS					D	F

Intersection Summary			
Average Delay	6.8		
Intersection Capacity Utilization	53.3%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	0	661	388	0	10	30
Peak Hour Factor	0.96	0.96	0.95	0.95	0.71	0.71
Hourly flow rate (vph)	0	689	408	0	14	42
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			825			
pX, platoon unblocked						
vC, conflicting volume	428				1137	448
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	428				1137	448
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	100				93	93
cM capacity (veh/h)	1112				216	590

Direction, Lane #	EB 1	WB 1	SB 1	SB 2
Volume Total	689	408	14	42
Volume Left	0	0	14	0
Volume Right	0	0	0	42
cSH	1700	1700	216	590
Volume to Capacity	0.41	0.24	0.07	0.07
Queue Length 95th (ft)	0	0	5	6
Control Delay (s)	0.0	0.0	22.8	11.6
Lane LOS			C	B
Approach Delay (s)	0.0	0.0	14.4	
Approach LOS			B	

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	62	598	375	43	68	45
Peak Hour Factor	0.96	0.96	0.95	0.95	0.90	0.90
Hourly flow rate (vph)	65	623	395	45	76	50
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			925			
pX, platoon unblocked						
vC, conflicting volume	460				1209	457
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	460				1209	457
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				59	91
cM capacity (veh/h)	1083				184	583

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	65	623	440	126
Volume Left	65	0	0	76
Volume Right	0	0	45	50
cSH	1083	1700	1700	252
Volume to Capacity	0.06	0.37	0.26	0.50
Queue Length 95th (ft)	5	0	0	64
Control Delay (s)	8.5	0.0	0.0	32.6
Lane LOS	A			D
Approach Delay (s)	0.8		0.0	32.6
Approach LOS				D

Intersection Summary			
Average Delay	3.7		
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	32	630	396	23	30	28
Peak Hour Factor	0.96	0.96	0.95	0.95	0.78	0.78
Hourly flow rate (vph)	33	656	417	24	38	36
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)			1025			
pX, platoon unblocked						
vC, conflicting volume	461				1192	469
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	461				1192	469
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				80	94
cM capacity (veh/h)	1082				194	575

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	33	656	441	74
Volume Left	33	0	0	38
Volume Right	0	0	24	36
cSH	1082	1700	1700	285
Volume to Capacity	0.03	0.39	0.26	0.26
Queue Length 95th (ft)	2	0	0	25
Control Delay (s)	8.4	0.0	0.0	22.0
Lane LOS	A			C
Approach Delay (s)	0.4		0.0	22.0
Approach LOS				C

Intersection Summary			
Average Delay	1.6		
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Volume (veh/h)	79	601	361	41	60	63
Peak Hour Factor	0.96	0.96	0.95	0.95	0.74	0.74
Hourly flow rate (vph)	82	626	380	43	81	85
Pedestrians		20	20		20	
Lane Width (ft)		12.0	12.0		12.0	
Walking Speed (ft/s)		4.0	4.0		4.0	
Percent Blockage		2	2		2	
Right turn flare (veh)						
Median type					None	
Median storage veh)						
Upstream signal (ft)						
pX, platoon unblocked						
vC, conflicting volume	443				1232	442
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	443				1232	442
tC, single (s)	4.1				6.4	6.2
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	93				54	86
cM capacity (veh/h)	1098				175	595

Direction, Lane #	EB 1	EB 2	WB 1	SB 1
Volume Total	82	626	423	166
Volume Left	82	0	0	81
Volume Right	0	0	43	85
cSH	1098	1700	1700	274
Volume to Capacity	0.07	0.37	0.25	0.61
Queue Length 95th (ft)	6	0	0	91
Control Delay (s)	8.5	0.0	0.0	36.5
Lane LOS	A			E
Approach Delay (s)	1.0		0.0	36.5
Approach LOS				E

