Metropolitan Council

PROPOSED SUBSTITUTE RESOLUTION, AMENDMENT TO SUBSTITUTE ORDINANCE, AND SUBSTITUTES FOR ORDINANCES TO BE FILED WITH THE METRO CLERK

FOR THE COUNCIL MEETING OF TUESDAY, NOVEMBER 21, 2017

SUBSTITUTE RESOLUTION NO. RS2017-964

A resolution amending the Capital Improvements Budget and Program 2017-2018 through 2022-2023 (Ordinance No. BL2017-736) to amend a Water and Sewer Project 09WS0025.

WHEREAS, it is desirable to amend the Capital Improvements Budget and Program 2017-2018 through 2022-2023 to modify the detailed information for Water and Sewer project; ID Number: 09WS0025; and,

WHEREAS, ~~the projects have been submitted for approval to the Metropolitan Planning Commission as required by the Metropolitan Charter.~~ the favorable recommendation by the Metropolitan Planning Commission as required by the Metropolitan Charter is attached hereto.

NOW THEREFORE, BE IT RESOLVED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That Ordinance No. BL2017-736 (Capital Improvements Budget and Program 2017-2018 through 2022-2023) be and the same is hereby amended by deleting the references to "USD" in Project 09WS0025 and modifying the tax district to "GSD," so that the project is described as follows:

STORMWATER - CAPITAL CONSTRUCTION / REMEDIAL MAINTENANCE
Major Capital Construction
Tax District: GSD

Section 2. This resolution shall take effect from and after its adoption, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

APPROVED:

_____
Talia Lomax O'dneal, Director
Department of Finance

APPROVED AS TO FORM
AND LEGALITY:

_____
Assistant Metropolitan Attorney

APPROVED FOR SUBMISSION
TO COUNCIL:

_____
Megan Barry
Metropolitan Mayor

INTRODUCED BY:

_____

_____

_____
Members of Council

METROPOLITAN GOVERNMENT
OF NASHVILLE AND DAVIDSON COUNTY
Planning Department
Metro Office Building
800 Second Avenue South
Nashville, Tennessee 37201

November 17, 2017

Mike Jameson
Director, Council Office
Metropolitan Courthouse
One Public Square, Suite 204
P. O. Box 196300
Nashville, TN 37219-6300

Re: Amendment to Capital Improvements Budget and Program
2017-2018 through 2022-2023

Dear Mr. Jameson,

At its meeting on November 9, 2017, the Metropolitan Planning Commission voted 6-0-1 to recommend approval of the following item:

> Amend the 2017-2018 through 2022-2023 Capital Improvements Budget, Project 09WS0025, to remove references to "USD" and modify the taxing district to "GSD."

Sincerely,

Doug Sloan
Executive Director

AMENDMENT NO. ___

TO

SUBSTITUTE ORDINANCE NO. BL2017-688

Mr. President –

I move to amend Substitute Ordinance No. BL2017-688 as follows:

I. By amending Section 1 by deleting the following language:

~~16.04.200 - Fences.~~

~~Fences shall be constructed in accordance with the requirements of this code. The location and height of fences shall be controlled by the metropolitan zoning regulations, except for the following additional requirements.~~

INTRODUCED BY:

_____

Robert Swope
Member of Council

SUBSTITUTE ORDINANCE NO. BL2017-953

An ordinance amending Chapter 6.64 of the Metropolitan Code of Laws to restrict door-to-door commercial solicitation to daylight hours and to revise eligibility provisions for issuance of a permit.

BE IT ENACTED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That Chapter 6.64 of the Metropolitan Code of Law is hereby amended by adding a new section 6.64.035 as follows:

6.64.035 – Solicitation Restricted to Daylight Hours.

It shall be a violation of this chapter to engage in door-to-door commercial solicitation on any day after sunset or before sunrise.

Section 2: That Chapter 6.64 of the Metropolitan Code of Law is hereby further amended by deleting section 6.64.080 in its entirety and substituting the following in lieu thereof:

6.64.080 - Persons prohibited.

A person shall not be eligible for issuance of a permit or identification badge under this chapter if:

A. Such person has been convicted for a felony or any crime involving theft, dishonesty, or any crime of a sexual nature in any jurisdiction.

B. A permit or an identification badge previously issued to such person under this chapter has been revoked by the clerk under Sections 6.64.130 or 6.64.140 of this chapter.

Section ~~2.~~ 3. This Ordinance shall take effect from and after its passage, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

INTRODUCED BY:

_____

Brett Withers
Member of Council

SUBSTITUTE ORDINANCE NO. BL2017-954

An ordinance authorizing Nashville Electric Service to install, construct and maintain underground encroachments in the right-of-way located at 911 63rd Avenue North, 488 Myatt Drive and 219 Stewarts Ferry Pike (Proposal No. 2017M-041EN-001).

WHEREAS, Nashville Electric Service plans to install, construct and maintain underground encroachments in the right-of-way of 911 63rd Avenue North, 488 Myatt Drive and 219 Stewarts Ferry Pike, under proposal No. 2017M-041EN-001; and,

WHEREAS: Nashville Electric Service has agreed to indemnify and hold The Metropolitan Government of Nashville and Davidson County harmless of any and all claims for damages of every nature and kind resulting from or arising from the installation of said encroachments under proposal No. 2017M-041EN-001.

NOW, THEREFORE, BE IT ENACTED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That subject to the requirements, limitations and conditions contained herein and in the attached License Agreement, Nashville Electric Service is hereby granted the privilege to construct and maintain said encroachments under proposal No. 2017M-041EN-001, in accordance with the plans which are on file in the office of the Director of Public Works, and which are more particularly described by lines, words and figures on the attached sketches which are attached hereto and made a part of this Ordinance.

Section 2. That the authority granted hereby for the construction, installation, operation, and maintenance of said encroachments under proposal No. 2017M-041EN-001 shall not be construed as a surrender by the Metropolitan Government of its rights or power to pass resolutions or ordinances regulating the use of its streets, or the right of the Metropolitan Government through its legislative body, in the interest of public necessity and convenience, to order the relocation of said facilities at the expense of Nashville Electric Service.

Section 3. That plans and specifications for said encroachments under proposal No. 2017M-041EN-001 shall be submitted to the Director of Public Works of The Metropolitan Government of Nashville and Davidson County for approval before any work is begun; and all work, material, and other details of said installation shall be approved by the Director of Public Works prior to its use by Nashville Electric Service.

Section 4. That construction and maintenance of said encroachments under proposal No. 2017M-041EN-001 shall be under the direction and supervision and control of the Director of Public Works, and its installation, when completed, must be approved by said Director.

Section 5. That this ordinance confers upon Nashville Electric Service a privilege and not a franchise, and the Mayor and the Metropolitan Council herein expressly reserve the right to repeal this ordinance, whenever, in their judgment, a repeal may be demanded by public welfare, and such repeal shall confer no liability on The Metropolitan Government of Nashville and Davidson County, its successors and assigns, by reason of said repeal. In the

event of such repeal by Metropolitan Government, Nashville Electric Service, its successors and assigns, shall remove said encroachments at their own expense.

Section 6. Nashville Electric Service, its successors and assigns, shall pay all cost incident to the construction, installation, operation and maintenance of said encroachments under proposal No. 2017M-041EN-001 and shall save and hold The Metropolitan Government of Nashville and Davidson County harmless from all suits, costs, claims, damages or judgments in any way connected with the construction, installation, operation and maintenance of said encroachments and shall not claim, set up or plead, as a defense, in the event of joint liability, with or without suit, that it and the Metropolitan Government were joint wrongdoers. Nashville Electric Service, its successors and assigns, shall be responsible for the expense, if any, of repairing and returning right-of-way to the condition which it was in prior to the installation of said encroachments and for any street closure.

Section 7. That the authority granted to Nashville Electric Service as herein described, shall not in any way interfere with the rights of the Metropolitan Government, its agents, servants, and/or contractors and utility companies, operating under franchise from the Metropolitan Government to enter, construct, operate, maintain, repair, rebuild, enlarge, and patrol its now existing or future utilities, including drainage facilities, together with their appurtenances, and to do any and all things necessary and incidental thereto.

Section 8. Nashville Electric Service, shall and is hereby required to furnish The Metropolitan Government of Nashville and Davidson County a certificate of public liability insurance, naming The Metropolitan Government as an insured party, of at least two million ($2,000,000) dollars aggregate, for the payment of any judgment had on any claim, of whatever nature, made for actions or causes of action arising out of, or connected with, the construction or installation of said aerial encroachment. Said certificate of insurance shall be filed with the Metropolitan Clerk and the Department of Public Works prior to the granting of a permit, and the insurance required herein shall not be canceled without the insurance company or companies first giving thirty (30) days written notice to The Metropolitan Government of Nashville and Davidson County.

Section 9. That said construction shall be carefully guarded and protected, and shall be completed promptly, so as to cause the least inconvenience to the public. The acceptance by Nashville Electric Service of all provisions of this ordinance shall be determined by the beginning of work.

Section 10. The authority granted pursuant to this Ordinance shall not become effective until the certificate of insurance, as required in Section 8, has been posted with the Department of Public Works.

Section 11. This Ordinance shall take effect from and after its adoption, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

INTRODUCED BY:

_____

Jeremy Elrod

Fabian Bedne

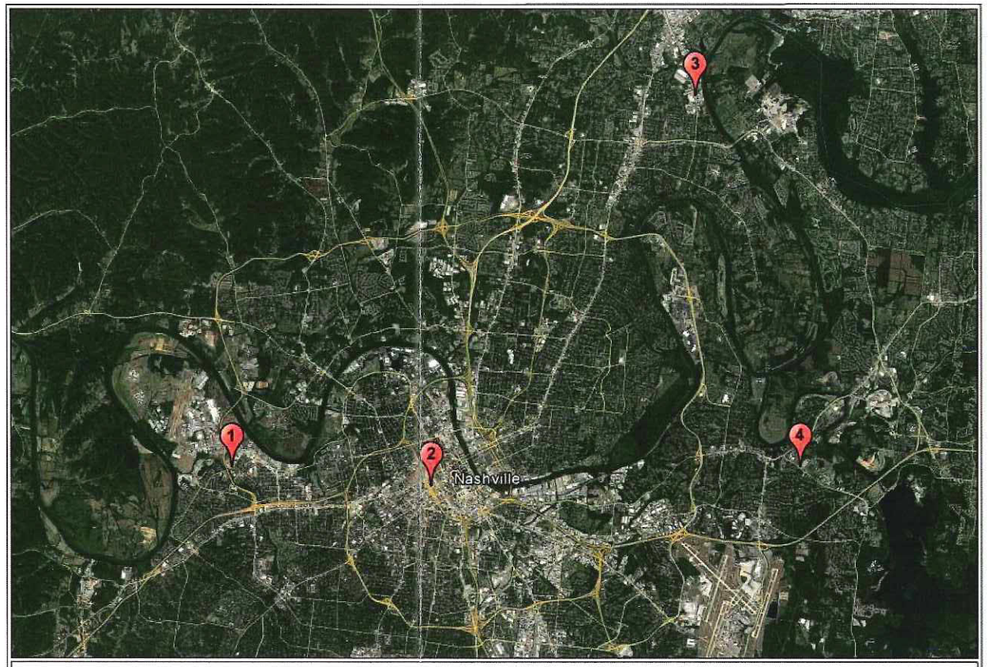
Bill Pridemore

Kevin Rhoten

Mary Carolyn Roberts
Members of Council

NES SIGNAGE

Nashville Electric Service
1214 Church Street
Nashville, TN 37246



VICINITY MAP
NOT TO SCALE

SITE LOCATION 1 : NES WEST
911 63RD AVENUE NORTH
NASHVILLE, TN 37209
PARCEL ID : 09100000200
ZONING : IR - INDUSTRIAL RESTRICTIVE

SITE LOCATION 2 : NES DOWNTOWN
1214 CHURCH STREET
NASHVILLE, TN 37246
PARCEL ID : 09305012200
ZONING : DTC

SITE LOCATION 3 : NES MADISON
486 MYATT DRIVE
NASHVILLE, TN 37115
PARCEL ID : 04300003200
ZONING : IR - INDUSTRIAL RESTRICTIVE

SITE LOCATION 4 : NES DONELSON
219 STEWARTS FERRY PIKE
NASHVILLE, TN 37214
PARCEL ID : 09900000100
ZONING : R10-RESIDENTIAL, OV - AIR

PREPARED BY:

Kimley»Horn
214 Oceanside Drive
Nashville, TN 37204
Phone: (615) 564-2701 Fax: (xxx) xxx-xxxx

MOODY•NOLAN
1625 Broadway
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SSR Smith Seckman Reid, Inc.
2995 Sidco Drive
Nashville, TN 37204
Phone: (615) 383-1113 Fax: (xxx) xxx-xxxx

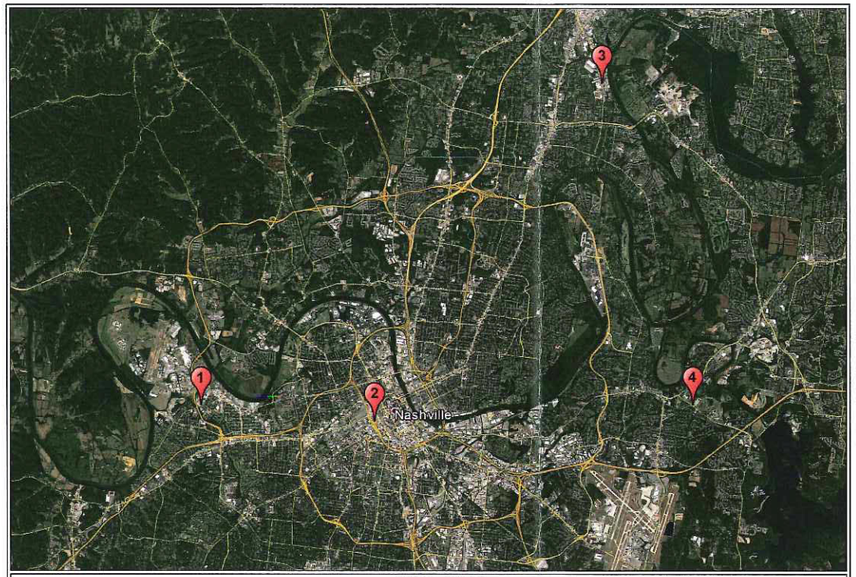
CD Review Set 12/16/2016

SITE CIVIL PLANS FOR

NES SIGNAGE PROGRAM

MULTIPLE SITES
NASHVILLE, TENNESSEE

SHEET INDEX	
NUMBER	DESCRIPTION
C0-00	COVER
C0-10	GENERAL NOTES
C2-10	SIGN LAYOUT - NES WEST
C2-20	SIGN LAYOUT - NES DOWNTOWN
C2-30	SIGN LAYOUT - NES MADISON
C2-40	SIGN LAYOUT - NES DONELSON
C2-50	SIGN LAYOUT - DOWNTOWN
C8-00	SIGNAGE DETAILS



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219 STEWARTS FERRY PIKE
NASHVILLE, TN 37214
PARCEL ID : 09600000100
ZONING : R10-RESIDENTIAL, OV - AIR

PROJECT DESIGN TEAM

ARCHITECT
MOODY NOLAN
1625 BROADWAY, 4TH FL.
NASHVILLE, TN 37203
PHONE: (615) 620-4781
CONTACT: ARON THOMPSON

CIVIL ENGINEER
KIMLEY-HORN AND ASSOCIATES, INC.
214 OCEANSIDE DRIVE
NASHVILLE, TENNESSEE 37204
PHONE: (615) 564-2701
CONTACT: ZACHARY DUFOUR, P.E.
JOSHUA GULICK, P.L.A.

PERMITTING / UTILITY CONTACTS

ELECTRIC
NASHVILLE ELECTRIC SERVICE
LARRY KELLY
1214 CHURCH STREET
NASHVILLE, TN 37246
PHONE: (615) 747-3688

STORMWATER
METRO WATER SERVICES
ROY NESTER
800 SECOND AVE. SOUTH
NASHVILLE, TN 37210
PHONE: (615) 880-2259

WATER
METRO WATER SERVICES
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SANITARY SEWER
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METRO NASHVILLE PUBLIC WORKS
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OWNER / DEVELOPER

NES
NASHVILLE ELECTRIC SERVICE
1214 CHURCH STREET
NASHVILLE, TN 37246
PHONE: 615.747.3193
CONTACT: JOHN SCHMIDT

811 Know what's below. Call before you dig.

#	DATE	CHANGE DESCRIPTION

NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
Nashville Electric Services

Kimley»Horn
214 Oceanside Drive
Nashville, TN 37204
Phone: (615) 564-2701
www.kimley-horn.com

MOODY•NOLAN
1625 Broadway, 4th floor
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

DRAWING TITLE:
COVER SHEET

12/15/2016
DRAWN BY: JAG | CHECKED BY: ZJD
Proj. #16601

C-00

CD's

CONTRACTOR RESPONSIBILITIES:

1. PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL BE RESPONSIBLE FOR:
   - A. THE CONTRACTOR SHALL VERIFY ALL PROPOSED AND EXISTING CONDITIONS INCLUDING UTILITIES (INVERTS, CONNECTIONS, MATERIALS, ETC.) AND DIMENSIONS WITHIN THE LIMITS OF WORK PRIOR TO THE START OF CONSTRUCTION.
   - B. REFER TO ARCHITECTURAL DRAWINGS FOR DETAILED BUILDING INFORMATION.
   - C. THE CONTRACTOR IS RESPONSIBLE FOR ALL NOTIFICATIONS AND LIAISONS WITH UTILITY COMPANIES DURING THE PROCESS OF LOCATING, RELOCATING, AND TYING INTO PUBLIC UTILITIES.
   - D. PRIOR TO COMMENCING LAND DISTURBANCE ACTIVITY, THE LIMITS OF LAND DISTURBANCE SHALL BE CLEARLY AND ACCURATELY DEMARCATED WITH STAKES, RIBBONS, OR OTHER APPROPRIATE MEANS. THE LOCATION AND EXTENT OF ALL AUTHORIZED LAND DISTURBANCE SHALL OCCUR INSIDE THE APPROVED LIMITS INDICATED ON THE APPROVED PLANS.
2. DURING CONSTRUCTION:
   - A. THE CONTRACTOR SHALL BE RESPONSIBLE FOR DEVIATIONS FROM THESE PLANS AND SPECIFICATIONS WITHOUT PRIOR WRITTEN CONSENT OF THE ENGINEER MAY CAUSE THE WORK TO BE UNACCEPTABLE.
   - B. THE CONTRACTOR SHALL USE MATERIALS AND EMPLOY CONSTRUCTION METHODS IN ORDER TO COMPLY WITH THE DRAWINGS AND SPECIFICATIONS. WHERE A CONFLICT OCCURS, THE STRICTEST DESIGN SHALL GOVERN. THE ENGINEER'S REVIEW OF SHOP DRAWINGS, PRODUCT DATA, ETC., DOES NOT RELIEVE THE CONTRACTOR FROM COMPLYING WITH THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY SPECIFIC DEVIATIONS AND OBTAIN ENGINEER'S WRITTEN APPROVAL OF THE SPECIFIC DEVIATION.
   - C. IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO FOLLOW ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION.
   - D. ALL CONSTRUCTION MUST CONFORM TO THE STANDARDS, SPECIFICATIONS, AND CODES OF THE GOVERNING MUNICIPALITIES.
   - E. CONSTRUCTION SHALL MEET ALL STANDARDS SET FORTH IN THE AMERICANS WITH DISABILITIES ACT.
   - F. IF THE CONTRACTOR DAMAGES ANY EXISTING UTILITIES DURING CONSTRUCTION, HE SHALL, AT HIS OWN EXPENSE, REPLACE OR REPAIR THE UTILITIES TO ORIGINAL CONDITION AND QUALITY AS APPROVED BY THE OWNER AND REPRESENTATIVE OF THE APPROPRIATE UTILITY COMPANY.
   - G. SUFFICIENT BARRICADES, LIGHTS, SIGNS, AND OTHER TRAFFIC CONTROL METHODS IN ACCORDANCE WITH GOVERNING ORDINANCES MAY BE NECESSARY FOR THE PROTECTION AND SAFETY OF THE PUBLIC. SAID CONTROL DEVICES SHALL BE PER THE MANUAL OF TRAFFIC CONTROL DEVICES, M.U.T.C.D., CURRENT EDITION, AND SHALL BE PROVIDED AND MAINTAINED THROUGHOUT CONSTRUCTION.
   - H. TRAFFIC CONTROLS AND OTHER WARNING DEVICES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY WORK ON CITY, COUNTY, OR TENNESSEE DEPARTMENT OF TRANSPORTATION ROADS. THEY SHALL BE MAINTAINED THROUGHOUT CONSTRUCTION AND SHALL REMAIN IN PLACE UNTIL THE CONCLUSION OF ALL WORK.
   - I. ALL WARNING DEVICES SHALL BE EITHER TYPE I BARRICADES OR DRUMS WITH WARNING LIGHTS ON EVERY OTHER DEVICE. THEY SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), CURRENT EDITION, AND METRO NASHVILLE STANDARDS FOR COLOR, SIZE, REFLECTIVITY, HEIGHT, AND PLACEMENT.
   - J. FIRE DEPARTMENT ACCESS SHALL BE MAINTAINED AT ALL TIMES.
   - K. CONTRACTOR SHALL SHORE AND BRACE ALL EARTH, FORMS, CONCRETE, STEEL, WOOD, AND MASONRY TO RESIST GRAVITY, EARTH, WIND, THERMAL, CONSTRUCTION, AND MISCELLANEOUS LOADS DURING CONSTRUCTION.
   - L. ON-SITE BURIAL OF DEBRIS IS PROHIBITED.
   - M. UNLESS OTHERWISE NOTED THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL FABRICATED MATERIALS TO THE ENGINEER. DESIGN DOCUMENTS SHALL NOT BE REPRODUCED AS SHOP DRAWINGS.
   - N. IN CASE OF UNFORESEEN CONSTRUCTION COMPLICATIONS OR DISCREPANCIES, THE CONTRACTOR IS TO IMMEDIATELY NOTIFY THE ENGINEER IN WRITING.
   - O. ALL REQUIRED TESTING REPORTS SHALL BE AVAILABLE AT THE JOB SITE.
   - P. AS-BUILT DRAWINGS OF ROADWAYS, STORM DRAINS, SANITARY SEWER AND WATER LINES, FIELD APPROVAL BY THE ENGINEER, AND ALL APPLICABLE BONDS ARE REDUIRED PRIOR TO FINAL ACCEPTANCE BY THE OWNER.
   - Q. UNLESS OTHERWISE NOTED ON THE DRAWINGS OR SPECIFICATIONS, ALL FILL AREAS MUST BE COMPACTED TO MINIMUM 95% STANDARD PROCTOR.
   - R. CONTRACTOR SHALL MAINTAIN CONTINUOUS UTILITY SERVICE TO ALL EXISTING BUILDINGS THROUGHOUT CONSTRUCTION UNLESS APPROVAL FOR SERVICE INTERRUPTION IS OBTAINED FROM THE OWNERS IN ADVANCE.
   - S. CUT AND FILL SLOPES SHALL NOT EXCEED 3:1 H:V.

DEMOLITION INFORMATION:

1. NOTIFICATIONS:

   THE CONTRACTOR SHALL NOTIFY THE OWNER AND CITY INSPECTOR(S) 24 HOURS PRIOR TO ANY DEMOLITION OR CONSTRUCTION.
2. DISPOSAL GUIDELINES:
   - A. ONLY ITEMS SPECIFICALLY NOTED TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE.
3. TREE PROTECTION GUIDELINES:

   PROTECT ALL EXISTING TREES AND ALL ITEMS TO BE TURNED OVER TO THE OWNER DURING DEMOLITION. TAKE ALL NECESSARY PRECAUTIONS AND PROTECTIVE MEASURES. ANY EXISTING ITEMS TO BE TURNED OVER TO THE OWNER WHICH ARE DAMAGED DURING DEMOLITION SHALL BE REPAIRED AT NO ADDITIONAL COST TO THE OWNER. TREES WHICH ARE DAMAGED WILL BE REPLACED OR REIMBURSED AT A RATE TO BE DETERMINED BY THE OWNER.
4. UTILITIES:
   - A. PRIOR TO REMOVING OR ABANDONING ANY UTILITY THE CONTRACTOR SHALL VERIFY THAT NO UPSTREAM SERVICE WILL BE TERMINATED. THE CONTRACTOR SHALL INFORM THE ENGINEER IN WRITING OF ANY TERMINATION NOT SHOWN ON THE PLANS.
   - B. ALL ABANDONED WATER LINES, STORM SEWER PIPE, SANITARY SEWER PIPES, GAS LINES, OR ANY OTHER ABANDONED UNDERGROUND UTILITY SHALL BE ABANDONED IN PLACE UNLESS NOTED OTHERWISE.

SITE INFORMATION:

1. THE FOLLOWING ARE APPLICABLE TO ALL CIVIL DOCUMENTS:
   - A. WHERE A DETAIL SECTION, TYPICAL SECTION, OR A NOTE IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS, UNLESS OTHERWISE NOTED ON THE PLANS.
   - B. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.

EROSION AND SEDIMENT CONTROL INFORMATION:

1. COMPREHENSIVE:
   - A. THE ESCAPE OF SEDIMENT FROM THE SITE SHALL BE PREVENTED BY THE INSTALLATION OF EROSION AND SEDIMENT CONTROL MEASURES AND PRACTICES PRIOR TO OR CONCURRENT WITH LAND-DISTURBING ACTIVITIES.
   - B. PROVISIONS TO PREVENT EROSION OF SOIL FROM THE SITE SHALL BE AT A MINIMUM IN CONFORMANCE WITH THE REQUIREMENTS OF THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOKS. IF FULL IMPLEMENTATION OF THE APPROVED PLAN DOES NOT PROVIDE FOR EFFECTIVE EROSION CONTROL, ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE.
   - C. FAILURE TO INSTALL, OPERATE, OR MAINTAIN ALL EROSION CONTROL MEASURES WILL RESULT IN ALL CONSTRUCTION BEING STOPPED ON THE JOB SITE UNTIL SUCH MEASURES ARE CORRECTED BACK TO THE STANDARDS SPECIFIED IN THE TENNESSEE EROSION AND SEDIMENT CONTROL HANDBOOKS, CURRENT EDITION.
   - D. EROSION CONTROL MEASURES WILL BE MAINTAINED AT ALL TIMES. ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED TO CONTROL OR TREAT THE SEDIMENT SOURCE AS DEEMED NECESSARY BY OWNER BEFORE OR DURING CONSTRUCTION.
   - E. EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO LAND DISTURBANCE. . IT IS THE CONTRACTOR'S RESPONSIBILITY TO ACCOMPLISH EROSION CONTROL FOR ALL DRAINAGE PATTERNS CREATED AT VARIOUS STAGES DURING CONSTRUCTION. ANY DIFFICULTY IN CONTROLLING EROSION DURING ANY PHASE OF CONSTRUCTION SHALL BE REPORTED TO THE ENGINEER IMMEDIATELY.
   - F. THE CONSTRUCTION OF THE SITE WILL COMMENCE WITH THE INSTALLATION OF EROSION CONTROL MEASURES SUFFICIENT TO CONTROL SEDIMENT DEPOSITS AND EROSION. ALL SEDIMENT CONTROL WILL BE MAINTAINED UNTIL ALL UPSTREAM GROUND WITHIN THE CONSTRUCTION AREA HAS BEEN COMPLETELY STABILIZED WITH PERMANENT VEGETATION.
   - G. CONSTRUCTION EXITS SHALL BE CONSTRUCTED AT EACH POINT OF ENTRY OR EXIT FROM THE SITE AND SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH STONE AS CONDITIONS DEMAND, REPAIR, AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES OFF SITE ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY. ACCESS POINTS PROTECTED WITH A CONSTRUCTION EXIT SHALL BE OTHERWISE BARRICADED UNTIL THE SITE IS STABILIZED.

CONCRETE INFORMATION (SITE WORK AND FREESTANDING WALL):

1. PRODUCT CRITERIA:
   - A. UNLESS OTHERWISE NOTED CEMENT SHALL BE TYPE I OR III CONFORMING TO ASTM C150. AGGREGATES SHALL BE NORMAL WEIGHT CONFORMING TO ASTM C33.
   - B. CONCRETE SHALL CONFORM TO ACI BUILDING CODE (318-89). UNLESS NOTED CONCRETE SHALL BE NORMAL WEIGHT AND HAVE A 28 DAY COMPRESSIVE STRENGTH OF 3,500 P.S.I.
   - C. SLUMP SHALL BE 3" TO 5" FOR REGULAR MIX. LARGER SLUMP SHALL BE PERMITTED WITH WATER REDUCING ADMIXTURES AND WRITTEN CONSENT OF THE ENGINEER.
   - D. THE RELATIONSHIP BETWEEN MAXIMUM AGGREGATE SIZE TO MINIMUM AMOUNT OF CEMENT IN CONCRETE PAVEMENT (LB. PER C.Y. OR MIX) SHALL BE AS FOLLOWS: 1" - 520, 3/4" - 540, 1/2" - 590, 3/8" - 610.
2. CURING CRITERIA:
   - A. CONCRETE CURING SHALL COMPLY WITH ACI 308. CURING PROCESS SHALL START IMMEDIATELY FOLLOWING INITIAL SET. CURING SHALL BE BY CURING COMPOUND.
   - B. CONCRETE EXPOSED TO THE WEATHER SHALL BE AIR-ENTRAINED IN ACCORDANCE WITH ACI 318-89 TABLE 4.1.1. NORMAL WEIGHT CONCRETE SLABS SHALL HAVE AIR CONTENT IN ACCORDANCE WITH ACI 302.1R-89 TABLE 5.2.7A.
   - C. HOT WEATHER CONCRETING SHALL COMPLY WITH ACI 305. NO CONCRETE ABOVE 90 DEGREES FAHRENHEIT SHALL BE POURED. LOWER CONCRETE TEMPERATURE BY COOLING WATER AND AGGREGATE. FORMS, STEEL, AND SUBGRADE SHALL BE SPRINKLED WITH COLD WATER. AFTER FINISHING CONCRETE USE LIGHT FOG SPRAY UNTIL CURING COMPOUND IS USED.
   - D. COLD WEATHER CONCRETING SHALL COMPLY WITH ACI 306. SPECIAL MATERIAL PROCEDURES SHALL BE PROVIDED DURING PLACING AND CURING OF CONCRETE BELOW 40 DEGREES FAHRENHEIT.
   - E. CURING, HOT, AND COLD WEATHER CONCRETING PROCEDURES ARE ONLY GIVEN AS A GUIDE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO PREVENT CONCRETE DAMAGE AND CRACKS. DAMAGED OR CRACKED CONCRETE WILL NOT BE ACCEPTED.

REINFORCING STEEL INFORMATION (SITE WORK AND FREESTANDING WALL) :

1. PRODUCT CRITERIA:
   - A. REINFORCING STEEL SHALL CONFORM TO ASTM A-615, GRADE 60 AND GRADE 40 FOR #3 AND SMALLER BARS. MINIMUM LAP 48" DIAMETER.
   - B. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185, MINIMUM LAP SHALL BE 8".
   - C. REINFORCING THAT IS WELDED SHALL BE WELDABLE TYPE AND CONFORM TO ASTM A-706.

GRADING NOTES:

- A. TOPSOIL SHALL BE STORED ON SITE IN LOCATIONS APPROVED BY THE OWNER'S REPRESENTATIVE. DRAINAGE SHALL ROUT AROUND THESE TOPSOIL STOCKPILES FOR THE DURATION OF THE GRADING OPERATIONS. EROSION CONTROL MEASURES SHALL PREVENT THE LOSS OF TOPSOIL MATERIAL.
- B. UNSUITABLE SOILS SHALL BE UNIFORMLY SPREAD ACROSS NON-STRUCTURAL FILL AREAS AND COVERED WITH TOPSOIL AND SEEDED.
- C. FILL AREA SHALL BE RE-COMPACTED TO 98% MAXIMUM DRY DENSITY AS PER ASTM D698 (STANDARD PROCTOR).
- D. CUT AREA SHALL BE RE-COMPACTED TO 98% MAXIMUM DRY DENSITY AS PER ASTM D698 (STANDARD PROCTOR).
- E. GRADING SHALL BE SEQUENCED SO THAT BASE STONE IS PLACED WITHIN 10 CALENDAR DAYS PF ACHIEVING OPTIMUM SUBGRADE COMPACTION.
- F. SOILS COMPACTION TESTING OF IN-PLACE AND FILLED AND COMPACTED AREAS WILL BE PERFORMED BY TESTING LABORATORY IN ACCORDANCE WITH THEIR REQUIREMENTS.
- G. THE SOILS ENGINEER'S AND TESTING LABORATORY'S FEES WILL BE PAID BY THE CONTRACTOR.
- H. APPLICABLE SPECIFICATIONS FOR COMPACTED FILL: THE FOLLOWING CURRENT AMERICAN SOCIETY OF TESTING MATERIALS (ASTM) STANDARDS ARE HEREBY MADE PART OF THIS SPECIFICATION:
  - D421-58, DRY PREPARATION OF SOIL SAMPLES FOR GRAIN-SIZE ANALYSIS AND DETERMINATION OF SOIL CONSTANTS.
  - D422-63, STANDARD METHOD OF PARTICLE SIZE ANALYSIS OF SOILS.
  - D1140-54, METHOD OF TEST FOR AMOUNT OF MATERIAL IN SOILS FINER THAN NO.200 SIEVE.
  - D698, METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORT
  - D1557-78, STANDARD TEST METHDDS FOR MOISTURE-DENSITY RELATIONS OF SOILS AND SOIL-AGGREGATE MIXTURES USING 10 LB. (4.54-KG) RAMMER AND 18-INCH (457 MM) DROP.
- J. PROVIDE POSITIVE DRAINAGE AWAY FROM SIGNAGE AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

811 Know what's below. Call before you dig.

#	DATE	CHANGE DESCRIPTION

NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
Nashville Electric Services

Kimley»Horn
214 Oceanside Drive
Nashville, TN 37204
Phone: (615) 564-2701
www.kimley-horn.com

MOODY•NOLAN
1625 Broadway, 4th floor
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

DRAWING TITLE:

GENERAL NOTES

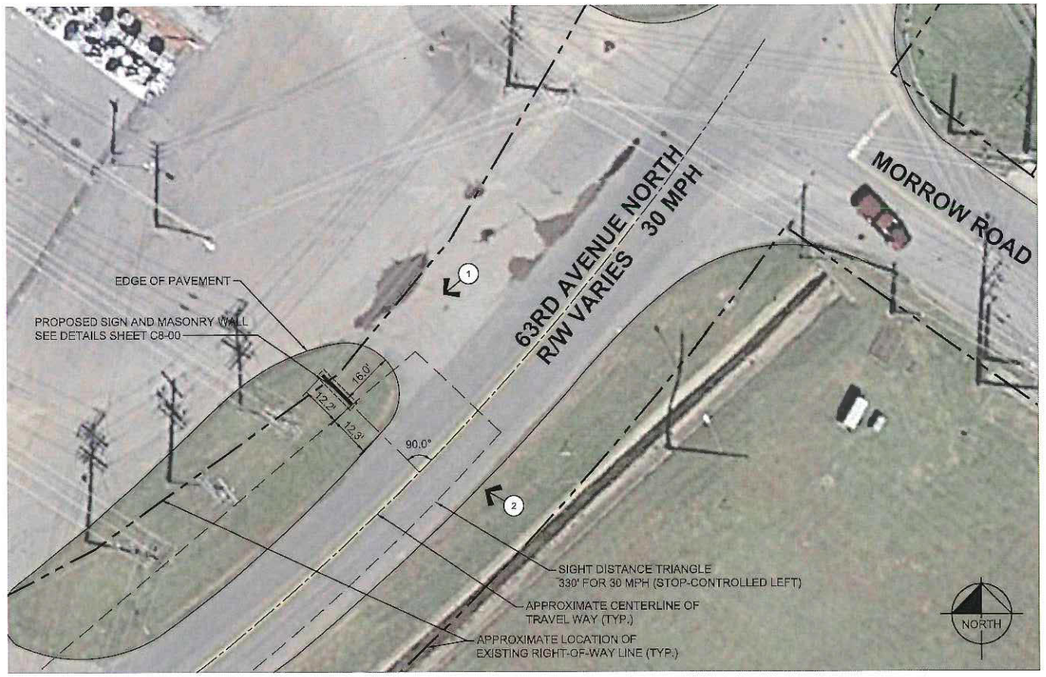
12/15/2016

DRAWN BY: JAG | CHECKED BY: ZJD

Proj. #16601

C0-10

CD's



GRAPHIC SCALE IN FEET
0 10 20 40

1 NES WEST SITE - NEW SIGN - PLAN VIEW
SCALE: 1" = 20'

SITE LOCATION
"NES WEST" 911 63RD AVENUE NORTH NASHVILLE, TN 37209 PARCEL ID : 09100000200 ZONING : IR - INDUSTRIAL RESTRICTIVE

SIGN INFORMATION	
SIGN FACE AREA:	120 sf (2 x 60 sf)
PROPERTY FRONTAGE:	585'

SIGN NOTES

1. BUILD NEW MASONRY SIGN.
2. CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO MASONRY WALL THROUGHOUT PROJECT.
3. CONTRACTOR SHALL CLEAN WALL WITH LIGHT ABRASIVE TO REMOVE DIRT AND GRIME.
4. CONTRACTOR TO PREPARE WALL FOR SIGNAGE INSTALLATION.
5. INSTALL PINNED OFF LETTERS AND SIGNAGE TO WALL PER SHOP DRAWINGS REQUESTED ON SHEET C8-00.
6. CONTRACTOR RESPONSIBLE FOR REPLACING DISTURBED SOIL, MULCH AND PLANT MATERIALS IN KIND.

PLAN LEGEND

- PROPERTY / RIGHT-OF-WAY LINE
- EASEMENT / SIGHT TRIANGLE LINE
- EXISTING STORM PIPE
- PHOTOGRAPH VIEW POSITION

SITE NOTES

1. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO EVALUATE SLOPE AND GRADING OF EACH SITE. CONTRACTOR TO ADJUST MATERIAL QUANTITIES BASED ON EVALUATION.
2. CONTRACTOR TO CALL 811 AND HAVE UTILITIES LOCATED PRIOR TO STAKING.
3. HORIZONTAL LAYOUT SHOWN IS APPROXIMATE AND BASED ON AERIAL PHOTOGRAPHS AND AVAILABLE GIS INFORMATION. CONTRACTOR SHALL STAKE SIGN LOCATION PRIOR TO DISTURBANCE FOR APPROVAL BY OWNER PRIOR TO ORDERING MATERIALS.
4. CONTRACTOR SHALL APPLY PERMANENT LOCAL SOD STABILIZATION TO ALL DISTURBED AREAS .
5. CONTRACTOR RESPONSIBLE FOR MAINTAINING SOD IN HEALTHY CONDITION FOR 12 MONTHS.
6. CONTRACTOR SHALL REPLACE ALL DAMAGED OR REMOVED LANDSCAPE MATERIALS (SUCH AS MULCH, SOD AND PLANTINGS) IN KIND.

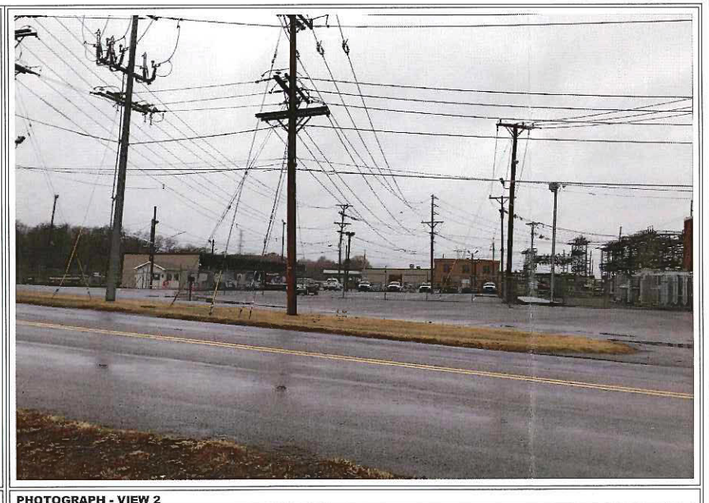
EXISTING UTILITIES NOTE

CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES AND/OR CONFLICTS WITH EXISTING OR PROPOSED UTILITIES PRIOR TO PROCEEDING.

SEE DETAILS SHEET C8-00

SEE GENERAL NOTES SHEET C0-10

PHOTOGRAPH - VIEW 1
SCALE: N/A



PHOTOGRAPH - VIEW 2
SCALE: N/A

811 Know what's below. Call before you dig.

#	DATE	CHANGE DESCRIPTION

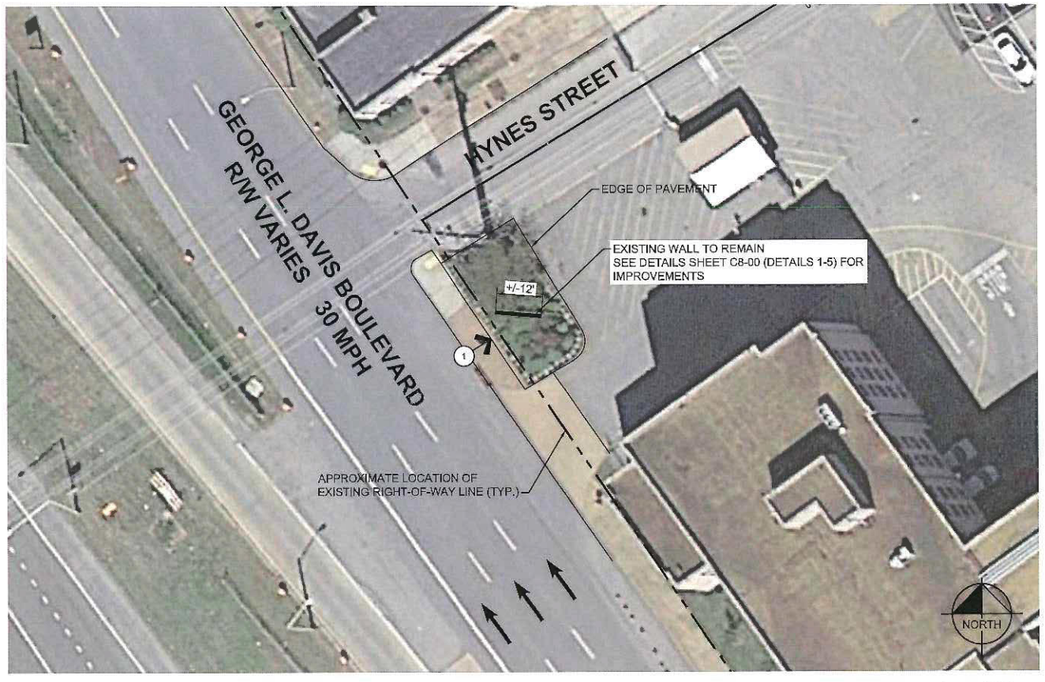
NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
NES Nashville Electric Services

Kimley»Horn
214 Oceanside Drive
Nashville, TN 37204
Phone: (615) 564-2701
www.kimley-horn.com

MOODY•NOLAN
1625 Broadway, 4th floor
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

DRAWING TITLE:
SITE LAYOUT - NES WEST NEW SIGN

12/15/2016
DRAWN BY: JAG CHECKED BY: ZJD
Proj. #16601
C2-10
CD's



GRAPHIC SCALE IN FEET
0 10 20 40

1 NES DOWNTOWN SITE - EXISTING SIGN TO BE MODIFIED - PLAN VIEW
SCALE: 1" = 20'

SITE LOCATION

"NES DOWNTOWN"

1214 CHURCH STREET
NASHVILLE, TN 37246

PARCEL ID : 09305012200
ZONING : DTC - DOWNTOWN CODE

SIGN INFORMATION

SIGN FACE AREA:	120 sf (2 x 60 sf)
PROPERTY FRONTAGE:	557'

SIGN NOTES

1. EXISTING MASONRY WALL TO REMAIN.
2. CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO MASONRY WALL THROUGHOUT PROJECT.
3. REMOVE METAL POSTS AND BLUE (NES) LETTERS IN ENTIRETY FROM SITE.
4. COORDINATE WITH OWNERS REPRESENTATIVE FOR STORAGE OF LETTERS AND METAL POLES.
5. ENSURE NO DAMAGE TO FOOTINGS UPON REMOVAL OF LETTERS.
6. CONTRACTOR TO PATCH AND REPAIR ANY DAMAGE OR PENETRATIONS FROM REMOVED SIGNAGE. PATCH AND REPAIR MATERIALS MUST BE APPROVED MATERIALS.
7. CONTRACTOR SHALL CLEAN WALL BEFORE PAINTING WALL. (SEE PAINT NOTES THIS SHEET)
8. CONTRACTOR PREPARE AND PRIME WALL SURFACE FOR EXTERIOR PAINT. (SEE PAINT NOTES THIS SHEET)
9. CONTRACTOR TO SUBMIT PAINT COLOR, MANUFACTURER AND SPECIFICATIONS TO OWNERS REP FOR APPROVAL PRIOR TO INSTALLATION / APPLICATION.
10. APPLY A 3-COAT MINIMUM OF APPROVED PAINT TO THE WALL SEE ARCHITECTURE SPECIFICATIONS FOR PAINT TYPE AND COLOR.
11. INSTALL PINNED OFF LETTERS AND SIGNAGE TO WALL PER SHOP DRAWINGS REQUESTED ON SHEET C8-00.
12. CONTRACTOR RESPONSIBLE FOR REPLACING DISTURBED SOIL, MULCH AND PLANT MATERIALS IN KIND.

PAINT NOTES

1. EXISTING BRICK WALL TO BE PAINTED WHITE.
2. POWER WASH SURFACES TO BE COATED WITH A BIODEGRADABLE CLEANER AND WATER TO REMOVE DIRT, GREASE, OIL AND OTHER ENVIRONMENTAL CONTAMINATION. REMOVE EXCESS MORTAR BY WIRE BRUSHING OR OTHER SUITABLE MEANS. WAIT UNTIL COMPLETELY DRY BEFORE PAINTING.
3. BRICK SHALL RECEIVE TWO COATS OF ACRYLIC PAINT OVER AN ACRYLIC MASONRY PRIMER
4. 1ST COAT: PPG PAINTS 4-603 PERMACRETE ACRYLIC ALKALI RESISTANT MASONRY PRIMER
5. 2ND COAT: PPG PAINTS 6-900XI (SEMI-GLOSS) SPEEDHIDE 100% ACRYLIC EXTERIOR PAINT
6. 3RD COAT: PPG PAINTS 6-900XI (SEMI-GLOSS) SPEEDHIDE 100% ACRYLIC EXTERIOR PAINT

PLAN LEGEND

- PROPERTY / RIGHT-OF-WAY LINE
- EASEMENT / SIGHT TRIANGLE LINE
- EXISTING STORM PIPE
- (1) PHOTOGRAPH VIEW POSITION

EXISTING UTILITIES NOTE

CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES AND/OR CONFLICTS WITH EXISTING OR PROPOSED UTILITIES PRIOR TO PROCEEDING.

SITE NOTES

1. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO EVALUATE SLOPE AND GRADING OF EACH SITE. CONTRACTOR TO ADJUST MATERIAL QUANTITIES BASED ON EVALUATION.
2. CONTRACTOR TO CALL 811 AND HAVE UTILITIES LOCATED PRIOR TO STAKING.
3. HORIZONTAL LAYOUT SHOWN IS APPROXIMATE AND BASED ON AERIAL PHOTOGRAPHS AND AVAILABLE GIS INFORMATION. CONTRACTOR SHALL STAKE SIGN LOCATION PRIOR TO DISTURBANCE FOR APPROVAL BY OWNER PRIOR TO ORDERING MATERIALS.
4. CONTRACTOR SHALL APPLY PERMANENT LOCAL SOD STABILIZATION TO ALL DISTURBED AREAS .
5. CONTRACTOR RESPONSIBLE FOR MAINTAINING SOD IN HEALTHY CONDITION FOR 12 MONTHS.
6. CONTRACTOR SHALL REPLACE ALL DAMAGED OR REMOVED LANDSCAPE MATERIALS (SUCH AS MULCH, SOD AND PLANTINGS) IN KIND.