Intersection Summary			
Average Delay	5.2		
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												
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Volume (veh/h)	5	11	9	37	63	13	48	55	40	12	44	1
Peak Hour Factor	0.85	0.85	0.85	0.91	0.91	0.91	0.75	0.75	0.75	0.68	0.68	0.68
Hourly flow rate (vph)	6	13	11	41	69	14	64	73	53	18	65	1
Pedestrians		20			20			20			20	
Lane Width (ft)		12.0			12.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		2			2			2			2	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	418	395	105	386	369	140	86			147		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	418	395	105	386	369	140	86			147		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	99	97	99	92	86	98	96			99		
cM capacity (veh/h)	435	495	918	501	512	878	1485			1411		

Direction, Lane #	EB 1	WB 1	NB 1	SB 1
Volume Total	29	124	191	84
Volume Left	6	41	64	18
Volume Right	11	14	53	1
cSH	574	534	1485	1411
Volume to Capacity	0.05	0.23	0.04	0.01
Queue Length 95th (ft)	4	22	3	1
Control Delay (s)	11.6	13.8	2.8	1.7
Lane LOS	B	B	A	A
Approach Delay (s)	11.6	13.8	2.8	1.7
Approach LOS	B	B		

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	32.1%	ICU Level of Service	A
Analysis Period (min)	15		

Appendix F

Future 2019 Right Turn Lane Warrant Analysis Worksheets

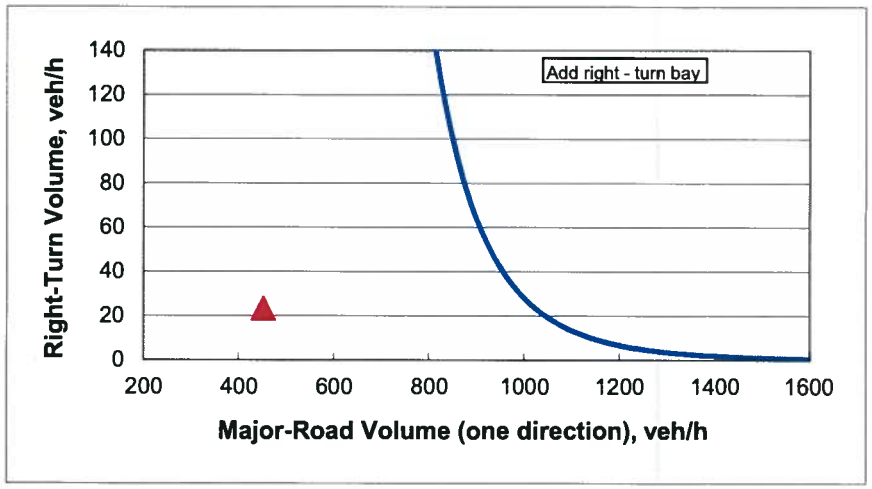
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	20
Major-road volume (one direction), veh/h:	452
Right-turn volume, veh/h:	23

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	13132
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



RIGHT TURN LANE WARRANT
CHURCH STREET AT SITE ACCESS
FUTURE A.M. PEAK HOUR

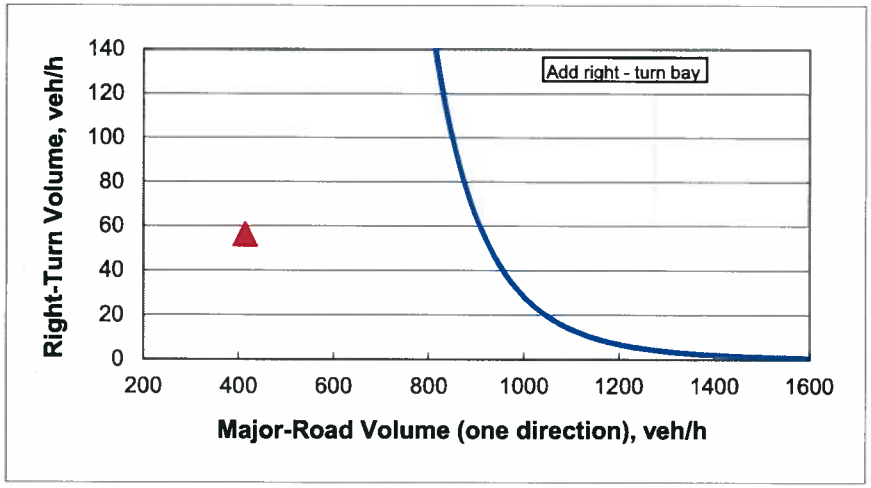
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	20
Major-road volume (one direction), veh/h:	413
Right-turn volume, veh/h:	56