SEE DETAILS SHEET C8-00

SEE GENERAL NOTES SHEET C0-10

PHOTOGRAPH - VIEW 1
SCALE: N/A

811 Know what's below. Call before you dig.

#	DATE	CHANGE DESCRIPTION

NES

NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
Nashville Electric Services

Kimley»Horn
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www.kimley-horn.com

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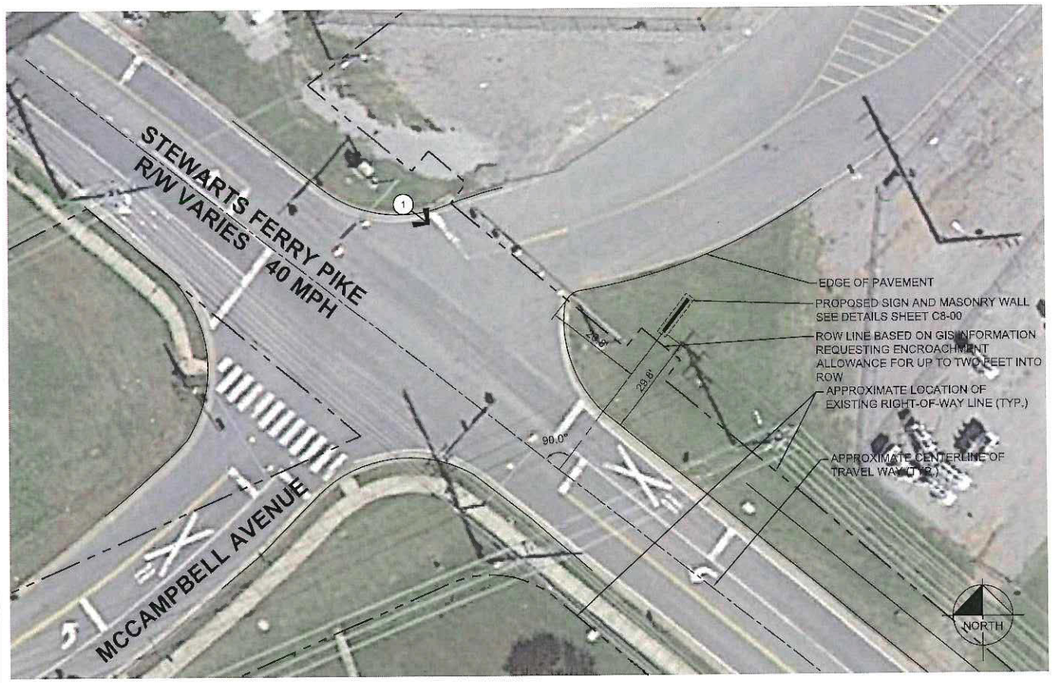
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

DRAWING TITLE:
SITE LAYOUT - NES DOWNTOWN EXISTING SIGN TO BE MODIFIED

12/15/2016
DRAWN BY: JAG CHECKED BY: ZJD
Proj. #16601

C2-20

CD's



GRAPHIC SCALE IN FEET
0 10 20 40

1 NES DONELSON SITE - NEW SIGN - PLAN VIEW
SCALE: 1" = 20'

SITE LOCATION
"NES DONELSON" 219 STEWARTS FERRY PIKE NASHVILLE, TN 37214 PARCEL ID : 09600000100 ZONING : R10 - RESIDENTIAL, OV-AIR

SIGN INFORMATION	
SIGN FACE AREA:	120 sf (2 x 60 sf)
PROPERTY FRONTAGE:	725'

SIGN NOTES

1. BUILD NEW MASONRY SIGN.
2. CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO MASONRY WALL THROUGHOUT PROJECT.
3. CONTRACTOR SHALL CLEAN WALL WITH LIGHT ABRASIVE TO REMOVE DIRT AND GRIME.
4. CONTRACTOR TO PREPARE WALL FOR SIGNAGE INSTALLATION.
5. INSTALL PINNED OFF LETTERS AND SIGNAGE TO WALL PER SHOP DRAWINGS REQUESTED ON SHEET C8-00.
6. CONTRACTOR RESPONSIBLE FOR REPLACING DISTURBED SOIL, MULCH AND PLANT MATERIALS IN KIND.

PLAN LEGEND

- PROPERTY / RIGHT-OF-WAY LINE
- EASEMENT / SIGHT TRIANGLE LINE
- EXISTING STORM PIPE
- PHOTOGRAPH VIEW POSITION

SITE NOTES

1. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO EVALUATE SLOPE AND GRADING OF EACH SITE. CONTRACTOR TO ADJUST MATERIAL QUANTITIES BASED ON EVALUATION.
2. CONTRACTOR TO CALL 811 AND HAVE UTILITIES LOCATED PRIOR TO STAKING.
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SEE DETAILS SHEET C8-00

SEE GENERAL NOTES SHEET C0-10

PHOTOGRAPH - VIEW 1
SCALE: N/A

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Nashville Electric Services

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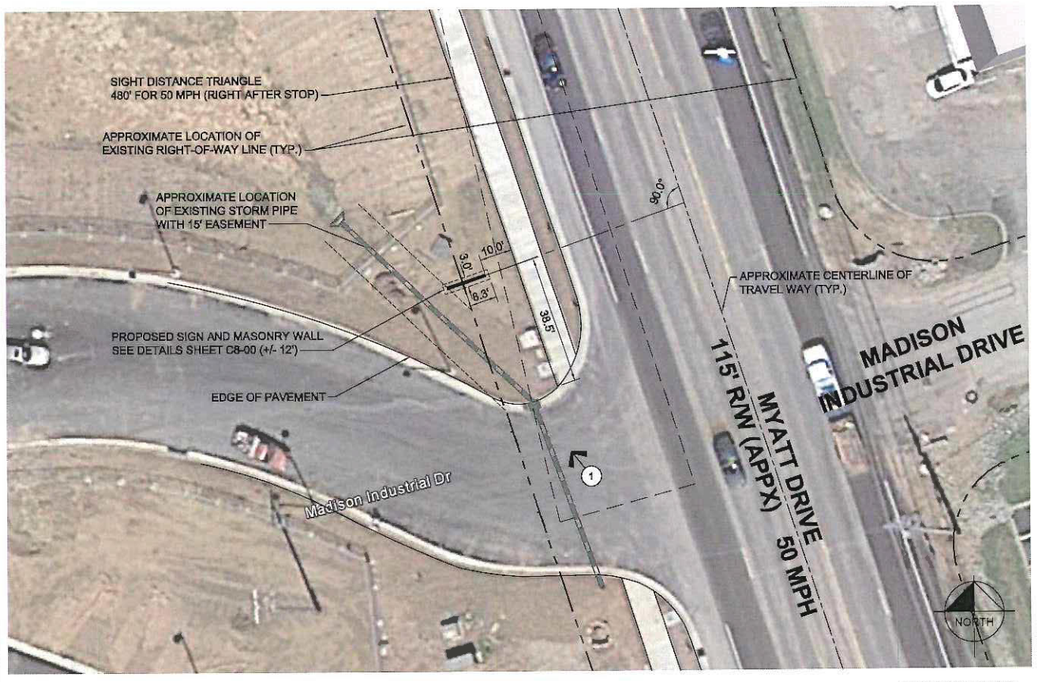
www.moodynolan.com

DRAWING TITLE:
SITE LAYOUT - NES DONELSON NEW SIGN

12/15/2016
DRAWN BY: JAG CHECKED BY: ZJD
Proj. #16601
C2-40
CD's



GRAPHIC SCALE IN FEET
0 10 20 40

1 NES MADISON SITE - NEW SIGN - PLAN VIEW
SCALE: 1" = 20'

SITE LOCATION
"NES MADISON" 488 MYATT DRIVE NASHVILLE, TN 37115 PARCEL ID : 04300003200 ZONING : IR - INDUSTRIAL RESTRICTIVE

SIGN INFORMATION	
SIGN FACE AREA:	120 sf (2 x 60 sf)
PROPERTY FRONTAGE:	723'

SIGN NOTES

1. BUILD NEW MASONRY SIGN.
2. CONTRACTOR RESPONSIBLE FOR ANY DAMAGE TO MASONRY WALL THROUGHOUT PROJECT.
3. CONTRACTOR SHALL CLEAN WALL WITH LIGHT ABRASIVE TO REMOVE DIRT AND GRIME.
4. CONTRACTOR TO PREPARE WALL FOR SIGNAGE INSTALLATION.
5. INSTALL PINNED OFF LETTERS AND SIGNAGE TO WALL PER SHOP DRAWINGS REQUESTED ON SHEET C8-00.
6. CONTRACTOR RESPONSIBLE FOR REPLACING DISTURBED SOIL, MULCH AND PLANT MATERIALS IN KIND.

PLAN LEGEND

- PROPERTY / RIGHT-OF-WAY LINE
- EASEMENT / SIGHT TRIANGLE LINE
- EXISTING STORM PIPE
- (1) PHOTOGRAPH VIEW POSITION

SITE NOTES

1. CONTRACTOR SHALL VISIT SITE PRIOR TO BIDDING TO EVALUATE SLOPE AND GRADING OF EACH SITE. CONTRACTOR TO ADJUST MATERIAL QUANTITIES BASED ON EVALUATION.
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6. CONTRACTOR SHALL REPLACE ALL DAMAGED OR REMOVED LANDSCAPE MATERIALS (SUCH AS MULCH, SOD AND PLANTINGS) IN KIND.

EXISTING UTILITIES NOTE

CONTRACTOR SHALL VERIFY LOCATION OF ALL EXISTING UTILITIES AND NOTIFY ENGINEER IMMEDIATELY OF ANY DISCREPANCIES AND/OR CONFLICTS WITH EXISTING OR PROPOSED UTILITIES PRIOR TO PROCEEDING.

SEE DETAILS SHEET C8-00

SEE GENERAL NOTES SHEET C0-10

PHOTOGRAPH - VIEW 1
SCALE:N/A

811 Know what's below. Call before you dig.

#	DATE	CHANGE DESCRIPTION

NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
NES Nashville Electric Services

Kimley»Horn
214 Oceanside Drive
Nashville, TN 37204
Phone: (615) 564-2701
www.kimley-horn.com

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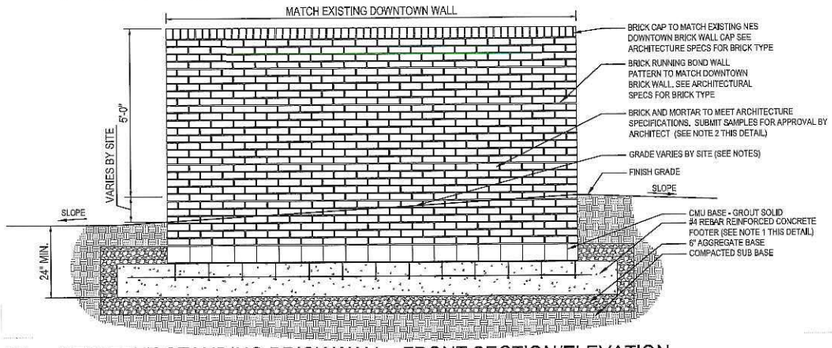
1625 Broadway, 4th floor
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

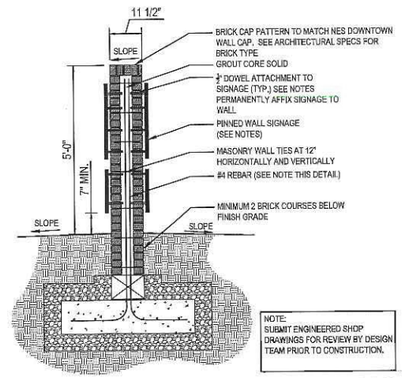
DRAWING TITLE:
SITE LAYOUT - NES MADISON

12/15/2016
DRAWN BY: JAG CHECKED BY: ZJD
Proj. #16601
C2-30
CD's

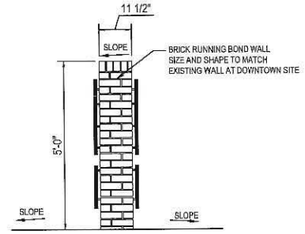
NOTES:
1. BASIS OF DESIGN FOR BRICK COLOR IS GLEN GERY ASPEN WHITE W804. REFER TO SPEC SECTION 04000 FOR MASONRY.
2. SUBMIT ENGINEERED SHOP DRAWINGS FOR REVIEW BY DESIGN TEAM PRIOR TO CONSTRUCTION.
3. PAINT AND PREPARATION APPLICATION FOR DOWNTOWN LOCATION ONLY. SEE PLAN SHEETS AND ARCHITECTURAL SPECS
4. BRICK AND MORTAR TO BE SPECIFIED BY ARCHITECT FOR NEW WALL CONSTRUCTION LOCATIONS (WEST SITE, DONELSON, AND MADISON SITES ONLY) SEE PLAN SHEETS
5. NEW CONSTRUCTION WALLS SHALL NOT RECEIVE PAINT



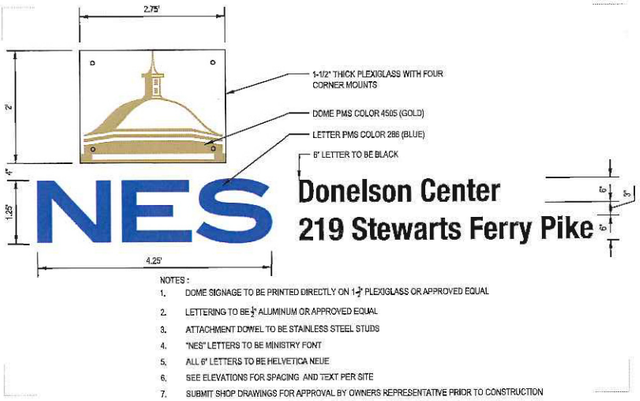
1 NEW FREE STANDING BRICK WALL - FRONT SECTION/ELEVATION
1/2"=1'-0"



2 FREE STANDING BRICK WALL - SECTION
1/2"=1'-0"

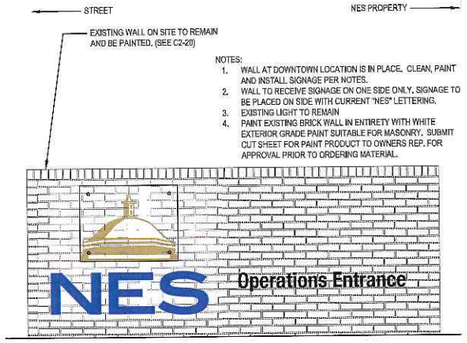


3 FREE STANDING BRICK WALL - ELEV.
1/2"=1'-0"



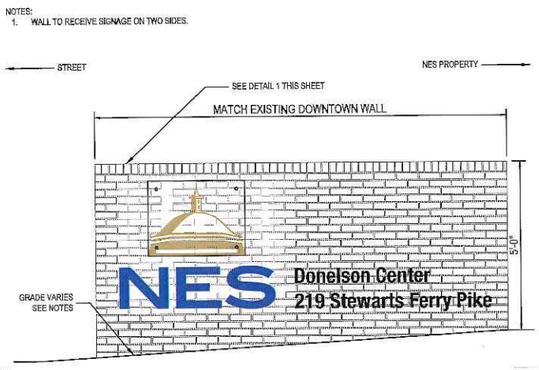
NOTES :
1. DOME SIGNAGE TO BE PRINTED DIRECTLY ON ¼" PLEXIGLASS OR APPROVED EQUAL
2. LETTERING TO BE ¾" ALUMINUM OR APPROVED EQUAL
3. ATTACHMENT DOWEL TO BE STAINLESS STEEL STUDS
4. "NES" LETTERS TO BE MINISTRY FONT
5. ALL 6" LETTERS TO BE HELVETICA NEUE
6. SEE ELEVATIONS FOR SPACING AND TEXT PER SITE
7. SUBMIT SHOP DRAWINGS FOR APPROVAL BY OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION

4 NES SIGNAGE - TO BE INSTALLED ON BRICK WALLS
NTS



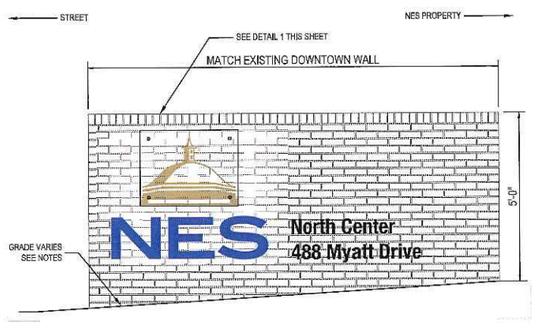
NOTES:
1. WALL AT DOWNTOWN LOCATION IS IN PLACE. CLEAN, PAINT AND INSTALL SIGNAGE PER NOTES.
2. WALL TO RECEIVE SIGNAGE ON ONE SIDE ONLY. SIGNAGE TO BE PLACED ON SIDE WITH CURRENT "NES" LETTERING.
3. EXISTING LIGHT TO REMAIN
4. PAINT EXISTING BRICK WALL IN ENTIRETY WITH WHITE EXTERIOR GRADE PAINT SUITABLE FOR MASONRY. SUBMIT CUT SHEET FOR PAINT PRODUCT TO OWNERS REP. FOR APPROVAL PRIOR TO ORDERING MATERIAL.

5 NES DOWNTOWN - EXISTING SIGN
1/2"=1'-0"



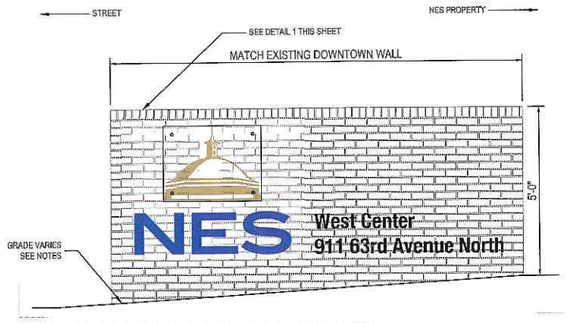
NOTES:
1. WALL TO RECEIVE SIGNAGE ON TWO SIDES.

6 NES DONELSON CENTER - NEW SIGN
1/2"=1'-0"



NOTES:
1. WALL TO RECEIVE SIGNAGE ON TWO SIDES.

7 NES MADISON CENTER - NEW SIGN
1/2"=1'-0"



NOTES:
1. WALL TO RECEIVE SIGNAGE ON TWO SIDES.

8 NES WEST CENTER - NEW SIGN
1/2"=1'-0"

NOTES :
1. GRADING VARIES AT EACH SITE. CONTRACTOR TO CONFIRM GRADING AND ENSURE POSITIVE DRAINAGE AWAY FROM SIGN FOR EACH SITE PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL VERIFY AND HOLD BRICK MINIMUM OF 2 COURSES BELOW FINISH GRADE
3. CONTRACTOR TO SUBMIT ENGINEERED SHOP DRAWINGS FOR WALL FOOTER AND REINFORCING FOR APPROVAL BY OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION.

- NOTES

811 Know what's below. Call before you dig.

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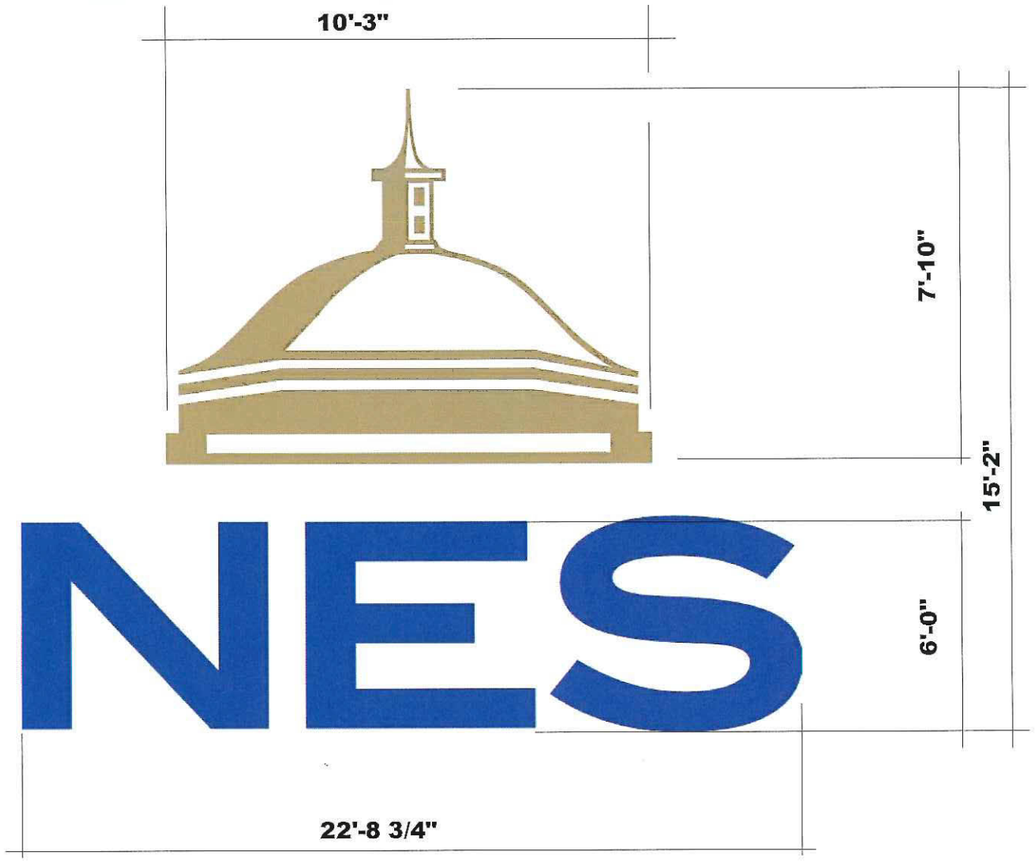
www.moodynolan.com

DRAWING TITLE:
SIGNAGE DETAILS

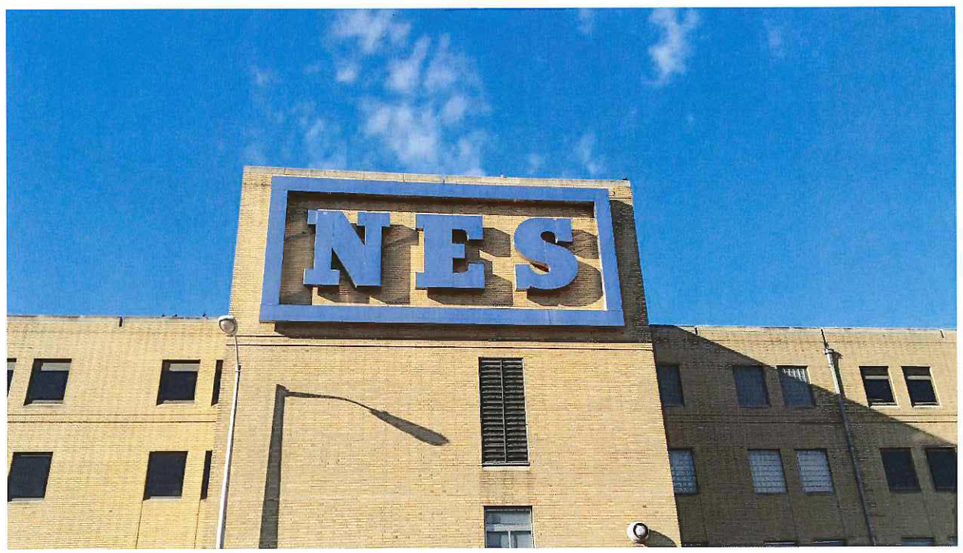
12/15/2016
DRAWN BY: JAG | CHECKED BY: ZJD
Proj. #16601

C8-00

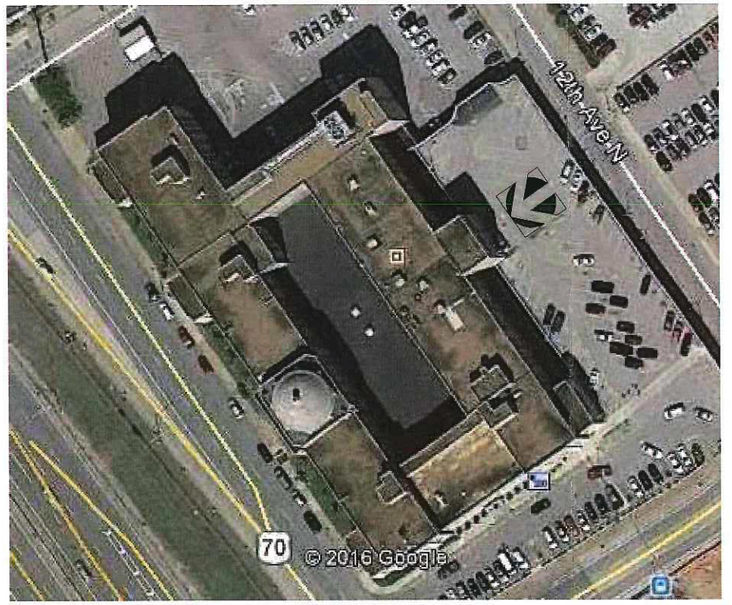
CD's



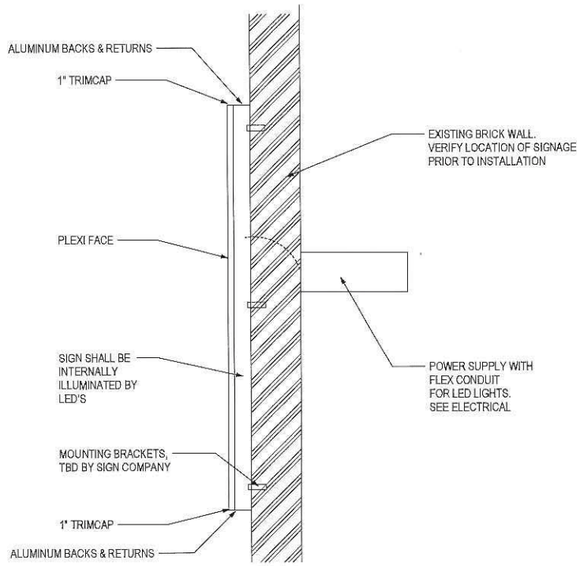
2 DETAIL NEW SIGNAGE - GRAPHICS & DIMENSIONS
N.T.S.



3 DETAIL EXISTING SIGN TO BE REPLACED
N.T.S.



INSPECT CONCEALED MATERIALS WHEN BRICK IS REMOVED AND INSPECT FOR DAMAGE; REFER TO SECTION 04 00 00 FOR REINFORCING, FLASHING, VENTS, AND CAVITY PROTECTION REQUIREMENTS. REPAIR EXISTING MASONRY WHERE EXISTING SIGN WAS REMOVED AND ANY OTHER HOLES THAT ARE FOUND UNDER SIGN THAT IS REMOVED, TYP.



1 SIGNAGE SECTION
1" = 1'-0"

NEW SIGNAGE NOTES:

INDIVIDUAL FLUSH MOUNT CHANNEL SET:
- RETURNS (5" DEEP) OF .050 PRE-PAINTED BRONZE ALUMINUM

- "NES" FACES OF .177 FLAT WHITE ACRYLIC WITH PMS 286 BLUE VINYL APPLIED FIRST SURFACE WITH 1" BRONZE TRIM-CAP.

- "DOME" FACES OF .177 FLAT WHITE ACRYLIC WITH PMS 4505 GOLD METALLIC VINYL APPLIED FIRST SURFACE.

- "NES" LETTERS TO BE ILLUMINATED WITH BLUE LED LIGHTS, AND DOME TO BE ILLUMINATED WITH WHITE LED LIGHTS.

- LETTERS AND "DOME" TO BE FLUSH MOUNTED TO WALL

- SIGNAGE TO BE IN ACCORDANCE WITH THE REQUIREMENTS OF ARTICLE 600 OF THE NATIONAL ELECTRIC CODE AND OTHER APPLICABLE LOCAL CODES THAT INCLUDE GROUNDING AND BONDING OF SIGNAGE

- COLORS:
  BLUE - PMS 286
  GOLD - PMS 4505

- SUBMIT SHOP DRAWINGS FOR APPROVAL BY OWNERS REPRESENTATIVE PRIOR TO CONSTRUCTION

#	DATE	CHANGE DESCRIPTION

NES SIGNAGE
1214 Church Street
Nashville, TN 37246
for
Nashville Electric Service

MOODY•NOLAN
1625 Broadway
4th Floor
Nashville, TN 37203
Phone:(615) 386-9690
Fax:(615) 386-0528
www.moodynolan.com

DRAWING TITLE:
Main Building Signage

12/12/2016
DRAWN BY: Author | CHECKED BY: Checker
Proj. #16601
A100
CD's

SPECIFICATIONS - DIVISION 26

PART 1 GENERAL

1.1 EXISTING EQUIPMENT IS SHOWN FOR REFERENCE PURPOSES AND SHALL REMAIN. EXISTING EQUIPMENT NOT SHOWN SHALL ALSO REMAIN. EXISTING EQUIPMENT TO REMAIN SHALL BE PROTECTED FROM DAMAGE.

1.2 WORK SHOWN AS EXISTING CONDITIONS WAS TAKEN FROM A CURSORY FIELD OBSERVATION. SSR IS NOT RESPONSIBLE FOR THE ACCURACY OF ANY INFORMATION OR THE ADEQUACY, SAFETY AND CONFORMANCE TO CURRENT PREVAILING CODES OF ANY WORK SHOWN AS EXISTING ON THESE DOCUMENTS.

1.3 IT IS THE INTENT OF THESE DOCUMENTS TO RESULT IN A COMPLETE ELECTRICAL INSTALLATION IN COMPLETE ACCORDANCE WITH APPLICABLE CODES AND ORDINANCES. DRAWINGS ARE DIAGRAMMATIC IN CHARACTER AND DO NOT NECESSARILY INDICATE EVERY REQUIRED JUNCTION BOX, PULL BOX, ELL, ETC. ITEMS NOT SPECIFICALLY MENTIONED IN THE SPECIFICATION OR NOTED ON THE DRAWINGS, BUT WHICH ARE OBVIOUSLY NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED.

1.4 AS A MINIMUM, EXECUTE, TEST, AND INSPECT WORK IN ACCORDANCE WITH UNDERWRITERS AND STATE AND LOCAL CODES, RULES, AND REGULATIONS APPLICABLE TO THE TRADE AFFECTED. IF THE PLANS OR SPECIFICATIONS CALL FOR REQUIREMENTS THAT EXCEED THESE RULES AND REGULATIONS, THE GREATER REQUIREMENT SHALL BE FOLLOWED. INCLUDED ARE THE REQUIREMENTS OF IBC, NFPA, NEC, OSHA, NEMA, ANSI, UL, EIA/TIA.

1.5 DRAWINGS AND SPECIFICATIONS ARE COMPLEMENTARY. WHATEVER IS CALLED FOR IN EITHER IS BINDING AS THOUGH CALLED FOR IN BOTH. THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.

1.6 IF CONFLICTS ARE DISCOVERED IN CONTRACT DOCUMENTS AS WORK PROGRESSES, A SET OF PRINTS MARKED WITH RED PENCIL SHOWING RECOMMENDED MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION.

1.7 IN THE EVENT THAT DISCREPANCIES EXIST OR REQUIRED ITEMS OR DETAILS HAVE BEEN OMITTED, NOTIFY THE ARCHITECT IN WRITING OF SUCH DISCREPANCY OR OMISSION AT LEAST THREE DAYS PRIOR TO BID DATE. FAILURE TO DO SO SHALL BE CONSTRUED AS WILLINGNESS TO SUPPLY NECESSARY MATERIALS AND LABOR REQUIRED FOR THE PROPER COMPLETION OF THIS WORK. FOR DISCREPANCIES WHICH ARE NOT REPORTED BY CONTRACTOR THE MOST STRINGENT REQUIREMENT SHALL APPLY.

1.8 THE TERM "PROVIDE" SHALL MEAN FURNISH, INSTALL, AND CONNECT ITEMS OR SYSTEMS IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.

1.9 INSTALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS' RECOMMENDATIONS UNLESS LOCAL CODES OR REGULATIONS TAKE PRECEDENCE.

1.10 PROVIDE APPURTENANCES AND CONSUMABLES AS REQUIRED.

1.11 WORK SHALL CONFORM TO BASE BUILDING EXISTING CONDITIONS EXCEPT AS AMENDED BY THESE SPECIFICATIONS. CONTRACTOR SHALL VERIFY EXISTING CIRCUITS PRIOR TO STARTING WORK.

1.12 COMPLY WITH LATEST EDITION OF NATIONAL ELECTRICAL CODE, APPLICABLE STATE AND LOCAL CODES, ORDINANCES AND OSHA REQUIREMENTS.

1.13 WHERE A CONFLICT EXISTS BETWEEN ANY PREVAILING CODES AND WORK INDICATED ON THESE DOCUMENTS, THE MORE STRINGENT REQUIREMENT SHALL GOVERN.

1.14 PAY FOR ALL ELECTRICAL PERMITS, LICENSES AND CONSTRUCTION FEES.

1.15 EXAMINE SITE AND PREMISES PRIOR TO SUBMISSION OF BID. NO ADDITIONAL COMPENSATION WILL BE MADE FOR EXTRA EXPENSE INCURRED DUE TO FAILURE TO EXAMINE EXISTING SITE CONDITIONS.

1.16 SCHEDULE SERVICE INTERRUPTIONS IN WRITING WITH OWNER ONE (1) WEEK IN ADVANCE.

1.17 COORDINATE WORK AND POWER OUTAGES WITH BUILDING MANAGEMENT, AFFECTED TENANTS, AND OTHER TRADES.

1.18 EQUIPMENT REMOVED IS THE PROPERTY OF THE OWNER AND SHALL BE RETURNED TO THE OWNER FOR DISPOSITION. SALVAGE ALL REMOVED EQUIPMENT FOR OWNER AND STORE IN OWNER DESIGNATED LOCATION. EQUIPMENT NOT RETAINED BY THE OWNER SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR.

1.19 ALL MATERIALS SHALL BE NEW AND BEAR UL LABEL UNLESS OTHERWISE NO¯ED ON THE DRAWINGS.

1.20 REMOVE ALL REFUSE AND WASTE MATERIAL FROM BUILDING DAILY.

1.21 LEFT OVER OR REMOVED EQUIPMENT REQUIRING HAZARDOUS WASTE REMOVAL SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR UPON COMPLETION OF THE CONSTRUCTION PROJECT AND DISPOSED OF PER EPA REQUIREMENTS.

1.22 GUARANTEE ELECTRICAL INSTALLATION AND ALL WORK UNDER THIS DIVISION (EXCLUDING LAMPS) FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY OWNER AGAINST ALL EVIDENCE OF IMPERFECT WORKMANSHIP, FAILURE OR MALFUNCTION OF MATERIALS AND EQUIPMENT. REPLACE WORK FOUND DEFECTIVE WITHIN THIS PERIOD PROMPTLY AT NO COST TO OWNER.

PART 2 PRODUCTS

2.1 WIRE AND CABLE SHALL BE MINIMUM NUMBER 12 AWG COPPER WITH THWN OR THHN INSULATION. NUMBER 10 AWG AND SMALLER WIRE EXCEPT FOR MOTOR CIRCUITS SHALL BE SOLID.
MOTOR CONNECTIONS SHALL BE WITH STRANDED CONDUCTORS. WIRE AND CABLE SHALL BE AS MANUFACTURED BY ANACONDA, PHELPS-DODGE, PIRELLI, SOUTHWIRE, OR TRIANGLE.

2.2 ALL ELECTRICAL WIRING SHALL BE INSTALLED IN CONDUIT UNLESS NOTED.

2.3 INTERIOR CONDUIT SHALL BE ELECTRICAL METALLIC TUBING WITH SET SCREW FITTINGS.

2.4 CONDUIT SUBJECT TO VIBRATION OR WHERE USED FOR MECHANICAL EQUIPMENT CONNECTIONS SHALL BE PVC JACKETED FLEXIBLE METAL CONDUIT.

2.5 OUTLET AND JUNCTION BOXES SHALL BE OF PRESSED STEEL AND AS MANUFACTURED BY STEEL CITY, APPLETON, OR RACO. OUTLET BOXES SHALL BE DOUBLE GANG BOX WITH SINGLE OR DOUBLE GANG TRIM RINGS AS REQUIRED.

2.6 MOTOR AND CIRCUIT DISCONNECTS SHALL BE HEAVY DUTY, FUSIBLE OR NON-FUSIBLE AS INDICATED AND AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, EATON CUTLER-HAMMER, OR SIEMENS.

2.7 EQUIPMENT SHALL BE GROUNDED IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE. A SEPARATE EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED WITH ALL FEEDER AND BRANCH CIRCUITS CONDUCTORS. GROUND WIRES SHALL BE COPPER.

2.8 A SEPARATE NEUTRAL CONDUCTOR SHALL BE INSTALLED FOR EACH BRANCH CIRCUIT UNLESS OTHERWISE INDICATED.

2.9 CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, QUICK-MAKE, QUICK-BREAK, TRIP-FREE AND TRIP INDICATING. MULTI-POLE CIRCUIT BREAKERS SHALL BE COMMON TRIP. CIRCUIT BREAKERS SHALL BE OF SAME MANUFACTURER AND WITHSTAND RATING AS PANELBOARD OR DISCONNECTING DEVICE.

PART 3 EXECUTION

3.1 BRANCH CIRCUITS WHOSE LENGTH FROM PANELBOARD TO FIRST OUTLET EXCEEDS 75 FEET FOR 120 VOLT CIRCUITS SHALL BE #10.

3.2 PATCH AND FIRE SEAL ALL PENETRATIONS.

3.3 COORDINATE ALL INTERCONNECTIONS TO AND BETWEEN NEW AND EXISTING SYSTEMS INCLUDING, BUT NOT LIMITED TO: POWER.

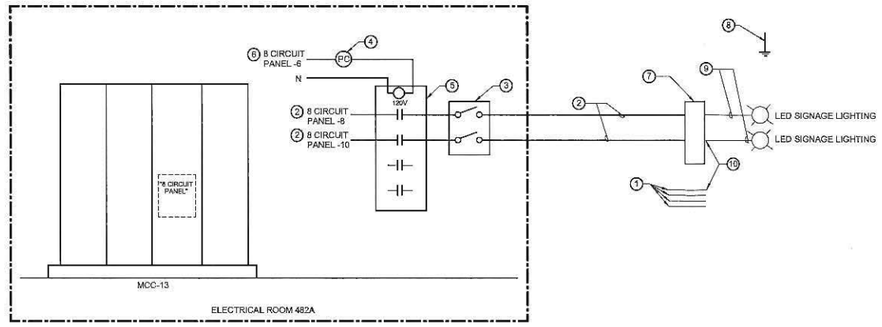
3.4 COORDINATE LOCATIONS OF DEVICES PRIOR TO ROUGH-IN.

3.5 REMOVE CONDUCTORS AND CONDUIT BACK TO SOURCE FOR EQUIPMENT WHICH IS TO BE REMOVED UNLESS EXISTING WIRING AND CONDUIT CAN BE REMOVED TO ACCESSIBLE JUNCTION BOX AT CONTRACTORS OPTION TO FEED NEW EQUIPMENT. MAINTAIN CIRCUIT CONTINUITY OF REMAINING DEVICES AND EQUIPMENT. CONTRACTOR IS TO PHASE WORK TO MAINTAIN CONTINUITY OF CIRCUITS IN AREAS WHICH ARE IN ANOTHER PHASE.

3.6 EXTEND EXISTING CIRCUITRY AND RECONNECT TO RELOCATED ITEMS UNLESS OTHERWISE NOTED.

3.7 CONDUIT SHALL BE CONCEALED WHERE LOCATED IN FINISHED AREAS, OR ON EXTERIOR OF BUILDING. CONDUITS IN UNFINISHED OR UTILITY AREAS MAY BE EXPOSED.

3.8 COORDINATE ROUTING OF EXPOSED CONDUITS PRIOR TO INSTALLATION. CONDUITS SHALL BE ROUTED PERPENDICULAR OR PARALLEL TO BUILDING LINES.



1 ELECTRICAL SINGLE-LINE DIAGRAM
NOT TO SCALE

KEYED NOTES

1. CONTRACTOR SHALL REMOVE EXISTING CONDUCTORS SERVING EXISTING SIGNAGE LIGHTING. TYPICAL FOUR (4) CIRCUITS. CONDUITS LOCATED INSIDE THE BUILDING SHALL REMAIN. EXTERIOR CONDUITS SHALL BE REMOVED.
2. CONTRACTOR SHALL FURNISH AND INSTALL 1#12,1#12N, 1#12G - 3/4"C. FROM EXISTING 20/1 CIRCUIT BREAKER IN "8 CIRCUIT PANEL" LOCATED IN MCC 13. INTERCEPT EXISTING CONDUIT SERVING SIGNAGE AND TERMINATE AT CONTACTOR. PROVIDE NEW 3/4" CONDUIT FROM CONTACTOR ENCLOSURE TO SAFETY SWITCH. PROVIDE NEW CONDUIT FROM SAFETY SWITCH TO EXISTING CONDUIT TO SERVE NEW SIGNAGE LIGHTING.
3. CONTRACTOR SHALL FURNISH AND INSTALL ONE (1) 30A, 240V, 2P,3R SAFETY SWITCH, LOCKABLE IN THE OPEN POSITION, TO PROVIDE DISCONNECTING MEANS FOR NEW SIGNAGE LIGHTING CIRCUITS. MOUNT SWITCH ADJACENT TO ENCLOSED LIGHTING CONTACTOR PER NEC 600.6 (A) (2).
4. CONTRACTOR SHALL FURNISH AND INSTALL ONE (1) 120V, PHOTOCELL, TORK 2021 OR EQUAL. MOUNT PHOTOCELL ON ROOF AWAY FROM ARTIFICIAL LIGHTING SOURCES.
5. CONTRACTOR SHALL FURNISH AND INSTALL ONE (1) 120V, 4 POLE MECHANICALLY HELD LIGHTING CONTACTOR IN NEMA 1 ENCLOSURE. INSTALL ADJACENT TO MCC 13. CONTACTOR AND ENCLOSURE SHALL BE SQUARE D# 8903LXG40V02 OR EQUAL.
6. CONTRACTOR SHALL FURNISH AND INSTALL 1#12,1#12N., 1#12G.-3/4"C. TO DESIGNATED CIRCUIT FOR CONTACTOR COIL. ROUTE CIRCUIT THROUGH PHOTOCELL.
7. CONTRACTOR SHALL TERMINATE CIRCUITS AT SIGNAGE VENDOR PROVIDED POWER SUPPLY. COORDINATE WITH SIGNAGE VENDOR FOR EXACT LOCATION AND REQUIREMENTS PRIOR TO ROUGH-IN. BOND METAL SIGNAGE PARTS AND EQUIPMENT WITH EQUIPMENT GROUNDING CONDUCTOR. SIGNAGE VENDOR SHALL PROVIDE LIQUIDTITE FLEX CONDUIT THROUGH WALL FOR VENDOR PROVIDED LOW VOLTAGE WIRING.
8. CONTRACTOR SHALL DISCONNECT EXISTING LIGHTNING PROTECTION CONDUCTORS FROM EXISTING SIGNAGE AND RECONNECT TO NEW SIGNAGE. CONNECTIONS SHALL BE MADE BY A CERTIFIED LIGHTNING PROTECTION CONTRACTOR TO ENSURE RECONNECTION COMPLIES WITH NFPA 780 STANDARDS.
9. SIGNAGE VENDOR SHALL PROVIDE LIQUIDTITE FLEX CONDUIT THROUGH WALL FOR VENDOR PROVIDED LOW VOLTAGE WIRING FROM POWER SUPPLY TO LED SIGNAGE.
10. CONTRACTOR SHALL SEAL AROUND CONDUIT IN WALL PENETRATIONS. WHERE CONDUITS HAVE BEEN REMOVED, SEAL OPENINGS WITH GROUT TO FORM WATERPROOF BARRIER.

#	DATE	CHANGE DESCRIPTION

NES SIGNAGE
1214 CHURCH STREET
NASHVILLE, TN 37246
for
Nashville Electric Services

SSR Smith Seckman Reid, Inc.
2995 Sidco Drive
Nashville, TN 37204
Phone: (615) 416-1801
www.ssr-inc.com

MOODY•NOLAN
1625 Broadway, 4th Fl
Nashville, TN 37203
Phone: (615) 386-9690
www.moodynolan.com

DRAWING TITLE:

NES SIGN REPLACEMENT

12/16/2016

DRAWN BY: SSR | CHECKED BY: SSR

Proj. #16601

E1

CHECK SET

<u>SUBSTITUTE</u> ORDINANCE NO. BL2017-850

An ordinance to amend Title 17 of the Metropolitan Code of Laws, the Zoning Ordinance of The Metropolitan Government of Nashville and Davidson County, by changing from R6-A to SP zoning on properties located at 530, 534, and 536 Southgate Avenue, approximately 305 feet east of Martin Street, (1.73 acres), to permit up to 49 multi-family units, all of which is described herein (Proposal No. 2017SP-054-001).

NOW, THEREFORE, BE IT ENACTED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That Title 17 of the Code of Laws of The Metropolitan Government of Nashville and Davidson County, is hereby amended by changing the Official Zoning Map for Metropolitan Nashville and Davidson County, which is made a part of Title 17 by reference, as follows:

By changing from R6-A to SP zoning on properties located at 530, 534, and 536 Southgate Avenue, approximately 305 feet east of Martin Street, (1.73 acres), to permit up to 49 multi-family units, being Property Parcel Nos. 013, 014, 015 as designated on Map 105-11 of the Official Property Identification Maps of The Metropolitan Government of Nashville and Davidson County, all of which is described by lines, words and figures on the plan that was duly considered by the Metropolitan Planning Commission, and which is on file with the Metropolitan Planning Department and Metropolitan Clerk's Department and made a part of this ordinance as though copied herein.

Section 2. Be it further enacted, that the Metropolitan Clerk is hereby authorized and directed, upon the enactment and approval of this ordinance, to cause the change to be made on Map 105 of said Official Zoning Map for Metropolitan Nashville and Davidson County, as set out in Section 1 of this ordinance, and to make notation thereon of reference to the date of passage and approval of this amendatory ordinance.

Section 3. Be it further enacted, that the uses of this SP shall be limited to a maximum of 49 multi-family residential units.

Section 4. Be it further enacted, a corrected copy of the preliminary SP plan incorporating the conditions of approval by Metro Council shall be provided to the Planning Department prior to or with final site plan application.

1. On the corrected set, update Architectural Note "G" to apply to buildings along street frontages as well as facing open space and parking areas.
2. On the corrected set, update Architectural Note "H" to apply only to the stacked flat buildings. Revise the note to apply to facades along street frontages as well as facing open space and parking areas.
3. On the corrected set, update Architectural Notes "A" and "B" to apply only to the single-family cottage units.
4. On the corrected set, modify the Site Data existing zoning to R6-A.
5. With the submittal of the final SP, provide architectural elevations complying with all architectural standards outlined on the preliminary SP for review and approval.
6. Provide detailed landscaping plans with the submittal of the final SP.
7. On the corrected set, extend the 5' sidewalks located along the northern boundary of the

drive aisle to the eastern and western property lines.
8. The final site plan shall depict the required public sidewalks, any required grass strip or frontage zone and the location of all existing and proposed vertical obstructions within the required sidewalk and grass strip or frontage zone. Prior to the issuance of use and occupancy permits, existing vertical obstructions shall be relocated outside of the required sidewalk. Vertical obstructions are only permitted within the required grass strip or frontage zone.
9. The preliminary SP plan is the site plan and associated documents. Remove all notes and references that indicate that the site plan is illustrative, conceptual, etc.
10. All requirements of the Public Works Department shall be met prior to final SP approval.
11. The applicant voluntarily requests that he and his successors comply with Ordinance No. BL2016-133 if associated financial incentives are approved.

Section 5. Be it further enacted, minor modifications to the preliminary SP plan may be approved by the Planning Commission or its designee based upon final architectural, engineering or site design and actual site conditions. All modifications shall be consistent with the principles and further the objectives of the approved plan. Modifications shall not be permitted, except through an ordinance approved by Metro Council that increase the permitted density or floor area, add uses not otherwise permitted, eliminate specific conditions or requirements contained in the plan as adopted through this enacting ordinance, or add vehicular access points not currently present or approved.