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	26418
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



RIGHT TURN LANE WARRANT
CHURCH STREET AT SITE ACCESS
FUTURE AFTERNOON SCHOOL PEAK HOUR

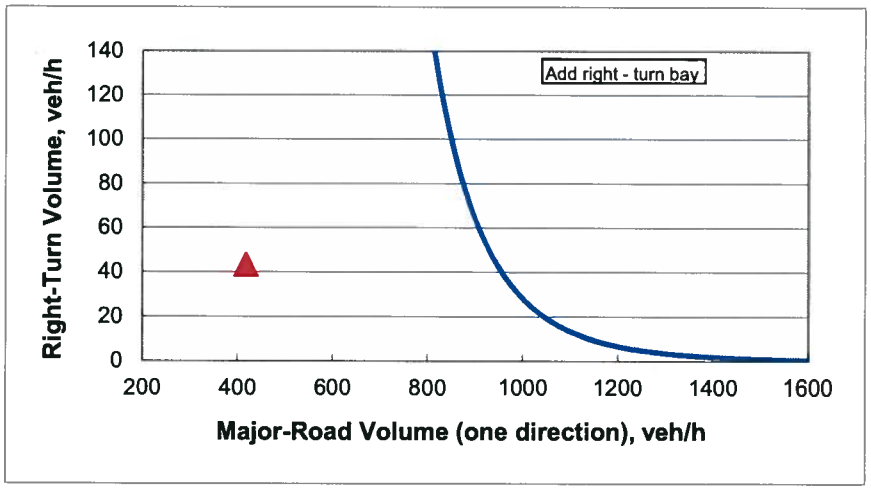
Figure 2 - 6. Guideline for determining the need for a major-road right-turn bay at a two-way stop-controlled intersection.

INPUT

Roadway geometry:	2-lane roadway
Variable	Value
Major-road speed, mph:	20
Major-road volume (one direction), veh/h:	418
Right-turn volume, veh/h:	43

OUTPUT

Variable	Value
Limiting right-turn volume, veh/h:	24066
Guidance for determining the need for a major-road right-turn bay for a 2-lane roadway:	
Do NOT add right-turn bay.	



RIGHT TURN LANE WARRANT
CHURCH STREET AT SITE ACCESS
FUTURE P.M. PEAK HOUR

Appendix G

Future 2019 Intersection Capacity Analysis Worksheets – Church Street at Dexter Avenue (Signalized)

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.99	
Flpb, ped/bikes	0.99	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.95	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1753	1583	1567		1442	
Flt Permitted	0.45	1.00	1.00		0.97	
Satd. Flow (perm)	822	1583	1567		1442	
Volume (vph)	14	551	358	22	116	60
Peak-hour factor, PHF	0.72	0.72	0.80	0.80	0.62	0.62
Adj. Flow (vph)	19	765	448	28	187	97
RTOR Reduction (vph)	0	0	4	0	43	0
Lane Group Flow (vph)	19	765	472	0	241	0
Confl. Peds. (#/hr)	15			15	15	15
Parking (#/hr)		10	10	10	10	10
Turn Type	Perm					
Protected Phases		2	2		4	
Permitted Phases	2					
Actuated Green, G (s)	24.9	24.9	24.9		9.5	
Effective Green, g (s)	24.9	24.9	24.9		9.5	
Actuated g/C Ratio	0.59	0.59	0.59		0.22	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	483	930	920		323	
v/s Ratio Prot		c0.48	0.30		c0.17	
v/s Ratio Perm	0.02					
v/c Ratio	0.04	0.82	0.51		0.75	
Uniform Delay, d1	3.7	7.0	5.2		15.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.0	5.9	0.5		9.1	
Delay (s)	3.7	12.9	5.7		24.4	
Level of Service	A	B	A		C	
Approach Delay (s)		12.7	5.7		24.4	
Approach LOS		B	A		C	

Intersection Summary			
HCM Average Control Delay	12.7	HCM Level of Service	B
HCM Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	42.4	Sum of lost time (s)	8.0
Intersection Capacity Utilization	47.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Church Street & Dexter Avenue

9/10/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	0.99		0.99	
Flpb, ped/bikes	0.99	1.00	1.00		1.00	
Frt	1.00	1.00	0.98		0.96	
Flt Protected	0.95	1.00	1.00		0.97	
Satd. Flow (prot)	1747	1583	1544		1452	
Flt Permitted	0.44	1.00	1.00		0.97	
Satd. Flow (perm)	804	1583	1544		1452	
Volume (vph)	43	501	318	51	138	53
Peak-hour factor, PHF	0.89	0.89	0.83	0.83	0.61	0.61
Adj. Flow (vph)	48	563	383	61	226	87
RTOR Reduction (vph)	0	0	12	0	24	0
Lane Group Flow (vph)	48	563	432	0	289	0
Confl. Peds. (#/hr)	20			20	20	20
Parking (#/hr)		10	10	10	10	10
Turn Type	Perm					
Protected Phases		2	2		4	
Permitted Phases	2					
Actuated Green, G (s)	20.5	20.5	20.5		12.7	
Effective Green, g (s)	20.5	20.5	20.5		12.7	
Actuated g/C Ratio	0.50	0.50	0.50		0.31	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	400	788	768		448	
v/s Ratio Prot		c0.36	0.28		c0.20	
v/s Ratio Perm	0.06					
v/c Ratio	0.12	0.71	0.56		0.64	
Uniform Delay, d1	5.5	8.1	7.2		12.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	3.1	0.9		3.2	
Delay (s)	5.7	11.2	8.2		15.5	
Level of Service	A	B	A		B	
Approach Delay (s)		10.7	8.2		15.5	
Approach LOS		B	A		B	

Intersection Summary			
HCM Average Control Delay	11.0	HCM Level of Service	B
HCM Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	41.2	Sum of lost time (s)	8.0
Intersection Capacity Utilization	45.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
6: Church Street & Dexter Avenue

9/10/2014

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0		4.0	
Lane Util. Factor	1.00	1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00	1.00		0.98	
Flpb, ped/bikes	0.99	1.00	1.00		1.00	
Frt	1.00	1.00	0.99		0.93	
Flt Protected	0.95	1.00	1.00		0.98	
Satd. Flow (prot)	1749	1583	1555		1409	
Flt Permitted	0.51	1.00	1.00		0.98	
Satd. Flow (perm)	933	1583	1555		1409	
Volume (vph)	79	601	361	41	60	63
Peak-hour factor, PHF	0.96	0.96	0.95	0.95	0.74	0.74
Adj. Flow (vph)	82	626	380	43	81	85
RTOR Reduction (vph)	0	0	7	0	70	0
Lane Group Flow (vph)	82	626	416	0	96	0
Confl. Peds. (#/hr)	20			20	20	20
Parking (#/hr)		10	10	10	10	10
Turn Type	Perm					
Protected Phases		2	2		4	
Permitted Phases	2					
Actuated Green, G (s)	19.9	19.9	19.9		6.1	
Effective Green, g (s)	19.9	19.9	19.9		6.1	
Actuated g/C Ratio	0.59	0.59	0.59		0.18	
Clearance Time (s)	4.0	4.0	4.0		4.0	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	
Lane Grp Cap (vph)	546	927	910		253	
v/s Ratio Prot		c0.40	0.27		c0.07	
v/s Ratio Perm	0.09					
v/c Ratio	0.15	0.68	0.46		0.38	
Uniform Delay, d1	3.2	4.8	4.0		12.3	
Progression Factor	1.00	1.00	1.00		1.00	
Incremental Delay, d2	0.1	2.0	0.4		1.0	
Delay (s)	3.3	6.8	4.4		13.2	
Level of Service	A	A	A		B	
Approach Delay (s)		6.4	4.4		13.2	
Approach LOS		A	A		B	

Intersection Summary			
HCM Average Control Delay	6.6	HCM Level of Service	A
HCM Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	34.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			