Section 6. Be it further enacted, if a development standard, not including permitted uses, is absent from the SP plan and/or Council approval, the property shall be subject to the standards, regulations and requirements of the RM20-A zoning district as of the date of the applicable request or application. Uses are limited as described in the .Council ordinance

Section 7. Be it further enacted, that this ordinance take effect immediately after its passage and such change be published in a newspaper of general circulation, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

INTRODUCED BY:

_____

Colby Sledge
Member of Council

530-536 Southgate Ave

Preliminary Specific Plan

Case No: 2017SP-054-001

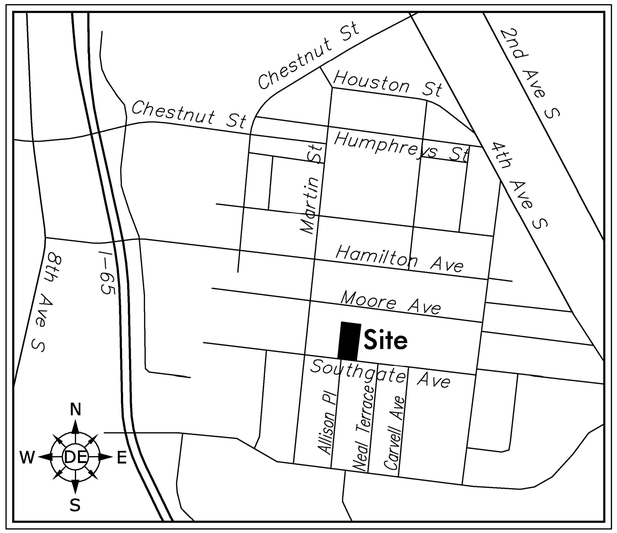
Being Parcels 13, 14, and 15 on Tax Map 105-11

Nashville, Davidson County, Tennessee

Notes:

1. The Purpose of this Submittal is to Request Approval of the Preliminary Specific Plan for 530-536 Southgate Ave, Consisting of a total of 49 Residential Units.
2. Electric Services for the Proposed Development Shall be Underground. All Public Utilities Shall be Subject to the Approval of the Appropriate Local Utility Companies.
3. Water and Sewer Service is Provided by Metro Water Services.
4. A Maintenance Agreement and Storm Water System Long-Term Operation and Maintenance Plan for all storm water structures and facilities must be prepared, submitted, and approved.
5. All construction shall comply with all applicable requirements, codes and ordinances of the Local Municipality and the State of Tennssee.
6. Any excavation, fill or disturbance of the existing ground elevation must be done in accordance with Storm Water Management Ordinance No. 78-840 & Approved by the Metropolitan Department of Water Services.
7. Drawing is for illustration purposes to indicate the basic premise of the development, as it pertains to Stormwater approval / comments only. The final lot count and details of the plan shall be governed by the appropriate stormwater regulations at the time of final application.
8. Metro Water Services shall be provided sufficient and unencumbered access in order to maintain and repair utilities in this site.
9. Driveway culverts shall be sized per the design criteria set forth by the Metro Stormwater Management Manual (Minimum driveway culvert in Metro ROW is 15' CMP).
10. Building Elevations Shall be Provided with the Final Site Plan. A Minimum Raised Foundation of 18" Shall be Required.
11. If a development standard, not including permitted uses, is absent from the SP plan and/or Council approval, the property shall be subject to the standards, regulations and requirements of the RM20-A zoning district as of the date of the applicable request or application.
12. The final site plan/building permit site plan shall depict the required public sidewalks, any required grass strip or frontage zone and the location of all existing and proposed vertical obstructions within the required sidewalk and grass strip or frontage zone. Prior to the issuance of use and occupancy permits, existing vertical obstructions shall be relocated outside of the required sidewalk. Vertical obstructions are only permitted within the required grass strip or frontage zone.
13. Architectural Standards
    a. All detached and attached units shall provide a minimum of one principal entrance (doorway) and a minimum of 25% glazing.
    b. On attached and detached units, windows shall be vertically oriented at a ratio of 2:1 or greater, except for dormers.
    c. EIFS, vinyl siding and untreated wood shall be prohibited.
    d. Porches shall provide a minimum of six feet of depth.
    e. A raised foundation of 18"- 36" is required for all residential structures.
    f. At least 50% of the building exteriors will be made up of one or a combination of the following materials: Brick, concrete, masonry, glazing and/or metal. The use of fiber cement siding shall be limited.
    g. All buildings must address the street frontage and green spaces with architectural treatments including, but not limited to: windows, stoops and entrances, balconies, porches, and other functional architectural elements
    h. Buildings shall avoid continuous uninterrupted blank facades. At a minimum, the façade plane shall be interrupted by one of the following for every twenty five (25) feet of street frontage and green spaces:
        - A change in the building material
        - A horizontal undulation in the building façade
        - A porch, stoop or balcony
    I. Changes in wall plans shall be related to entrances, the integral structure or the organization of interior spaces and activities and not merely for cosmetic effect

Sheet Schedule:



Vicinity Map
NTS

General Plan Consistency Note:

The Specific Plan District Proposed Herein is Located Within Subarea #11 - South Nashville Community Plan. The Specified Land Use Policy for this Site is Transect 4 (T4) Urban Neighborhood Evolving (T4 NE). The Intent of T4 NE is to Provide Additional Housing Options and Improve Pedestrian, Bicycle, and Vehicular Connectivity with Moderate to High Density Development with Shallow Setbacks and Minimal Spacing Between Buildings.

As Proposed, this Specific Plan Satisfies the Goals of the Policy by Providing Multiple Housing Choices. The Density of this SP is also Consistent with the Policy.

SITE DATA	
USE	MULTI-FAMILY RESIDENTIAL
EX. PROPERTY ZONING (OVERLAYS) - SURROUNDING ZONING	R6 (UZO) - SP & R6
MAP & PARCEL NO.	MAP 105-11, PARCELS 13, 14 & 15
COUNCIL DISTRICT	17 - COLBY SLEDGE
TOTAL UNITS	49 (28.3 UNITS/AC)
UNIT BREAKDOWN	6 - SINGLE FAMILY UNITS (2+BEDROOMS) & 43 - STACKED FLAT UNITS (1 BEDROOM)
TOTAL SITE AREA	1.73 AC (1.67 AC AFTER ROW DEDICATION)
FAR	1.00 MAXIMUM
ISR	0.90 MAXIMUM
STREET SETBACK/STREET TYPE(S)	29' (AFTER ROW DEDICATION)*
SIDE YARD	5'
REAR YARD	5' (AFTER ROW DEDICATION)
HEIGHT REQUIREMENT (SINGLE-FAMILY)	3 STORIES IN 35 FEET (MEASURED TO ROOFLINE)
HEIGHT REQUIREMENT (STACKED FLATS)	3 STORIES IN 45 FEET (MEASURED TO ROOFLINE)
PARKING REQUIRED	52 STALLS (6 * 1.5 STALLS/UNIT + 43 * 1 STALL/UNIT)
PARKING PROVIDED (CODE COMPLIANT ONLY)	68 STALLS (44 OFF-STREET, 10 GARAGE, 10 DRIVEWAY, 8 (4 COMPLIANT) ON-STREET)

* FRONT SETBACK SHALL BE CONSISTENT WITH THE PREVIOUSLY APPROVED SP FOR 522-526 SOUTHGATE AVE (2016 SP-013-001).

Engineer
Dewey Engineering
Contact: Michael Dewey, PE
2925 Berry Hill Drive
Nashville, TN 37204
Phone: (615) 401-9956
mdewey@dewey-engineering.com

Owners
Tax Map 105-11, Parcels 13 & 14
Cumberland Holdings Company, LLC
667 Wedgewood Ave, Ste C
Nashville, TN 37203

Tax Map 105-11, Parcel 15
Donnell Howse
530 Southgate Ave
Nashville, TN 37204

Flood Note
No Portion of this Property is Located Within a Flood Hazard Area as Designated by "Zone X" on FEMA Map Number 47037C0244H. Dated April 5, 2017

Revisions:

Drawing Notes:

Date: November 17, 2017

530-536 Southgate Ave
Preliminary Specific Plan
Tax Map 105-11, Parcels 13, 14, and 15
Nashville, Davidson County, Tennessee

DEWEY ENGINEERING

Cover Sheet

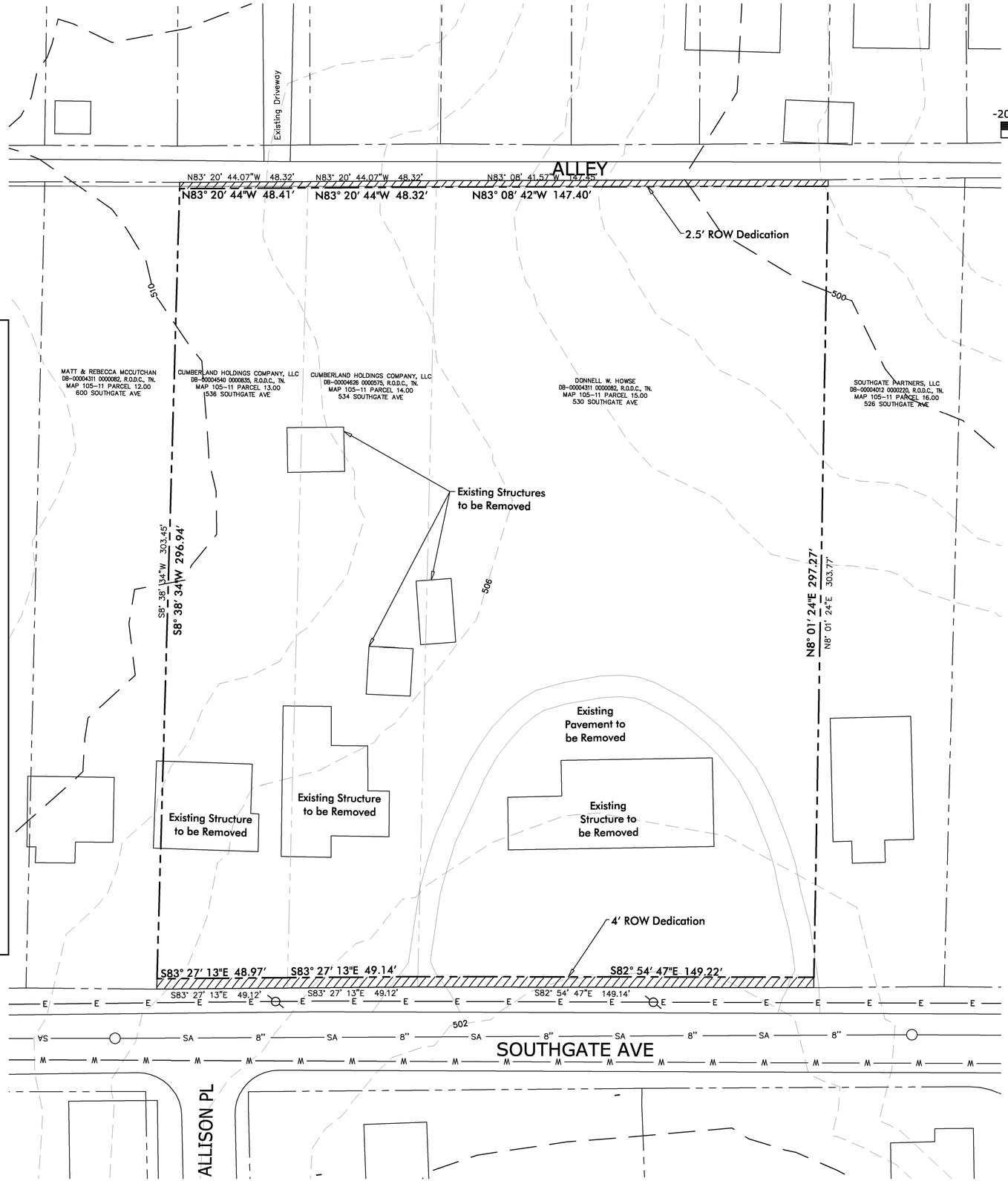
Job No. 16043

C0.0

1 of 5

Erosion Control & Grading Notes:

1. EXPOSE AS SMALL AN AREA OF SOIL AS POSSIBLE ON THE SITE FOR NO MORE THAN 15 DAYS. KEEP DUST WITHIN TOLERABLE LIMITS BY SPRINKLING OR OTHER ACCEPTABLE MEANS.
2. ALL CUT/FILL AREAS TO HAVE A MINIMUM OF 6" OF TOPSOIL COVER. AREAS DRESSED WITH TOPSOIL SHALL RECEIVE 12 POUNDS PER 1000 SQUARE FEET OF 6-12-12 FERTILIZER (UNLESS OTHERWISE SPECIFIED IN WRITTEN SPECIFICATIONS), 5 POUNDS OR MORE OF KENTUCKY 31 FESCUE SEED PER 1000 SQUARE FEET, AND A STRAW MULCH OF 70%-80% COVERAGE (APPROXIMATELY 125 POUNDS PER 1000 SQUARE FEET), UNLESS OTHERWISE NOTED.
3. EROSION CONTROL BARRIER IS CALLED OUT ON THE PLANS AND IS TO COMPLY WITH THE METROPOLITAN STORMWATER MANAGEMENT MANUAL VOLUME FOUR, SECTION TCP-14.
4. DISTURBED AREAS ARE TO BE GRADED TO DRAIN AS INDICATED IN THE PLAN TO SEDIMENT BARRIERS DURING AND UPON THE COMPLETION OF CONSTRUCTION.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION AND THE LOCATION OF ANY EXISTING UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO AVOID DAMAGE TO ALL EXISTING UTILITIES DURING CONSTRUCTION. IF DAMAGE DOES OCCUR TO ANY SUCH INSTALLATION, FULL REPAIR WILL BE ACCOMPLISHED AS PER THE CURRENT SPECIFICATION GOVERNING SUCH WORK.
6. ANY ACCESS ROUTES TO THE SITE SHALL BE BASED WITH CRUSHED STONE, ASTM #1 STONE, 100 FEET LONG AND AT LEAST 8" THICK.
7. THE PLACING AND SPREADING OF ANY FILL MATERIAL IS TO BE STARTED AT THE LOWEST POINT AND BROUGHT UP IN HORIZONTAL LAYERS OF 8" THICKNESS (OR AS DIRECTED BY THE SOILS INVESTIGATIVE REPORT). SAID FILL MATERIAL IS TO BE FREE OF SOD, ROOTS, FROZEN SOILS, OR ANY OTHER DECOMPOSABLE MATERIAL. SAID FILL IS TO BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR, OR AS OTHERWISE SPECIFIED BY THE SOILS REPORT OR WRITTEN SPECIFICATIONS.
8. THE CONTRACTOR SHALL OBTAIN A GRADING PERMIT FROM THE METRO WATER SERVICES NPDES DEPARTMENT (880-2420) PRIOR TO COMMENCING WORK.
9. THE CONTRACTOR SHALL LOCATE AND STAKE THE LAYOUT OF THE SITE IN THE FIELD FOR INSPECTION BY THE ENGINEER. THE CONTRACTOR SHALL CHECK THE GRADES AND FINAL DIMENSIONS ON THE GROUND, AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY FOR A DECISION.
10. SURPLUS EXCAVATION OF TOPSOIL SHALL BE PLACED ON THE SITE AS APPROVED BY THE OWNER FOR THE PURPOSE OF FUTURE LANDSCAPE USE.
11. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY TEMPORARY WORKS FOR THE PROTECTION OF THE PUBLIC AND EMPLOYEES, INCLUDING WARNING SIGNS AND LIGHTS.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE DONE TO THE PREMISES OR ADJACENT PREMISES OR INJURIES TO THE PUBLIC DURING THE CONSTRUCTION CAUSED BY HIMSELF, HIS SUB-CONTRACTORS, OR THE CARELESSNESS OF ANY OF HIS EMPLOYEES.
13. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE APPROVED PLANS AND SHALL BE IN COMPLIANCE WITH THE RULES AND REGULATIONS SET FORTH IN THE METRO WATER SERVICES STORM WATER MANAGEMENT MANUAL. THE CONTRACTOR SHALL GIVE ALL NECESSARY NOTICE, OBTAIN ALL PERMITS, AND PAY FEES REQUIRED FOR THE COMPLETION FOR HIS PORTION OF THE WORK. HE SHALL ALSO COMPLY WITH ALL CITY, COUNTY, AND STATE LAWS AND ORDINANCES OR REGULATIONS RELATING TO PORTIONS OF WORK WHICH HE IS TO PERFORM.
14. ALL EROSION CONTROL MEASURES SHALL REMAIN IN PLACE UNTIL SITE IS STABILIZED AND CONSTRUCTION IS COMPLETE.
15. CONTRACTOR SHALL PROVIDE AN AREA FOR CONCRETE WASH DOWN AND EQUIPMENT FUELING IN ACCORDANCE WITH METRO CP-10 & CP-13. CONTRACTOR TO COORDINATE EXACT LOCATION WITH NPDES DEPARTMENT DURING PRECONSTRUCTION MEETING. CONTROL OF OTHER SITE WASTES SUCH AS DISCARDED BUILDING MATERIALS, CHEMICALS, LITTER, AND SANITARY WASTES THAT MAY CAUSE ADVERSE IMPACTS TO WATER QUALITY IS ALSO REQUIRED BY THE GRADING PERMITTEE. LOCATIONS OF AND/OR NOTES REFERRING TO THESE BMP'S SHALL BE SHOWN ON THE EPSC PLAN.
16. IT IS RECOMMENDED THAT THE CONTRACTOR OBTAIN THE SERVICES OF A LICENSED GEOTECHNICAL ENGINEER PRIOR TO COMMENCING WITH CONSTRUCTION TO DETERMINE THE POTENTIAL OF THE EXISTENCE OF UNSUITABLE SOIL MATERIAL ONSITE. IF IT IS DETERMINED THAT THE SUBSURFACE IS NOT SUITABLE FOR CONSTRUCTION AND UNDERCUTTING IS REQUIRED, THE CONTRACTOR SHALL CONTACT THE OWNER AND THE ENGINEER IMMEDIATELY.
17. THE CONTRACTOR SHALL NOTIFY THE DEPARTMENT OF PUBLIC WORKS PRIOR TO THE COMMENCING OF ANY CONSTRUCTION ACTIVITIES LOCATED WITHIN PUBLIC RIGHT OF WAY.
18. STEEP SLOPES TO BE STABILIZED WITHIN 7 DAYS OF FINAL GRADING.
19. VEHICULAR TRAFFIC SHALL BE PROHIBITED ON THE PERVIOUS PAVEMENT UNTIL THE SITE IS STABLE TO PREVENT MUD FROM BEING DEPOSITED BY VEHICLES.
20. CONTRACTOR, ENGINEER, OR OWNERS REPRESENTATIVE SHALL NOTIFY MWS DEVELOPMENT REVIEW AT LEAST 24 HOURS PRIOR THE INSTALLATION OF THE PERVIOUS LAYER TO OBSERVE THE SUB-BASE MATERIAL.



N
W E
S

-20 0 20 40 60

Scale 1" = 20'
Total Site Acreage: 1.7 Acres

Engineer
Dewey Engineering
Contact: Michael Dewey, PE
2925 Berry Hill Drive
Nashville, TN 37204
Phone: (615) 401-9956
mdewey@dewey-engineering.com

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Nashville, TN 37203

Tax Map 105-11, Parcel 15
Donnell Howse
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Nashville, TN 37204

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Dated April 5, 2017

Revisions:

Drawing Notes:

Date: November 17, 2017

530-536 Southgate Ave
Preliminary Specific Plan
Tax Map 105-11, Parcels 13, 14, and 15
Nashville, Davidson County, Tennessee

DEWEY ENGINEERING

Existing Conditions

Job No. 16043

C1.0

2 of 5

MWS Standard Public Utility Plan Notes:

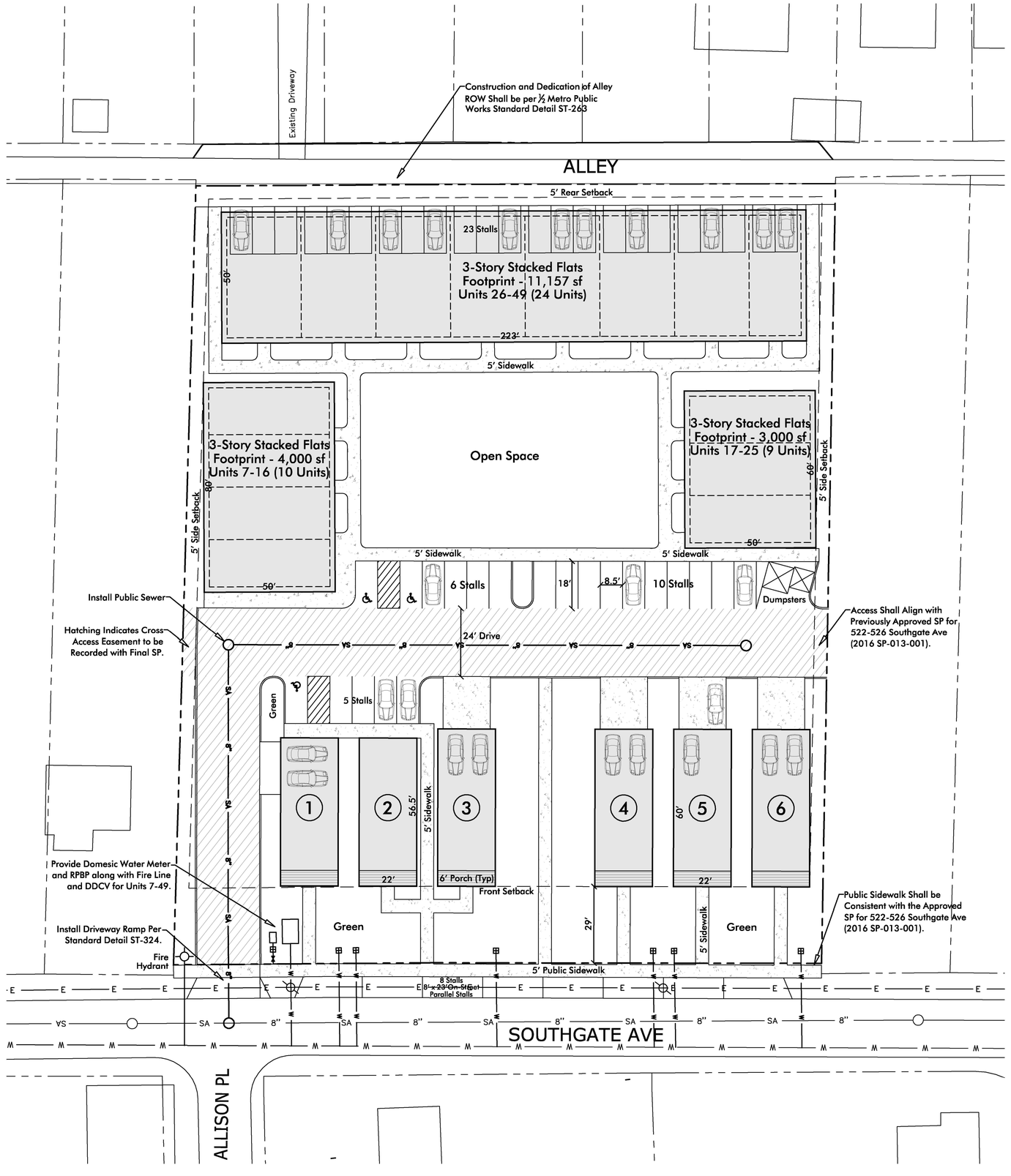
1. All water and sewer construction shall be in accordance with specifications and standard details of the Metro Water Services.
2. The contractor is responsible for reimbursing the Metro Water Services the cost of inspection.
3. The contractor is to provide and maintain the construction identification sign for private development approved.
4. After completion of the sanitary sewer, the developer is responsible for the televising of the lines prior to final acceptance. The videotaping must be coordinated with the Metro Water Services Inspection Section. All costs will be borne by the developer.
5. All connections to existing manholes shall be by coring and resilient connector method.
6. Reduced Pressure Backflow Prevention Devices (RPBP) or dual check valve will be required on all test and fill lines (jumper) needed for water main construction and must be approved by the Metro Water Services.
7. All water meters shall be a minimum of 24" not to exceed a maximum of 28" below finished grade.
8. Upon completion of construction of water and/or sewer, the engineer shall provide the department with a complete set of as-built plans on moist erasable mylars in reverse and in digital (*.dwg) format. Sewer plans shall be sealed by a licensed professional engineer or a registered land surveyor and shall include actual field angles between lines, all actual service lines and tee locations, the distance of the end of the service line to property corners and lines and/or station and offset from sewer centerline to end of service line, the depth to the top of the end of the service line, and shall reflect all alignment and grade changes. Water line plans shall be sealed by a licensed professional engineer or a registered land surveyor and shall include offset distance from the roadway centerline, or property line right of way, line depth, locations of hydrants, valves, reducers, tees and pressure reducing devices where applicable. All drawings must be completed and submitted prior to acceptance of the sewers or water mains into the public system and any connections being made.
9. Pressure regulating devices will be required on the customer side of the meter when pressures exceed 100 psi.
10. Pressure regulating devices will be required on the street side of the meter when pressures exceed 150 psi.
11. All water mains must be located within the paved area including all blow-off assemblies.

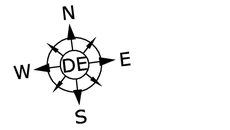
MWS Standard Private Utility Plan Notes:

1. All water and/or sewer services, along with appurtenances, shall be installed in accordance with specifications and standard details of the Metro Water Services.
2. All connections to existing manholes shall be by coring and resilient connector method.
3. Vertical Double Check Valve Assemblies, that are located in interior rooms, can only be used for fire services.
4. All water meters shall be a minimum of 24" not to exceed a maximum of 28" below finished grade.
5. Irrigation line shall be copper from the meter to the backflow preventer.
6. The minimum fees outlined in the capacity letter must be paid before commercial construction plans can be reviewed.
7. All sewer services shall be 6 inches in diameter, from connection at the main until the first clean out assembly
8. Backflow device to remain accessible at all times.
9. Plan size shall be 24" x 36", and shall show contours around meter boxes.

NES Notes:

1. NES shall be placed in "PUE" inside development for conduit runs and meter centers.
2. Any additional easements required that are not part of this parcel must be obtained by the developer or the engineer for the developer.
3. NES follows the National Fire Protection Association rules; Refer to NFPA 70 article 450-27; and NESC Section 15 - 152.A.2 for complete rules (see NES Construction Guidelines under "Builders and Contractors" tab @ www.nespower.com).
4. Overhead electrical power lines are required to meet or exceed the conditions as specified in the National Electrical Safety Code as adopted by the State of Tennessee in Chapter 89, Public Acts. The existing overhead power lines are located in the public right-of-ways and will require an electrical safety clearance that must be maintained during and after construction of any buildings. The National Electrical Safety Code, 2012 edition, dictates the clearances in Rule 234 C and G to provide the minimum horizontal and vertical clearances from live conductors. The overhead line must have a horizontal clearance of 7'-6" away from the nearest conductor to allow for blow-out conditions as it is configured today. It is the developer and his contractor's responsibility to ensure that they comply with OSHA regulations for working near energized conductors. Check with OSHA regulations for meeting clearances for construction near energized conductors for additional clearance requirements. Typically OSHA clearances will exceed what is required by the NESC. Often the locations of new buildings are impacted by the inability of de-energizing the circuits to meet cost and construction schedules. Proper clearances must be maintained from not only the building envelope, but also from scaffolding and other construction equipment.
5. If porches or walls are allowed to be constructed beyond the minimum setback limits and into the public utility easements; then the easement will be considered reduced by that much of the easement. Such encroachments may increase the cost of electrical infrastructure to allow for reduced or limited access to equipment. NES reserves the right to enter and to erect, maintain, repair, rebuild, operate and patrol electric power overhead and underground conductors and communications circuits with all necessary equipment reasonably incident thereto including the right to clear said easement and keep the same clear of brush, timber, flammable structures, buildings, permanent structures, and fire hazards; all over, under, upon, and across the easement as granted on any plat.
6. Developer's vegetation design shall meet both Metro requirements and NES Vegetation Management requirements/clearances.
7. NES riser pole should be installed on development property.
8. Postal plan is required before NES's final construction drawings can be approved.





Scale 1" = 20'

Total Site Acreage: 1.7 Acres

Engineer
Dewey Engineering
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Revisions:

Drawing Notes:

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530-536 Southgate Ave

Preliminary Specific Plan

Tax Map 105-11, Parcels 13, 14, and 15
Nashville, Davidson County, Tennessee

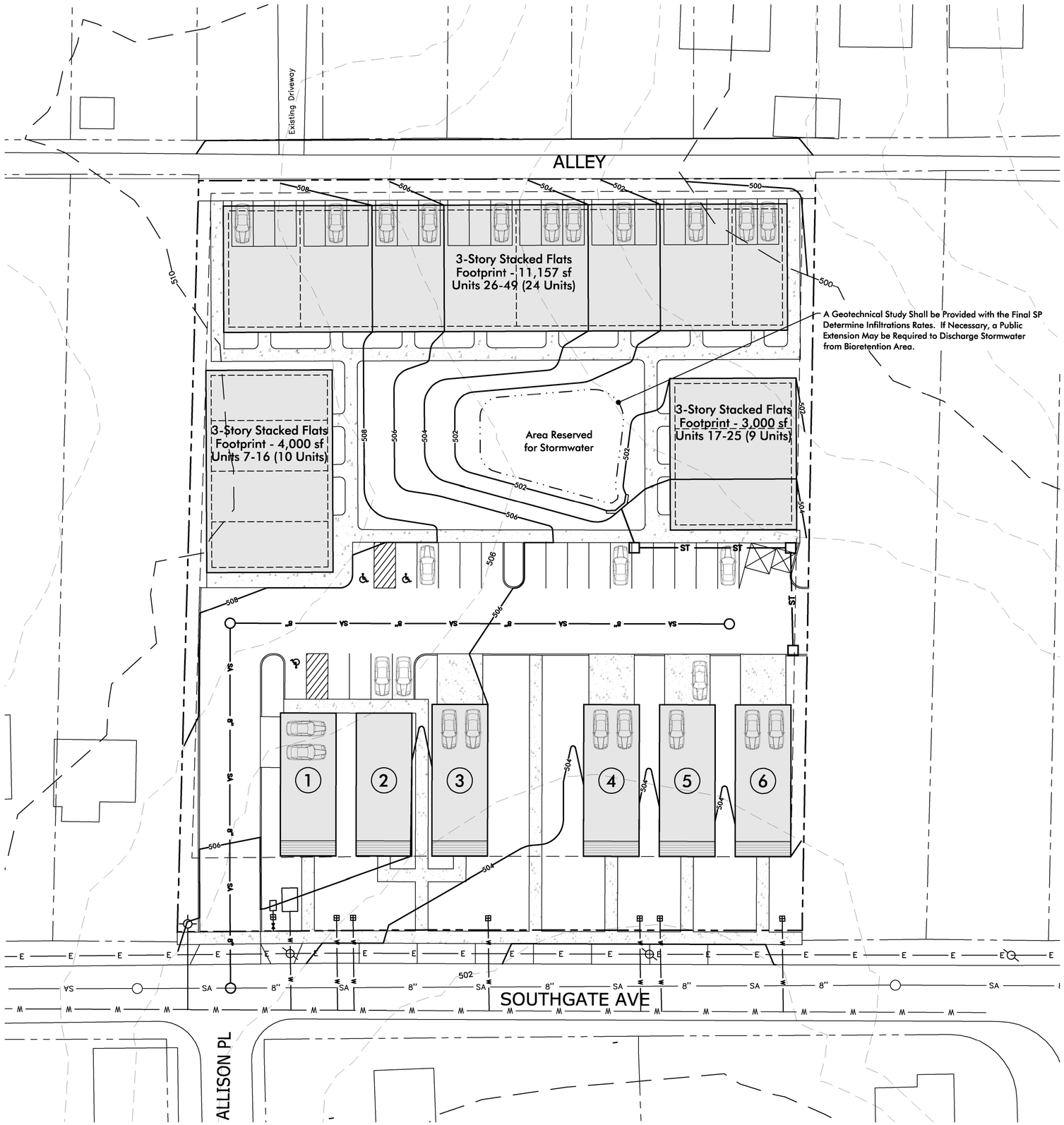
DEWEY ENGINEERING

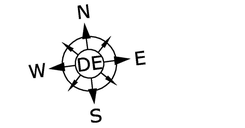
Layout & Utilities Plan

Job No. 16043

C2.0

3 of 5





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- Headwall
- Storm Catch Basin
- ST — Storm Pipe
- Fire Hydrant
- 8"—W— Water Main
- Sewer Manhole
- 8"—SA— Sewer Main

Legend

Revisions:

Drawing Notes:

Date: November 17, 2017

530-536 Southgate Ave

Preliminary Specific Plan

Tax Map 105-11, Parcels 13, 14, and 15
Nashville, Davidson County, Tennessee

DEWEY ENGINEERING

Grading & Drainage Plan

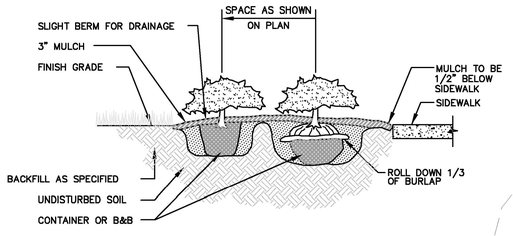
Job No. 16043

C3.0

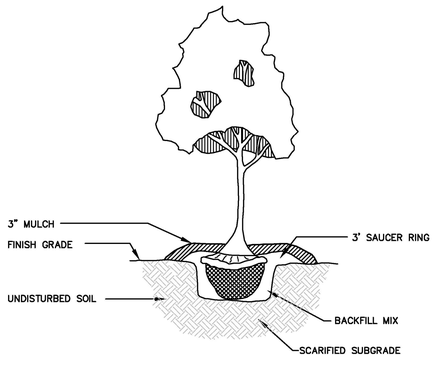
4 of 5

LANDSCAPE NOTES

1. THE LANDSCAPE CONTRACTOR SHALL COORDINATE ALL CONSTRUCTION WITH THE APPROPRIATE UTILITY COMPANY AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES. THE LANDSCAPE CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL UTILITIES AND TAKE PRECAUTIONS TO PREVENT DAMAGE TO THE UTILITIES.
2. ALL PLANTING AND MULCH BEDS SHALL BE HAND WEEDED OR SPRAYED WITH ROUND-UP (CONTRACTOR'S OPTION) PRIOR TO THE INSTALLATION OF MULCH.
3. PLANT MATERIALS AND STUMPS INDICATED FOR REMOVAL SHALL BE REMOVED AND DISPOSED OFF-SITE BY THE CONTRACTOR. BACKFILL HOLES WITH TOPSOIL FREE OF ROOTS AND ROCKS.
4. THE LANDSCAPE CONTRACTOR SHALL BE RESPONSIBLE FOR THE FINE GRADING OF ALL PLANTING AREAS.
5. ALL PLANTING AREAS SHALL BE FERTILIZED WITH 12#/1000 S.F. OF 10-10-10 FERTILIZER.
6. ALL PLANTING BEDS SHALL HAVE A MINIMUM OF 3" DEPTH OF SHREDDED HARDWOOD BARK MULCH.
7. THE LANDSCAPE CONTRACTOR SHALL VERIFY ALL MATERIAL QUANTITIES. IN THE EVENT OF A DISCREPANCY, THE QUANTITIES SHOWN ON THE PLAN WILL TAKE PRECEDENCE.
8. THE LANDSCAPE CONTRACTOR SHALL PROVIDE THE OWNER WITH WRITTEN INSTRUCTIONS ON THE PROPER CARE OF ALL SPECIFIED PLANT MATERIALS PRIOR TO FINAL PAYMENT.
9. ALL DISTURBED AREAS SHALL BE PLANTED WITH TURF AS INDICATED ON THE MATERIALS SCHEDULE.
10. ALL DECIDUOUS TREES, EXISTING AND PROPOSED SHALL BE PRUNED TO PROVIDE 4' MINIMUM CLEAR TRUNK UNLESS OTHERWISE NOTED.
11. THE LANDSCAPE CONTRACTOR SHALL PROVIDE A ONE YEAR WARRANTY ON ALL PLANT MATERIALS AND REPLACE ANY DEAD OR DYING MATERIAL WITHIN THAT TIME PERIOD.
12. NO PLANT MATERIALS SHOULD BE SUBSTITUTED WITHOUT AUTHORIZATION BY THE DESIGN PROFESSIONAL. PLANT SIZES SHOWN ARE MINIMUMS REQUIRED BY THE LOCAL MUNICIPALITY AND MATERIALS SHOWN HAVE BEEN SELECTED SPECIFICALLY FOR THIS PROJECT.
13. ALL WIRE BASKETS SHALL BE COMPLETELY REMOVED AND DISPOSED OF, BURLAP SHOULD BE REMOVED OR PUNCTURED IN AT LEAST 5 PLACES. REMOVE ALL TWINE FROM BURLAPPED MATERIALS.

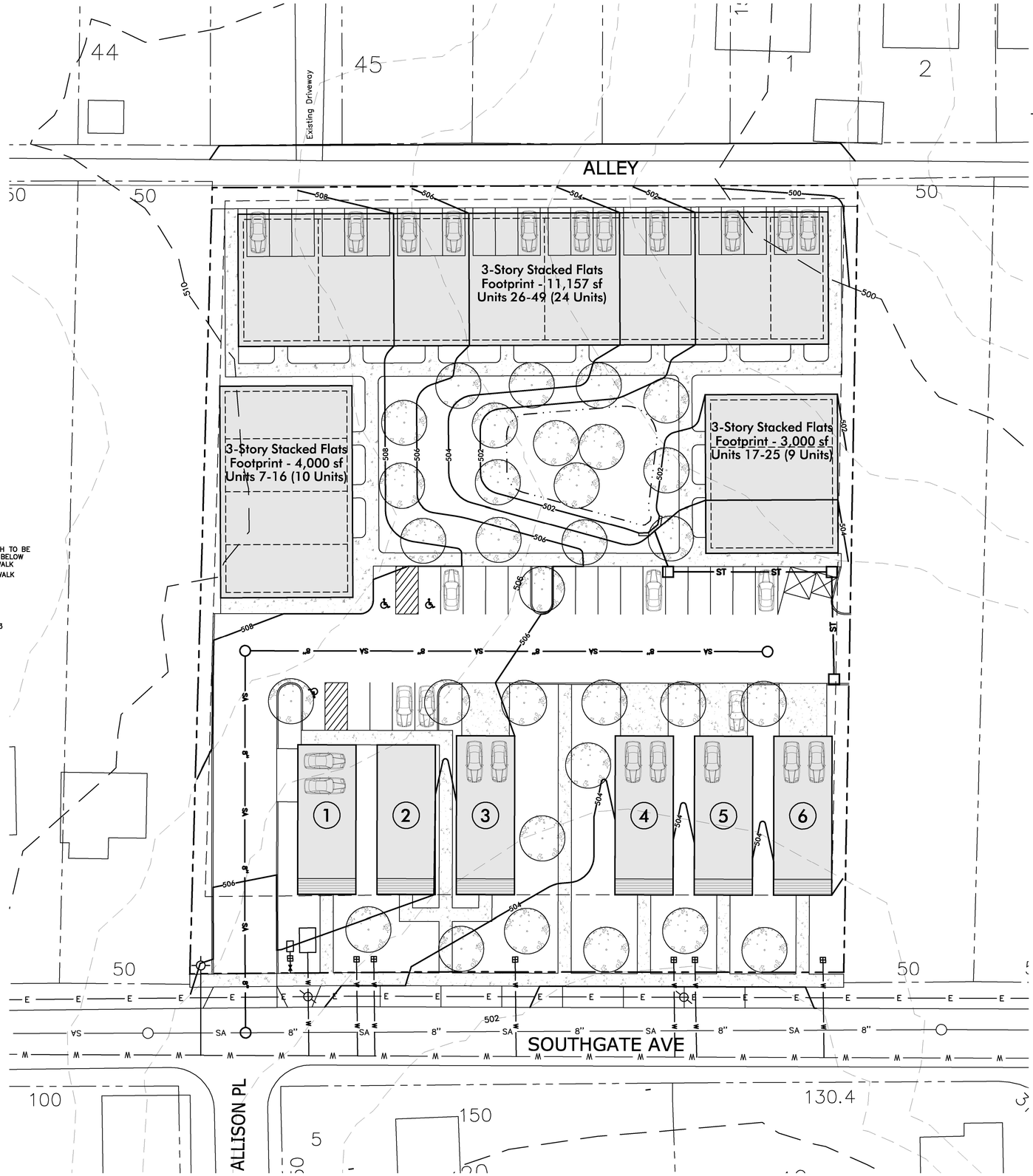


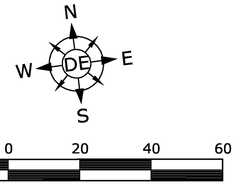
SHRUB / GROUNDCOVER PLANTING DETAIL



DO NOT GUY OR STAKE TREES UNLESS ON UNSTABLE SLOPES

LARGE TREE PLANTING / GUYING DETAIL





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Revisions:

Drawing Notes:

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530-536 Southgate Ave

Preliminary Specific Plan

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Nashville, Davidson County, Tennessee

DEWEY ENGINEERING

Landscape Plan

Job No. 16043

C4.0

5 of 5

SECOND SUSTITUTE ORDINANCE NO. BL2017-932

An ordinance to amend Title 17 of the Metropolitan Code of Laws, the Zoning Ordinance of The Metropolitan Government of Nashville and Davidson County, A request for an Urban Design Overlay on various properties along Cowan Street, Cowan Court, and North 1st Street, bounded by the Cumberland River to the east, I-65 to the north, I-24 to the east, and Jefferson Street to the south; zoned IG, MUG-A, MUI-A, and MUL (165.21), all of which is described herein (Proposal No. 2017UD-005-001).

NOW, THEREFORE, BE IT ENACTED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That Title 17 of the Code of Laws of The Metropolitan Government of Nashville and Davidson County, is hereby amended by changing the Official Zoning Map for Metropolitan Nashville and Davidson County, which is made a part of Title 17 by reference, as follows:

By making applicable the provisions for an Urban Design Overlay on various properties along Cowan Street, Cowan Court, and North1st Street, bounded by the Cumberland River to the east, I-65 to the north, I-24 to the east, and Jefferson Street to the south, being various Property Parcel Nos. as designated on the various Maps of the Official Property Identification Maps of The Metropolitan Government of Nashville and Davidson County, all of which is described by lines, words and figures on the attached sketch, which is attached to and made a part of this ordinance as though copied herein.

Section 2. Be it further enacted, that the Metropolitan Clerk is hereby authorized and directed, upon the enactment and approval of this ordinance, to cause the change to be made mass rezoning of said Official Zoning Map for Metropolitan Nashville and Davidson County, as set out in Section 1 of this ordinance, and to make notation thereon of reference to the date of passage and approval of this amendatory ordinance.

Section 3. Be it further enacted, that the following conditions shall be completed, bonded, or satisfied as specifically required:

1. Requesting this rezoning may affect the provision of affordable or workforce housing units in rental projects involving five or more rental units on site, as set forth in Ordinance Nos. BL 2016-133, and BL2016-342, which authorizes Metro grants to offset the provision of affordable or workforce housing units.
2. Comply with all conditions of Public Works and Traffic and Parking.
3. Prior to any final site plan approval, street cross-sections shall be determined and approved by Metro Planning and Public Works in accordance with the Major and Collector Street Plan.
4. All IG - Industrial General zoned properties at the time of the effective date of the Council Bill shall be allowed to develop under the IG zoning district standards and cannot utilize the standards of the River North UDO, until such time they are rezoned to a zoning district that is consistent with the land use policy.
5. All requirements of reviewing agencies shall be completed, bonded, or satisfied prior to the issuance of any permits.

Section ~~3~~4. Be it further enacted, that a corrected copy of the amended UDO plan incorporating the conditions of approval by the Planning Commission and Council shall be provided to the Planning Department prior to any additional development applications for this property, and in no event later than 120 days after the effective date of the enacting ordinance. If a corrected copy of the preliminary UDO plan incorporating the conditions of approval therein is not provided to the Planning Department within 120 days of the effective date of the enacting ordinance, then the corrected copy of the preliminary UDO plan shall be presented to the Metro Council as an amendment to this UDO ordinance prior to approval of any grading, clearing, grubbing, final site plan, or any other development application for the property.

Section ~~4~~5. Be it further enacted, that this ordinance take effect immediately after its passage and such change be published in a newspaper of general circulation, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

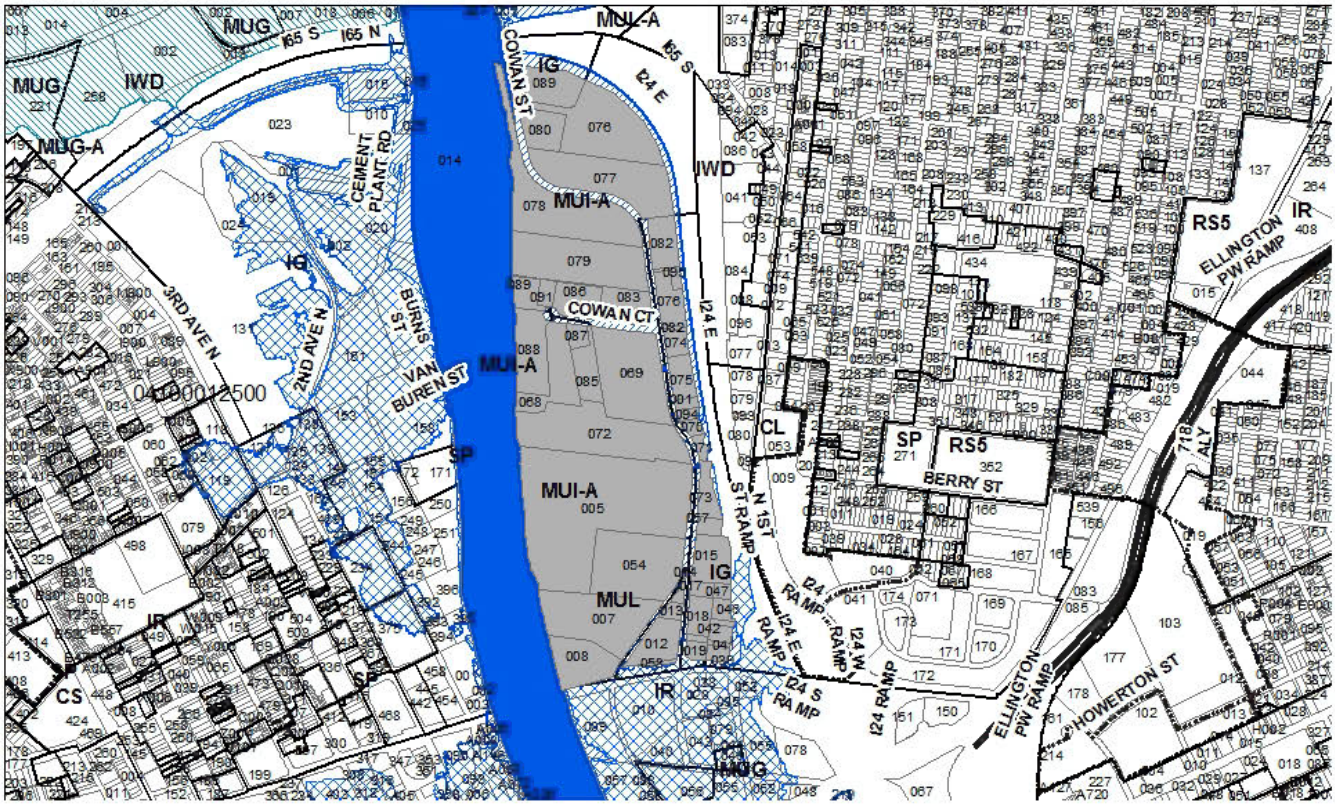
INTRODUCED BY:

_____

Scott Davis
Member of Council

2017UD-005-001
RIVER NORTH UDO
Map 082-02, Parcel(s) 076-080, 082, 089
Map 082-06, Parcel(s) 001, 068-076, 082, 083, 085-091, 094-095
Map 082-10, Parcel(s) 005, 007, 008, 012-015, 017, 039, 041, 042, 045-047, 054, 056-058
Subarea 05, East Nashville; 09, Downtown
District 05 (Scott Davis)
Application fee paid by: Waller Lansden Dortch & Davis LLP

A request for an Urban Design Overlay on various properties along Cowan Street, Cowan Court, and North 1st Street, bounded by the Cumberland River to the east, I-65 to the north, I-24 to the east, and Jefferson Street to the south; zoned IG, IR, MUG, MUG-A, MUI-A, and MUL (203.06), requested by Councilmember Scott Davis, applicant; various owners.



SUBMITTAL

Case #: 2017UD-005-001
November 7, 2017

Section I: Introduction

Document Contact Information

Planning Department staff provides consultations for developing within the River North Urban Design Overlay. Call (615) 862-7190 to schedule a meeting.

Table of Contents

Introduction

History and Overview

The East Nashville Community includes a portion of the "East Bank"—the area on the east bank of the Cumberland River. The bulk of the East Bank is in the Downtown Community; however, a portion of the East Bank from Spring Street on the south to the I-24/I-65 interchange to the north is in the East Nashville Community. This area is commonly referred to as "River North." For years, this area has been home to light industrial and warehousing businesses and it also experienced severe flooding during the flood of 2010. As downtown redevelops, developers are looking to the East Bank, including the northern portion in East Nashville, for redevelopment opportunities. This area is envisioned to redevelop to greater intensity, with taller buildings, capitalizing upon its river location and proximity to downtown.

River North is conceptualized as a vibrant, mixed-use, active neighborhood. The activation of the Cumberland River and publicly accessible greenspace are both important aspects of the neighborhood's development. The culture of creation within "Production Row," is a key aspect of the neighborhood's culture. Therefore, the music industry is encouraged to continue to locate within River North, and use the District for various uses. Re-use and adaptation of existing structures and elements within River North is encouraged as a part of the area's development to respect the history of warehousing and light industry.

While portions of River North sit within a floodplain, various mitigation strategies are available to allow for sustainable development in this area. These strategies include, but are not limited to:

- Floodable underground detention basins
- Flow-through construction
- Development of infiltrative, sustainable landscapes
- Elevation of building sites

Intent

The goals of the Urban Design Overlay are as follows:

- Establish a compact mixed use development pattern distributed along a system of streets that transitions in scale from the core to the neighborhood.
- Ensure that buildings are oriented to and linked by a cohesive pedestrian system.
- Encourage a balance of transportation options for pedestrians, bicycles, vehicles and transit.
- Encourage high quality (function and aesthetic) open spaces for assembly, relaxation, civic events, display of public art and other similar purposes.
- Encourage a high level of pedestrian-generating activity along streets and a pedestrian friendly environment.
- Encourage environmentally sensitive development and green space.

Section I: Introduction

Location

Located along the East bank of the Cumberland River, River North is a mixed-use, urban neighborhood, and extension of the Downtown core.

How to Use this Document

This document is to be used by developers, property owners, government officials, residents, and any individual who is interested in development or redevelopment of any property located within the UDO boundary.

A UDO is a zoning tool that requires unique physical design standards for development or redevelopment within a designated area that would otherwise not be ensured by the standard provisions of the zoning regulations. A UDO can modify base zoning standards such as setbacks, building height, floor area ratio, and parking per the provisions outlined in Section 17.36.320 of the Zoning Code. The standards established in this document vary from the underlying base zone district standards for the properties in the UDO. All provisions are regulatory in nature and have the same force and effect as the zoning regulations of the Metro Code. Any final plans submitted for approval under the UDO will be reviewed for adherence to these provisions and to the provisions of the base zoning that are not varied by the UDO. If a final plan is consistent with the UDO and the zoning standards it can be approved administratively by the Executive Director as expressed in the Planning Commission's bylaws and as clarified here.

The design standards established in the UDO are intended to direct future development in a manner that addresses strategies for site design including placement, massing and orientation of buildings, architectural treatment, landscaping and screening, general access and parking, and signage. In some instances, desired standards that are beyond the authority of the zoning ordinance accompany the goals and objectives. These desired standards pertain to areas for which Metropolitan Government exercises final authority over design, construction and operation of facilities, such as public rights-of-way and stormwater detention and conveyance. The incorporation of these standards into any final development construction plans will depend on Metropolitan Government review for consistency with policies, laws, and related standards of various departments.

Overlapping Plans

Within the UDO boundary area, there may exist other regulations and design guidelines intended to work in conjunction with the UDO. Property owners and developers should consult with all departments and agencies during the development process to address any and all rules, regulations and policies. Property owners should consult with Metro Planning and Public Works to make the necessary improvements to the streetscape in accordance with the Major and Collector Street Plan and the Strategic Plan for Sidewalks and Bikeways and Title 17.20.120 Provision of sidewalks.

- If a property is zoned Specific Plan then all standards contained with the Specific Plan shall apply and the UDO standards would apply for any standard not addressed in the SP.
- If a property has a Planned Unit Development Overlay then the standards of the PUD shall apply and the UDO standards would apply for any standards not addressed in the PUD.
- Final construction drawings shall comply with the design regulations established by the Department of Public Works, in effect at the time of the approval of the preliminary development plan or final development plan or building permit, as applicable. Final design may vary based on field conditions.

Subdistricts

The River North UDO is organized by Subdistricts, as identified on the Regulating Plan. Subdistricts are smaller districts within the larger UDO area that are envisioned to have unique character and development standards.

To determine the standards which apply to a particular property:

- On the Regulating Plan, identify the Subdistrict in which the property is located.
- Consult the Subdistrict Standards section for the development standards relevant to the Subdistrict.
- Consult the General Standards section for guidance on development standards for all Subdistricts.

Compliance, Modifications and Design Review

Compliance

All provisions of the Metro Zoning Code shall apply, unless otherwise addressed by the River North UDO standards. The UDO standards shall apply as follows:

New Development
Full Compliance with all standards of the UDO.

An addition to the square footage of an existing building:
The addition shall be in compliance with applicable standards of the UDO and shall not increase any degree of non-conformity.

A new structure on a lot with existing building(s):
The new structure shall be in compliance with applicable standards of the UDO and shall not increase any degree of non-conformity.

Signage Compliance:
Signage is per base Zoning District with review via the Codes Department

Redevelopment of existing riverfront building:
For the property located on the river, commonly referred to as "Cherokee Marine," the property may be redeveloped and deviations from the UDO may be permitted via a minor modification. The development shall try, where possible, to comply with the terms of this UDO and the permitted uses in the base zone shall apply. Nevertheless, development shall be encouraged and allowed, including deviations, so long as the overall plan is consistent with the intent and purpose of the UDO.

Inclusionary Housing
Applicants shall provide two scenarios with proposed residential development. One scenario shall illustrate the residential development entitlements provided by the underlying zoning at the time this UDO was adopted, and the second scenario shall illustrate the residential development entitlements permitted by the UDO standards.

If residential entitlements provided by the UDO standards are greater and the proposed development involves five or more residential rental units, affordable or workforce housing shall be recognized as set forth in Ordinance Nos. BL2016-133, and BL2016-342, which authorizes Metro grants to offset the provision of affordable or workforce housing units.

If the underlying zoning for the property has changed since the adoption of this UDO, applicants shall provide a third scenario showing residential entitlements provided by the current zoning with the UDO applied. If the proposed development involves five or more residential rental units, affordable or workforce housing shall be recognized as set forth in Ordinance Nos. BL2016-133, and BL2016-342, which authorizes Metro grants to offset the provision of affordable or workforce housing units, due to residential development entitlements gained through the underlying zone change.

Modifications to the Standards

An applicant may seek modifications to the standards of this document. Any standard within the UDO may be modified, insofar as the intent of the standard is being met, the modification results in an equal or better urban design for the neighborhood as a whole, and the modification does not impede or burden existing or future development of adjacent properties.

The River North UDO, the East Nashville Community Plan, the Major Street and Collector Plan, and any other policies and regulations from governing agencies shall be consulted when considering modifications.

Modifications may be approved by Planning staff, the Planning Commission or MDHA's Design Review Committee:

- Minor modifications – deviations of 20 percent or less, or minor deviations in non-numerical standards – may be approved by Planning Staff.
- Any determination made by the Planning Staff may be appealed to the Planning Commission by the applicant.
- Major modifications – deviations of more than 20 percent– and major deviations from non-numerical standards may be approved by either the Planning Commission or the MDHA Design Review Committee.
- For any property that falls within an MDHA Redevelopment District the Design Review Committee shall have jurisdiction to approve deviations.
- For modifications to overall height, the Executive Director of the Planning Department shall determine whether the developer has made reasonable efforts to use all appropriate bonuses. The Executive Director's decision may be appealed to the MDHA DRC if a Redevelopment District is in place. If it has been determined that all reasonable efforts have been made to use the Bonus Height Program, the applicant shall hold a community meeting with the property owners within 300 feet , providing notice to these owners, and the Planning Commission shall review the modification request and may grant additional height for exceptional design including but not limited to unique architecture, exceptionally strong streetscape and improvements to the project's relationship to surrounding properties.

Variances and Special Exceptions

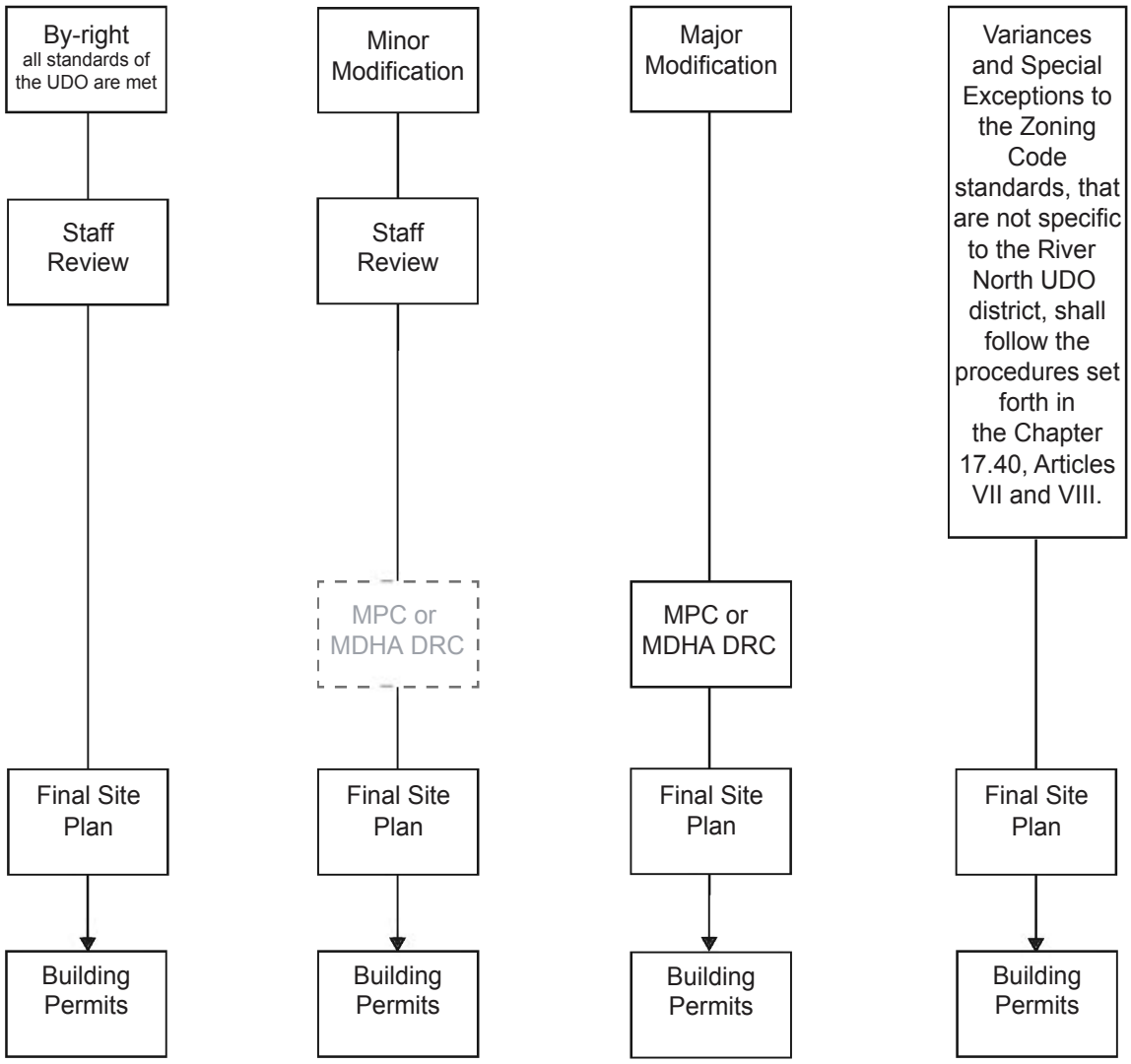
Variances and special exceptions that are not specifically for standards of the River North UDO shall follow the procedures of the applicable chapters of the Zoning Code.

Variances and special exceptions shall not be applicable to the height standards of the UDO which are governed by the earlier procedure reference above. Standards specific to the River North UDO may be modified based on the Modifications section of this document.

Civic Buildings

For Civic Buildings within the UDO:

- The Metro Planning Commission or its designee shall make the final determination of compliance with the UDO standards.
- Civic Buildings within the River North UDO shall be iconic, shall not be prototypical design, and must respond to the materiality and form of the surrounding context.


By-right
all standards of the UDO are met
Staff Review
Final Site Plan
Building Permits
Minor Modification
Staff Review
MPC or MDHA DRC
Final Site Plan
Building Permits
Major Modification
MPC or MDHA DRC
Final Site Plan
Building Permits
Variances and Special Exceptions to the Zoning Code standards, that are not specific to the River North UDO district, shall follow the procedures set forth in the Chapter 17.40, Articles VII and VIII.
Final Site Plan
Building Permits

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Section II:
Subdistrict Standards

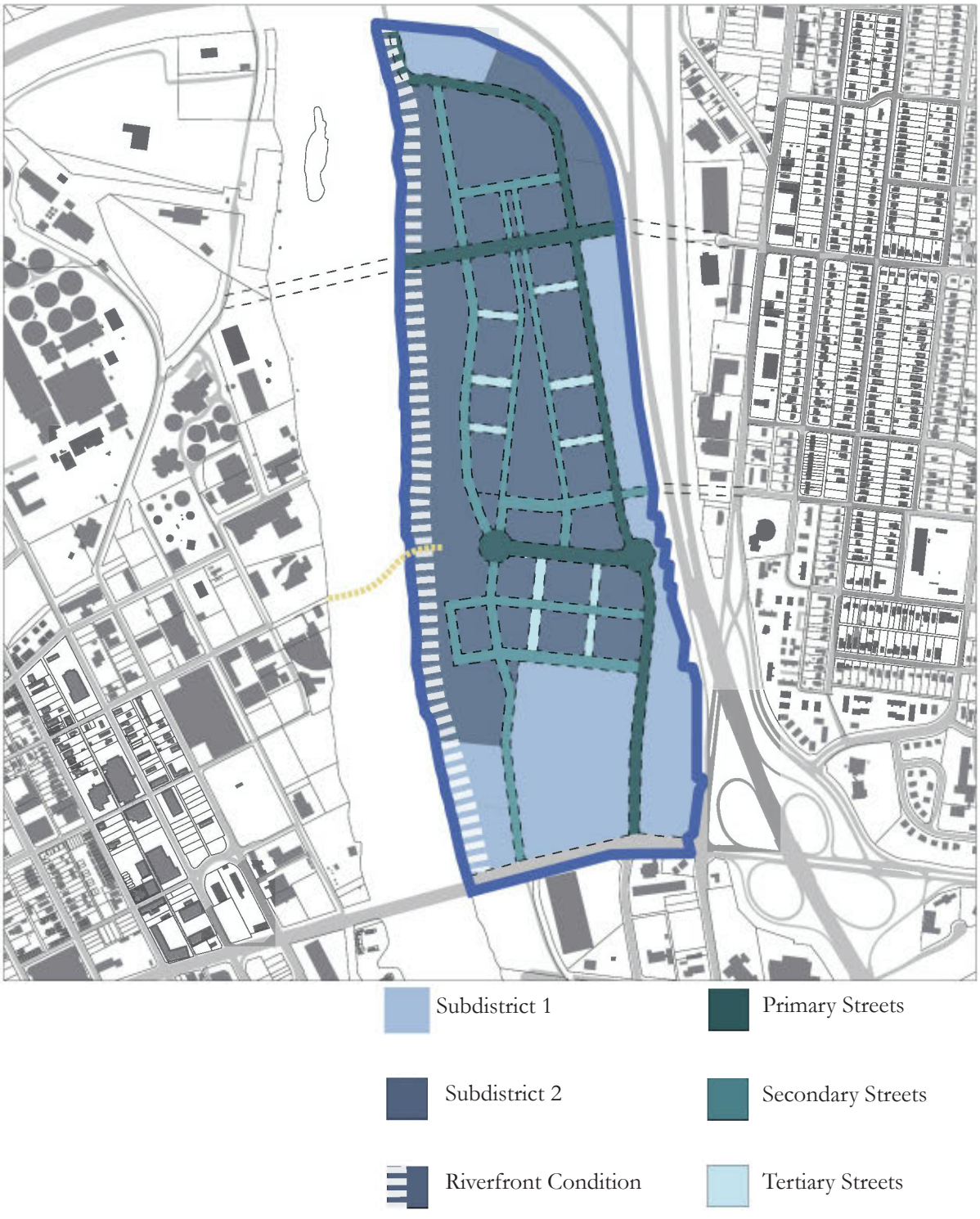
Illustrative Plan

River North is intended to be a dense, mixed-use, urban neighbhorhood. Connection to the surrounding neighbhoroods is an important aspect of River North. Activated, consolidated, usable greenspace and open space are encouraged within the neighborhood.

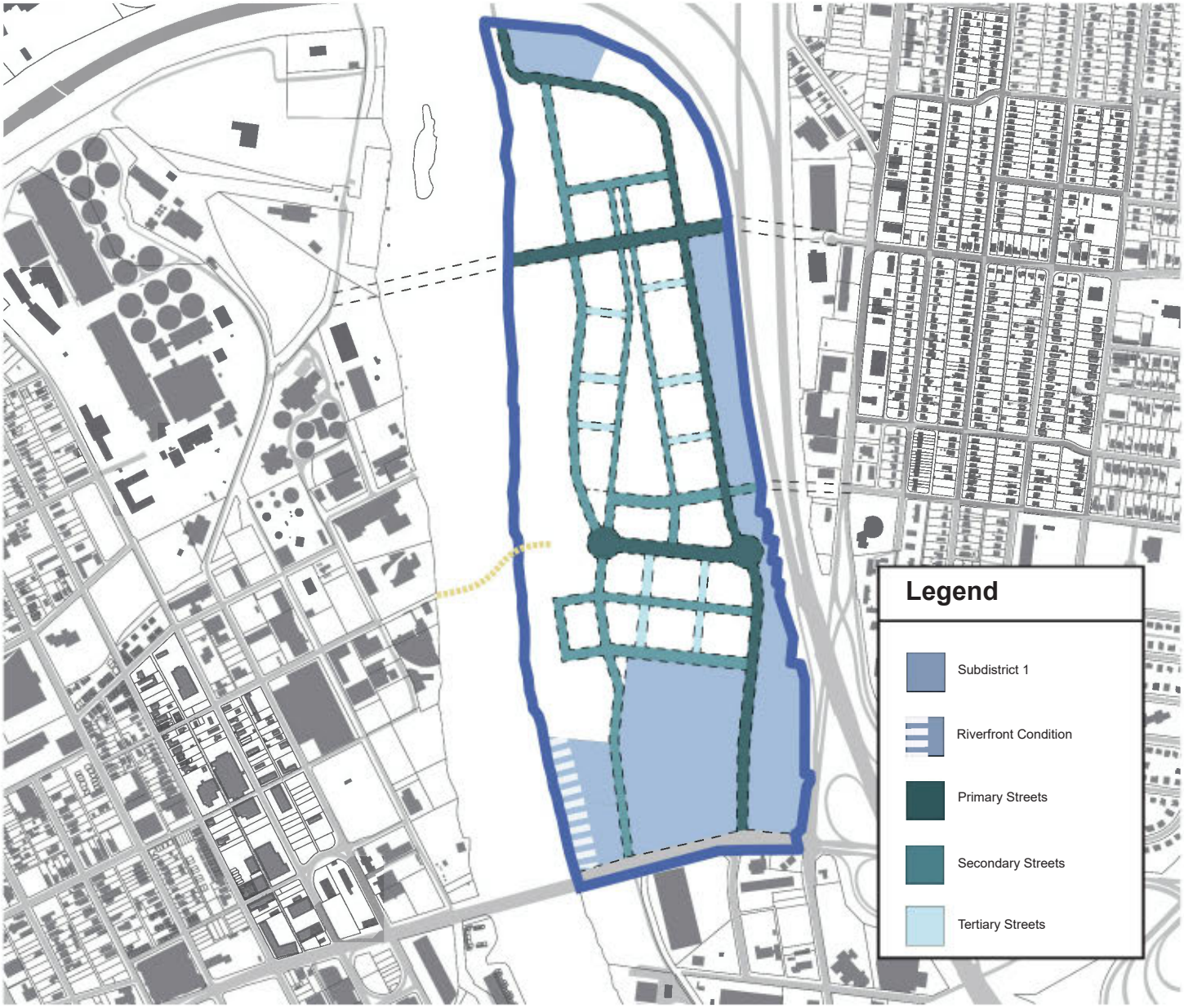
Illustrative Masterplan

Regulating Plan

The Regulating Plan is the official zoning map of the UDO. The Regulating Plan shows the Subdistricts that govern the development standards for each property.



Subdistrict 1: Regulating Plan



Subdistrict 1

Subdistrict 1: Building Regulations

Frontage

A Build-to Zone	0'-15'
B Facade Width	
Primary Streets	60% of lot frontage min.
Secondary Street	40% of lot frontage min.
Tertiary Street	20% of lot frontage min.
Remaining lot frontage may be used for pedestrian amenities and shall not be used for parking.	
C Min. building depth	15' from building facade

Height

D Min.	14'
E Max.	15 stories
Additional height available through the Bonus Height Program	
Step-back *	
Step-back required on all streets and Open Space	
F Step-back between	
Buildings taller than 7 stories	by the 8th story
G Min. step-back depth	15'

Side & Rear Setbacks

H Min.	0'

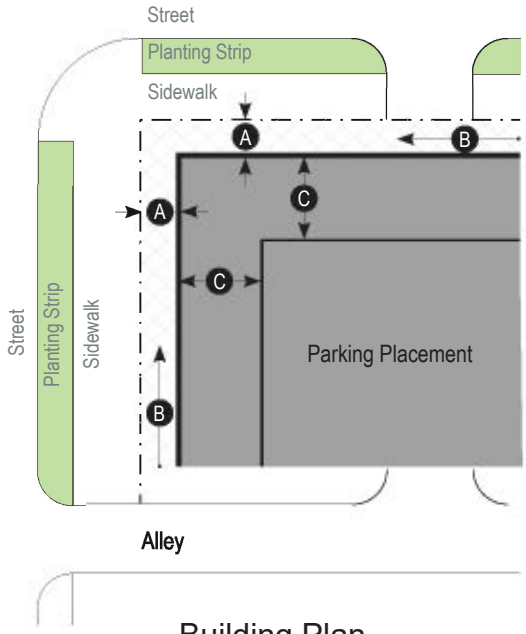
Sidewalk & Planting

Improvements to the sidewalk corridor according to the General Standards and the Major and Collector Street Plan

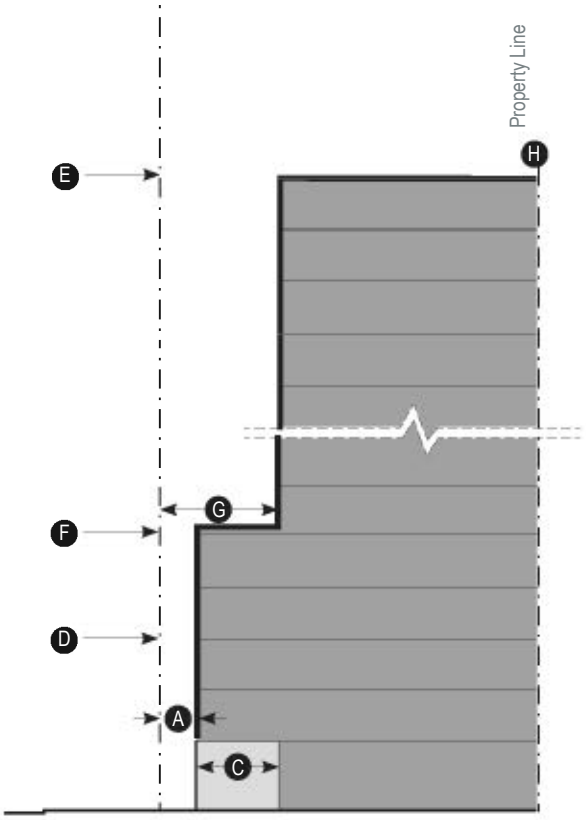
Riverfront Condition

By the 11th story, 20% min. of the total length of the Riverfront Condition frontage must be open to provide for views across the site

* See page 20 for full description of step-back.

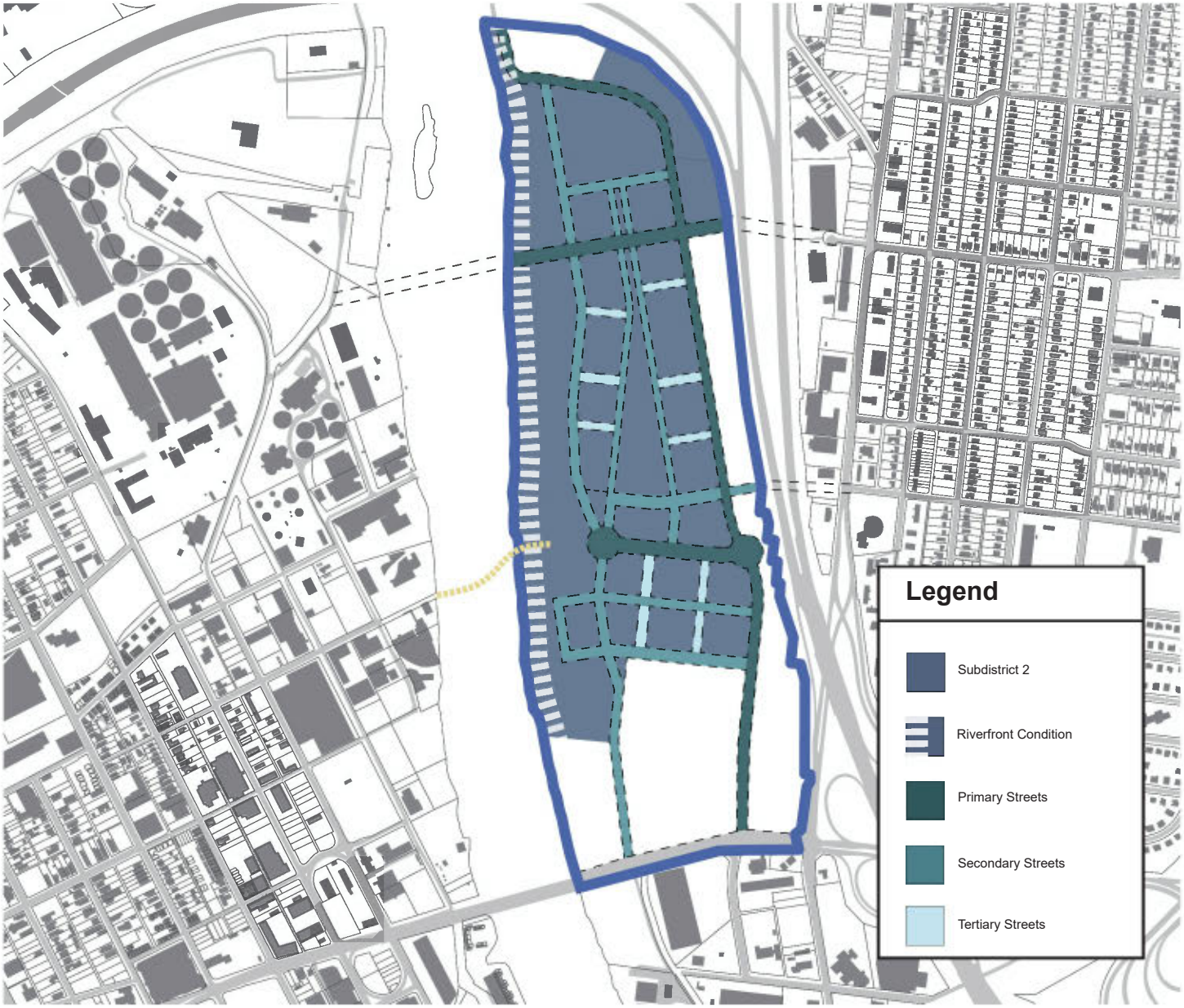


Building Plan



Building Section

Subdistrict 2: Regulating Plan



Subdistrict 2

Subdistrict 2: Building Regulations

Frontage

A Build-to Zone	0'-15'
B Facade Width	
Primary Streets	60% of lot frontage min.
Secondary Street	40% of lot frontage min.
Tertiary Street	20% of lot frontage min.
Remaining lot frontage may be used for pedestrian amenities and shall not be used for parking.	
C Min. building depth	15' from building facade

Height

D Min.	14'
E Max.	25 stories
Additional height available through the Bonus Height Program	
Step-back *	
Step-back required on all streets and Open Space	
F Step-back between	
Buildings taller than 7 stories	by the 8th story
G Min. step-back depth	15'

Side & Rear Setbacks

H Min.	0'

Sidewalk & Planting

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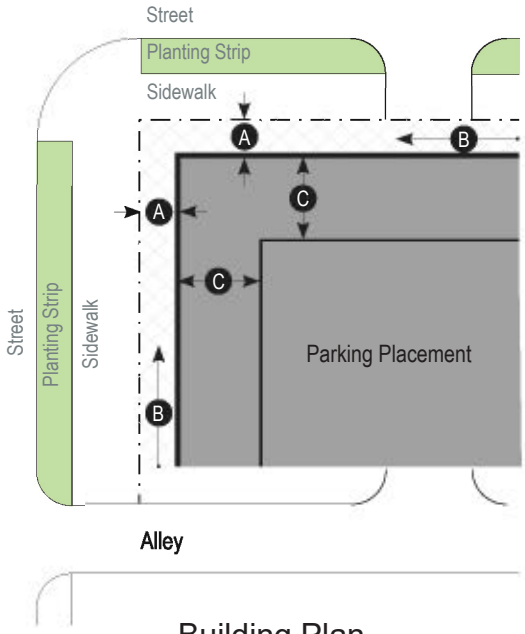
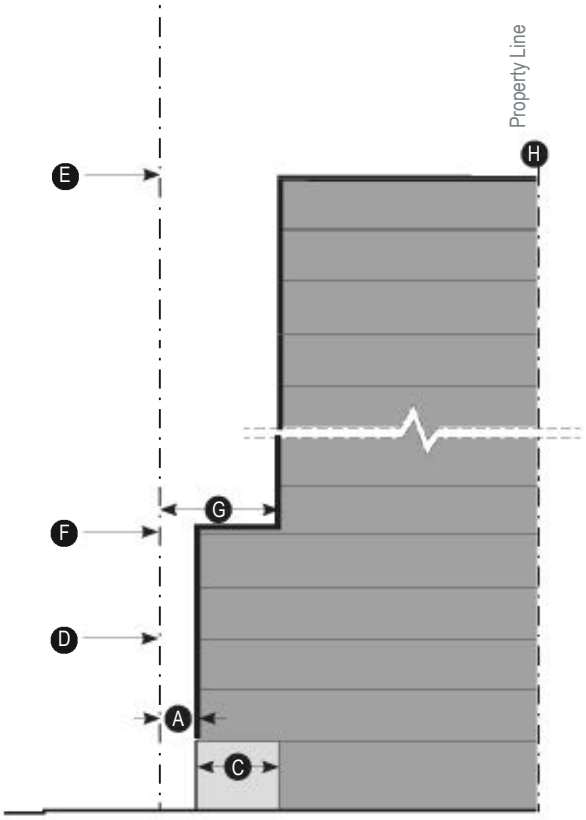


Building Plan



Building Section

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Section III:
General Standards

General Standards

Measurement from "Grade"

- Unless otherwise indicated, reference to measurements of height shall be calculated using the average elevation along the public right-of-way fronting the property. Thus, grade will generally be measured from the public sidewalk, not from grade on site.
  - When buildings are set back from the property line more than 15 feet, grade shall be measured as the average existing elevation at the building façade.
- In the event that the base flood elevation, as established by FEMA, is higher than the sidewalk or grade elevations, the height of the first story, shall be measured from 1 foot above the base flood elevation.

Measurement of Height

- Unless otherwise specified herein, the height of buildings shall be measured in stories.
- The maximum height for an individual story shall not exceed 25 feet from finished floor to finished floor for each of the first 2 stories, 18 feet floor to floor above the second story, and 25 feet for the top story of buildings greater than 5 stories.
- Where a parking liner exists, 2 liner stories shall be counted as a single story, and any number of parking levels may be concealed behind it.
- The maximum height for a raised foundation is 6 feet above grade.
- Basements are not considered stories for the purposes of determining building height.
- Building height shall be measured from each Street Frontage (excluding alleys) or Open Space.
- The height of fences, walls and hedges shall be measured in feet from the average sidewalk elevation.

Base Zoning Clarifications

- All properties within the UDO shall be exempt from the Floor Area Ratio (FAR) requirements of the underlying base Zoning districts.
- All properties within the UDO shall be exempt from the Height Control Plane, height limitations, Step-back, and front, rear, and side Setback requirements of the underlying base Zoning districts (including Height Control Planes from adjacent residential districts).
- Impervious Surface Ratio is per the base Zoning District.
- There is no minimum lot size within the UDO.
- Landscaping standards and required buffers shall be controlled by the general standards of this document and are exempt from the requirements of the base Zoning districts.
- Plans within the River North UDO shall comply with the Metro Tree Ordinance Standards.

Step-backs

- Within the River North UDO, the step-back is defined as the required minimum distance the upper stories of a building must be stepped back from the outer edge of the build-to-zone, along all applicable frontages.
- To allow for massing variation, stories within the range may be permitted to step-back to a lesser extent or not at all, so long as the minimum step-back depth is met by the required step-back story.

General Standards

Frontages

A Frontage is the specific way in which the building face addresses the street. It is the transition and interaction between the private and public realms. Building Frontages define the character and form of the public spaces within each neighborhood. The following standards shall apply to all development within the River North UDO.

- Buildings shall front a street (excluding alleys), open space, and/or a pedestrian passage.
- Facade Width
  - The minimum facade width is the minimum amount of the frontage that must be defined by a building, and is designated as a percentage of the frontage.
  - Every property shall establish one Principal Frontage along a street.
  - When a lot fronts more than one street the following priority shall be given when establishing the Principal Frontage: Primary Street, Secondary Street, Tertiary Street, Other Street.
  - In the instance a property fronts multiple Primary Streets, any may be chosen as the Principal Frontage.
  - Along a Minor Frontage, modifications may be granted for the reduction of ground level garage Liners and or glazing requirements.
  - For parcels larger than [1] Acre in size, frontage requirements may be further reduced by minor modification.
- Open Space Frontages
  - Facade width and active use requirements shall apply to these frontages the same as a street frontage.
  - All buildings fronting open space shall have a minimum of one primary pedestrian entrance on the open space.

General Standards

Build-to Zone

- The Build-to Zone is the specified depth along a property's street frontage(s) in which the required minimum facade width must be located.
- Depending on site conditions, the front of the Build-to Zone may begin at different locations.
  - When the existing streetscape and sidewalk meets with the Major and Collector Street Plan, the Build-to Zone begins at the back of the required streetscape (including sidewalk zones).
  - When the existing streetscape and sidewalk does not meet with the Major and Collector Street Plan, the sidewalk shall be widened on site and the Build-to Zone begins at the back of the new streetscape (including sidewalk zones).
  - When utility or pedestrian easements exist along the street frontage of a property, the Build-to Zone shall begin at the back of the easement.
  - When buildings front an Open Space, the Build-to Zone shall begin at the back of the Open Space.
- Attachments
  - Structures, including porches, stoops, and balconies may encroach into the Build-to Zone.
  - Elements such as stairs, awnings, and landscaping may encroach beyond the Build-to Zone. Any encroachments into the right-of-way must follow the Mandatory Referral process.
- When calculating the minimum facade width, access to structured parking shall not be counted as part of the required facade width, and access to surface parking shall not be counted part of the required façade width. That is, access to surface parking is allowed in the "remaining" area, after the facade width requirement has been met.

Entrances

- All buildings shall have at least one direct functional pedestrian entrance, along the principal frontage. This may be access to a lobby shared by individual tenants.
  - Whether opening to the circulation network or other public space, the functional entry must be connected to a sidewalk or equivalent provision for walking.
  - If the public space is a square, park, or plaza, it must be at least 50 feet (15 meters) deep, measured at a point perpendicular to each entry.
- Buildings with multiple ground floor commercial tenants shall provide at least one direct pedestrian entrance for each tenant space oriented to the frontage, or submit a shared access plan for staff review.
- Corner entrances are appropriate on corner lots.

General Standards

Active Use

- An active ground floor use requirement shall mean a habitable space occupied by retail, office, residential, institutional or recreational uses, specifically excluding parking and mechanical uses. Minimum 15 feet in depth.
- Active uses are those programmed spaces that generate pedestrian street activity and interaction. Hallways, storage rooms, fitness centers, and other ancillary spaces shall not qualify as an active use.
- An active use is required on the ground floor of all streets, open spaces and greenways other than Tertiary streets.
- The term "active use" and ground level "building liner" are synonymous.
- Active ground floor uses must match the facade width percentage requirements. For example, if 60% facade width min. is required along a lot's frontage, then 60% min. of the lot's frontage must also consist of an active ground floor use.

Glazing and Massing

- Openings for vehicular access to parking structures on the first floor shall be included in calculation of total facade area.
- All street and open space level exterior windows must have a minimum light transmission of 60 percent.
  - Modifications may be permitted in so far as it is determined that tinting does not substantially diminish the effect of the building wall or the pedestrian character of the street.

Frontage Types: Storefront Frontage

The Storefront Frontage has a limited Build-to Zone that is close to the street, with building entrances accessible at sidewalk grade. The Storefront Frontage has substantial glazing on the facade at ground level, space for pedestrian-oriented signage, awnings, retail display, and other design features conducive with creating an active commercial streetscape.

The Storefront Frontage is commonly used for general commercial, office, retail, restaurant, lobby, etc.

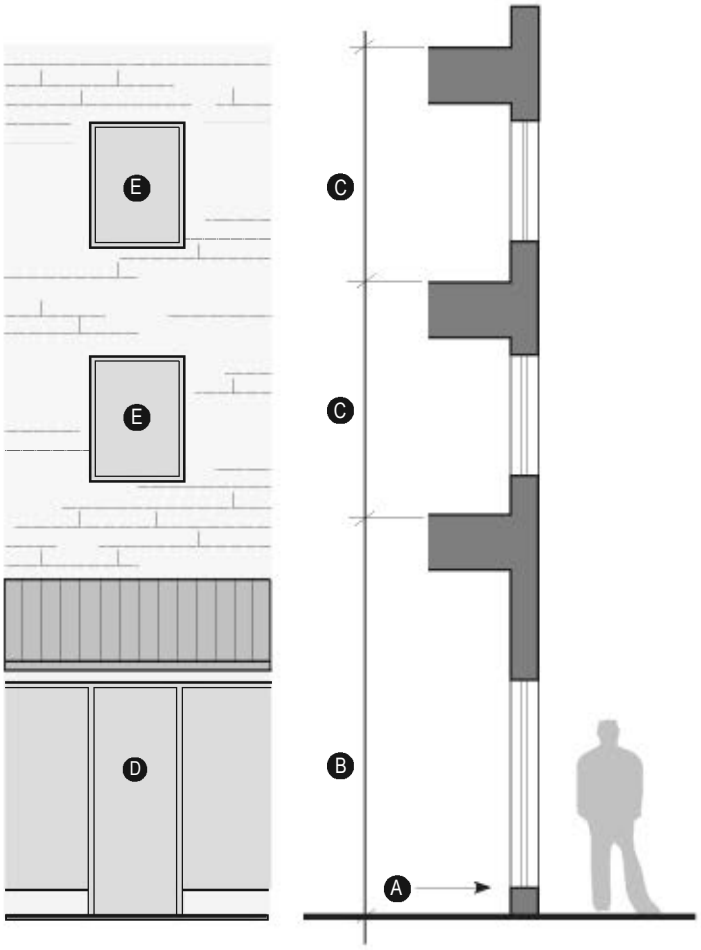
Frontage Types: Storefront Frontage

Storefront Frontage

A Max. sill height	3 ft
B Min. ground floor height	14 ft from grade
C Min. upper floor(s) height	10 ft floor to floor
D Min. ground floor glazing*	
Principal Frontage	40% floor to floor
Minor Frontage	30% floor to floor
E Min. upper floor(s) openings	25% from floor to floor

Notes
Where Storefront frontage is allowed, modifications may be given to allow for a Storefront arcade. All Storefront Frontage standards shall be met on the facade behind the arcade.

*All grade-level retail shall provide clear vision glass between 3' and 8' above grade for a minimum of 60% of its frontage area.



Elevation Section

Frontage Types: Stoop Frontage

The Stoop Frontage has a limited to moderate Build-to Zone with the first floor elevated from the sidewalk grade. This frontage type utilizes a stoop - a small landing connecting a building entrance to the sidewalk by a stair or ramp - to transition from the public sidewalk or open space into the building.

Stoops are generally provided externally, but may be provided internally as necessitated for ADA compliance.

The Stoop Frontage is generally used for residential and live-work buildings, but may be appropriate for other uses.

Frontage Types: Stoop Frontage

Porch Frontage

Ⓐ	**First floor elevation**	
	Min.	24” from grade
	Max.	5 ft from grade
Ⓑ	**Min. ground floor openings**	30% floor to floor
Ⓒ	**Min. upper floor(s) openings**	25% from floor to floor
	Stoop	
Ⓓ	Min. porch depth	5 ft
Ⓔ	Stoops may extend into the Build-to Zone.	
Ⓕ	Steps may extend into the Build-to Zone, but may not encroach into the public Right-of-Way.	

Notes

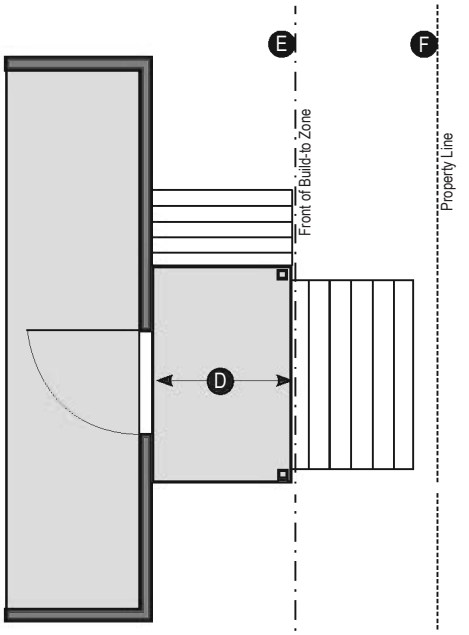
Greater first floor elevation allowed by modification for:

- Property with significant elevation change across the site at the street frontage.
- Development that incorporates below grade basement floors that are accessible from the exterior of the building.

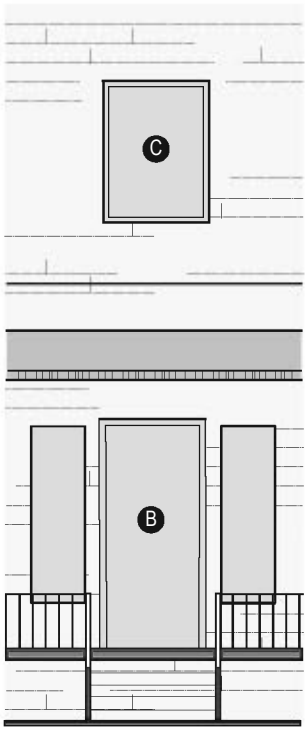
Transition to first floor elevation may be accommodated on the interior of the building to allow for compliance with ADA accessibility requirements.

Entries shall not be recessed more than 4 feet from the facade of the building.

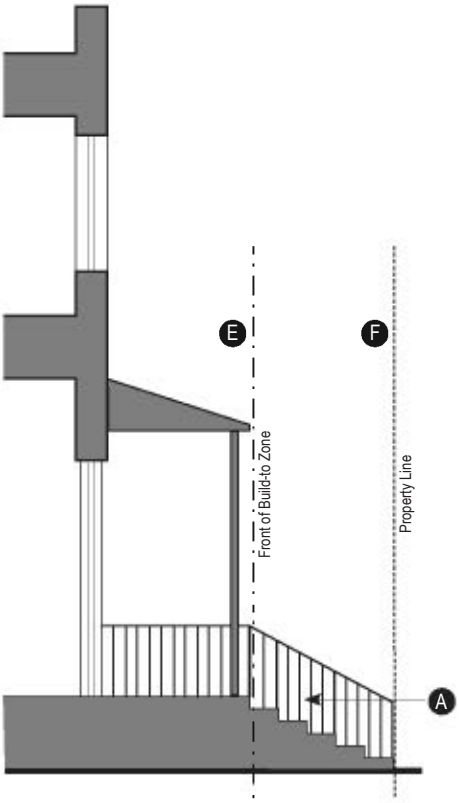
Doors shall face the street.



Plan



Elevation

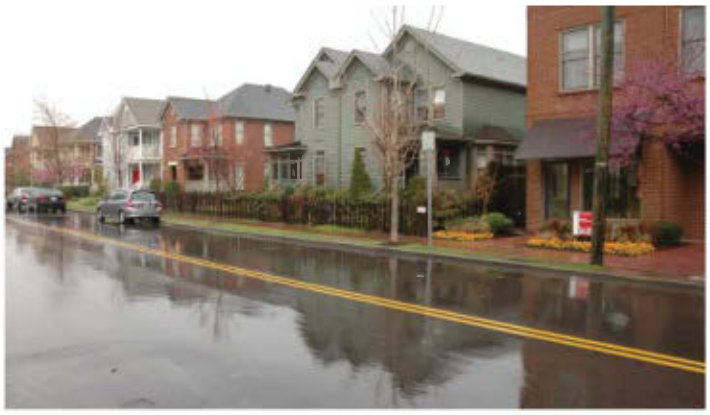


Section

Frontage Types: Porch Frontage

The Porch Frontage has a moderate Build-to Zone with the first floor elevated from the sidewalk grade. The Porch Frontage utilizes a porch - an open air room appended to the mass of a building with floor and roof but no walls on at least two sides - to transition from the public sidewalk or open space into the building.

The Porch Frontage is primarily used for residential buildings.



Frontage Types: Porch Frontage

Porch Frontage

Ⓐ	**First floor elevation**	
	Min.	18” from grade
	Max.	5 ft from grade
Ⓑ	**Min. ground floor openings**	30% floor to floor
Ⓒ	**Min. upper floor(s) openings**	25% from floor to floor
	Porch	
Ⓓ	Min. porch depth	5 ft

Ⓔ Porches may extend into the front of the Build-to Zone.

Ⓕ Steps may extend into the Build-to Zone, but may not encroach into the public Right-of-Way.

Notes

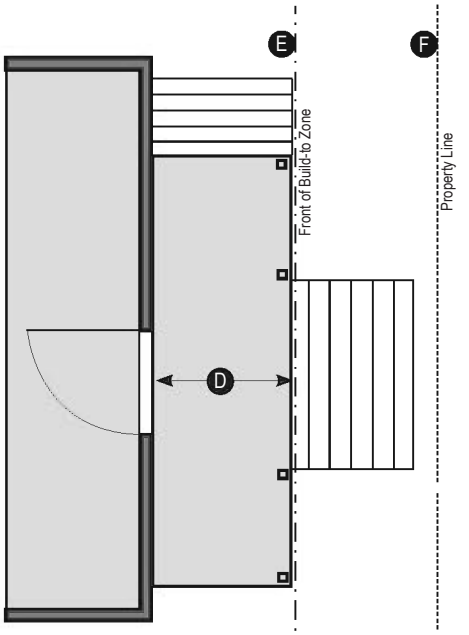
Greater first floor elevation allowed by modification for:

- Property with significant elevation change across the site at the street frontage.
- Development that incorporates below grade basement floors that are accessible from the exterior of the building.

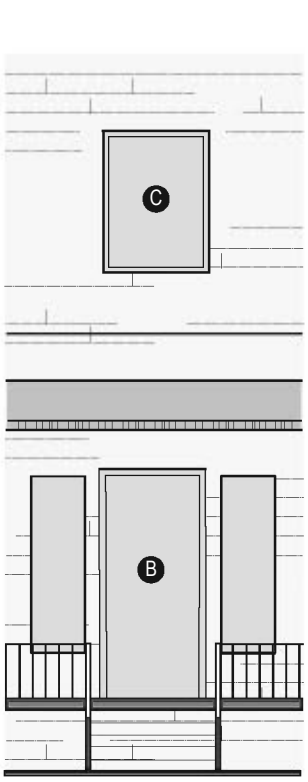
Transition to first floor elevation may be accommodated on the interior of the building to allow for compliance with ADA accessibility requirements.

Entries shall not be recessed more than 4 feet from the facade of the building.

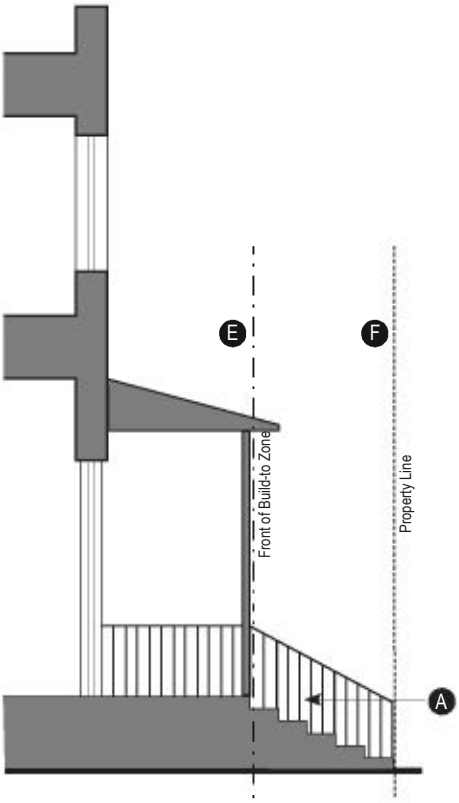
Doors shall face the street.



Plan



Elevation



Section

Frontage Types: Civic Frontage

Civic buildings are designed and constructed for community use or benefit by governmental, cultural, educational, public welfare, or religious organizations. Civic buildings are inherently unique structures that present opportunities for unusual and iconic design within the urban fabric.

Civic buildings should be designed with prominence and monumentality.

A Civic building shall be oriented to streets and public spaces and follow the intent of the particular subdistrict in which it is located with regard to pedestrian orientation, massing, and articulation.

Key architectural features should act as community focal points. Where possible, street axes should be terminated by the primary building form or architectural feature. Towers, spires, and other vertical forms are encouraged.

Civic buildings may include the following: community buildings, libraries, post offices, schools, religious institutions, publicly owned recreational facilities, museums, performing arts buildings, and municipal buildings.

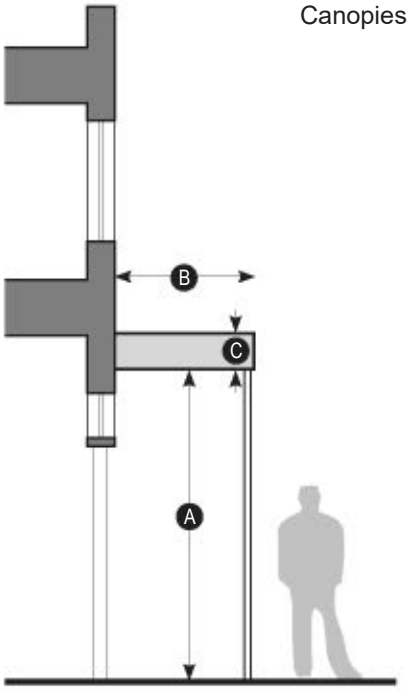
Civic buildings shall be reviewed by modification pursuant to the procedure outlined on page 9 of the UDO.

Canopies and Awnings

Canopies

A Clearance	
Minimum from sidewalk	8’
Maximum	25’
B Maximum projection	within 2’ of curb
C Maximum canopy height	4’

Encroachments in the public right-of-way must meet Metropolitan Government’s current clearance standards and be approved under the mandatory referral process prior to installation.



Awnings

A Clearance	
Minimum from sidewalk	8’
B Maximum projection	
First floor	4’ from facade
Upper floors	not permitted
C Maximum awning height	5’

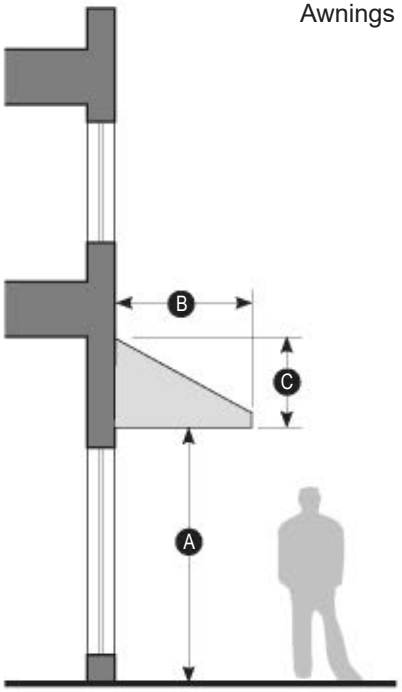
The name and logo of the establishment are the only advertising permitted on awnings. All shall follow the Sign Standards.

No awning shall exceed 25 feet in length.

Awnings shall not be constructed of materials that are glossy in finish.

Encroachments in the public right-of-way must meet Metropolitan Government’s current clearance standards and be approved under the mandatory referral process prior to installation.

Canopy and Awning standards do not apply to brise soleil or sun-shades.



Auto-oriented canopies and awnings

Auto-oriented canopies and awnings, for uses such as drive-thrus and gas station pumps, may be attached to a building according to the following:

- The building shall comply with all Frontage standards.
- The canopy and/or awning shall be lower in height than the primary building.
- The setback of the canopy and/or awning shall be a minimum of 15 feet from the back of the front facade of the building.
- A drive-though canopy and/or awning shall not be located along the principal frontage.

Street Character

The public right-of-way, including streets, sidewalks and public utility infrastructure, plays both a functional and social role in the life of the city and its citizens. Streets organize the city, help to define space, and link destinations. The street is also a public place where people congregate, shop, socialize and live. Active, attractive streets are critical to the continued growth and success of River North. The UDO includes urban design tools to make working, living and playing in River North lively, safe and comfortable.

The UDO uses Street Types as an urban design and organizing tool. All streets are classified on the Regulating Plan as Primary, Secondary, Tertiary, Other, or Alley. The location of vehicular access from all other streets shall be determined on a case-by-case basis. NashvilleNext calls for a strong emphasis on expanding other modes of transportation including walking, cycling and transit. The UDO emphasizes walking, cycling and transit as primary modes of transportation within River North through the urban design of individual buildings, blocks, and neighborhoods.

All Streets

- Streets refer to publicly or privately owned right-of-way. They are intended for use by pedestrian, bicycle, transit and vehicular traffic and provide access to property.
- Streets consist of vehicular lanes and the Sidewalk Corridor. The vehicular lanes, in a variety of widths, provide traffic and parking capacity and may include bicycle paths. The Sidewalk Corridor contributes to the urban character of each neighborhood. It may include pedestrian paths, landscaped planters, street furnishings and street trees.
- Pedestrian safety, comfort, and accessibility should be a primary consideration of street design and dimensioning.
- When alleys are present, vehicular access from alleys is encouraged. Vehicular access from public streets shall be considered in the following order: Other Streets, Tertiary Streets, Secondary Streets, and then Primary Streets as approved by Metro departments.
- Final construction plans shall comply with Metro Public Works standards and specifications.

Street Types

Primary Street

Primary Streets accommodate high levels of pedestrian activity and high levels of vehicular traffic. On Primary Streets, active uses – residential, retail, restaurant or office – lining parking structures and on the first floor of buildings, and restricted vehicular access enhance the pedestrian experience. Primary streets provide the opportunity for more intense, urban development including shallow Build-to Zones and, in some cases, increased building height. Pedestrian comfort on these streets is of highest importance. Primary streets should have a continuous street wall, wide sidewalks between 14 and 20 feet to provide room for street furniture such as benches, trash receptacles, and bicycle parking. Primary Streets have the highest level of urban activity such as, outdoor dining, retail displays, and community activities like markets, parades, and music. Street trees provide protection from the sun and rain, reduce stormwater runoff and air pollution, and provide aesthetic value to the city. Trees should be planted in wells with tree grates to allow for the uninterrupted flow of pedestrian traffic.

Street Character

Secondary Street
Secondary Streets have moderate levels of pedestrian activity and moderate levels of vehicular traffic. Secondary Streets may be mixed-use or more residential in character. The Build-to Zone is generally shallow, and building heights are limited. In mixed-use areas, a continuous street wall should be maintained and sidewalks should be between 12 and 16 feet wide to accommodate pedestrian traffic. In residential areas, the required minimum façade width is limited – allowing for more space between buildings – and sidewalks may be narrower. Both tree wells and open landscaped planters are appropriate depending on sidewalk width.

Tertiary Street
Tertiary Streets are the less important than Primary and Secondary streets. They may function as "back of house" for buildings with multiple street frontages. Care should be taken to make these streets as pedestrian-friendly as possible while accommodating loading and access needs. Unless appropriately designed to share street space, an 8 foot sidewalk is a minimal dimension for walking accommodations in a highly urbanized area such as River North.

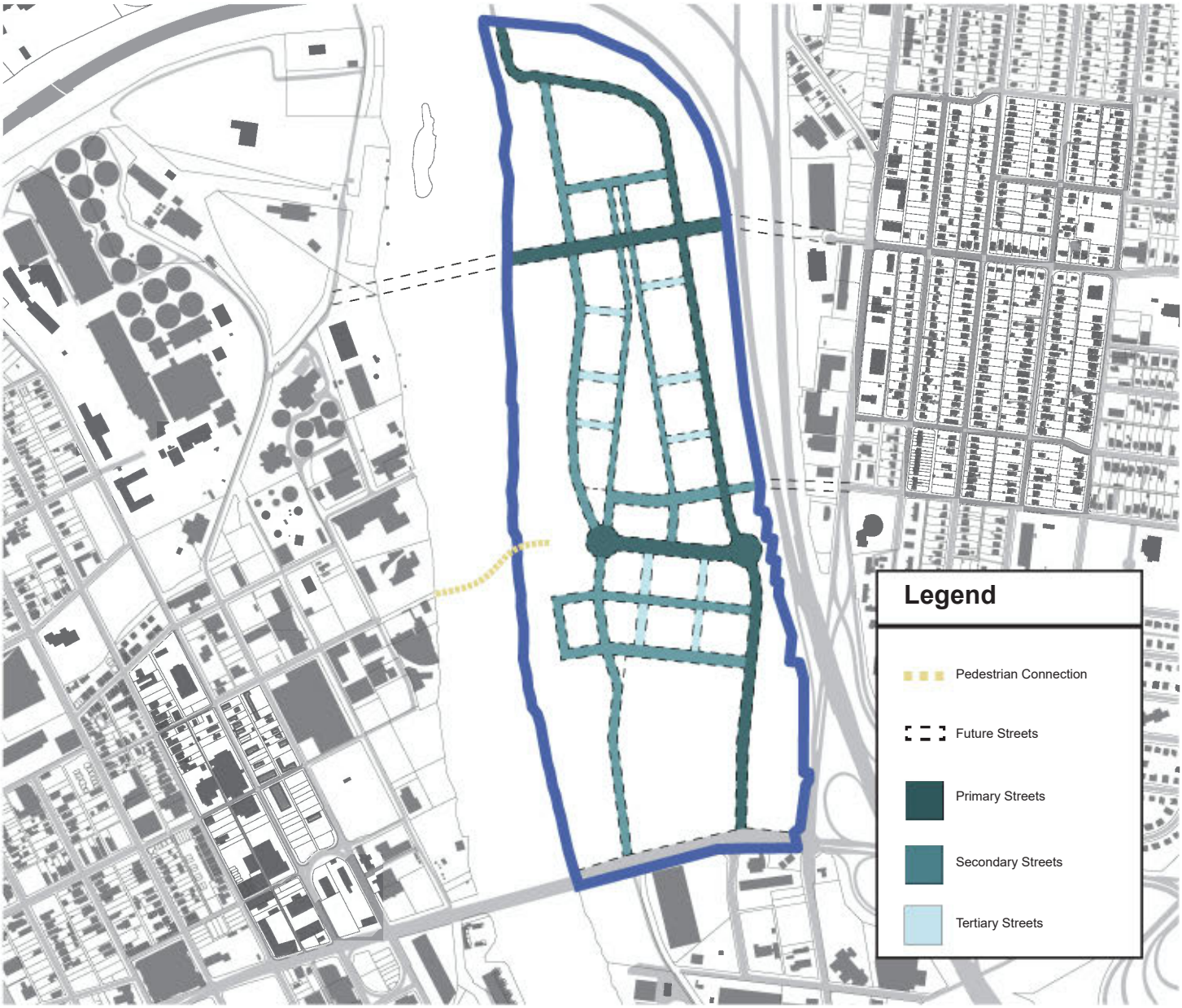
Other Street
Other Streets are streets that do not fall into any of the other street categories. They may have high or moderate levels of vehicular traffic, but often have no access to property and limited pedestrian activity. Building height along these streets is regulated by the other property frontages. Buildings do not front on these streets and may be built up to the property line.

Alley
Alleys are service roads that provide shared access to property. Public utilities as well as access to mechanical equipment and trash should be located off an alley whenever possible. Alleys are encouraged for access and loading.

Sidewalk Corridor
The Sidewalk Corridor is the portion of the right-of way between the vehicular lanes and the property line or building façade.

- The primary function of the Sidewalk Corridor is to provide a safe, comfortable, and convenient route for pedestrian travel that is separated from vehicular movements.
- The Sidewalk Corridor is a public space that should include pedestrian amenities such as seating, shade trees, bike racks, places to congregate, trash and recycling receptacles and outdoor dining.
- The Sidewalk Corridor may accommodate public utilities such as electric poles and vaults, water and sewer lines, bus stops and traffic signals.
- The Sidewalk Corridor may also accommodate separated bikeway facilities by providing protection to cyclists from traffic. This may be achieved by an adjacent grass strip or planting zone and may function as a dedicated facility meant for cyclists only, or mixed with pedestrian traffic like a multi-use path.
- As property develops, property owners shall consult with Metro Planning and Public Works to make the necessary improvements to the streetscape in accordance with the *Major and Collector Street Plan* and the *Strategic Plan for Sidewalks*.

Street Character: Future Streets



Proposed Street Network

Street Character: Future Streets

Future Streets

This area will see significant growth and change over the next few years. The Future Streets Plan show how streets could be realigned, connected and created in the future to improve mobility within the area.

Properties near an area highlighted for change on the Future Streets Plan shall consult with the Planning Department and the Department of Public Works to discuss the potential change.

Any future street listed in the UDO as a future street can be moved or realigned prior to construction and the designation for that street can be changed. When a street is moved, relocated or the designation is changed prior to construction this is a modification that may be approved by the Planning Department with a recommendation from Public Works.

Street Character

Street Trees

Shade-producing street trees shall be planted in the public right-of-way along the length of the lot frontage at a maximum spacing of forty feet or in accordance with the regulations of Metro departments and agencies.

Tree Quality

Tree species shall be chosen from the Urban Forestry Recommended and Prohibited Tree and Shrub List based on tree size and planting area provided or an alternative species deemed appropriate by the Urban Forester.

- At planting trees, shall meet the requirements for street trees set out in the American Standard for Nursery Stock.
- All nursery stock used as street trees shall be vigorous, healthy and free of diseases or infestation.
- No species considered invasive in the project's context according to USDA or other state agriculture services shall be allowed.
- Planting Area Dimension
  - The following standards are minimum standards. All development is encouraged to provide street trees with the largest area of pervious surface and volume of soil that can be accommodated.
  - Trees shall be accommodated in planting areas that follow Metro Public Works' *Street Tree Standards and Specifications*.
  - The minimum pervious opening at grade shall be 24 square feet.
  - Tree vaults shall have the capability to drain water.
  - Planting areas shall not inhibit ingress/egress from buildings or pedestrian traffic along the Sidewalk Corridor.

Parking and Access: General

Parking and Access: General

- No parking is required within the boundaries of the UDO.
- No onsite parking is allowed between the street and the building.

Parking and Access General Standards

- 17.20.050 Handicapped Parking, 17.20.060 Parking area design standards, and 17.20.130 Loading space requirements shall apply.

Valet and drop-off areas

- They shall be located within the right of way when space allows. If not provided in the right of way they shall be located internal to the development.
- Where driveways to parking facilities or drop off areas cross the Sidewalk Corridor, priority should be given to the pedestrian realm and the following shall be required:
  - The UDO and the MCSP sidewalks and tree planting standards shall be maintained for any pedestrian island that is created.
  - Bollards or other devices shall be used to separate the pedestrian and vehicular areas.
  - Distinction behind vehicular lane and pedestrian areas shall be indicated through changes in grade, color, texture and/or material.
- Curbside management plans are required. Consolidation of drop-off locations to a single location for multiple properties is highly recommended.

Stormwater

- Utilize LDI strategies in Metro Water Services Stormwater BMPs for hardscape including parking and drive lanes.
- Prior to Final Site Plan approval, projects must demonstrate stormwater and flood mitigation design, and floodplain management.

Parking and Access: Specific to Structured Parking

Vehicular Access

- Vehicular openings to parking structures shall not exceed thirty-five feet in width.
- Vehicular openings shall have a minimum spacing of thirty five feet.

Pedestrian Access

- All parking structures shall have a clearly marked pedestrian entrance, separate from vehicular access, on street frontages. A publicly accessible building lobby may meet this requirement.

Location and Lining

- On the ground level, parking structures shall be located behind a liner building with an active use that is a minimum of 15 feet deep.
- Where no ground level liner is provided (due to modifications or other reasons), facade treatment/cladding shall be required on all street, open space, and pedestrian ways. Cladding shall help to activate the street level with its design cues that integrate with the architectural characteristics of the habitable portion of the building, and of the surrounding built context. Openings for natural ventilation are permissible when well integrated into the facade design.
- Upper level habitable liners are encouraged on all streets. See the Bonus Height Program for more information on bonuses for Upper Level Garage Liners.
- Upper level facade treatments /cladding is required on all street, open space and pedestrian ways (such as greenways frontages, including any portions of facades visible from a given frontage, including Interstate frontages. Facade treatments shall integrate or complement the architectural characteristics of the habitable portion of the building and the surrounding built context. Openings for natural ventilation are permissible when integrated into the facade design. Landscape buffering may be considered as an alternative at appropriate locations, such as Interstate frontages.
- Underground parking that is visible from the street, shall not extend beyond the façade of the building unless it is screened. Underground parking that is completely below grade may extend beyond he façade of the building. Underground parking may not encroach into the right-of-way.

Parking and Access: Specific to Surface Parking

General Standards for Surface Parking

- Parking area screening and landscaping standards shall apply to all surface parking lots including, but not limited to, public and private parking facilities, driveways and access aisles, the outdoor display of automobiles and other vehicles that are for sale or lease.
- Surface Parking is best suited at the side or rear of a building, leaving the building frontage facing the circulation route.

Perimeter Screening Standards for Surface Parking

- Parking areas adjacent to public streets and open space shall be separated from the edge of the right-of-way and/or easements and property lines by a perimeter landscape strip a minimum of five feet in width which shall be landscaped per the standards of this section.
  - All perimeter landscape strips adjacent to public streets and open space shall include a transparent fence or knee wall in accordance with the Fence and Wall Standards.
- Parking areas shall be separated from adjacent side lot lines(with the exception of cross-access points) by a perimeter landscape strip a minimum of 5 feet in width, which shall be landscaped per the standards of this section.
  - A two and one-half foot landscape strip may be provided if the required trees are to be planted in tree islands located adjacent to the property line.
  - Two adjacent properties may share equally in the establishment of a 5 foot (minimum) planting strip along the common property line. In instances where the common perimeter planting strip is part of a plan for shared access, each owner may count the respective area contributed toward that common planting strip toward the interior planting area requirements for the lot. Conversely, a shared parking lot across property lines may be developed with no side lot perimeter planting strip, dependent upon the design and functional use of the space.
- Surface Parking Lots shall provides cross-access to all adjacent development and parking lots.

Interior Planting Requirements

- Parking areas shall be landscaped in accordance with the interior planting requirements of Title 17.24.160.
- Parking areas with less than twelve thousand square feet in total area shall be exempt from the interior and side lot line planting requirements.

Landscape Materials

- Perimeter landscape strips along public streets, open space and side lot lines.
  - Trees shall be installed at a rate of one tree for every thirty feet of frontage. Spacing may be adjusted with the approval of the Urban Forester based upon tree species, the presence of utilities, and the dimensions of the planting strip.
  - Evergreen shrubs and trees shall be installed at appropriate spacing to fully screen vehicles to a minimum height of two and one-half feet.
  - Plantings within fifteen feet of driveways or street intersections shall be maintained to a maximum height of two and one-half feet.
  - Plantings shall not obstruct views onto site as to impede the security of users.
- Tree and shrub species shall be chosen from the Urban Forestry Recommended and Prohibited Tree and Shrub List or an alternative species deemed appropriate by the Urban Forester.
- At planting, trees shall be a minimum of six feet in height and two caliper inches.
- All landscaping shall be in a functioning bio-swale, or irritated using drip irrigation or sub-surface irrigation. If drought-tolerant species are used, no irrigation is required.
- At planting, all landscaping shall meet the standards for size, form and quality set out in the American Standard for Nursery Stock (ANSI Z60.1, latest edition).
- All nursery stock shall be vigorous, healthy and free of diseases or infestation.

Mechanical, Service, and Loading

Applicability

The following elements shall be shielded from view from adjacent public streets, pedestrian corridors, and open spaces.

- Refuse collection, dumpsters, recycling bins, and refuse handling areas that accommodate a dumpster or five or more trash or recycling cans.
- Building or ground-mounted mechanical equipment, including, but not limited, to transformers, back-flow preventors, telephone risers, equipment cabinets, generators, or similar devices.
- Mechanical equipment on roofs shall be fully screened.
- Air conditioning or similar HVAC equipment.
- Loading docks, berths, or similar spaces including, but not limited to, service entrances and maintenance areas.
- Outdoor storage of materials, equipment, and vehicles.

Location and Access

- Applicable site elements shall be located along the alley, along an interior property line, or internal to the property.
- Service elements, such as loading docks and trash collection locations, shall not be accessible from Primary Streets unless a Primary Street is the only frontage.
- Vehicular or service bay openings shall make up no more than 20% of the total frontage length along Primary Streets, Secondary Streets, or Open Space frontages.
- Where access to loading areas and service elements cross the Sidewalk Corridor, priority shall be given to the pedestrian realm and the following design elements shall be required:
  - The MCSP sidewalks and streetscape standards shall be maintained for any pedestrian islands or indentations created.
  - Bollards or other protective device shall be used to separate pedestrian and vehicular areas.
  - Distinction between vehicular lane and pedestrian areas shall be indicated through changes in grade, color, texture and/or material.

Screening Standards

- Applicable site elements shall be fully screened at all times.
- Refuse collection and refuse handling areas shall be screened by a walled enclosure with gates in accordance with the Fence and Wall Standards of the UDO.

Mechanical, Service, and Loading

Screening Methods

- Vegetative Materials:
  - Vegetative materials shall be planted in two rows in staggered fashion.
  - All trees shall be evergreen with a minimum height at time of planting of at least six feet above the root ball.
  - All shrubs shall be evergreen with the minimum height and spacing necessary to fully screen the item intended for screening (but no less than thirty inches in height) at the time of planting.
  - Vegetative material shall be located immediately adjacent to the element being screened in a planting area a minimum of four feet wide.
- Fencing and Walls
  - Screening is permitted through the use of a fence or wall constructed in accordance with the Fences and Walls Standards of the River North UDO.
- Mechanical Penthouse
  - Rooftop mechanical areas must be fully visually screened.
  - Penthouse height limited to 20'.
  - Penthouse must be setback from the edge of the building roof below, by a distance equal to the penthouse height (1:1)
  - Penthouse walls and design shall minimize its visual impact, and be otherwise complementary to the building's architecture and design.
  - Habitable space is not permitted.
- Parapet Walls
  - Parapet walls or other techniques included as an integral part of the building design shall be used to totally screen any rooftop mechanical equipment from view from adjacent public rights-of-way or open space.
- Integrated Building Elements or Features
  - Building design or other structural features (e.g., knee walls, alcoves, wing walls, roof extensions, etc.) may also be used to fully or partially enclose site features required to be screened.
- Alternative Screening Methods
  - Alternative screening methods or materials that are not listed may be used following approval by the Planning Commission or its designee, provided that they are determined to be comparable to screening methods described in this subsection.

** In order to properly locate and screen mechanical equipment, approval may be required from applicable Metro departments and agencies.

Fences and Walls

Location

- Permitted Locations: Fences and walls constructed in accordance with the standards in this section may be constructed within:
  - The Build-to Zone.
  - A utility easement only through the express written consent from the utility or entity holding the easement.
  - A required landscape area, Tree Protection Zone, or open space.
- Prohibited Locations: No fence or wall shall be installed that:
  - Encroaches into a right-of-way (without approval through the Mandatory Referral process).
  - Blocks or diverts a natural drainage flow on to or off of any other land.
  - Compromises safety by blocking vision at street intersections or obstructs the visibility of vehicles entering or leaving driveways or alleys.
  - Blocks access to any above ground or pad-mounted electrical transformer, equipment vault, fire hydrant or similar device.

Appearance

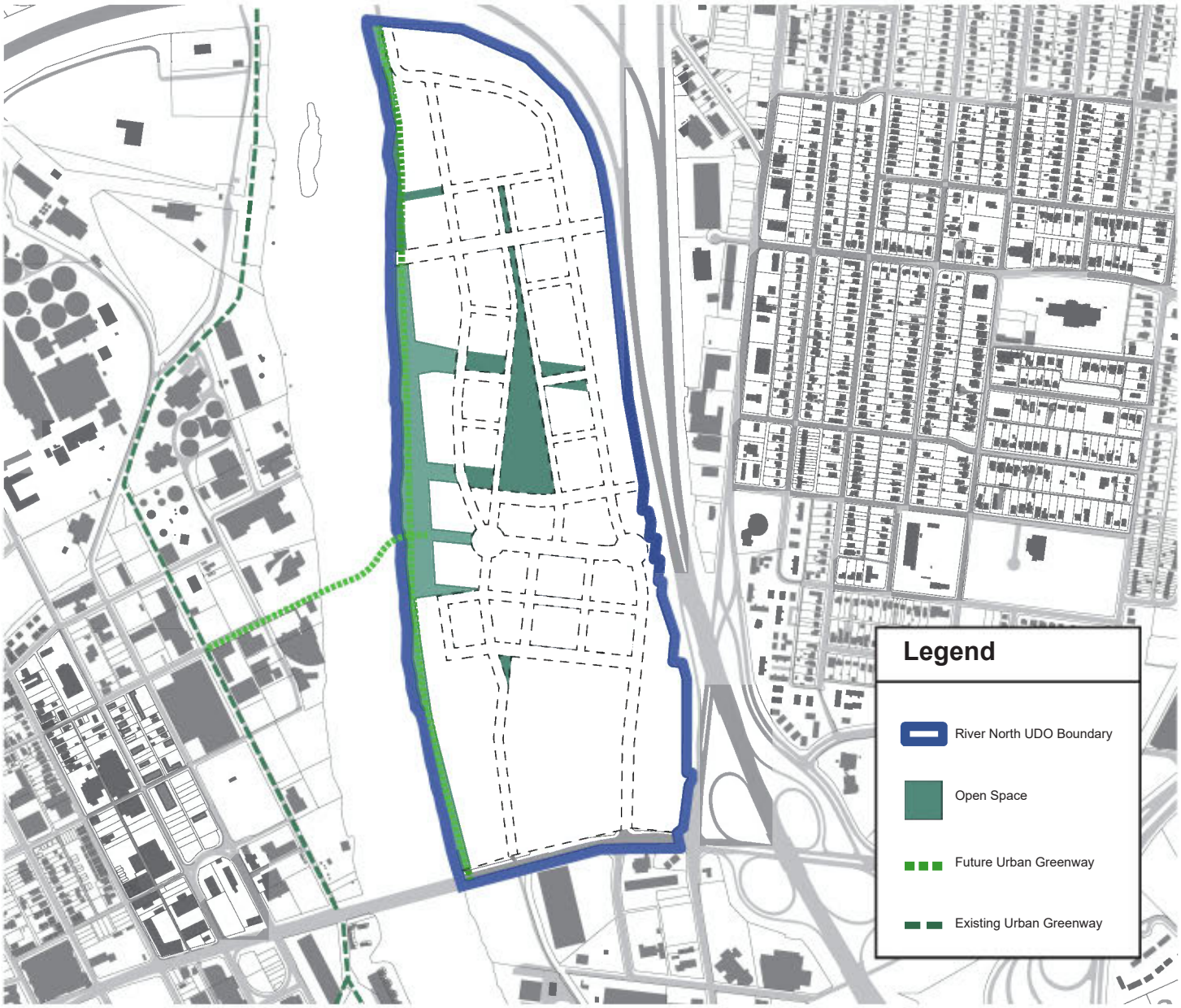
- All fences shall be installed so that the finished side shall face outward; all bracing shall be on the inside of the fence.
- Fences and walls shall be constructed of any combination of brick, stone, masonry materials, treated wood posts and planks, rot-resistant wood, metal, and wear resistant nonglossy plastics and recycled materials. Chain link fencing shall be coated with dark colored vinyl when visible from a public street or open space (excluding alleys).
- Chain-link fences are prohibited along street and open space frontages (including along greenways or multi-use trails).
- Razor wire is prohibited.
- Fences and walls used to screen refuse areas shall be opaque and include gates that prohibit unauthorized users to access the area.

Standards by function and location

- Fences and walls within the Build-to Zone shall not exceed four feet in height.
  - Modifications may be made in order to properly secure playgrounds and parks.
  - The height of fences and walls along a sidewalk shall be measure from sidewalk grade.
- Fences and walls within the Build-to Zone that are greater than three feet high shall be a minimum of thirty percent transparent to allow visibility into the property.
- Fences and walls used to screen parking shall be a minimum of two and one-half feet above the grade of the parking lot.
  - When a fence or wall is combined with plantings the majority of the plantings shall be between the right-of-way and the fence or wall.
- Fences and walls used to screen mechanical, loading and refuse elements shall be a minimum of two feet taller than the element being screened.
- All other fences and walls shall have a maximum height of ten feet measured from grade.
- Fences surrounding athletic fields and courts may exceed the previous height.

Open Space Plan

The design of River North accommodates a variety of formal parks and open spaces as focal points within the community. The Open Space Plan depicts formal greens, squares, and linear parks that create publicly accessible settings for outdoor enjoyment. All of these spaces will be linked by a network of sidewalks, multi-purpose paths, walkable lanes, and bikeways, allowing continuous, non-motorized movement throughout the site, through a sequence of quality open-air environments that ultimately lead to the Cumberland River or a proposed "Central Park" within the center of the neighborhood. Buildings, streets, and parcels should generally be oriented toward open spaces to encourage safe interactive use.



Open Space Plan

Open Space: General Standards

Open Spaces

Actual detailed plans, design, and locations of River North open spaces, parks, greenways, and green connections may vary, subject to constraints and conditions as yet to be determined. However, all proposed open spaces and/or alternatives must be consistent with the intent of the Open Space Plan and UDO.

"Central Park"

A centrally located park, consisting of a minimum of two contiguous acres shall be located with the UDO boundary. The park space shall allow for public gathering and recreation, with activated uses along its edges.

Riverfront Greenway

A north-south greenway with a linear park space will be provided along the riverfront of the Cumberland River. Recreation opportunities, outdoor dining, overlooks, wayfinding, and other interactive programming are appropriate components.

Green Connections

Green connections will link the riverfront greenway and linear park space to the internal open space network and "Central Park" of the larger UDO area. Such connections may serve multiple purposes, but shall facilitate the movement of pedestrians through the open spaces of the UDO.

Modifications may be made in order to properly secure Standards of Title 17 not varied by the following Open Space Standards shall apply within the UDO.

Access

- Every open space shall have a minimum of one primary pedestrian entrance along each street frontage and pedestrian frontage.
- All publicly accessible open space shall meet the appropriate standards of the American's with Disabilities Act.

Paving Materials

- Asphalt may be approved by the Planning Commission or its designee for recreational jogging or bicycle paths only.

Landscaping

- Planting areas shall not impede ingress/egress from buildings or pedestrian traffic.
- Tree and shrub species shall be chosen from the Urban Forestry Recommended and Prohibited Tree and Shrub List based on tree size and planting area provided or an alternative species deemed appropriate by the Urban Forester.

Bonus Height Program

The Bonus Height Program allows additional building height in the River North UDO in exchange for contribution to specified programs that provide benefits to the public. The additional building height shall be entitled if the proposed development contributes to specific public benefits in the amount and manner set forth herein.

Bonus Height Standards

- Upon providing a binding commitment for the specified public benefit, the proposed development project shall be allowed to build within the restrictions of the Subdistrict, up to the Bonus Height Maximum as established within this section.
- Multiple height bonuses may be compounded insofar as the total additional height does not exceed the Bonus Height Maximum for the Subdistrict.
- Additional development rights achieved through the BHP may be transferred to other sites within the UDO, one time to one receiving site, provided the transferred height does not exceed the Bonus Height Maximum of the receiving site. By right height may not be transferred; only bonus height received through the BHP may be transferred.
- Bonus height transfers shall be based on the square footage of the sending site, not the receiving site.
- No building permit shall be issued for bonus height until the Planning Commission has certified compliance with the provisions of this section, upon referral and assurance of compliance from applicable departments.

Bonus Height Chart

Subdistrict	**One**	**Two**
Subdistrict Height	15 stories	25 stories
BONUSES		
LEED Building	Silver = 1 story; Gold = 1 story; Platinum = 2 stories	Silver = 2 stories; Gold = 2 stories; Platinum = 3 stories
LEED ND	2 stories	2 stories
Pervious Surface	1 story	2 stories
Upper Level Garage Liner	1 story	4 stories
Underground Parking	1 story	3 stories
Public Parking	No Bonus	2 stories
Adaptable Garage Levels	2 stories	8 stories
Shared Parking	No Bonus	1 story
Civil Support Space	1 story	2 stories
Public Open Space	2 stories	8 stories
Public Greenway	2 stories	4 stories
Inclusionary Housing	3 stories	10 stories
Maximum Bonus Height	**18 stories**	**38 stories**

Bonus Height Program

LEED and LEED ND

The U.S. Green Building Council (USGBC) is a non-profit organization that oversees the Leadership in Energy and Environmental Design (LEED) Green Building Rating System.

LEED for Neighborhood Development integrates the principles of smart growth, urbanism and green building into the first national system for neighborhood design. LEED ND goes beyond the building to address sustainability on a neighborhood-wide basis.

The bonuses are specific to each Subdistrict. See the BHP Chart for details.

A different nationally-recognized, third-party system of overseeing green building and/or sustainable development practices may be substituted for LEED. Bonuses will be determined by the Planning Commission based on ratings equivalent to LEED silver, gold, and platinum.

Bonuses for individual buildings are given upon pre-certification of LEED silver, gold and platinum. Bonuses for neighborhoods are given upon pre-certification of LEED ND. Every property within the LEED ND neighborhood may utilize the bonus height. The bonuses are specific to each Subdistrict. See the BHP Chart for details.

The following shall apply to all new construction that utilizes the Bonus Height Program for LEED:

- Prior to issuance of a temporary certificate of occupancy for any use of the development, a report shall be provided for the review of the Department of Codes Administration and the Planning Commission by a LEED accredited professional. The report shall certify that all construction practices and building materials used in the construction are in compliance with the LEED certified plans and shall report on the likelihood of certification. If certification appears likely, temporary certificates of occupancy (as set forth below) may be issued. Monthly reports shall be provided as to the status of certification and the steps being taken to achieve certification. Once certification is achieved, the initial certificate of LEED compliance, as set forth herein, and a final certificate of occupancy (assuming all other applicable conditions are satisfied) shall be issued.
- To ensure that LEED certification is attained the Department of Codes Administration is authorized to issue a temporary certificate of occupancy once the building is otherwise completed for occupancy and prior to attainment of LEED certification. A temporary certificate of occupancy shall be for a period not to exceed three (3) months (with a maximum of two extensions) to allow necessary time to achieve final certification. Fees for the temporary certificate (and a maximum of two extensions) shall be $100 or as may otherwise be set by the Metro Council. Once two extensions of the temporary certificate of occupancy are granted, any additional extensions shall be granted only in conjunction with a valid certificate of LEED noncompliance as set forth herein.
- If the property fails to achieve LEED certification, the Department of Codes Administration is authorized to issue a short-term certificate of LEED noncompliance. This certificate will allow the building to retain its certificate of occupancy pending attainment of LEED certification. A certificate of LEED noncompliance shall be for a period not to exceed three (3) months and may be renewed as necessary to achieve certification. The fee for noncompliance shall be issued every time the certificate is issued for up to ten years.
- The fee for a certificate of LEED noncompliance shall be based on the following formula: $F = [(CN-CE)/CN] \times CV \times 0.0075$, where:
  - F is the fee;
  - CN is the minimum number of credits to earn the level of LEED certification for which the project was pre-certified;
  - CE is the number of credits earned as documented by the report; and
  - CV is the Construction Value as set forth on the building permit for the structure.

Bonus Height Program

Pervious Surface
The integration of pervious surfaces into site design and building design benefits the individual development, the neighborhood and the city. Pervious surfaces can reduce stormwater runoff, flood risk, irrigation needs and the burden on infrastructure. Examples of pervious surfaces include pervious pavement, green roofs, bio-swales, landscaping, and green screens. As technology in this field advances, additional pervious surfaces may meet the intent of this standard.

- The number of square feet of Bonus Height shall be twice that of the number of square feet of Pervious Surface. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Green roofs that are utilized to meet LEED certification may not be "double counted" for both the LEED height bonus and the Pervious Surface height bonus. If the level of LEED certification would be met without the green roof, then the green roof may be counted for the Pervious Surface height bonus.
- Pervious Surfaces may not be double counted if used towards the Public Open Space or Public Greenway Bonuses.

Upper Level Garage Liner
The public realm of the streetscape is improved by lining above ground parking structures with habitable space. See the BHP Chart for a list of Subdistricts in which the Upper Level Garage Liner bonus may be utilized.

- Height bonuses are given for upper levels of habitable space, a minimum of 15' in depth, which masks a parking structure from view along streets or open space (including greenways and multi-use trails).
- The number of square feet of Bonus Height shall be twice that of the number of square feet in Garage Liners. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.

Underground Parking
The public realm of the streetscape is improved by providing parking in underground structures. See the BHP Chart for a list of Subdistricts in which the Underground Parking bonus may be utilized.

- The number of square feet of Bonus Height shall be equal to the number of square feet in Underground Parking. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Height bonuses are not given for ground level liners, or upper level liners that are required by the UDO.

Public Parking
Parking accessible to the general public is important to the continued growth and vitality of Downtown. See the BHP Chart for a list of Subdistricts in which the Public Parking bonuses may be utilized.

- The number of square feet of Bonus Height shall be twice that of the number of square feet in Public Parking. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Public Parking shall be clearly marked as public, and shall be accessible to the public, at all hours that the garage is open, for the lifetime of the building.

Bonus Height Program

Adaptable Garage Levels

Parking Garages built to accommodate future uses, with a ceiling height of 11 feet or greater, are encouraged and desired. See the BHP Chart for a list of Subdistricts in which the Adaptable Garage Levels bonus may be utilized.

- The number of square feet of Bonus Height shall be twice that of the number of square feet in the Parking Garage, so long as the garage is designed with 11 foot high ceilings or greater and an Architect has provided a letter to Planning asserting that the garage can be easily converted to an alternative use if parking is no longer needed or desired. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Underground parking levels are not applicable for the Adaptable Garage Levels Bonus.

Shared Parking

Shared Parking provides opportunities for businesses and establishments to consolidate parking needs, thereby consuming less physical space to satisfy their joint parking demands. In addition, Shared Parking can consist of Park and Ride, or dedicated car-sharing spaces. See the BHP Chart for a list of Subdistricts in which the Shared Parking Bonus may be utilized:

- The number of square feet of Bonus Height shall be equal to twice the number of square feet in Shared Parking (including Park and Ride or car sharing lots). The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Shared Parking must demonstrate that the parking results in less parking spaces than would typically be provided as individual allocations.
- Parking agreements must be recorded and remain in place for the lifetime of the buildings.
- Park and Ride and car sharing options must demonstrate acceptance by all applicable entities including Metro Departments.

Civil Support Space

The dedication of Civil Support Space offers height bonus for the developer's contribution of space to a specific use or entity that serves to better the neighborhood or community. See the BHP Chart for details for a list of Subdistricts in which the Civil Support Space bonus may be utilized.

- Civil Support Space is typically on the ground level. Upper levels may be appropriate depending on the intended use.
- The number of square feet of Bonus Height shall be twice that of the number of square feet donated to Civil Support Space. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Civil Support Space shall be dedicated to the chosen use or uses for 15 years. Adherence to this standard shall be checking yearly by the Planning Commission or its designee.

The Planning Commission may require the developer to execute an agreement, restrictive covenant, or other binding restriction on land use that preserves the use of Civil Support Space for the required period before final site plan review.

The following are examples appropriate for Civil Support Spaces:

- Institutional Uses
  - Cultural center
  - Day care center
  - School day care
- Education
  - Community education
- Transportation Uses
  - Transit Center
- Waste Management Uses
  - Recycling collection center
- Recreational, Civic, or Entertainment Uses
  - Community playground
- Other Uses
  - Community garden

Other uses may be appropriate for Civil Support Space. The applicant may propose a different use for Civil Support Space to be approved by the Executive Director.

Bonus Height Program

Public Open Space

Open Space accessible to the general public is critical to the continued health and vitality of River North. See the BHP Chart for a list of Subdistricts in which the Public Open Space bonus may be utilized.

- The number of square feet of Bonus Height shall be seven times that of the number of square feet in Public Open Space. The additional square footage may be used or transferred to the Bonus Height Maximum as determined on the BHP Chart.
- Public Open Space may be provided on the property being developed, or on another property within the UDO. In the latter case, the derived bonus shall be transferred from the Open Space Site to the Development Site.
- Public Open Space shall be clearly marked as public, and shall be accessible to the public, at all hours that the open space is open, in perpetuity.
- In order to qualify for the bonus, all of the following requirements shall be met:
  - Minimum contiguous area of ¼ acre.
  - Accessible to the public through a secured public easement, dedication, or agreement with Metro Parks or a Metro approved third party trust.

Public Greenway

Greenways and multi-use paths serve a key dual function: to provide recreational enjoyment for River North, and to provide increased connectivity to destinations in East Nashville that provides a critical alternative mode of transportation for residents and visitors to navigate the surrounding area without the need of a car. See the BHP Chart for a list of Subdistricts in which the Public Greenway bonus may be utilized.

- The number of square feet of Bonus Height shall be 50 times that of the number of linear feet in Public Greenway / multi-use path dedicated. The additional square footage may be used to the Bonus Height Maximum as determined on the BHP Chart.
- Public Greenways requires the dedication of land to Metro (or acceptance of a permanent public easement) for the explicit use of Greenways/multi-use paths.
- In order to qualify for the bonus, all of the following requirements shall be met:
  - Accessible to the public through a secured public easement, dedication, or agreement with Metro Parks.
  - When feasible, pedestrian linkages shall be provided to adjacent neighborhoods and developments.
  - Proposed buildings abutting the Greenway or multiuse path shall include ground level active uses, with at least one direct pedestrian entrance.

Inclusionary Housing

- Bonus Height is available for compliance with Section 17.40.780 of the Zoning Code as shown in the Bonus Height Program Chart.

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Appendix

OCTOBER 2017

DEVELOPMENT CAPACITY EVALUATION STUDY

RIVER NORTH
NASHVILLE, TENNESSEE

PREPARED FOR:
MONROE INVESTMENT PARTNERS, LLC

KCI TECHNOLOGIES

1101 17TH AVENUE SOUTH
NASHVILLE, TENNESSEE 37212

DEVELOPMENT CAPACITY EVALUATION STUDY
RIVER NORTH
NASHVILLE, TENNESSEE

PREPARED FOR:

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

Project Description

The planned River North project proposes the development of approximately 125 acres on the east side of Cumberland River between Jefferson Street and I-24 and I-65 in downtown Nashville. This study evaluates the high-level impacts of the southern 40 acres of the development, which the study will refer to as Phase 1. The traffic analysis is based on more density than is currently contemplated by the developer. Given variables such as local demand and overall economy, it is prudent to underwrite conservatively.

Phase 1 of the development, as considered for this analysis, includes a total of approximately three (3) million square feet of office space, 1,735 residential units, 285,000 square feet of retail/restaurant space, 550 hotel rooms and 186,500 square feet of civic space. While Phase 1 consists of 40 acres and could take 15 years or more depending on economic cycles, and zoning permits significant density, it is anticipated that the entirety of the development will be completed in multiple phases that could take 30 years or more to complete.

The master plan proposes a variety of new roadway extensions, bridges, interchanges and access connections to the interstate system as well as to existing streets. Therefore, the purpose of this study is to evaluate the feasibility and desirability of these access improvements and to determine maximum newly generated traffic that can be managed under low, medium, and high levels of roadways improvements based on these evaluations. Finally, potential transportation strategies were explored and are recommended in order to achieve higher density for the proposed development by improving the overall local and regional mobility of the area.

Data Collection

In order to provide data for the traffic impact analysis, manual traffic counts were conducted at the following intersections:

1. Jefferson Street/Spring Street and Cowan Street
2. Spring Street and North 1st Street
3. Spring Street and Dickerson Pike
4. I-24 On & Off-Ramps at Spring Street
5. I-24 Eastbound Off-ramp at North 1st Street

Traffic counts for the study intersections were conducted in June 2016 by KCI. Specifically, the turning movement counts were conducted from 7:00 – 9:00 AM and 4:00 – 6:00 PM on a typical weekday in June 2016. From the counts, it was determined that the peak hours of traffic flow for the study intersections occurred from 8:00 – 9:00 AM and 4:00 – 5:00 PM.

Evaluations

Various combinations of the potential improvements within the study area were developed. Directional distributions of traffic generated by the proposed project were then established based on the proposed access connections under each scenario and the existing travel patterns developed from the existing peak hour traffic counts.

For the purpose of this study and based on the capacity analysis it was determined that the intersection of Jefferson Street/Spring Street and Cowan Street is the control intersection for the sensitivity analysis. In addition, the proposed development has higher impacts at that intersection during the PM peak hour when compared to the AM peak hour. As a result, for the sensitivity analysis, capacity analyses were conducted at the intersection of Jefferson Street/Spring Street and Cowan Street during the PM peak hour under each of the various scenarios. Finally, the maximum new trip-generated traffic volumes by the proposed development (based on the PM peak hour volumes) which can be accommodated under each scenario were presented.

Conclusions and Recommendations

A review was conducted of the roadway extensions, bridges and interstate access connections that are proposed as part of the River North master plan. Sensitivity analyses were also conducted to estimate the maximum expected newly generated trips by the proposed development, which can be managed by implementing those conceptual improvements within different stages. The suggested improvements are categorized as Low Level, Medium Level, and High Level. Conclusions of the reviews and analyses are as follows:

- The Cleveland Street extension and a connection across I-24 make a significant connection to the East Nashville area and will provide access to Dickerson Pike, Whites Creek Pike, Ellington Parkway (US 31E) and Gallatin Pike. Cleveland Street has a four-lane cross-section from Dickerson Pike to east of Ellington Parkway. Utilizing the highest PM peak hour trip generation (Option 4B) and the associated distribution, the Cleveland Street extension has the potential to add approximately 1,000 PM peak hour trips along the corridor; this serves as a

significant increase over the 9,000 vpd currently served by the corridor. There are currently two (2) all-way stop controlled intersections along this portion of Cleveland Street, located at Meridian Street and Lischey Avenue. Improvements will likely be necessary at these intersections, at the Ellington Parkway ramps, and potentially at other intersections along the corridor when the Cleveland Street extension is constructed.

- Previous versions of the River North master plan included new on and off ramps to I-65 and I-24. Interchange modifications and/or new connections to the interstate system require both state and federal approval and there are strict standards regarding minimum spacing between ramps that must be met in order to obtain the necessary approvals. State and federal approval of any new interstate access is likely to require considerable modifications to the existing interchanges including the employment of one or more strategies to eliminate weaving on the interstate. These strategies include the addition of collector-distributor roads or grade separated ramps (ramp braids). Requirements for these type of freeway modifications are described in the NCHRP 687 report, *Guidelines for Ramp and Interchange Spacing*. Specific details regarding the operations and feasibility of any interchange modifications or additional access points will need to be evaluated more thoroughly before understanding the feasibility of such improvements.

- The two proposed bridges over the Cumberland River have the potential to significantly improve access and provide alternative routes that would help lessen the impact of the project on the interstate system and on Jefferson Street/Spring Street. The current master plan illustrates the northern bridge as a vehicular and multimodal bridge and the southern bridge as a pedestrian and bicycle only bridge. It would be desirable for at least one of the bridges to have significant transit carrying capabilities.

- Consideration should be given to connecting the northern Cumberland River bridge to 3rd Avenue as well to provide more accessibility to and from north Nashville.

- A potential connection to Oldham Street has been discussed during the development of the masterplan. This connection would create a new north/south connection for project related traffic that may relieve development related traffic at the intersection of Jefferson Street/Spring Street and Cowan Street. The effectiveness of this connection could be further supported by

improvements to South 1st Street, which provides access to Woodland Street to the south.

- The Grace Street extension and a connection across I-24 will provide a convenient connection to East Nashville and to Meridian Street, a north/south collector street. In addition, the Grace Street extension has the potential to be a strong bicycle/pedestrian connection to the pedestrian/bicycle bridge over Ellington Parkway. It should be noted that this proposed improvement was not included in the capacity analysis, for the purpose of this study. It was assumed that a portion of the distributed traffic on the Cleveland Street connector would be distributed onto the Grace Street extension, which would result in the same reduction of traffic on Jefferson Street/Spring Street as without the implementation of this improvement.

- As previously described, the maximum full buildout of the southern 40 acres of the development is referred to as Phase 1 in this study. Improvement recommendations at the existing intersection of Jefferson Street/Spring Street and Cowan Street associated with , Phase 1 of the development were also evaluated and are described below.

  - Add additional turning lanes at the intersection of Jefferson Street and Cowan Street such that southbound Cowan Street consists of two or three left-turn lanes, a shared through/right lane and a right-turn lane. Further, an additional westbound lane will enhance capacity at this intersection. A right-turn lane with sufficient storage is recommended on the eastbound approach of Jefferson Street as well. It may be necessary to widen the eastern portion of the Jefferson Street bridge in order to add the recommended eastbound lane along Jefferson Street. Other feasible alternatives which may not require the widening of the bridge in order to accommodate additional eastbound travel lane, should also be considered and analyzed.

- The results of capacity analyses indicated that with low-level roadway improvements within the study area as described in the evaluation section, approximately 22% of the newly generated Phase 1 trips can be accommodated by the study area roadway system. Maximizing the density within the River North development is best accommodated with the high-level roadway improvements described previously in this study. Those improvements include the proposed new connectors/bridges with partial movement accesses to I-24 and/or I-65, providing an additional eastbound travel lane on Jefferson Street

and the I-24 bridge over Spring Street, and additional turning lanes on Cowan Street at Jefferson Street/Spring Street. It is estimated that 133% of the PM peak hour (5,940 vehicles per hour) for Phase 1 can be accommodated by implementing those improvements.

- It should be noted that intersections along Jefferson Street/Spring Street within the study area currently operate at or near capacity levels during peak times. Therefore, improving the operational performance and traffic flow of Jefferson Street/Spring Street within the study area is warranted as of today even without the completion of any stages of River North development. Any development along the east bank is likely to exacerbate this existing need, and access and capacity improvements will be needed to provide adequate traffic operations within the study area .
  - It should be noted that the thresholds of development identified in this study are based on trips that are projected to be generated by the development of the River North project. As the development of River North progresses, the land uses and sizes that are actually developed may be different than those assumed for this study. If this occurs, continuing to use PM peak hour trips as the warranting criteria for improvements will be an effective way to ensure that the recommended improvements are provided when needed.

  - The evaluation of the proposed improvements and estimation of the maximum newly generated trips for the proposed development under each phase can be used as a helpful tool to plan different stages of the development. However, the capacity analysis procedure used in this study was based on several assumptions. It is recommended that the development conduct traffic counts as certain portions of the development is being completed and occupied in order to identify actual trip generation for the developed portions of the River North development. Those counts will provide a stronger foundation to verify the assumptions made in this study and also to explore further improvements using the actual travel patterns in and out of the development.

  - It is important to note that traffic impact assumptions in this study are conservative, meaning analyses of network impacts were limited to the immediate vicinity of the development. Given the site's size and location adjacent to downtown and critical regional roadway junctions, impacts (positive or negative) will occur well beyond the site. Should more robust high-level improvements be constructed, such as additional bridge connections or interstate improvements, functionality of the greater network in this area may in fact improve. Neither TDOT nor Metro Nashville has significant infrastructure improvements planned for the near term in this area, and while new trips will

be added, these potential high-level improvements could provide alternative connections in the downtown area.

- Higher density for the proposed development may be achieved by emphasizing ride-share, and public transportation. Based on Mayor Barry's Transportation Action Agenda (Moving the Music City) plan, Metro Nashville, in partnership with TDOT, is developing a plan called Nashville Complete Trips. As part of the plan, Metro will promote other modes of transportation by reaching out to major employers and connecting employers and commuters to information about transportation options such as the transit and bikeshare systems, flex-scheduling and telecommuting, bike parking, and MTA/RTA park-and-ride locations. This plan would provide more opportunities for public-private partnerships by the proposed development. Such partnerships could be accomplished by providing private ride-share vehicles and/or sponsoring public transportation commutes for the employees. Upon the success of sponsoring other modes of commute, higher density for the proposed development could potentially be achieved with less traffic impacts on the roadway system.

1. INTRODUCTION

The purpose of this study is to evaluate the high-level traffic impacts associated with the southern 40 acres of the proposed River North development project, which the study will refer to as Phase 1, in Nashville, Tennessee. Specifically, a sensitivity analysis was conducted to estimate the maximum newly generated trips, which could be accommodated with the roadway network under various minor and major roadway improvements. The traffic analysis is based on more density than is currently contemplated by the developer. Given variables such as local demand and overall economy, it is prudent to underwrite conservatively.

The proposed 125-acre development will include a mix of land uses including office, retail, hotel, residential, and civic spaces. Currently, the plan for the Phase 1 of the development, as considered for this analysis, includes a total of approximately three (3) million square feet of office space, 1,735 residential units, 285,000 square feet of retail/restaurant space, 550 hotel rooms and 186,500 square feet of civic space. While Phase 1 consists of 40 acres and could take 15 years or more depending on economic cycles, and zoning permits significant density, it is anticipated that the entirety of the development will be completed in multiple phases that could take 30 years or more to complete.

The property is generally bound to the south by Jefferson Street, to the east by Interstate 24 (I-24), to the north by the Interstate 65 (I-65) northbound to I-24 eastbound ramp and on the west by the Cumberland River. Access to the development will be provided at multiple locations as indicated in the attached master plan (see Appendix).

The master plan proposes a variety of new roadway extensions, bridges, interchanges and access connections to the interstate system as well as to existing streets. Therefore, evaluations were conducted for the feasibility and desirability of these access improvements and based on these evaluations, maximum newly generated traffic that can be managed under low, medium, and high levels of roadways improvements were determined. Finally, potential transportation strategies were explored and are recommended in order to achieve higher density for the proposed development by improving the overall local and regional mobility of the area.

It should be noted that the purpose of this study is not to evaluate the traffic impacts associated with the proposed development at each individual intersection within the study area. Rather, this study intends to estimate the maximum new number

of vehicular trips that the whole roadway system in the study area can manage. To achieve that, a control intersection (Spring Street/Jefferson Street and Cowan Street) where the majority of the new trips will be assigned through, was selected and a sensitivity analysis during the worst peak hour (PM peak hour) was conducted to determine the highest manageable capacity at that intersection under various improvements scenarios. Therefore, the results of this study provides maximum newly generated hourly traffic volumes during the PM peak hour after typical internal capture and alternative modes reductions. This study does not provide any specific threshold for the land usage density. However, various land usage scenarios may be developed which generate hourly vehicular trips of equal or less than the maximum PM peak hour trips as estimated in this study.

2. PROJECT DESCRIPTION

The planned River North project proposes the development of approximately 125 acres on the east side of Cumberland River between Jefferson Street and I-24 and I-65 in downtown Nashville. As shown in Figure 1, the site sits just northeast of the Nashville Central Business District (CBD).

Table 1 provides a summary of the land uses and sizes based on Phase 1 of the proposed master plan, as considered in this study, and information provided by the developer team. The current master plan for the River North development is shown in Appendix A.

TABLE 1. PHASE 1 OF THE DEVELOPMENT PROGRAM

LAND USE	SIZE
OFFICE	3,029,000 SQ. FT.
RESIDENTIAL	1,735 UNITS
HOTEL	550 ROOMS
RETAIL/RESTAURANT	258,000 SQ. FT.

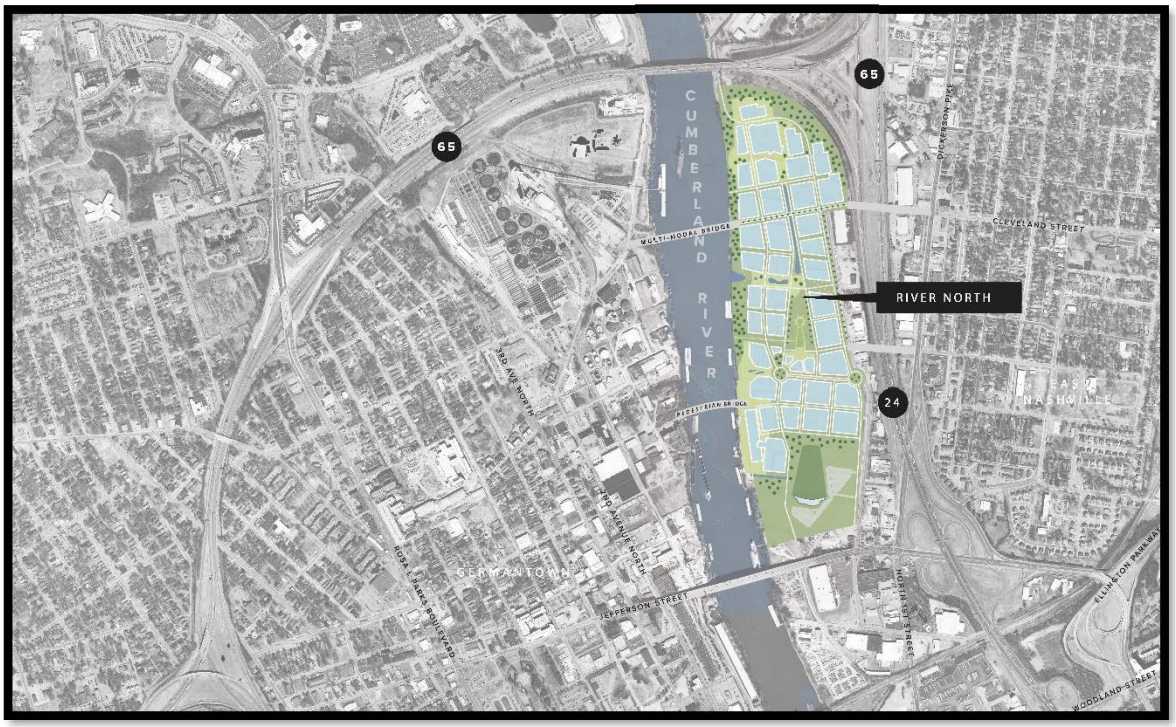


FIGURE 1. LOCATION OF THE PROJECT SITE

3. EXISTING SETTING

3.1 Regional and Local Access

The downtown interstate network consisting of Interstates 24 and 65 will provide regional access to the site. In the vicinity of the site, these six-lane freeway facilities form part of Nashville's "Inner Loop" that encircles the downtown area of Nashville. The nearest interchanges to the site are provided at Spring Street, just east of the site, James Robertson Parkway, located approximately one mile southeast of the site and Brick Church Pike, located approximately 1.5 miles north of the site. Additional regional roadways that provide access to the site are Ellington Parkway, a four-lane expressway, Jefferson Street/Spring Street, a four to six-lane major arterial street, and Dickerson Pike/North 1st Street, another four-lane major arterial street.

Cowan Street, Vashti Street and Brick Church Pike/Baptist World Center Drive will provide local access to the site. In addition, the proposed master plan includes connections across I-24 to connect with Cleveland Street and Grace Street, which are local east-west streets that provide connections to the McFerrin Park, Cleveland Park and East Nashville areas of Nashville. In addition, new multimodal and pedestrian bridges over Cumberland River are proposed in the master plan which will enhance the connectivity of Germantown and Downtown significantly.

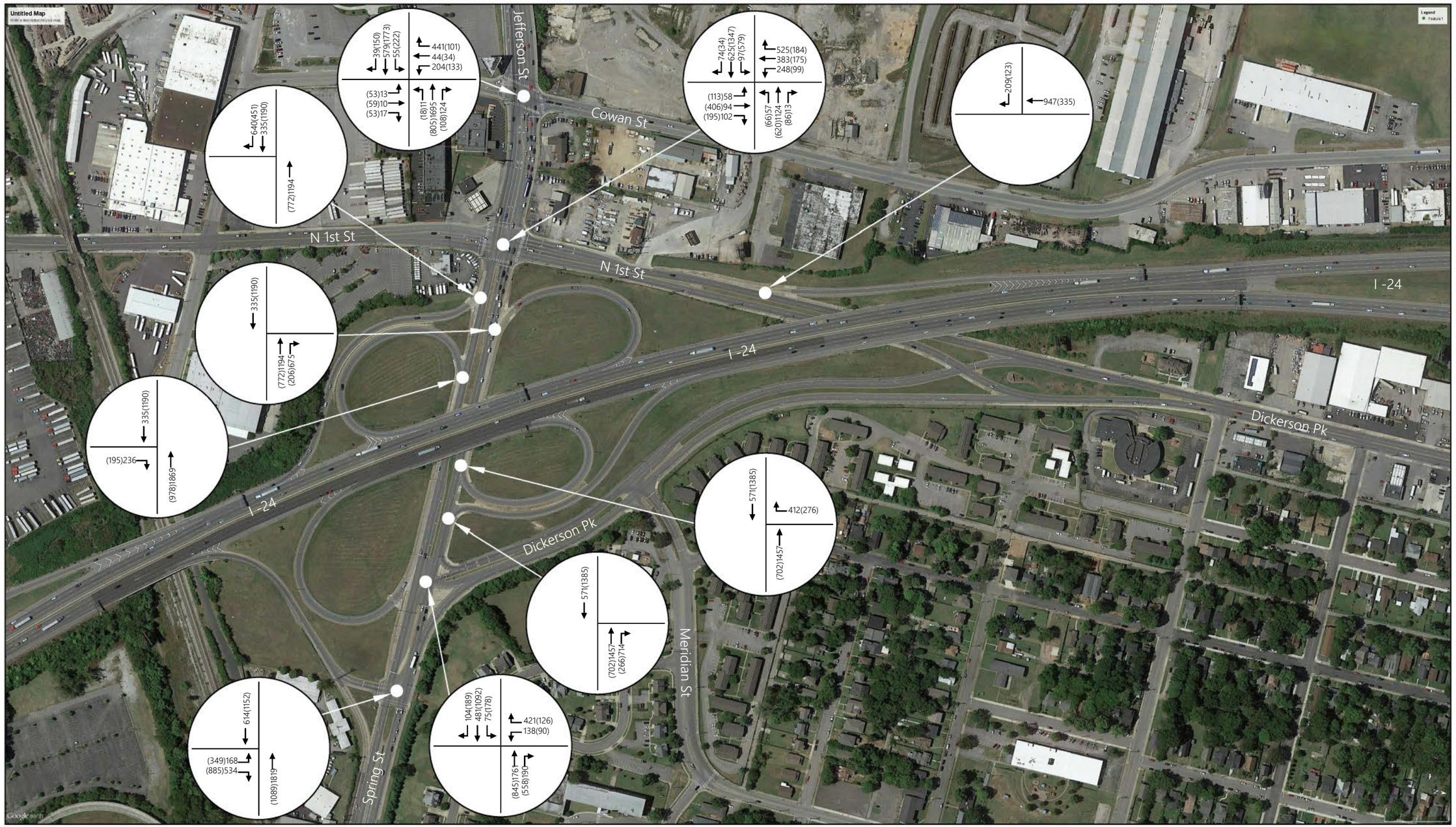
3.2 Existing Traffic Volumes

In addition to examining the classification and laneage of the surrounding roadway network, traffic volume counts located in proximity to the site were available from a variety of sources. One of these sources is TDOT, which has permanent count stations located throughout the state that collect both daily and hourly traffic volumes. Additionally, peak period turning movement traffic counts were collected by KCI at the following locations:

1. Jefferson Street/Spring Street and Cowan Street
2. Spring Street and North 1st Street
3. Spring Street and Dickerson Pike
4. I-24 On & Off-Ramps at Spring Street
5. I-24 Eastbound Off-ramp at North 1st Street

Traffic counts for the study intersections were conducted in June 2016 by KCI. Specifically, the turning movement counts were conducted from 7:00 – 9:00 AM and 4:00 – 6:00 PM on a typical weekday in June 2016. From the counts, it was determined

that the peak hours of traffic flow for the study intersections occurred from 8:00 – 9:00 AM and 4:00 – 5:00 PM. The existing peak hour turning movement volumes are presented in Figure 2. A detailed summary of the turning movement counts is included in Appendix B.

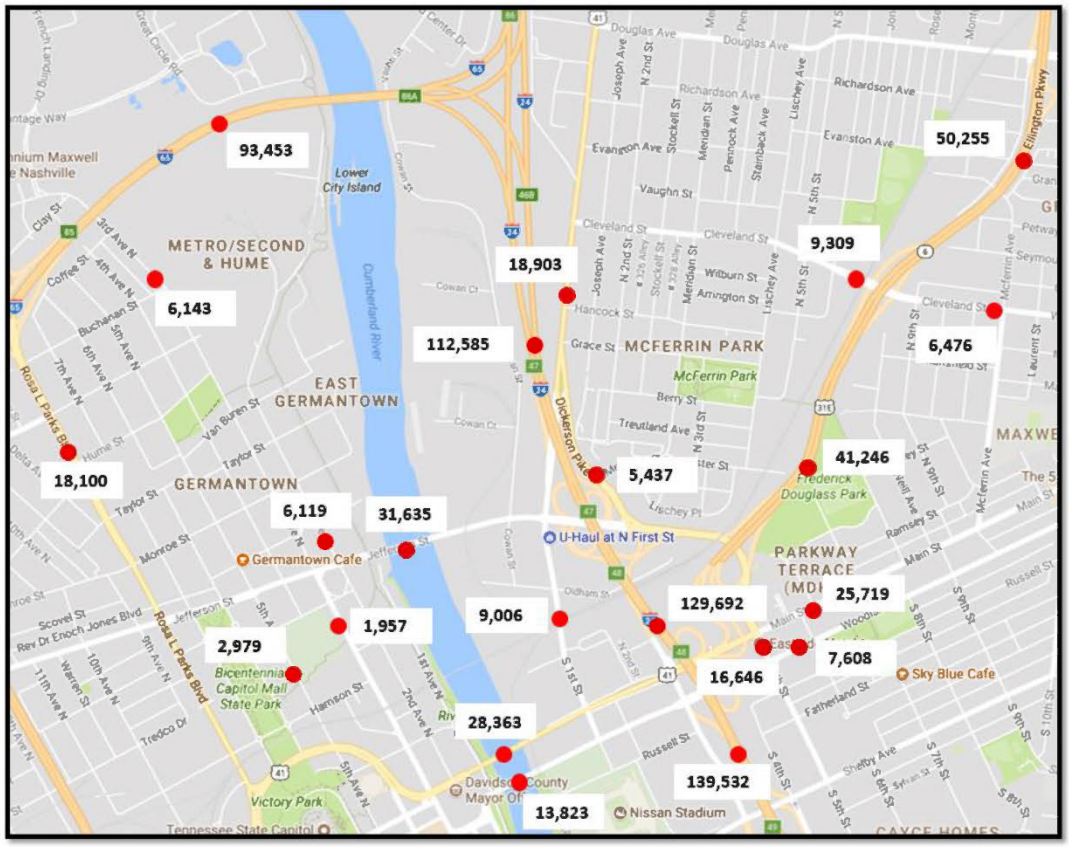


Existing Peak Hour Traffic Volumes
(Not to Scale)

Figure 2.

In addition to the above information, average daily traffic volumes were obtained from the Tennessee Department of Transportation (TDOT). Figure 3 identifies the 2016 annual average daily traffic (AADT) at the TDOT count stations in the study area. TDOT Count Station data is included in Appendix C.

As shown in Figure 3, I-24 and I-65 carry two-way daily volumes in excess of 100,000 vehicles per day. Other streets in the project site vicinity that carry significant daily traffic volumes are Ellington Parkway (50,255 vehicles per day), Jefferson Street (31,635 vehicles per day), Dickerson Pike (18,903 vehicles per day), and James Robertson Parkway (28,363 vehicles per day). Cleveland Street, which the masterplan proposes to extend across I-24 as part of the proposed River North project, has a daily two-way traffic volume of 9,309 vehicles per day.



Source: *TDOT*

FIGURE 3. 2016 AADT DATA

3.3 Existing Traffic Operations

To determine the current operation of the study intersections, capacity analyses were performed for the AM and PM peak hours. The capacity calculations were performed according to the methods outlined in the *Highway Capacity Manual*, TRB 2010. The capacity analyses result in the determination of a Level of Service (LOS) for an intersection. The LOS is a concept used to describe how well an intersection or roadway operates. LOS A is the best, while LOS F is the worst. LOS D is typically considered as the minimum acceptable LOS for an intersection in an urbanized area. Table 2 present the descriptions of LOS signalized intersections, accordingly.

TABLE 2. DESCRIPTIONS OF LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS

LEVEL OF SERVICE	DESCRIPTION	CONTROL DELAY (sec/veh)
A	Operations with very low delay. This occurs when progression is extremely favorable. Most vehicles do not stop at all.	≤ 10
B	Operations with stable flows. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.	>10 and ≤ 20
C	Operations with stable flow. Occurs with fair progression and/or longer cycle lengths. The number of vehicles stopping is significant, although many still pass through the intersection without stopping.	>20 and ≤ 35
D	Approaching unstable flow. The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop.	>35 and ≤ 55
E	Unstable flow. This is considered to be the limit for acceptable delay. These high delays generally indicate poor progression, long cycle lengths, and high V/C ratios.	>55 and ≤ 80
F	Unacceptable delay. This condition often occurs with over saturation or with high V/C ratios. Poor progression and long cycle lengths may also cause such delay levels.	>80.0

Source: *Highway Capacity Manual*, TRB 2010

The results of the capacity analyses for the existing conditions at the intersections studied are presented in Table 3 and Table 4 for the AM and PM peak hours, accordingly. Each of these intersections is signalized. As shown, the signalized intersection of Jefferson Street and Cowan Street operates at LOS D and LOS C during the AM and PM peak hours, respectively. The intersection of Spring Street and North

1st Street operates at LOS E during the AM peak hour and LOS D during the PM peak hour. The intersection of Spring Street and Dickerson Pike operates at LOS D during the AM peak hour and LOS B during the PM peak hour. The intersection of Spring Street and I-24 WB Off-Ramp operates at LOS B during the AM peak hour and LOS A during the PM peak hour. Capacity analyses worksheets are included in Appendix D.

TABLE 3. EXISTING AM PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	LEVEL OF SERVICE (Average Approach Delay in sec/veh) AM Peak Hour
Jefferson Street & Cowan Street	Overall Intersection	D (53.9)
Spring Street & North 1st Street	Overall Intersection	E (69.9)
Spring Street & Dickerson Pike*	Overall Intersection	D (35.6)
Spring Street & I-24 WB Off-Ramp*	Overall Intersection	B (13.3)
Note: Asterisks denote intersections that utilize non-NEMA phasing and are, therefore, analyzed using HCM 2000 results		

TABLE 4. EXISTING PM PEAK HOUR LEVELS OF SERVICE

INTERSECTION	TURNING MOVEMENT	LEVEL OF SERVICE (Average Approach Delay in sec/veh) PM Peak Hour
Jefferson Street & Cowan Street	Overall Intersection	C (20.1)
Spring Street & North 1st Street	Overall Intersection	D (48.4)
Spring Street & Dickerson Pike*	Overall Intersection	B (13.5)
Spring Street & I-24 WB Off-Ramp*	Overall Intersection	A (8.8)
Note: Asterisks denote intersections that utilize non-NEMA phasing and are, therefore, analyzed using HCM 2000 results		

4. IMPACTS

4.1 Trip Generation

A traffic generation process was used to estimate the amount of traffic expected to be generated by Phase 1 of the proposed River North development. Factors for the trip generation were taken from ITE's *Trip Generation*, Ninth Edition. As previously discussed, Phase 1 of the proposed development, as considered in this analysis, consists of a total of approximately three (3) million square feet of office space, 1,735 residential units, 285,000 square feet of retail/restaurant space, 550 hotel rooms and 186,500 square feet of civic space. As part of the development of the project site, significant pedestrian infrastructure improvements are planned to be included both within the project site and along the adjacent public rights-of-way. Additionally, the project site is located in an area that already includes a relatively dense mix of land uses with regular transit service. Therefore, using reductions in the base ITE trip generation rates, 5% reductions were applied to account for walking, biking, and transit modes, conservatively.

Data presented in the ITE publication, *Trip Generation Handbook,* shows that developments containing multiple land uses will commonly have internal trips. A process was used to estimate the amount of internal trips that can be expected between land uses based on methodology presented in NCHRP Report 684, "Enhancing Internal Trip Capture Estimation for Mixed-Use Developments." The methodology contained in the NCHRP Report expands on ITE's methodology, including additional land uses and supporting data. The internal trip reduction process resulted in an approximate 22% internal capture rate for the AM, 19% for the PM, and 20% for daily trip generation under full buildout scenario of the proposed development.

Table 6 presents the daily, AM, and PM peak hour trip generation for Phase 1 of the proposed mixed-use development. As shown by Table 6, Phase 1 of the proposed development, as considered in this analysis, is expected to generate approximately 36,949 new trips per day. The AM and PM peak hour trip generations will equal approximately 3,634, and 4,483 new trips, respectively. As it was mentioned previously, the traffic analysis is based on more density than is currently contemplated by the developer. Given variables such as local demand and overall economy, it is prudent to underwrite conservatively. The calculations for trip generation are included in Appendix E.

TABLE 5. DEVELOPMENT TRIP GENERATION (PHASE 1)

LAND USE	SIZE	GENERATED TRAFFIC[1]				
		DAILY	AM PEAK HOUR		PM PEAK HOUR	
		TRIPS	ENTER	EXIT	ENTER	EXIT
Office (LUC 710)	3,029,000 s.f.	13,328	2,163	233	535	2,623
Retail (LUC 826)	200,000 s.f.	6,531	52	74	80	102
Restaurant[2]	58,000 s.f.	5,549	142	149	187	66
Apartments (LUC 220)	1,735 d.u.	8,084	151	486	402	233
Hotel (LUC 310)	550 rooms	3,457	157	27	122	133
	SUBTOTAL	36,949	2,665	969	1,326	3,157
	NEW TRIPS	**36,949**	**3,634**		**4,483**	

Notes:
1) Calculations above represent only new traffic generated by the project site. The internal trips and alternative mode trips are not included in the numbers above.
2) Combination of LUC 931, LUC 932, and LUC 936

Source: *Trip Generation*, Ninth Edition

4.2 Evaluation

As mentioned previously, the master plan proposed a variety of new roadway extensions, bridges, interchanges and access connections to the Interstate system as well as to existing streets. Various combinations of the potential improvements within the study area were developed. Directional distributions of traffic generated by the proposed project were then established based on the proposed access connections under each scenario and the existing travel patterns developed from the existing peak hour traffic counts. Capacity analysis using Synchro 9 along with a sensitivity analysis were then conducted at the critical study intersections to estimate the maximum new trip-generated traffic volumes by the proposed development which can be managed under each scenario.

It should be noted that since the existing operational performance at the study intersections indicated that at least one of the intersections (Spring Street and North 1st Street) operates at LOS E during the peak hours, some improvements are required to be implemented upon the construction of the proposed development at any stage if LOS D operation is to be achieved.

For the purpose of this study and based on the capacity analysis it was determined that the intersection of Jefferson Street/Spring Street and Cowan Street is the control intersection for the sensitivity analysis. In addition, the proposed development has higher impacts at that intersection during the PM peak hour when compared to the AM peak hour. As a result, for the sensitivity analysis, capacity analyses were conducted at the intersection of Jefferson Street/Spring Street and Cowan Street during the PM peak hour under each of the various scenarios.

Directional distribution within the study area and specifically the study intersection of Jefferson Street/Spring Street and Cowan Street varies based on the proposed improvements. Consequently, directional distributions under each scenario were developed and the maximum newly generated trips by the proposed development, which can be managed under each scenario was determined. Description of the proposed improvements, specific directional distributions, and the maximum new trip-generated traffic volumes by the proposed development (based on the PM peak hour volumes) which can be accommodated under each scenario are presented as follows.

4.2.1 Low Level and Medium Level Improvements

Under the low level and medium level improvements scenarios, the proposed developments do not include construction of any new roadway bridges and/or connectors. Moreover, under the low-level improvements scenario, widening of

Jefferson Street/Spring Street within the study area is not being considered. However, under the scenario with medium level improvements, potential improvements which require widening of Jefferson Street/Spring Street within the study area were considered and included in the analysis. Since no new roadway connectors were proposed under either the low level and medium level improvements scenarios, the same directional distribution was utilized for both scenarios. Figure 4, Table 7, and Table 8 present the directional distribution, proposed improvements, and maximum newly generated trips by the proposed development that can be accommodated by implementing those improvements. Conceptual recommended improvements at the intersection of Jefferson Street/Spring Street and Cowan Street under low-level and medium-level improvements scenarios are presented in Figure 5 and Figure 6.

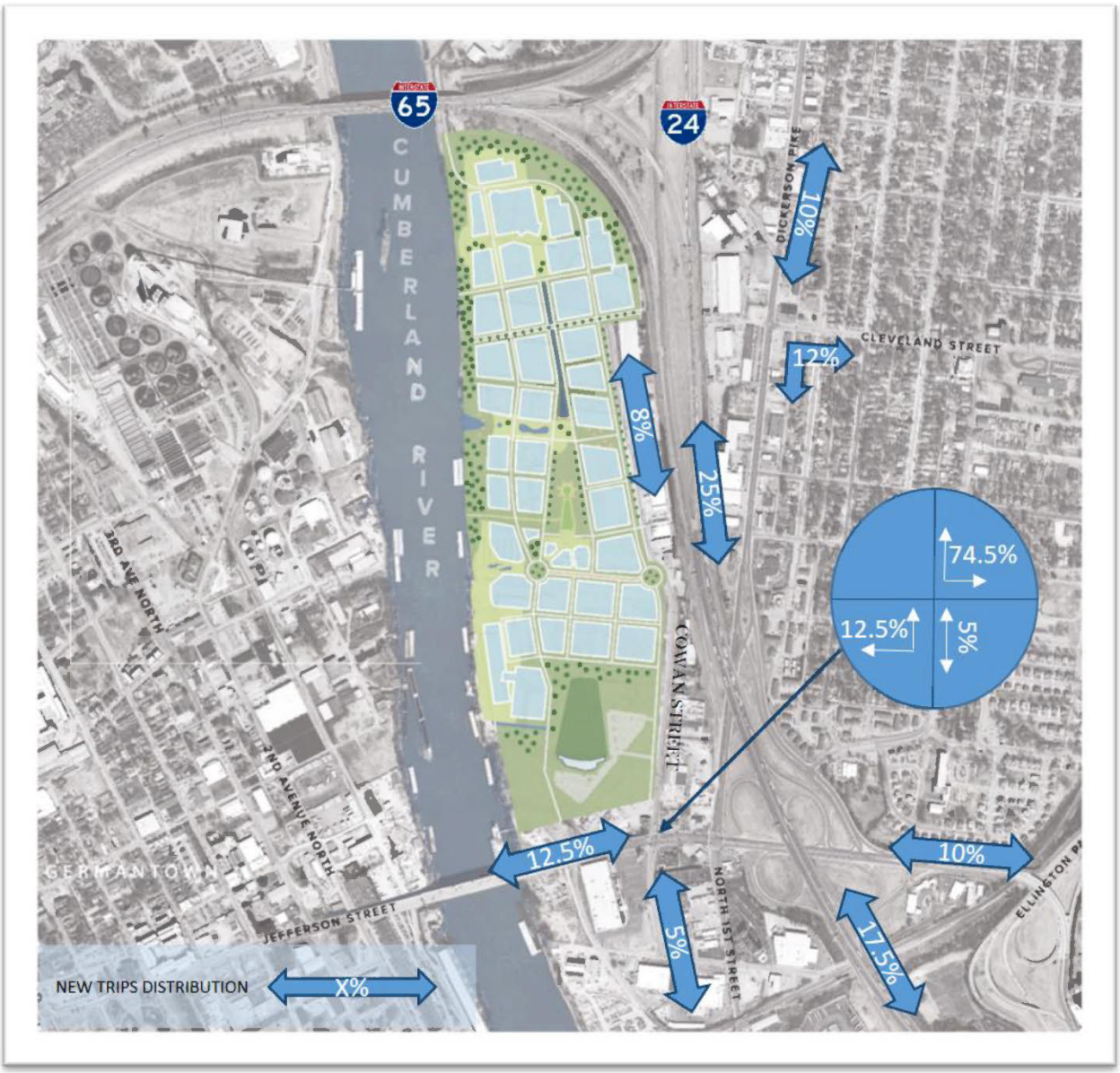


FIGURE 4. DIRECTIONAL DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE UNDER LOW-LEVEL AND MEDIUM-LEVEL IMPROVEMENTS

TABLE 6. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR UNDER LOW-LEVEL IMPROVEMENTS SCENARIO

LOW-LEVEL IMPROVEMENTS

- No additional eastbound lane on Jefferson Street/Spring Street at Cowan Street is required.
- Widen Cowan Street southbound to include two left-turn lanes, one through lane, and one right-turn lane.
- Provide a westbound right-turn lane with free-flow operation on Spring Street at Cowan Street.

MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR		
TOTAL	ENTER	EXIT
983 (22% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	360	623

TABLE 7. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR UNDER MEDIUM-LEVEL IMPROVEMENTS SCENARIO

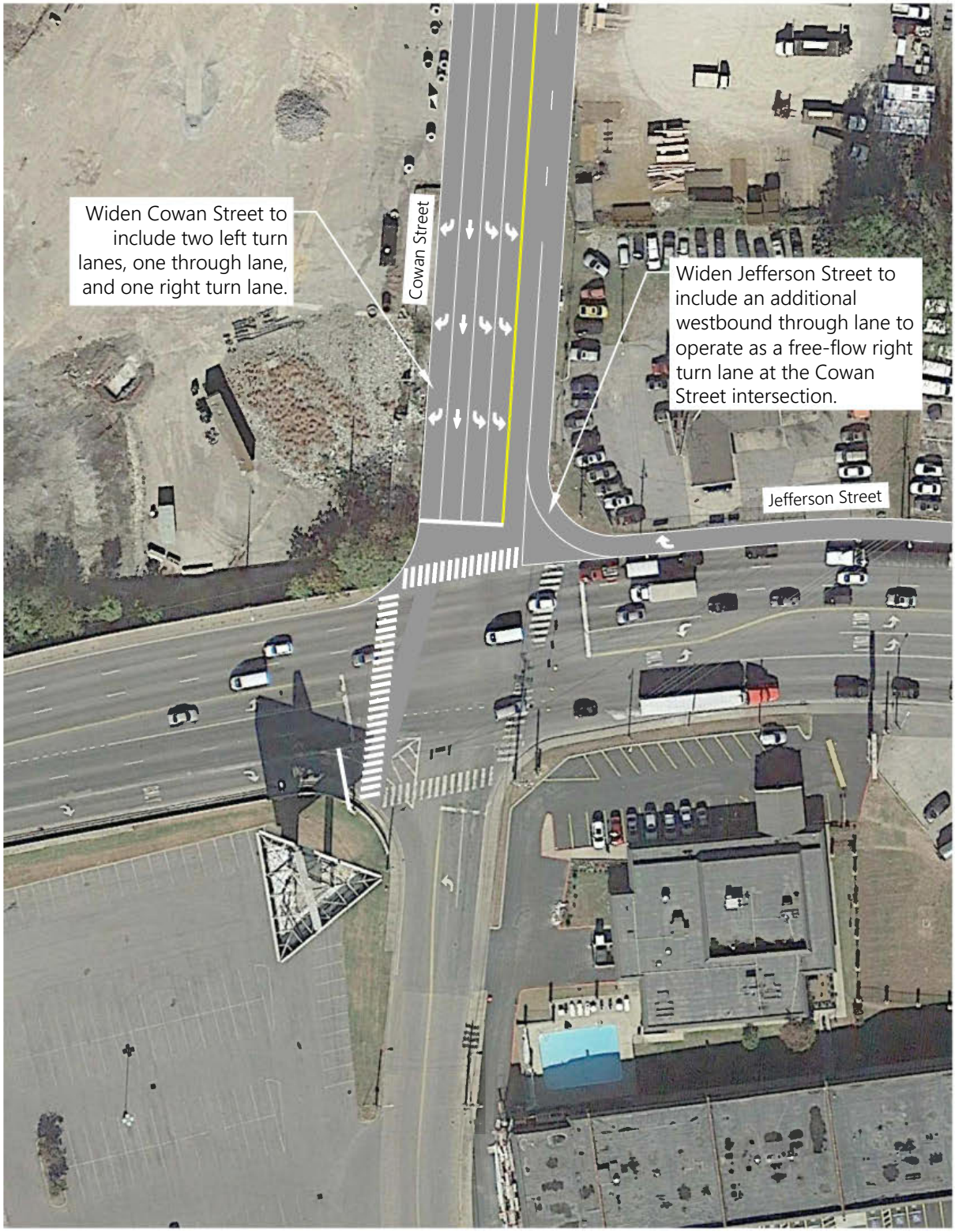
MEDIUM-LEVEL IMPROVEMENTS

1) Widen Jefferson Street to include an additional eastbound through lane at Cowan Street.[1]
2) Widen Cowan Street southbound to include three left-turn lanes, one shared through/right-turn lane, and one right-turn lane.
3) Provide a westbound right-turn lane with free-flow operation on Spring Street at Cowan Street.

Notes: 1) Feasible alternatives should be considered to determine the need for the widening of the eastern section of the Jefferson Street bridge in order to accommodate this additional eastbound through lane

2) Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR		
TOTAL	ENTER	EXIT
2,700 (60% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,146	1,554

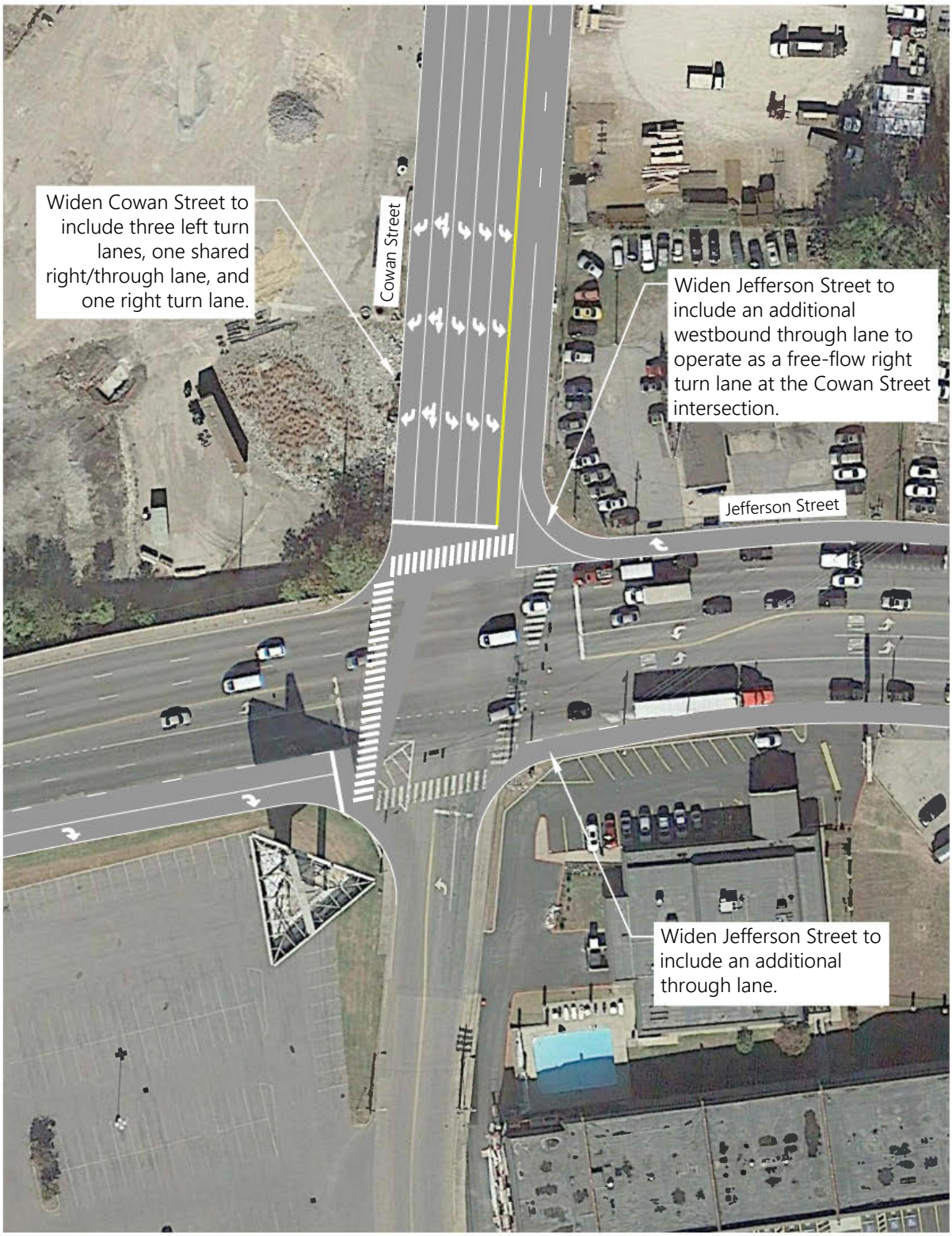


N

Recommended Improvements - Low Level Improvements

GRAPHIC SCALE
0' 80' 160'

Figure 5.



Recommended Improvements - Medium Level Improvements

Figure 6.

4.2.2 High-Level Improvements

Under the high-level improvements scenarios, construction of new roadway connectors and bridges were considered as part of the potential developments in addition to the proposed improvements under the medium-level improvements scenario. Several high-level improvement scenarios were evaluated using revised directional distributions that would result with the specific improvements. Directional distributions, proposed improvements, and maximum newly generated trips which can be accommodated by implementing those improvements are presented in the following tables and figures.

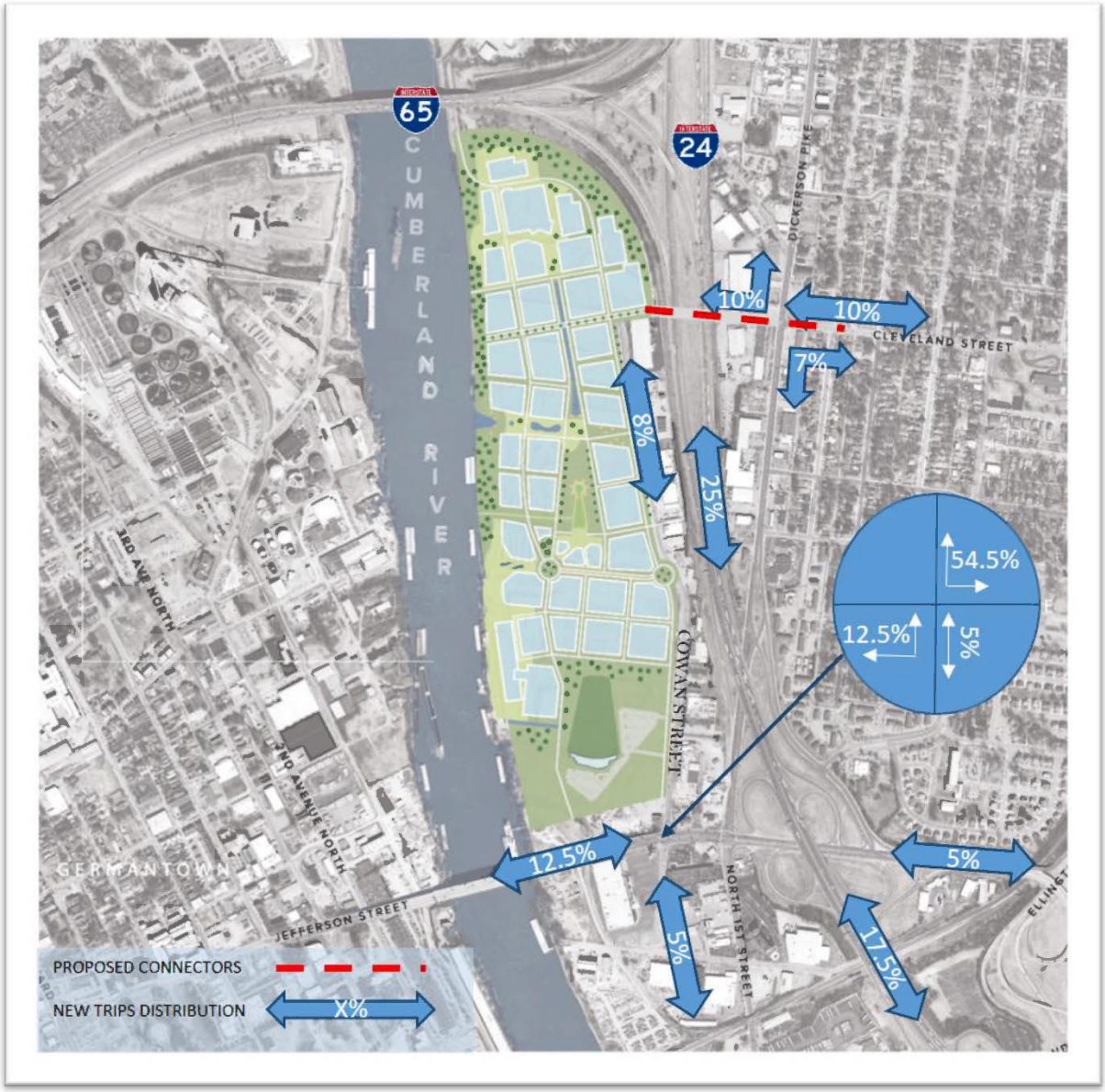


FIGURE 7. DIRECTIONAL DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE HIGH-LEVEL IMPROVEMENTS-OPTION 1

TABLE 8. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR UNDER HIGH-LEVEL IMPROVEMENTS SCENARIO-OPTION 1

HIGH-LEVEL IMPROVEMENTS-OPTION 1

- Provide a new roadway connector across I-24 between Cleveland Street and the proposed development.

ADDITIONAL IMPROVEMENTS-OPTION 1A

Include medium-level improvements #1, and #3 as described in Table 7 in addition to the following:

- Widen Cowan Street southbound to include two left-turn lanes, one shared through/right-turn lane, and one right-turn lane.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 1B

Include all the medium-level improvements as described in Table 7.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 1C

Include all the low-level improvements as described in Table 6.

MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR			
OPTIONS	TOTAL	ENTER	EXIT
OPTION 1A	1,350 (30% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	573	777
OPTION 1B	3,240 (72% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,375	1,865
OPTION 1C	1,215 (27% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	516	699

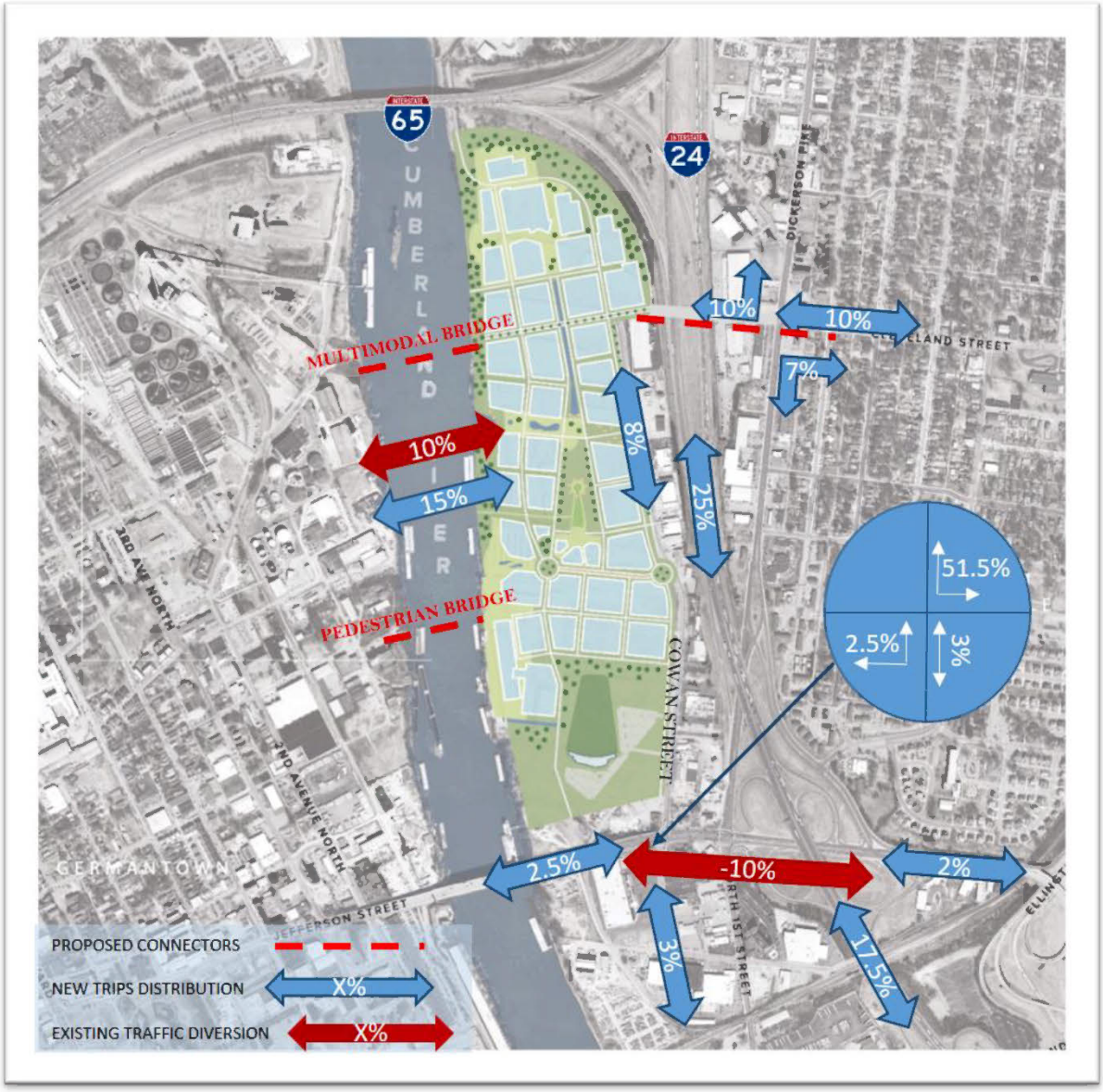


FIGURE 8. DIRECTIONAL DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE HIGH-LEVEL IMPROVEMENTS-OPTION 2

TABLE 9. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR UNDER HIGH-LEVEL IMPROVEMENTS SCENARIO-OPTION 2

HIGH-LEVEL IMPROVEMENTS-OPTION 2

- Provide a new roadway connector across I-24 between Cleveland Street and the proposed development.
- Provide new pedestrian and multimodal bridge connectors to Germantown over Cumberland River.

ADDITIONAL IMPROVEMENTS-OPTION 2A

Include medium-level improvements #1, and #3 as described in Table 7 in addition to the following:

- Widen Cowan Street southbound to include two left-turn lanes, one shared through/right-turn lane, and one right-turn lane.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 2B

Include all the medium-level improvements as described in Table 7.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 2C

Include all the low-level improvements as described in Table 6.

MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR			
OPTIONS	TOTAL	ENTER	EXIT
OPTION 2A	2,970 (66% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,261	1,709
OPTION 2B	4,590 (102% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,948	2,642
OPTION 2C	1,620 (36% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	688	932

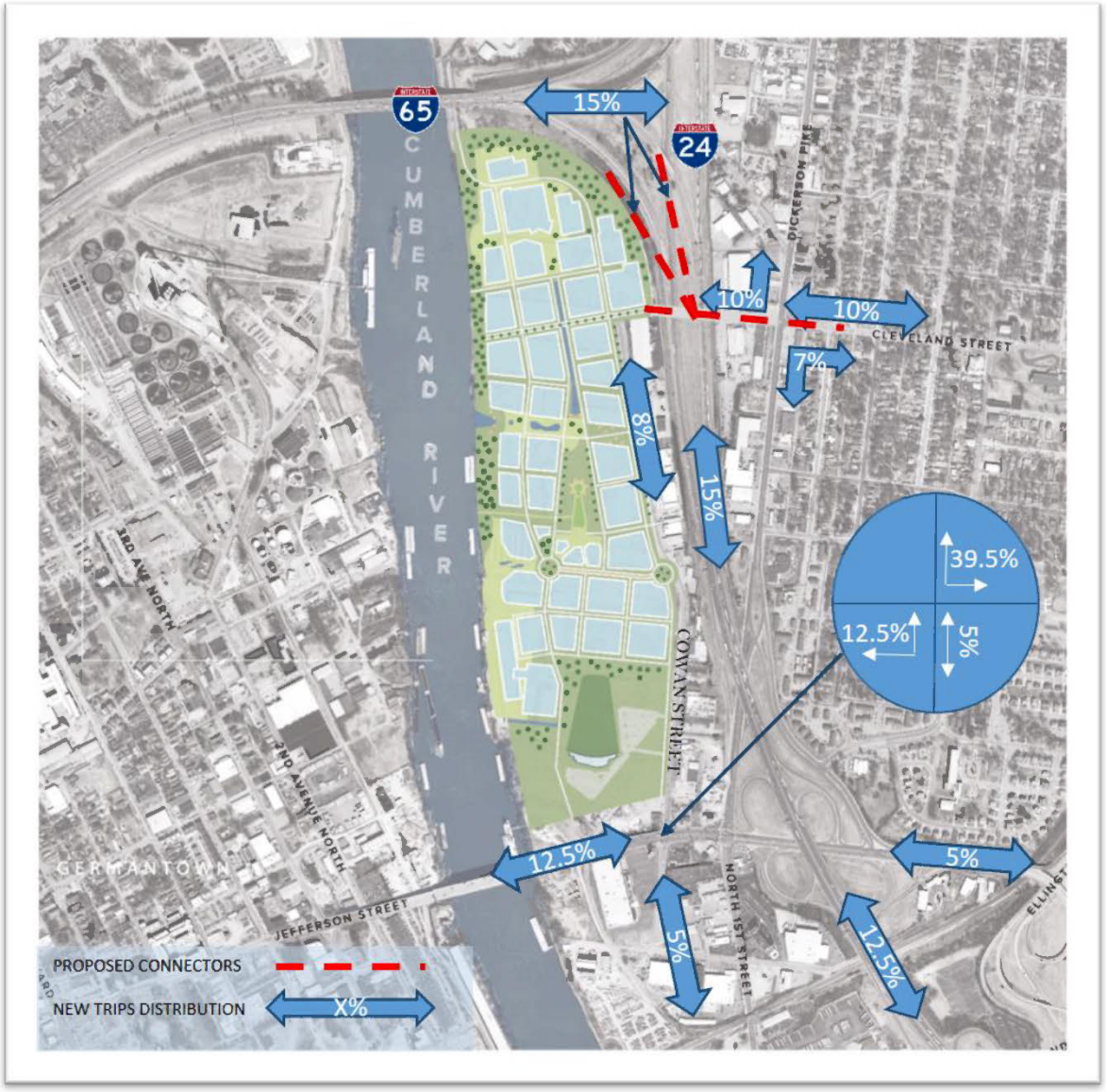


FIGURE 9. DIRECTIONAL DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE HIGH-LEVEL IMPROVEMENTS-OPTION 3

TABLE 10. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR UNDER HIGH-LEVEL IMPROVEMENTS SCENARIO-OPTION 3

HIGH-LEVEL IMPROVEMENTS-OPTION 3

- Provide a new roadway connector across I-24 between Cleveland Street and the proposed development with partial movements' accesses to Interstate.

ADDITIONAL IMPROVEMENTS-OPTION 3A

Include medium-level improvements #1, and #3 as described in Table 7 in addition to the following:

- Widen Cowan Street southbound to include two left-turn lanes, one shared through/right-turn lane, and one right-turn lane.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 3B

Include all the medium-level improvements as described in Table 7.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 3C

Include all the low-level improvements as described in Table 6.

MAXIMUM NEWLY GENERATED TRAFFIC VOLUMES BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR			
OPTIONS	TOTAL	ENTER	EXIT
OPTION 3A	2,970 (66% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,261	1,709
OPTION 3B	4,050 (90% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,719	2,331
OPTION 3C	1,620 (36% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	688	932

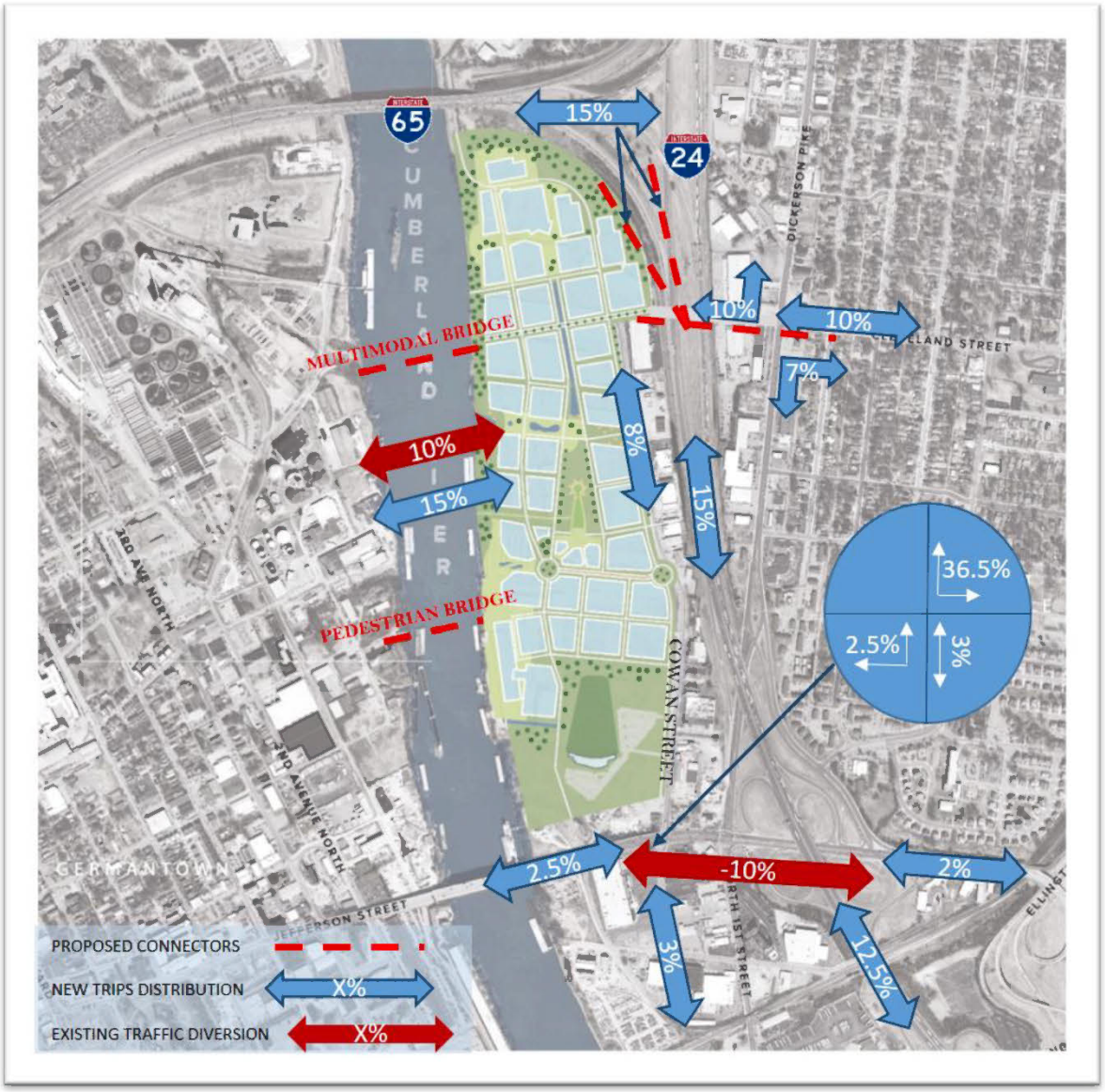


FIGURE 10. DIRECTIONAL DISTRIBUTION OF TRAFFIC GENERATED BY THE PROJECT SITE HIGH-LEVEL IMPROVEMENTS-OPTION 4

TABLE 11. MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR
UNDER HIGH-LEVEL IMPROVEMENTS SCENARIO-OPTION 4

HIGH-LEVEL IMPROVEMENTS-OPTION 4

- Provide a new roadway connector across I-24 between Cleveland Street and the proposed development with partial movements' accesses to Interstate.
- Provide new pedestrian and multimodal bridge connectors to Germantown over Cumberland River.

ADDITIONAL IMPROVEMENTS-OPTION 4A

Include medium-level improvements #1, and #3 as described in Table 7 in addition to the following:

- Widen Cowan Street southbound to include two left-turn lanes, one shared through/right-turn lane, and one right-turn lane.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 4B

Include all the medium-level improvements as described in Table 7.

Note: Widening of the I-24 bridge and ramps improvements within the study area are likely to be required.

ADDITIONAL IMPROVEMENTS-OPTION 4C

Include all the low-level improvements as described in Table 6.

MAXIMUM NEWLY GENERATED TRIPS BY THE PROPOSED DEVELOPMENT DURING PM PEAK HOUR			
OPTION	TOTAL	ENTER	EXIT
OPTION 4A	4,050 (90% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,719	2,331
OPTION 4B	5,940 (133% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	2,521	3,419
OPTION 4C	2,430 (54% of Newly Generated Trips by Total Buildout of Phase 1 of the Development During the PM Peak Hour)	1,031	1,399

4.2.3 Cowan Street Cross-Section

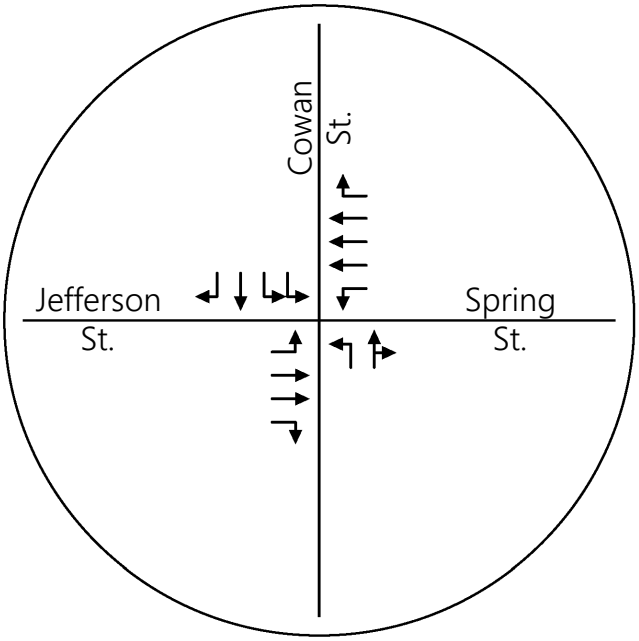
Total projected traffic volumes and lane configurations at the control study intersection of Jefferson Street/Spring Street and Cowan Street are presented in Figure 9 through Figure 13. As shown in the figures, total bi-directional projected traffic volumes on Cowan Street north of Jefferson Street/Spring Street during the PM Peak

hour (worst case) is expected to be within the range of 1,365-4,934 vehicles per hour under various improvements scenarios.

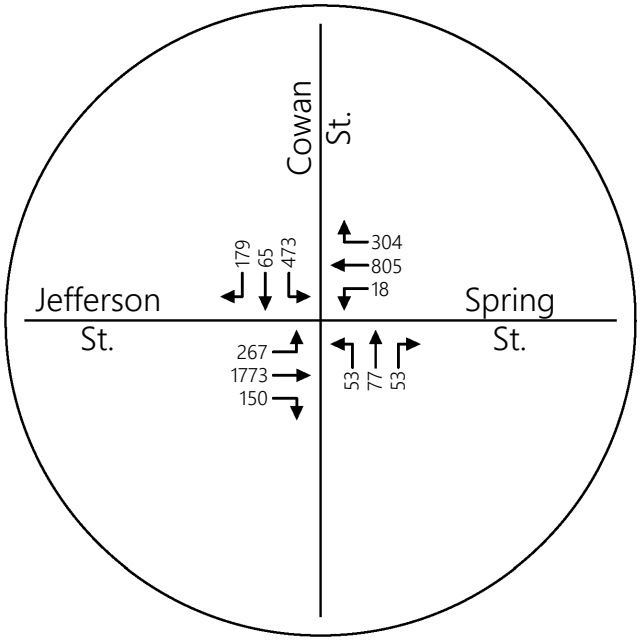
An urban roadway with 4,934 traffic volumes during the peak hour is very likely to carry daily trips of more than 40,000 vehicles per day, which typically requires a six-lane cross-section. The aesthetics and functionality of this wide of a roadway, however, is not compatible with the livability desires for the development or the overall vision for the downtown core – one that is walkable and supports a thriving transit system. The blank slate the site provides allows Metro to "rightsize" this corridor from the concept phase to ensure a functional and livable urban neighborhood environment that flourishes in the near-term, while allowing for strategic right-of-way dedication to adequately accommodate future growth. Whether the roadway needs to be widened to enhance mobility along the corridor, such as through the addition of turn lanes at intersections, dedicated transit lanes, or improvements for non-motorized users, having an appropriate amount of right-of-way already set aside will ensure that future buildings are appropriately located along the street's frontage and also provide a tremendous amount of cost savings and effort for Metro in the future. Long-term planning considerations such as these also better positions this critical area, which will act as a gateway into and out of downtown, to play an effective role in accomplishing the city's grander visions for multimodal transportation as growth continues.

Other mobility strategies within the study area could be considered and coordinated between the development team and Metro Nashville in order to achieve the high densities envisioned for the proposed development. Those strategies are likely to improve the mobility of the study area and to avoid extensive widening of Cowan Street. Some of the potential recommendations are described in the conclusions section of this study.

LANE CONFIGURATIONS



TOTAL PROJECTED TRAFFIC VOLUMES

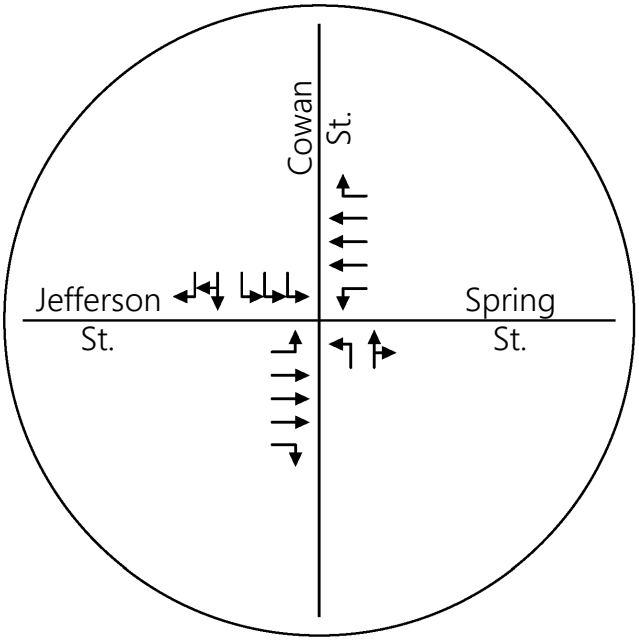


XXX - PM Peak Hour Traffic Volumes

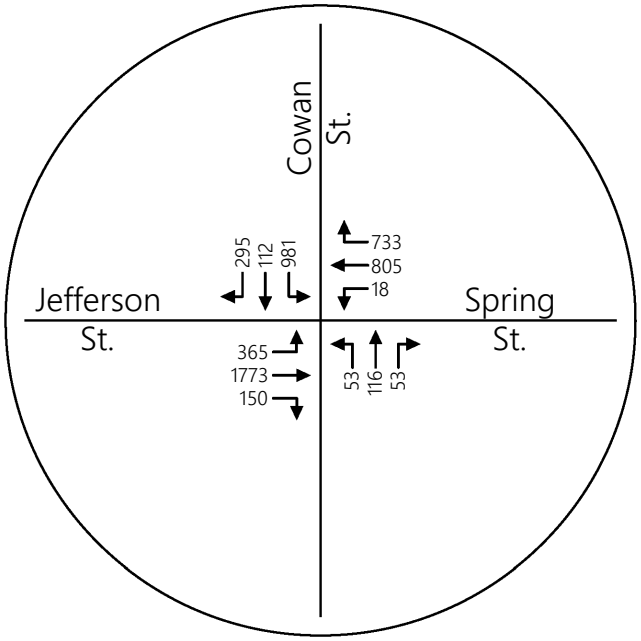
N

Total Projected Peak Hour Traffic Volumes (Low-Level Improvements)
(Not to Scale) Figure 11.

LANE CONFIGURATIONS



TOTAL PROJECTED TRAFFIC VOLUMES

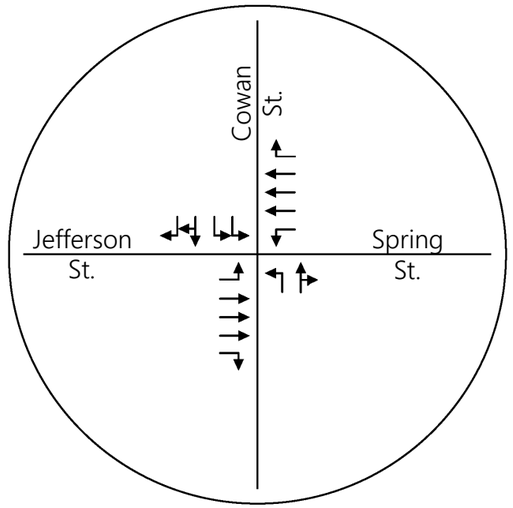


XXX - PM Peak Hour Traffic Volumes

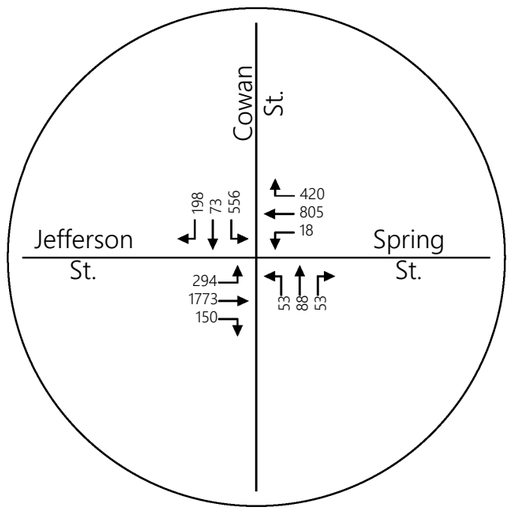
N

Total Projected Peak Hour Traffic Volumes (Medium-Level Improvements)
(Not to Scale) Figure 12.

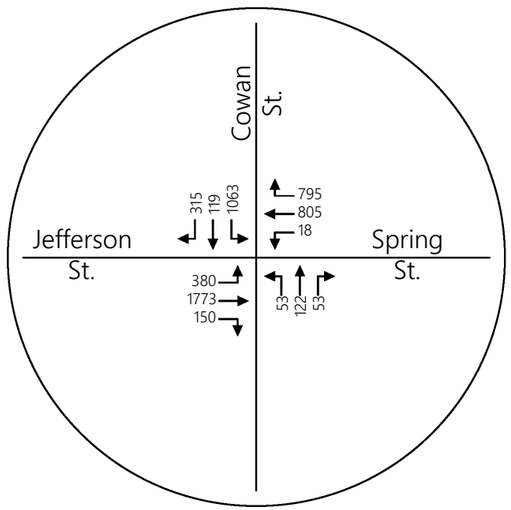
LANE CONFIGURATIONS



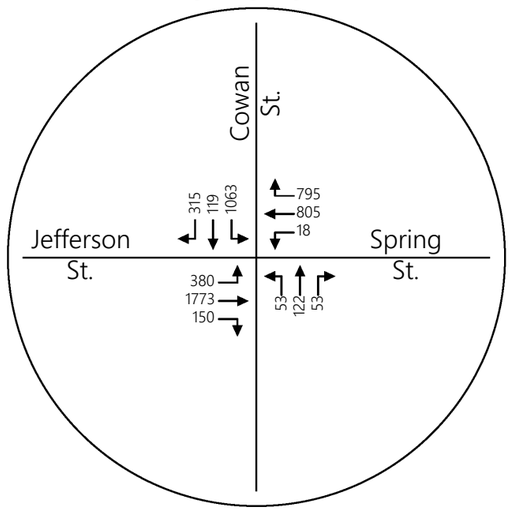
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 1A



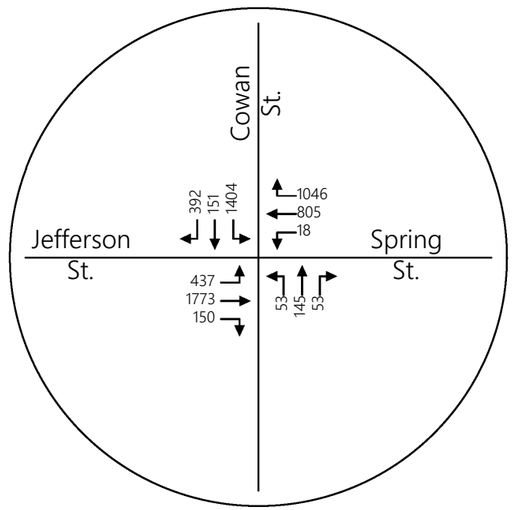
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 2A



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 3A



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 4A



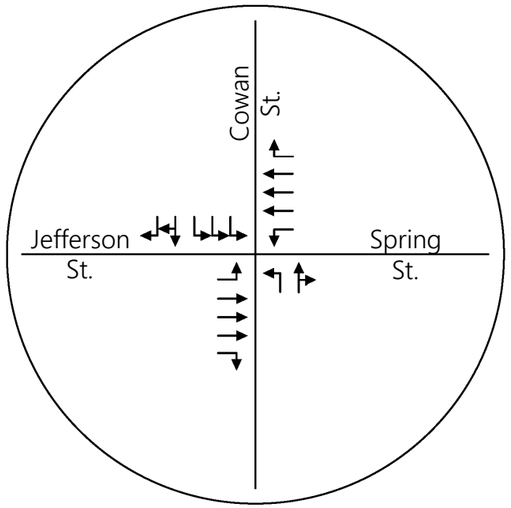
XXX - PM Peak Hour
Traffic Volumes

N

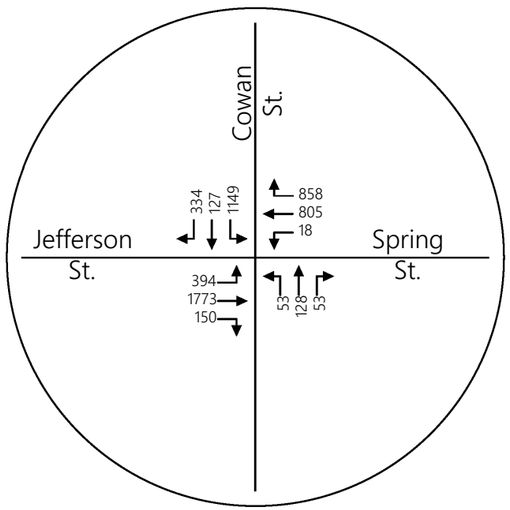
Total Projected Peak Hour Traffic Volumes (High-Level Improvements - A)
(Not to Scale)

Figure 13.

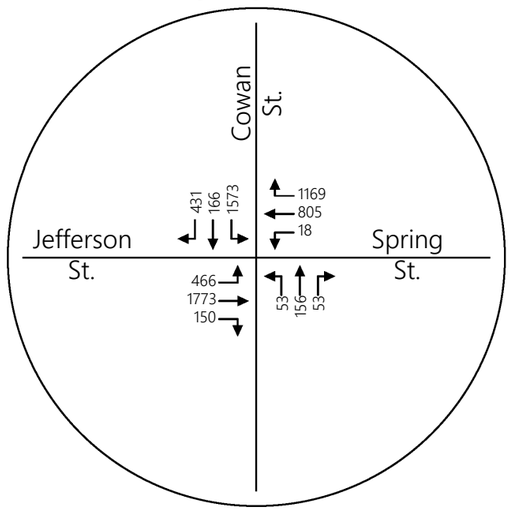
LANE CONFIGURATIONS



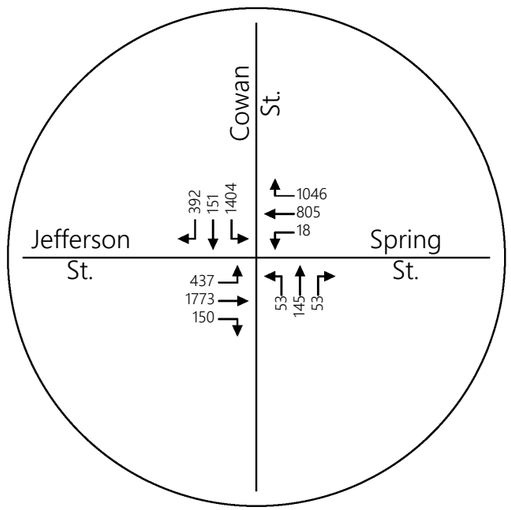
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 1B



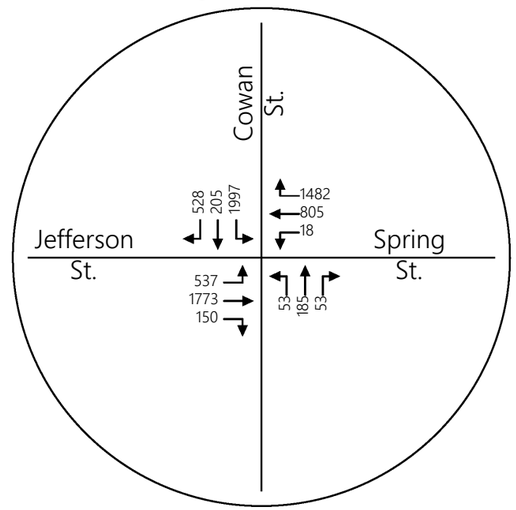
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 2B



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 3B



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 4B



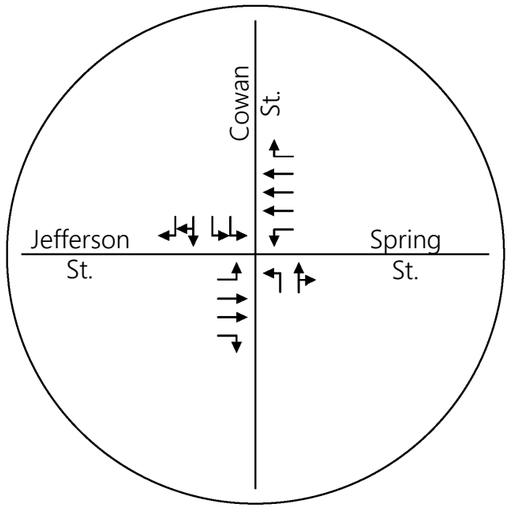
XXX - PM Peak Hour
Traffic Volumes

N

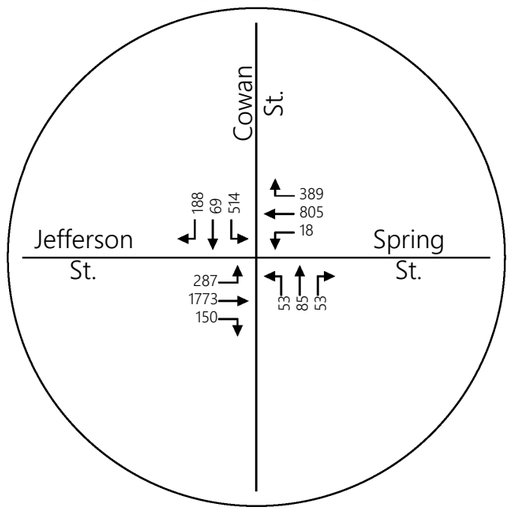
Total Projected Peak Hour Traffic Volumes (High-Level Improvements - B)
(Not to Scale)

Figure 14.

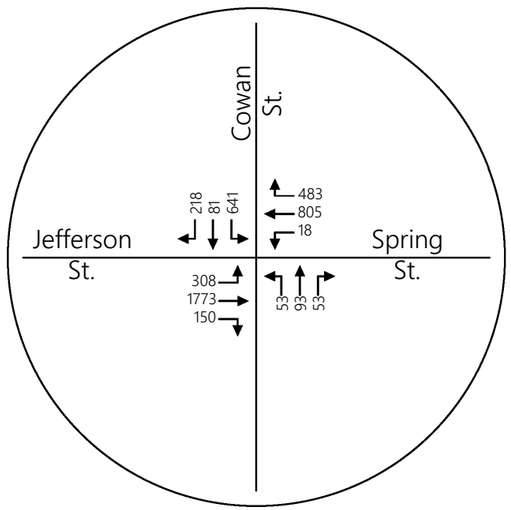
LANE CONFIGURATIONS



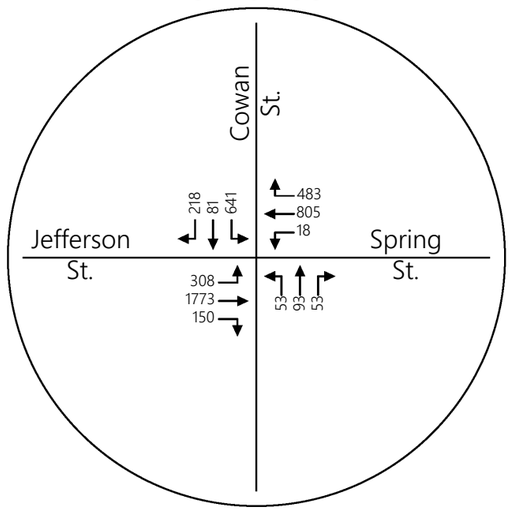
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 1C



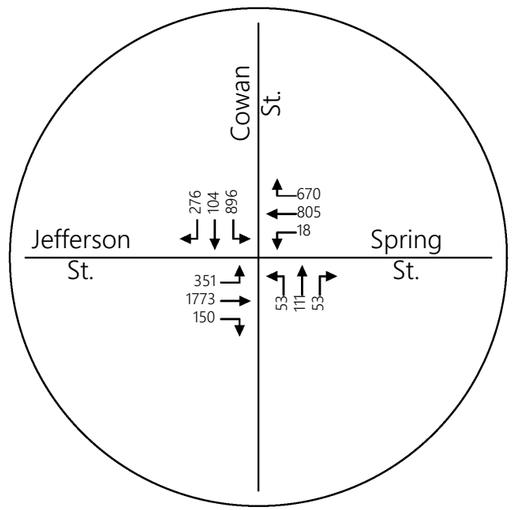
TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 2C



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 3C



TOTAL PROJECTED TRAFFIC VOLUMES
OPTION 4C



XXX - PM Peak Hour
Traffic Volumes

N

Total Projected Peak Hour Traffic Volumes (High-Level Improvements - C)
(Not to Scale)

Figure 15.

5. CONCLUSIONS AND RECOMMENDATIONS

A review was conducted of the roadway extensions, bridges and interstate access connections that are proposed as part of the River North master plan. This review consisted of evaluating the concepts based on federal and state requirements for the proposed new and modified interchanges and ramps and considering the improvements to network capacity and accessibility that would result with these concepts. Sensitivity analyses were also conducted to estimate the maximum expected newly generated trips by the proposed development, which can be managed by implementing those conceptual improvements within different stages. The suggested improvements are categorized as Low Level, Medium Level, and High Level. Conclusions of the reviews are as follows:

- The Cleveland Street extension and a connection across I-24 make a significant connection to the East Nashville area and will provide access to Dickerson Pike, Whites Creek Pike, Ellington Parkway (US 31E) and Gallatin Pike. Cleveland Street has a four-lane cross-section from Dickerson Pike to east of Ellington Parkway. Utilizing the highest PM peak hour trip generation (Option 4B) and the associated distribution, the Cleveland Street extension has the potential to add approximately 1,000 PM peak hour trips along the corridor; this serves as a significant increase over the 9,000 vpd currently served by the corridor. There are currently two (2) all-way stop controlled intersections along this portion of Cleveland Street, located at Meridian Street and Lischey Avenue. Improvements will likely be necessary at these intersections, at the Ellington Parkway ramps, and potentially at other intersections along the corridor when the Cleveland Street extension is constructed.

- Previous versions of the River North master plan included new on and off ramps to I-65 and I-24. Interchange modifications and/or new connections to the interstate system require both state and federal approval and there are strict standards regarding minimum spacing between ramps that must be met in order to obtain the necessary approvals. State and federal approval of any new interstate access is likely to require considerable modifications to the existing interchanges including the employment of one or more strategies to eliminate weaving on the interstate. These strategies include the addition of collector-distributor roads or grade separated ramps (ramp braids). Requirements for these type of freeway modifications are described in the NCHRP 687 report, *Guidelines for Ramp and Interchange Spacing*. Specific details regarding the operations and feasibility of any interchange modifications or additional access

points will need to be evaluated more thoroughly before understanding the feasibility of such improvements.

- The two proposed bridges over the Cumberland River have the potential to significantly improve access and provide alternative routes that would help lessen the impact of the project on the interstate system and on Jefferson Street/Spring Street. The current master plan illustrates the northern bridge as a vehicular and multimodal bridge and the southern bridge as a pedestrian and bicycle only bridge. It would be desirable for at least one of these bridges to have significant transit carrying capabilities.

- Consideration should be given to connecting the northern Cumberland River bridge to 3rd Avenue as well to provide more accessibility to and from north Nashville.

- A potential connection to Oldham Street has been discussed during the development of the masterplan. This connection would create a new north/south connection for project related traffic that may relieve development related traffic at the intersection of Jefferson Street/Spring Street and Cowan Street. The effectiveness of this connection could be further supported by improvements to South 1st Street, which provides access to Woodland Street to the south.

- The Grace Street extension and a connection across I-24 will provide a convenient connection to East Nashville and to Meridian Street, a north/south collector street. In addition, the Grace Street extension has the potential to be a strong bicycle/pedestrian connection to the pedestrian/bicycle bridge over Ellington Parkway. It should be noted that this proposed improvement was not included in the capacity analysis, for the purpose of this study. It was assumed that a portion of the distributed traffic on Cleveland Street connector would be distributed onto the Grace Street extension, which would result in the same reduction of traffic on Jefferson Street/Spring Street as without the implementation of this improvement.

- As previously described, the maximum full buildout of the southern 40 acres of the development is referred to as Phase 1 in this study. Improvement recommendations at the existing intersection of Jefferson Street/Spring Street and Cowan Street associated with Phase 1 of the development were also evaluated and are described below.

- Add additional turning lanes at the intersection of Jefferson Street and Cowan Street such that southbound Cowan Street consists of two or three left-turn lanes, a shared through/right lane and a right-turn lane. Further, an additional westbound lane will enhance capacity at this intersection. A right-turn lane with sufficient storage is recommended on the eastbound approach of Jefferson Street as well. It may be necessary to widen the eastern portion of the Jefferson Street bridge in order to add the recommended eastbound lane along Jefferson Street. Other feasible alternatives which may not require the widening of the bridge in order to accommodate additional eastbound travel lane, should also be considered and analyzed.

- The results of capacity analyses indicated that with low-level roadway improvements within the study area as described in the evaluation section, approximately 22% of the newly generated Phase 1 trips can be accommodated by the study area roadway system. Maximizing the density within the River North development is best accommodated with the high-level roadway improvements described previously in this study. Those improvements include the proposed new connectors/bridges with partial movement accesses to I-24 and/or I-65, providing additional eastbound travel lane on Jefferson Street and the I-24 bridge over Spring Street, and additional turning lanes on Cowan Street at Jefferson Street/Spring Street. It is estimated that 133% of the PM peak hour (5,940 vehicles per hour) for Phase 1 can be accommodated by implementing those improvements.

- It should be noted that intersections along Jefferson Street/Spring Street within the study area currently operate at or near capacity during peak hours. Therefore, improving the operational performance and traffic flow of Jefferson Street/Spring Street within the study area is warranted as of today even without the completion of any stages of River North development. Any development along the east bank is likely to exacerbate this existing need and access and capacity improvements will be needed to provide adequate traffic operations within the study area.

- It should be noted that the thresholds of development identified in this study are based on trips that are projected to be generated by the development of the River North project. As the development of River North progresses, the land uses and sizes that are actually developed may be different than those assumed for this study. If this occurs, continuing to use PM peak hour trips as

the warranting criteria for improvements will be an effective way to ensure that the recommended improvements are provided when needed.

- The evaluation of the proposed improvements and estimation of the maximum newly generated trips for the proposed development under each phase can be used as a helpful tool to plan different stages of the development. However, the capacity analysis procedure used in this study was based on several assumptions. It is recommended that the development conduct traffic counts as certain portions of the development is being completed and occupied in order to identify actual trip generation for the developed portions of the River North development. Those counts will provide a stronger foundation to verify the assumptions made in this study and also to explore further improvements using the actual travel patterns in and out of the development.

- It is important to note that traffic impact assumptions in this study are conservative, meaning analyses of network impacts were limited to the immediate vicinity of the development. Given the site's size and location adjacent to downtown and critical regional roadway junctions, , impacts (positive or negative) will occur well beyond the site. Should more robust high-level improvements be constructed, such as additional bridge connections or interstate improvements, functionality of the greater network in this area may in fact improve. Neither TDOT nor Metro Nashville has significant infrastructure improvements planned for the near term in this area, and while new trips will be added, these potential high-level improvements could provide alternative connections in the downtown area.

- Higher density for the proposed development may be achieved by emphasizing ride-share, and public transportation. Based on Mayor Barry's Transportation Action Agenda (Moving the Music City) plan, Metro Nashville, in partnership with TDOT, is developing a plan called Nashville Complete Trips. As part of the plan, Metro will promote other modes of transportation by reaching out to major employers and connecting employers and commuters to information about transportation options such as the transit and bikeshare systems, flex-scheduling and telecommuting, bike parking, and MTA/RTA park-and-ride locations. This plan would provide more opportunities for public-private partnerships by the proposed development. Such partnerships could be accomplished by providing private ride-share vehicles and/or sponsoring public transportation commutes for the employees. Upon the success of sponsoring other modes of commute, higher density for the proposed development could potentially be achieved with less traffic impacts on the roadway system.

APPENDICES

APPENDIX A
PRELIMINARY SITE PLAN

APPENDIX B
DETAILED TURNING MOVEMENT COUNTS

APPENDIX C
TDOT COUNT DATA

APPENDIX D
CAPACITY ANALYSES

APPENDIX E
TRIP GENERATION CALCULATIONS

APPENDICES

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APPENDIX B
DETAILED TURNING MOVEMENT COUNTS

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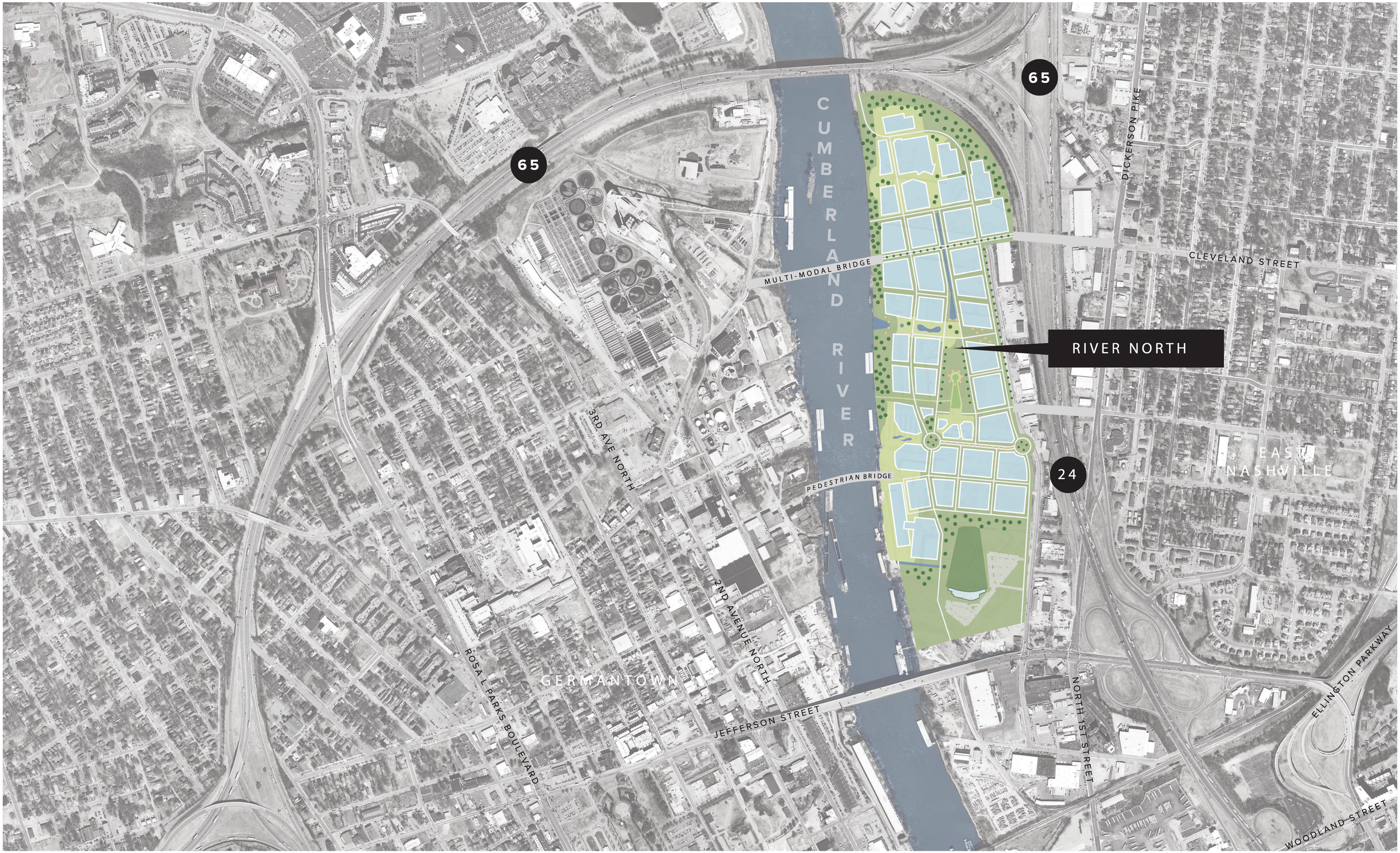
PRELIMINARY SITE PLAN



MONROE
INVESTMENT PARTNERS, LLC

HASTINGS
ARCHITECTURE ASSOCIATES, LLC

CIVIL·SITE
DESIGN GROUP

RIVER NORTH | SITE PLAN DIAGRAM

1"= 400' 0 200 400 800'

09/19/2017

LANDINGS

AT RIVERNORTH

PAD	PARCEL SIZE	GROSS BUILDABLE AREA (SF)	OFFICE (GROSS SF)	RESIDENTIAL (UNITS)	HOTEL (ROOMS)	RETAIL (SF)	NOTES
A	+/- 2.4 AC	524,000	456,000			68,000	RETROFIT FOR RESTAURAUNTS, ENTERTAINMENT, EXPANDABLE TO ADD OTHER USES
B	+/- 1.5 AC	327,000		310		25,000	
C	+/- 2.2 AC	480,000	455,000			25,000	
D	+/- 1.8 AC	393,000		250	150	20,000	
E	+/- 3.1 AC	720,000		460	250		
F	+/- 1.6 AC	458,000	368,000			90,000	RETAIL, OFFICE
G	+/- 1.4 AC	306,000	150,000	90	150	20,000	
H	+/- 1.2 AC	262,000		250		10,000	
I	+/- 1.8 AC	395,000	395,000				
J	+/- 1.9 AC	415,000		375			
K	+/- 1.9 AC	415,000	415,000				
L	+/- 1.6 AC	350,000	350,000				
M	+/- 1.9 AC	415,000	415,000				
TOTALS	+/- 24.3 AC	5,460,000	3,029,000	1,735	550	258,000	

MONROE
INVESTMENT PARTNERS, LLC

HASTINGS
ARCHITECTURE ASSOCIATES, LLC

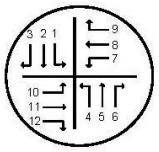
CIVIL·SITE
DESIGN GROUP

RIVER NORTH | PHASE I PLAN

1"= 100' 0 50 100' 200'

09/19/2017

APPENDIX B
DETAILED TURNING MOVEMENT COUNTS



North

INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: Dickerson Pike & Spring Street
DATE: 9/20/2016
RECORDER: SCU3FB/Zack Murphy
NOTES:

	Southbound			Northbound			Westbound			Eastbound			
LOCATION	Dickerson Pike			Dickerson Pike			Spring Street			Spring Street			
TIME	1	2	3	4	5	6	7	8	9	10	11	12	
6:00-6:15 AM													
6:15-6:30													725
6:30-6:45													1,509
6:45-7:00													2,299
7:00-7:15	20		59				1	434	58	12	110	31	3,144
7:15-7:30	25		102					454	43	15	116	29	3,170
7:30-7:45	31		101					443	50	16	122	27	3,118
7:45-8:00	40		106					467	43	24	141	24	3,037
8:00-8:15	42		112					397	54	20	102	24	2,875
8:15-8:30	31		100					424	45	18	93	21	2,124
8:30-8:45	24		69					436	45	14	90	31	1,392
8:45-9:00	11		46					417	58	13	111	27	683
9:00-9:15													
9:15-9:30													
9:30-9:45													
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2:45-3:00													
3:00-3:15													
3:15-3:30													751
3:30-3:45													1,470
3:45-4:00													2,232
4:00-4:15	25		30					227	111	31	283	44	3,005
4:15-4:30	19		34					213	116	28	271	38	3,027
4:30-4:45	26		35					234	113	40	268	46	3,079
4:45-5:00	21		40					206	127	45	282	52	2,996
5:00-5:15	25		30					202	156	44	262	54	2,918
5:15-5:30	18		21				1	203	162	49	280	37	2,145
5:30-5:45	16		36					182	136	41	233	35	1,374
5:45-6:00	18		36					196	118	52	256	19	695
6:00-6:15													
6:15-6:30													
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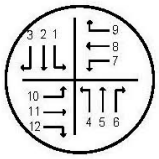
8:45-9:00													
9:00-9:15													
9:15-9:30													
9:30-9:45													
9:45-10:00 PM													
TOTAL	392		957				2	5,135	1,435	462	3,020	539	
AM PK HR	138		421					1,761	190	75	481	104	7:15 AM - 8:15 AM
MID PK HR													
PM PK HR	90		126				1	845	558	178	1,092	189	4:30 PM - 5:30 PM



INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: North 1st Street & Jefferson Street
DATE: 9/20/2016
RECORDER: SCU4XC/Zack Murphy
NOTES:

	Southbound			Northbound			Westbound			Eastbound			
LOCATION	North 1st Street			North 1st Street			Jefferson Street			Jefferson Street			
TIME	1	2	3	4	5	6	7	8	9	10	11	12	
6:00-6:15 AM													
6:15-6:30													780
6:30-6:45													1,600
6:45-7:00													2,448
7:00-7:15	67	83	150	12	19	16	16	238	4	26	139	10	3,348
7:15-7:30	64	84	153	7	28	28	16	259	2	20	151	8	3,400
7:30-7:45	65	106	136	15	20	26	11	255	4	23	168	19	3,451
7:45-8:00	65	100	109	21	24	23	13	329	1	27	161	27	3,364
8:00-8:15	54	93	127	15	22	25	17	281	6	27	145	20	3,172
8:15-8:30	60	128	128	16	31	30	26	274	5	24	132	17	2,340
8:30-8:45	47	82	96	13	24	29	26	254	5	25	143	17	1,469
8:45-9:00	62	55	93	25	28	23	17	211	3	43	140	8	708
9:00-9:15													
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3:00-3:15													
3:15-3:30													915
3:30-3:45													1,858
3:45-4:00													2,850
4:00-4:15	26	34	42	24	78	32	10	148	17	117	382	5	3,828
4:15-4:30	35	32	57	30	116	48	20	128	13	133	327	4	3,899
4:30-4:45	25	41	48	28	94	68	19	169	31	129	336	4	3,904
4:45-5:00	26	43	45	33	96	33	13	133	16	159	375	6	3,764
5:00-5:15	27	49	41	23	111	47	23	161	19	150	325	10	3,588
5:15-5:30	21	42	50	29	105	47	11	157	20	141	311	14	2,602
5:30-5:45	21	49	46	32	96	24	14	157	27	113	264	9	1,654
5:45-6:00	23	38	46	17	74	21	12	146	16	102	297	10	802
6:00-6:15													
6:15-6:30													
6:30-6:45													
6:45-7:00													
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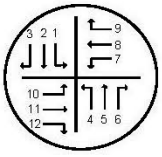
9:30-9:45													
9:45-10:00 PM													
TOTAL	688	1,059	1,367	340	966	520	264	3,300	189	1,259	3,796	188	
AM PK HR	248	383	525	58	94	102	57	1,124	13	97	625	74	7:15 AM - 8:15 AM
MID PK HR													
PM PK HR	99	175	184	113	406	195	66	620	86	579	1,347	34	4:30 PM - 5:30 PM



North

INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: Cowan Street & Jefferson Street
DATE: 9/20/2016
RECORDER: SCU5DA/Zack Murphy
NOTES:

	Southbound			Northbound			Westbound			Eastbound			
LOCATION	Cowan Street			Cowan Street			Jefferson Street			Jefferson Street			
TIME	1	2	3	4	5	6	7	8	9	10	11	12	
6:00-6:15 AM													
6:15-6:30													695
6:30-6:45													1,444
6:45-7:00													2,246
7:00-7:15	45	13	76	5	2	5	3	361	40	11	128	6	3,117
7:15-7:30	48	13	72	1	5	2	5	420	28	12	139	4	3,232
7:30-7:45	52	10	133	4	1	4	4	401	29	16	136	12	3,231
7:45-8:00	60	11	128	4	1	4	2	435	37	12	166	11	3,158
8:00-8:15	44	10	108	4	3	7		439	30	15	138	12	2,928
8:15-8:30	51	15	79	6	6	5	5	381	36	15	131	18	2,118
8:30-8:45	40	10	73	6	3	12	19	375	37	17	123	14	1,370
8:45-9:00	44	11	64	6	1	5	16	284	43	16	139	12	641
9:00-9:15													
9:15-9:30													
9:30-9:45													
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2:45-3:00													
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3:15-3:30													884
3:30-3:45													1,731
3:45-4:00													2,605
4:00-4:15	30	11	30	6	17	14	9	183	52	46	461	25	3,515
4:15-4:30	21	16	21	5	10	13	3	197	24	63	442	32	3,517
4:30-4:45	46	12	25	14	12	11	7	199	33	62	421	32	3,509
4:45-5:00	42	11	27	16	16	14	5	190	30	55	460	44	3,375
5:00-5:15	30	8	26	10	15	18	2	199	25	56	456	41	3,117
5:15-5:30	15	3	23	13	16	10	4	217	20	49	436	33	2,231
5:30-5:45	23	4	18	5	6	11	3	206	26	41	378	19	1,392
5:45-6:00	13	6	17	3		10	4	184	13	32	353	17	652
6:00-6:15													
6:15-6:30													
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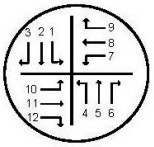
9:30-9:45													
9:45-10:00 PM													
TOTAL	604	164	920	108	114	145	91	4,671	503	518	4,507	332	
AM PK HR	204	44	441	13	10	17	11	1,695	124	55	579	39	7:15 AM - 8:15 AM
MID PK HR													
PM PK HR	133	34	101	53	59	53	18	805	108	222	1,773	150	4:30 PM - 5:30 PM



North

INTERSECTION TRAFFIC VOLUME COUNTS

LOCATION: Dickerson Pike & Spring Street
DATE: 9/20/2016
RECORDER: SCU3FB/Zack Murphy
NOTES:

	Southbound			Northbound			Westbound			Eastbound			
LOCATION	Dickerson Pike			Dickerson Pike			Spring Street			Spring Street			
TIME	1	2	3	4	5	6	7	8	9	10	11	12	
6:00-6:15 AM													
6:15-6:30													725
6:30-6:45													1,509
6:45-7:00													2,299
7:00-7:15	20		59				1	434	58	12	110	31	3,144
7:15-7:30	25		102					454	43	15	116	29	3,170
7:30-7:45	31		101					443	50	16	122	27	3,118
7:45-8:00	40		106					467	43	24	141	24	3,037
8:00-8:15	42		112					397	54	20	102	24	2,875
8:15-8:30	31		100					424	45	18	93	21	2,124
8:30-8:45	24		69					436	45	14	90	31	1,392
8:45-9:00	11		46					417	58	13	111	27	683
9:00-9:15													
9:15-9:30													
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3:00-3:15													
3:15-3:30													751
3:30-3:45													1,470
3:45-4:00													2,232
4:00-4:15	25		30					227	111	31	283	44	3,005
4:15-4:30	19		34					213	116	28	271	38	3,027
4:30-4:45	26		35					234	113	40	268	46	3,079
4:45-5:00	21		40					206	127	45	282	52	2,996
5:00-5:15	25		30					202	156	44	262	54	2,918
5:15-5:30	18		21				1	203	162	49	280	37	2,145
5:30-5:45	16		36					182	136	41	233	35	1,374
5:45-6:00	18		36					196	118	52	256	19	695
6:00-6:15													
6:15-6:30													
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8:45-9:00													
9:00-9:15													
9:15-9:30													
9:30-9:45													
9:45-10:00 PM													
TOTAL	392		957				2	5,135	1,435	462	3,020	539	
AM PK HR	138		421					1,761	190	75	481	104	7:15 AM - 8:15 AM
MID PK HR													
PM PK HR	90		126				1	845	558	178	1,092	189	4:30 PM - 5:30 PM

APPENDIX C
TDOT COUNT DATA

Station Information

Station	000315
Route	I0065
Location	[LOOPS] NASHVILLE
County	Davidson
2016	93453
2015	103738
2014	97381
2013	90804
2012	95882
2011	94309
2010	97235
2009	95364
2008	93222
2007	103115
2006	96998
2005	95853
2004	92334
2003	92746
2002	88952
2001	88756
2000	72471
1999	71002
1998	63474
1997	78111
1996	80782
1995	75045
1994	71493
1993	87432
1992	77718
1991	64934
1990	61368
1989	65028
1988	67146
1987	75000
1986	74018
1985	57516
1984	NA
1983	NA

Station Information

Station	000053
Route	SR011
Location	N OF JEFERSON ST BRIDGE
County	Davidson
2016	18903
2015	17557
2014	16205
2013	16362
2012	16008
2011	15595
2010	15429
2009	18698
2008	17447
2007	18969
2006	20698
2005	20184
2004	22680
2003	21955
2002	21516
2001	21112
2000	21826
1999	21653
1998	24912
1997	22000
1996	19840
1995	25646
1994	16286
1993	14296
1992	16759
1991	28340
1990	22541
1989	26548
1988	28282
1987	21535
1986	21599
1985	19097
1984	NA
1983	NA

Station Information

Station	000389
Route	04915
Location	EASTLAND - SW OF 388
County	Davidson
2016	9309
2015	9432
2014	8930
2013	7716
2012	7171
2011	7328
2010	7252
2009	7961
2008	7729
2007	8117
2006	8801
2005	8623
2004	9725
2003	9765
2002	10454
2001	10692
2000	10546
1999	10134
1998	10525
1997	12373
1996	12468
1995	11051
1994	10772
1993	11402
1992	9639
1991	8340
1990	9220
1989	9285
1988	10062
1987	10005
1986	10498
1985	9926
1984	NA
1983	NA

Station Information

Station	000304
Route	SR006
Location	ELLINGTON PKWY - NASHVILLE
County	Davidson
2016	50255
2015	50371
2014	46513
2013	45282
2012	42915
2011	40692
2010	41316
2009	38007
2008	42233
2007	44400
2006	39093
2005	46319
2004	45875
2003	45418
2002	42341
2001	39381
2000	37385
1999	43710
1998	45690
1997	42037
1996	40757
1995	41146
1994	39959
1993	34825
1992	31816
1991	32874
1990	35477
1989	36798
1988	34849
1987	34485
1986	35573
1985	27535
1984	NA
1983	NA

Station Information

Station	000387
Route	04915
Location	EASTLAND - N OF GALLATIN RD
County	Davidson
2016	6476
2015	6489
2014	6265
2013	6203
2012	6339
2011	5818
2010	5618
2009	5755
2008	6020
2007	5875
2006	5629
2005	6184
2004	6790
2003	6685
2002	7884
2001	7798
2000	6328
1999	6968
1998	8187
1997	9124
1996	6463
1995	7957
1994	6075
1993	5493
1992	6500
1991	6470
1990	6329
1989	5547
1988	6408
1987	6576
1986	5468
1985	5864
1984	NA
1983	NA

Station Information

Station	000224
Route	SR006
Location	ELLINGTON PKWY-E OF SPRING ST
County	Davidson
2016	41246
2015	46791
2014	45829
2013	44726
2012	43117
2011	41325
2010	41129
2009	37709
2008	42033
2007	42230
2006	47602
2005	46597
2004	45916
2003	45454
2002	42514
2001	44231
2000	37966
1999	43188
1998	48124
1997	41792
1996	41569
1995	39028
1994	39115
1993	35933
1992	38096
1991	36281
1990	44593
1989	42994
1988	39707
1987	36574
1986	31942
1985	27608
1984	NA
1983	NA

Station Information

Station	000223
Route	SR011
Location	NEAR JEFFERSON ST BRIDGE
County	Davidson
2016	5437
2015	4443
2014	4397
2013	4337
2012	4303
2011	4153
2010	3954
2009	4154
2008	4033
2007	4002
2006	3578
2005	3719
2004	4246
2003	3993
2002	4096
2001	3967
2000	4293
1999	4303
1998	4611
1997	4533
1996	6014
1995	5724
1994	5362
1993	6632
1992	5809
1991	5021
1990	6824
1989	6491
1988	5391
1987	5305
1986	5249
1985	4639
1984	NA
1983	NA

Station Information

Station	000300
Route	I0024
Location	[LOOPS] N OF MAIN ST
County	Davidson
2016	112585
2015	111471
2014	106517
2013	111467
2012	102166
2011	98292
2010	100916
2009	94330
2008	102899
2007	104740
2006	107073
2005	103884
2004	104700
2003	102898
2002	100955
2001	93684
2000	109108
1999	106372
1998	95515
1997	104550
1996	106939
1995	101150
1994	97873
1993	96369
1992	74169
1991	94591
1990	81165
1989	77000
1988	75000
1987	73843
1986	63000
1985	56584
1984	NA
1983	NA

Station Information

Station	000422
Route	03262
Location	3RD AVE N - NEAR I- 65 LOOP
County	Davidson
2016	6143
2015	5965
2014	4992
2013	6046
2012	5874
2011	6173
2010	6203
2009	6444
2008	6600
2007	6497
2006	6669
2005	6388
2004	5807
2003	5240
2002	4971
2001	5609
2000	5818
1999	5655
1998	6507
1997	4724
1996	6300
1995	6886
1994	5615
1993	5834
1992	5523
1991	5600
1990	5412
1989	5417
1988	5263
1987	5817
1986	5095
1985	5489
1984	NA
1983	NA

Station Information

Station	000054
Route	SR012
Location	BETWEEN GARFIELD & HUONE
County	Davidson
2016	18100
2015	16877
2014	15329
2013	15980
2012	15088
2011	13575
2010	15577
2009	14619
2008	16223
2007	16673
2006	17369
2005	17433
2004	17169
2003	16450
2002	16472
2001	16346
2000	16651
1999	18127
1998	16435
1997	17786
1996	17583
1995	19397
1994	19713
1993	16156
1992	18345
1991	12821
1990	11934
1989	13510
1988	15975
1987	13146
1986	10792
1985	7992
1984	NA
1983	NA

Station Information

Station	000390
Route	NA
Location	2ND AVE. N. - NEAR JEFFERSON ST
County	Davidson
2016	6119
2015	6262
2014	5722
2013	5754
2012	5350
2011	5976
2010	5543
2009	5885
2008	5876
2007	5829
2006	5774
2005	5708
2004	5038
2003	5504
2002	5226
2001	5163
2000	5107
1999	5120
1998	4922
1997	5406
1996	5309
1995	5953
1994	2327
1993	4310
1992	4300
1991	4294
1990	3671
1989	4301
1988	4140
1987	5486
1986	3578
1985	4070
1984	NA
1983	NA

Station Information

Station	000074
Route	03258
Location	JEFFERSON ST BRIDGE
County	Davidson
2016	31635
2015	31203
2014	29320
2013	27923
2012	28299
2011	27571
2010	26851
2009	24562
2008	28511
2007	30169
2006	30722
2005	31547
2004	32265
2003	30221
2002	31550
2001	32233
2000	30563
1999	35288
1998	38609
1997	33561
1996	28849
1995	30268
1994	NA
1993	NA
1992	24000
1991	23317
1990	18628
1989	22363
1988	23614
1987	26263
1986	22564
1985	26529
1984	NA
1983	NA

Station Information

Station	000393
Route	0F718
Location	5TH AVE. N. - INSIDE NASHVILLE LOOP
County	Davidson
2016	2979
2015	2874
2014	3059
2013	2748
2012	2406
2011	2595
2010	2707
2009	2816
2008	3025
2007	3107
2006	3359
2005	3352
2004	3302
2003	3210
2002	3088
2001	2921
2000	3083
1999	3342
1998	3188
1997	3041
1996	2190
1995	2115
1994	2361
1993	2937
1992	2910
1991	2841
1990	2903
1989	3700
1988	3614
1987	3459
1986	3336
1985	4393
1984	NA
1983	NA

Station Information

Station	000391
Route	03262
Location	3RD AVE - (ONE-WAY)
County	Davidson
2016	1957
2015	2000
2014	1928
2013	2020
2012	2138
2011	2092
2010	2199
2009	2013
2008	2652
2007	2575
2006	2560
2005	2765
2004	2738
2003	2651
2002	2541
2001	2646
2000	2808
1999	3996
1998	5557
1997	5543
1996	5398
1995	8095
1994	6550
1993	6064
1992	5711
1991	4437
1990	5005
1989	4862
1988	5280
1987	4678
1986	4802
1985	4451
1984	NA
1983	NA

Station Information

Station	000154
Route	03266
Location	N FIRST ST-B/T WOODLAND & SPRING ST
County	Davidson
2016	9006
2015	9376
2014	8716
2013	8272
2012	8293
2011	8803
2010	8547
2009	11047
2008	9886
2007	11086
2006	12233
2005	11794
2004	13162
2003	12767
2002	11374
2001	10847
2000	11491
1999	13977
1998	13656
1997	16834
1996	14372
1995	20654
1994	16624
1993	13342
1992	13056
1991	10950
1990	13141
1989	14000
1988	13704
1987	15869
1986	16095
1985	16266
1984	NA
1983	NA

Station Information	
Station	000194
Route	I0024
Location	B/T SPRING ST & MAIN ST
County	Davidson
2016	129692
2015	131220
2014	124525
2013	129338
2012	117695
2011	115690
2010	117916
2009	107920
2008	116432
2007	118216
2006	120632
2005	117768
2004	115814
2003	115826
2002	112503
2001	105611
2000	121571
1999	112691
1998	108202
1997	119326
1996	122262
1995	112157
1994	112077
1993	103101
1992	76383
1991	98143
1990	88132
1989	96185
1988	82000
1987	80935
1986	67000
1985	60835
1984	NA
1983	NA

Station Information

Station	000153
Route	03252
Location	NEAR WOODLAND ST BRIDGE
County	Davidson
2016	25719
2015	26927
2014	23787
2013	22081
2012	21122
2011	21843
2010	19634
2009	19349
2008	19326
2007	21059
2006	20697
2005	21889
2004	21320
2003	20284
2002	22555
2001	23039
2000	19467
1999	20946
1998	22388
1997	20995
1996	22653
1995	20092
1994	26974
1993	27569
1992	18783
1991	20304
1990	16573
1989	20742
1988	20026
1987	20439
1986	21656
1985	19142
1984	NA
1983	NA

Station Information

Station	000220
Route	03244
Location	E OF I-65
County	Davidson
2016	7608
2015	7338
2014	7320
2013	7304
2012	7338
2011	7319
2010	7216
2009	7215
2008	7492
2007	7941
2006	8038
2005	8016
2004	9062
2003	8790
2002	9255
2001	9330
2000	8018
1999	9111
1998	8566
1997	9009
1996	8154
1995	15530
1994	11841
1993	8639
1992	8585
1991	8507
1990	8021
1989	4364
1988	8863
1987	8847
1986	8346
1985	9743
1984	NA
1983	NA

Station Information

Station	000488
Route	03272
Location	5TH ST - N OF WOODLAND ST
County	Davidson
2016	16646
2015	16346
2014	16324
2013	15680
2012	15924
2011	14138
2010	14526
2009	17258
2008	15649
2007	16472
2006	17171
2005	16713
2004	16422
2003	15864
2002	14358
2001	15834
2000	16195
1999	16467
1998	19346
1997	15691
1996	19798
1995	19528
1994	16239
1993	14395
1992	13991
1991	NA
1990	NA
1989	NA
1988	NA
1987	NA
1986	NA
1985	NA
1984	NA
1983	NA

Station Information

Station	000075
Route	SR006
Location	VIC MEM BRIDGE - CBD
County	Davidson
2016	28363
2015	28174
2014	25326
2013	24513
2012	23735
2011	23308
2010	23759
2009	23321
2008	23917
2007	23220
2006	23923
2005	25387
2004	25162
2003	27026
2002	26835
2001	27907
2000	30207
1999	28434
1998	40316
1997	24041
1996	31519
1995	32169
1994	32390
1993	29739
1992	29592
1991	27111
1990	24410
1989	24233
1988	25669
1987	24163
1986	31721
1985	22134
1984	NA
1983	NA

Station Information

Station	000046
Route	03244
Location	WOODLAND ST - CBD
County	Davidson
2016	13823
2015	13811
2014	13388
2013	13239
2012	13137
2011	12333
2010	11817
2009	22087
2008	23335
2007	14758
2006	20569
2005	19970
2004	19393
2003	21435
2002	26960
2001	25451
2000	25835
1999	21649
1998	26950
1997	25374
1996	24547
1995	27518
1994	20116
1993	19896
1992	19272
1991	15639
1990	15682
1989	18300
1988	18255
1987	15194
1986	18314
1985	18206
1984	NA
1983	NA

Station Information

Station	000290
Route	I0024
Location	N OF SHELBY AVE
County	Davidson
2016	139532
2015	141434
2014	134002
2013	138277
2012	127367
2011	124211
2010	128164
2009	116164
2008	122101
2007	122710
2006	127482
2005	125224
2004	123065
2003	124196
2002	120150
2001	112752
2000	127612
1999	120841
1998	117474
1997	128593
1996	130289
1995	119324
1994	118514
1993	110401
1992	89409
1991	101606
1990	99930
1989	95067
1988	88141
1987	83000
1986	82000
1985	75000
1984	NA
1983	NA

APPENDIX D
CAPACITY ANALYSES

EXISTING CONDITIONS CAPACITY ANALYSES

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	55	579	39	11	1695	124	13	10	17	204	44	441
Future Volume (veh/h)	55	579	39	11	1695	124	13	10	17	204	44	441
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	60	629	42	12	1842	135	14	11	18	222	48	479
Adj No. of Lanes	1	2	1	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	231	2212	990	486	2950	216	51	136	223	327	31	313
Arrive On Green	0.03	0.63	0.63	0.02	1.00	1.00	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1774	3539	1583	1774	4837	353	872	637	1042	1375	146	1459
Grp Volume(v), veh/h	60	629	42	12	1289	688	14	0	29	222	0	527
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1800	872	0	1679	1375	0	1605
Q Serve(g_s), s	1.8	11.3	1.4	0.4	0.0	0.0	0.0	0.0	1.9	21.5	0.0	30.0
Cycle Q Clear(g_c), s	1.8	11.3	1.4	0.4	0.0	0.0	30.0	0.0	1.9	23.5	0.0	30.0
Prop In Lane	1.00		1.00	1.00		0.20	1.00		0.62	1.00		0.91
Lane Grp Cap(c), veh/h	231	2212	990	486	2068	1098	51	0	360	327	0	344
V/C Ratio(X)	0.26	0.28	0.04	0.02	0.62	0.63	0.27	0.00	0.08	0.68	0.00	1.53
Avail Cap(c_a), veh/h	287	2212	990	568	2068	1098	51	0	360	327	0	344
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.69	0.69	0.69	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	9.6	12.0	10.1	10.3	0.0	0.0	70.0	0.0	44.0	53.4	0.0	55.0
Incr Delay (d2), s/veh	0.2	0.3	0.1	0.0	1.0	1.9	1.0	0.0	0.0	4.6	0.0	253.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.9	5.6	0.6	0.2	0.3	0.6	0.6	0.0	0.9	8.6	0.0	37.5
LnGrp Delay(d),s/veh	9.8	12.3	10.2	10.3	1.0	1.9	71.0	0.0	44.0	58.0	0.0	308.6
LnGrp LOS	A	B	B	B	A	A	E		D	E		F
Approach Vol, veh/h		731			1989			43			749	
Approach Delay, s/veh		12.0			1.4			52.8			234.3	
Approach LOS		B			A			D			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	10.6	92.4		37.0	8.5	94.5		37.0
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	8.0	81.0		30.0	8.0	81.0		30.0
Max Q Clear Time (g_c+I1), s	3.8	2.0		32.0	2.4	13.3		32.0
Green Ext Time (p_c), s	0.0	10.5		0.0	0.0	10.5		0.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.9
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	97	625	74	57	1124	13	58	94	102	248	383	525
Future Volume (veh/h)	97	625	74	57	1124	13	58	94	102	248	383	525
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	105	679	80	62	1222	14	63	102	111	270	416	571
Adj No. of Lanes	2	2	0	1	2	0	1	2	1	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	226	1730	204	446	1907	22	144	362	162	336	293	498
Arrive On Green	0.13	1.00	1.00	0.05	0.53	0.53	0.05	0.10	0.10	0.11	0.16	0.16
Sat Flow, veh/h	3442	3191	376	1774	3584	41	1774	3539	1583	1774	1863	3167
Grp Volume(v), veh/h	105	376	383	62	603	633	63	102	111	270	416	571
Grp Sat Flow(s),veh/h/ln	1721	1770	1796	1774	1770	1856	1774	1770	1583	1774	1863	1583
Q Serve(g_s), s	4.0	0.0	0.0	2.6	33.9	33.9	4.4	3.7	9.5	15.5	22.0	17.8
Cycle Q Clear(g_c), s	4.0	0.0	0.0	2.6	33.9	33.9	4.4	3.7	9.5	15.5	22.0	17.8
Prop In Lane	1.00		0.21	1.00		0.02	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	226	959	974	446	942	987	144	362	162	336	293	498
V/C Ratio(X)	0.46	0.39	0.39	0.14	0.64	0.64	0.44	0.28	0.69	0.80	1.42	1.15
Avail Cap(c_a), veh/h	226	959	974	493	942	987	153	379	170	336	293	498
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.92	0.92	0.92	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	58.5	0.0	0.0	18.4	23.2	23.3	52.6	58.1	60.7	50.8	59.0	38.5
Incr Delay (d2), s/veh	1.7	1.1	1.1	0.1	3.3	3.2	0.8	0.2	8.3	12.3	208.4	87.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.3	0.3	1.2	17.3	18.1	2.2	1.8	4.5	10.3	28.2	13.8
LnGrp Delay(d),s/veh	60.2	1.1	1.1	18.5	26.6	26.4	53.4	58.3	69.0	63.2	267.4	126.2
LnGrp LOS	E	A	A	B	C	C	D	E	E	E	F	F
Approach Vol, veh/h		864			1298			276			1257	
Approach Delay, s/veh		8.3			26.1			61.5			159.4	
Approach LOS		A			C			E			F	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	15.7	81.0	22.0	21.3	14.3	82.4	14.3	29.0
Change Period (Y+Rc), s	6.5	6.5	6.5	7.0	7.0	6.5	7.0	7.0
Max Green Setting (Gmax), s	8.5	74.5	15.5	15.0	11.0	71.5	8.0	22.0
Max Q Clear Time (g_c+I1), s	6.0	35.9	17.5	11.5	4.6	2.0	6.4	24.0
Green Ext Time (p_c), s	0.1	2.9	0.0	1.5	0.0	2.2	0.0	0.0

Intersection Summary	
HCM 2010 Ctrl Delay	69.9
HCM 2010 LOS	E

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	75	481	104	0	1750	190	138	0	421	0	0
Future Volume (vph)	75	481	104	0	1750	190	138	0	421	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	4.5		4.5		
Lane Util. Factor	1.00	0.95	1.00		0.91	0.91	1.00		1.00		
Frt	1.00	1.00	0.85		1.00	0.85	1.00		0.85		
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539	1583		3385	1441	1770		1583		
Flt Permitted	0.04	1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)	79	3539	1583		3385	1441	1770		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	82	523	113	0	1902	207	150	0	458	0	0
RTOR Reduction (vph)	0	0	36	0	0	43	0	0	123	0	0
Lane Group Flow (vph)	82	523	77	0	1923	143	150	0	335	0	0
Turn Type	D.P+P	NA	custom		NA	Perm	Prot		Prot		
Protected Phases	1	2			2 3		4		4		
Permitted Phases	2 3	2 3	2 3			2 3					
Actuated Green, G (s)	101.0	89.2	95.7		95.7	95.7	23.5		23.5		
Effective Green, g (s)	101.0	89.2	95.7		95.7	95.7	23.5		23.5		
Actuated g/C Ratio	0.72	0.64	0.68		0.68	0.68	0.17		0.17		
Clearance Time (s)	6.5	6.5					4.5		4.5		
Vehicle Extension (s)	2.0	2.0					2.0		2.0		
Lane Grp Cap (vph)	121	2419	1082		2313	985	297		265		
v/s Ratio Prot	c0.03	0.13			c0.57		0.08		c0.21		
v/s Ratio Perm	0.47	0.01	0.05			0.10					
v/c Ratio	0.68	0.22	0.07		0.83	0.15	0.51		1.26		
Uniform Delay, d1	26.7	10.7	7.4		16.2	7.8	53.0		58.2		
Progression Factor	1.14	0.79	0.36		0.32	0.12	1.00		1.00		
Incremental Delay, d2	11.0	0.0	0.0		1.5	0.0	0.5		145.2		
Delay (s)	41.3	8.5	2.6		6.7	1.0	53.5		203.5		
Level of Service	D	A	A		A	A	D		F		
Approach Delay (s)		11.3			6.2			166.4		0.0	
Approach LOS		B			A			F		A	

Intersection Summary			
HCM 2000 Control Delay	35.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	85.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	619	0	0	1772	168	534
Future Volume (vph)	619	0	0	1772	168	534
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	4.5	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	673	0	0	1926	183	580
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	673	0	0	1926	183	580
Turn Type	NA			NA	Prot	Free
Protected Phases	6 7			6 7	5 8	
Permitted Phases						Free
Actuated Green, G (s)	96.0			96.0	35.0	140.0
Effective Green, g (s)	96.0			96.0	35.0	140.0
Actuated g/C Ratio	0.69			0.69	0.25	1.00
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	2426			2426	858	1583
v/s Ratio Prot	0.19			c0.54	0.05	
v/s Ratio Perm						c0.37
v/c Ratio	0.28			0.79	0.21	0.37
Uniform Delay, d1	8.5			15.2	41.6	0.0
Progression Factor	0.69			1.00	1.00	1.00
Incremental Delay, d2	0.0			1.7	0.0	0.7
Delay (s)	5.9			16.9	41.6	0.7
Level of Service	A			B	D	A
Approach Delay (s)	5.9			16.9	10.5	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	64.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	222	1773	150	18	805	108	53	59	53	133	34	101
Future Volume (veh/h)	222	1773	150	18	805	108	53	59	53	133	34	101
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	241	1927	163	20	875	117	58	64	58	145	37	110
Adj No. of Lanes	1	2	1	1	3	0	1	1	0	1	1	0
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	506	2279	1019	122	2687	358	189	172	156	214	79	235
Arrive On Green	0.07	0.64	0.64	0.03	1.00	1.00	0.19	0.19	0.19	0.19	0.19	0.19
Sat Flow, veh/h	1774	3539	1583	1774	4542	605	1236	902	817	1264	414	1231
Grp Volume(v), veh/h	241	1927	163	20	652	340	58	0	122	145	0	147
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1756	1236	0	1719	1264	0	1645
Q Serve(g_s), s	7.2	59.6	5.7	0.6	0.0	0.0	6.1	0.0	8.7	15.8	0.0	11.1
Cycle Q Clear(g_c), s	7.2	59.6	5.7	0.6	0.0	0.0	17.2	0.0	8.7	24.5	0.0	11.1
Prop In Lane	1.00		1.00	1.00		0.34	1.00		0.48	1.00		0.75
Lane Grp Cap(c), veh/h	506	2279	1019	122	2006	1039	189	0	328	214	0	314
V/C Ratio(X)	0.48	0.85	0.16	0.16	0.33	0.33	0.31	0.00	0.37	0.68	0.00	0.47
Avail Cap(c_a), veh/h	589	2279	1019	196	2006	1039	200	0	344	226	0	329
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.83	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	8.7	19.5	9.9	21.4	0.0	0.0	58.0	0.0	49.3	60.0	0.0	50.3
Incr Delay (d2), s/veh	0.3	4.1	0.3	0.2	0.4	0.7	0.3	0.0	0.3	5.7	0.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.5	30.2	2.6	0.3	0.1	0.2	2.1	0.0	4.1	5.9	0.0	5.1
LnGrp Delay(d),s/veh	8.9	23.6	10.2	21.6	0.4	0.7	58.3	0.0	49.6	65.7	0.0	50.7
LnGrp LOS	A	C	B	C	A	A	E		D	E		D
Approach Vol, veh/h		2331			1012			180			292	
Approach Delay, s/veh		21.1			0.9			52.4			58.2	
Approach LOS		C			A			D			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	16.5	89.8		33.7	9.2	97.1		33.7
Change Period (Y+Rc), s	7.0	7.0		7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	16.0	75.0		28.0	8.0	83.0		28.0
Max Q Clear Time (g_c+I1), s	9.2	2.0		19.2	2.6	61.6		26.5
Green Ext Time (p_c), s	0.3	16.2		0.9	0.0	11.4		0.2

Intersection Summary	
HCM 2010 Ctrl Delay	20.1
HCM 2010 LOS	C

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	579	1347	34	66	620	86	113	406	195	99	175	184
Future Volume (veh/h)	579	1347	34	66	620	86	113	406	195	99	175	184
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1863	1863	1863	1863
Adj Flow Rate, veh/h	629	1464	37	72	674	93	123	441	212	108	165	217
Adj No. of Lanes	2	2	0	1	2	0	1	2	1	1	1	2
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	824	2066	52	251	1261	174	173	379	170	159	200	339
Arrive On Green	0.48	1.00	1.00	0.05	0.40	0.40	0.06	0.11	0.11	0.06	0.11	0.11
Sat Flow, veh/h	3442	3528	89	1774	3126	431	1774	3539	1583	1774	1863	3167
Grp Volume(v), veh/h	629	734	767	72	381	386	123	441	212	108	165	217
Grp Sat Flow(s),veh/h/ln	1721	1770	1847	1774	1770	1787	1774	1770	1583	1774	1863	1583
Q Serve(g_s), s	21.0	0.0	0.0	3.7	22.9	23.0	8.0	15.0	15.0	7.6	12.1	5.7
Cycle Q Clear(g_c), s	21.0	0.0	0.0	3.7	22.9	23.0	8.0	15.0	15.0	7.6	12.1	5.7
Prop In Lane	1.00		0.05	1.00		0.24	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	824	1036	1082	251	714	721	173	379	170	159	200	339
V/C Ratio(X)	0.76	0.71	0.71	0.29	0.53	0.53	0.71	1.16	1.25	0.68	0.83	0.64
Avail Cap(c_a), veh/h	824	1036	1082	257	714	721	173	379	170	159	200	339
HCM Platoon Ratio	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.53	0.53	0.53	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	0.0	0.0	29.2	31.7	31.8	54.1	62.5	62.5	52.4	61.2	23.3
Incr Delay (d2), s/veh	2.4	2.2	2.1	0.2	2.8	2.8	11.0	98.5	151.7	9.2	22.7	3.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.1	0.6	0.6	1.8	11.8	11.9	1.4	12.5	13.7	4.1	7.5	2.6
LnGrp Delay(d),s/veh	35.6	2.2	2.1	29.4	34.6	34.6	65.1	161.0	214.2	61.6	83.9	26.4
LnGrp LOS	D	A	A	C	C	C	E	F	F	E	F	C
Approach Vol, veh/h		2130			839			776			490	
Approach Delay, s/veh		12.0			34.1			160.4			53.5	
Approach LOS		B			C			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	40.0	63.0	15.0	22.0	14.5	88.5	15.0	22.0
Change Period (Y+Rc), s	6.5	6.5	6.5	7.0	7.0	6.5	7.0	7.0
Max Green Setting (Gmax), s	33.5	56.5	8.5	15.0	8.0	81.5	8.0	15.0
Max Q Clear Time (g_c+I1), s	23.0	25.0	9.6	17.0	5.7	2.0	10.0	14.1
Green Ext Time (p_c), s	5.7	1.6	0.0	0.0	0.0	9.7	0.0	0.4

Intersection Summary	
HCM 2010 Ctrl Delay	48.4
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	178	1092	189	0	845	558	90	0	126	0	0
Future Volume (vph)	178	1092	189	0	845	558	90	0	126	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5	6.5	6.5		6.5	6.5	4.5		4.5		
Lane Util. Factor	1.00	0.95	1.00		0.91	0.91	1.00		1.00		
Frt	1.00	1.00	0.85		0.98	0.85	1.00		0.85		
Flt Protected	0.95	1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (prot)	1770	3539	1583		3320	1441	1770		1583		
Flt Permitted	0.23	1.00	1.00		1.00	1.00	0.95		1.00		
Satd. Flow (perm)	421	3539	1583		3320	1441	1770		1583		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	193	1187	205	0	918	607	98	0	137	0	0
RTOR Reduction (vph)	0	0	57	0	7	127	0	0	122	0	0
Lane Group Flow (vph)	193	1187	148	0	1057	334	98	0	15	0	0
Turn Type	D.P+P	NA	custom		NA	Perm	Prot		Prot		
Protected Phases	1	2			2 3		4		4		
Permitted Phases	2 3	2 3	2 3			2 3					
Actuated Green, G (s)	109.0	94.8	101.3		101.3	101.3	15.5		15.5		
Effective Green, g (s)	109.0	94.8	101.3		101.3	101.3	15.5		15.5		
Actuated g/C Ratio	0.78	0.68	0.72		0.72	0.72	0.11		0.11		
Clearance Time (s)	6.5	6.5					4.5		4.5		
Vehicle Extension (s)	2.0	2.0					2.0		2.0		
Lane Grp Cap (vph)	401	2560	1145		2402	1042	195		175		
v/s Ratio Prot	c0.03	0.30			0.32		c0.06		0.01		
v/s Ratio Perm	c0.35	0.04	0.09			0.23					
v/c Ratio	0.48	0.46	0.13		0.44	0.32	0.50		0.09		
Uniform Delay, d1	4.7	10.6	5.9		7.8	7.0	58.6		55.9		
Progression Factor	0.82	0.81	0.43		1.11	3.36	1.00		1.00		
Incremental Delay, d2	0.3	0.0	0.0		0.0	0.1	0.7		0.1		
Delay (s)	4.2	8.6	2.5		8.7	23.5	59.4		56.0		
Level of Service	A	A	A		A	C	E		E		
Approach Delay (s)		7.3			13.2			57.4		0.0	
Approach LOS		A			B			E		A	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	58.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1152	0	0	1089	349	885
Future Volume (vph)	1152	0	0	1089	349	885
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.5			6.5	4.5	4.0
Lane Util. Factor	0.95			0.95	0.97	1.00
Frt	1.00			1.00	1.00	0.85
Flt Protected	1.00			1.00	0.95	1.00
Satd. Flow (prot)	3539			3539	3433	1583
Flt Permitted	1.00			1.00	0.95	1.00
Satd. Flow (perm)	3539			3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1252	0	0	1184	379	962
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1252	0	0	1184	379	962
Turn Type	NA			NA	Prot	Free
Protected Phases	6 7			6 7	5 8	
Permitted Phases						Free
Actuated Green, G (s)	103.5			103.5	27.5	140.0
Effective Green, g (s)	103.5			103.5	27.5	140.0
Actuated g/C Ratio	0.74			0.74	0.20	1.00
Clearance Time (s)						
Vehicle Extension (s)						
Lane Grp Cap (vph)	2616			2616	674	1583
v/s Ratio Prot	0.35			0.33	0.11	
v/s Ratio Perm						c0.61
v/c Ratio	0.48			0.45	0.56	0.61
Uniform Delay, d1	7.4			7.2	50.8	0.0
Progression Factor	0.39			1.00	1.00	1.00
Incremental Delay, d2	0.0			0.0	0.6	1.7
Delay (s)	2.9			7.2	51.5	1.7
Level of Service	A			A	D	A
Approach Delay (s)	2.9			7.2	15.8	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

PROJECTED CONDITIONS CAPACITY ANALYSES

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	267	1773	150	18	805	376	53	77	53	597	65	179
Future Volume (veh/h)	267	1773	150	18	805	376	53	77	53	597	65	179
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	290	1927	163	20	875	0	58	84	58	649	71	195
Adj No. of Lanes	1	2	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	478	1821	815	75	2157	672	159	102	71	691	615	523
Arrive On Green	0.11	0.51	0.51	0.03	0.85	0.00	0.10	0.10	0.10	0.20	0.33	0.33
Sat Flow, veh/h	1774	3539	1583	1774	5085	1583	1109	1028	710	3442	1863	1583
Grp Volume(v), veh/h	290	1927	163	20	875	0	58	0	142	649	71	195
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1583	1109	0	1738	1721	1863	1583
Q Serve(g_s), s	13.4	77.2	8.4	1.0	6.0	0.0	7.5	0.0	12.0	27.9	4.0	14.1
Cycle Q Clear(g_c), s	13.4	77.2	8.4	1.0	6.0	0.0	7.5	0.0	12.0	27.9	4.0	14.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.41	1.00		1.00
Lane Grp Cap(c), veh/h	478	1821	815	75	2157	672	159	0	173	691	615	523
V/C Ratio(X)	0.61	1.06	0.20	0.27	0.41	0.00	0.37	0.00	0.82	0.94	0.12	0.37
Avail Cap(c_a), veh/h	574	1821	815	95	2157	672	285	0	371	700	832	707
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.83	0.83	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.1	36.4	19.7	36.8	7.0	0.0	64.1	0.0	66.2	59.1	35.0	38.3
Incr Delay (d2), s/veh	0.5	38.5	0.6	0.6	0.5	0.0	0.5	0.0	3.6	20.5	0.0	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.6	47.4	3.8	0.5	2.7	0.0	2.3	0.0	6.0	15.2	2.1	6.2
LnGrp Delay(d),s/veh	19.6	74.9	20.3	37.4	7.5	0.0	64.7	0.0	69.8	79.5	35.0	38.5
LnGrp LOS	B	F	C	D	A		E		E	E	C	D
Approach Vol, veh/h		2380			895			200			915	
Approach Delay, s/veh		64.4			8.1			68.3			67.3	
Approach LOS		E			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6		8
Phs Duration (G+Y+Rc), s	22.8	70.6	34.6	22.0	9.3	84.2		56.6
Change Period (Y+Rc), s	7.0	7.0	4.5	7.0	7.0	7.0		7.0
Max Green Setting (Gmax), s	24.0	38.0	30.5	32.0	4.0	58.0		67.0
Max Q Clear Time (g_c+I1), s	15.4	8.0	29.9	14.0	3.0	79.2		16.1
Green Ext Time (p_c), s	0.4	13.1	0.2	0.9	0.0	0.0		1.0

Intersection Summary	
HCM 2010 Ctrl Delay	53.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	365	1773	150	18	805	964	53	116	53	1291	112	295
Future Volume (veh/h)	365	1773	150	18	805	964	53	116	53	1291	112	295
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	397	1927	163	20	875	0	58	126	58	1403	271	222
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	2192	682	86	1360	424	201	113	52	1473	648	551
Arrive On Green	0.18	0.43	0.43	0.01	0.27	0.00	0.04	0.09	0.09	0.28	0.35	0.35
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1208	556	5322	1863	1583
Grp Volume(v), veh/h	397	1927	163	20	875	0	58	0	184	1403	271	222
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1765	1774	1863	1583
Q Serve(g_s), s	23.5	52.1	9.8	1.2	22.8	0.0	4.4	0.0	14.0	38.8	16.7	16.0
Cycle Q Clear(g_c), s	23.5	52.1	9.8	1.2	22.8	0.0	4.4	0.0	14.0	38.8	16.7	16.0
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	432	2192	682	86	1360	424	201	0	165	1473	648	551
V/C Ratio(X)	0.92	0.88	0.24	0.23	0.64	0.00	0.29	0.00	1.12	0.95	0.42	0.40
Avail Cap(c_a), veh/h	736	2192	682	100	1360	424	221	0	165	1490	648	551
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.9	39.1	27.1	42.2	48.6	0.0	58.4	0.0	68.0	53.3	37.3	37.1
Incr Delay (d2), s/veh	6.1	5.4	0.8	0.4	1.7	0.0	0.8	0.0	105.1	13.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.1	25.4	4.4	0.6	10.9	0.0	2.2	0.0	11.6	20.8	8.6	7.0
LnGrp Delay(d),s/veh	39.0	44.5	27.9	42.5	50.3	0.0	59.2	0.0	173.1	66.7	37.5	37.3
LnGrp LOS	D	D	C	D	D		E		F	E	D	D
Approach Vol, veh/h		2487			895			242			1896	
Approach Delay, s/veh		42.6			50.2			145.8			59.0	
Approach LOS		D			D			F			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.4	47.1	48.5	21.0	8.8	71.6	10.3	59.2
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	52.0	14.0	42.0	14.0	3.0	63.0	7.5	51.0
Max Q Clear Time (g_c+I1), s	25.5	24.8	40.8	16.0	3.2	54.1	6.4	18.7
Green Ext Time (p_c), s	0.8	0.0	0.7	0.0	0.0	6.2	0.0	1.4

Intersection Summary	
HCM 2010 Ctrl Delay	54.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	294	1773	150	18	805	420	53	88	53	556	73	198
Future Volume (veh/h)	294	1773	150	18	805	420	53	88	53	556	73	198
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	320	1927	163	20	875	0	58	96	58	604	181	147
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	415	2607	812	110	2060	641	217	114	69	656	508	432
Arrive On Green	0.12	0.51	0.51	0.00	0.13	0.00	0.03	0.10	0.10	0.18	0.27	0.27
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1089	658	3548	1863	1583
Grp Volume(v), veh/h	320	1927	163	20	875	0	58	0	154	604	181	147
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1747	1774	1863	1583
Q Serve(g_s), s	15.3	44.6	8.4	1.0	23.7	0.0	4.4	0.0	13.0	25.1	11.7	11.2
Cycle Q Clear(g_c), s	15.3	44.6	8.4	1.0	23.7	0.0	4.4	0.0	13.0	25.1	11.7	11.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.38	1.00		1.00
Lane Grp Cap(c), veh/h	415	2607	812	110	2060	641	217	0	183	656	508	432
V/C Ratio(X)	0.77	0.74	0.20	0.18	0.42	0.00	0.27	0.00	0.84	0.92	0.36	0.34
Avail Cap(c_a), veh/h	570	2607	812	126	2060	641	217	0	262	710	621	528
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.1	28.7	19.9	29.1	48.9	0.0	57.6	0.0	66.0	60.1	43.9	43.7
Incr Delay (d2), s/veh	2.7	1.9	0.6	0.2	0.5	0.0	0.7	0.0	11.1	16.0	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.8	21.3	3.8	0.5	11.2	0.0	2.2	0.0	6.9	13.8	6.1	4.9
LnGrp Delay(d),s/veh	26.8	30.6	20.4	29.3	49.4	0.0	58.3	0.0	77.0	76.1	44.1	43.9
LnGrp LOS	C	C	C	C	D		E		E	E	D	D
Approach Vol, veh/h		2410			895			212			932	
Approach Delay, s/veh		29.4			48.9			71.9			64.8	
Approach LOS		C			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.8	67.8	34.7	22.7	8.7	83.9	9.5	47.9
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	31.0	38.5	30.0	22.5	3.0	66.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	17.3	25.7	27.1	15.0	3.0	46.6	6.4	13.7
Green Ext Time (p_c), s	0.6	8.1	0.6	0.7	0.0	10.5	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	42.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	394	1773	150	18	805	858	53	128	53	1149	127	334
Future Volume (veh/h)	394	1773	150	18	805	858	53	128	53	1149	127	334
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	428	1927	163	20	875	0	58	139	58	1249	307	250
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	435	2121	660	85	1239	386	227	160	67	1293	653	555
Arrive On Green	0.19	0.42	0.42	0.01	0.24	0.00	0.04	0.13	0.13	0.24	0.35	0.35
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1249	521	5322	1863	1583
Grp Volume(v), veh/h	428	1927	163	20	875	0	58	0	197	1249	307	250
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1771	1774	1863	1583
Q Serve(g_s), s	25.2	49.8	9.4	1.2	22.0	0.0	3.9	0.0	15.3	32.5	17.9	17.1
Cycle Q Clear(g_c), s	25.2	49.8	9.4	1.2	22.0	0.0	3.9	0.0	15.3	32.5	17.9	17.1
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.29	1.00		1.00
Lane Grp Cap(c), veh/h	435	2121	660	85	1239	386	227	0	226	1293	653	555
V/C Ratio(X)	0.98	0.91	0.25	0.23	0.71	0.00	0.26	0.00	0.87	0.97	0.47	0.45
Avail Cap(c_a), veh/h	435	2121	660	101	1239	386	231	0	253	1293	677	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.5	38.3	26.5	41.8	48.4	0.0	50.4	0.0	59.9	52.4	35.4	35.1
Incr Delay (d2), s/veh	38.4	7.2	0.9	0.4	2.5	0.0	0.6	0.0	22.8	17.4	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	21.1	24.6	4.3	0.6	10.6	0.0	2.0	0.0	8.9	18.0	9.2	7.5
LnGrp Delay(d),s/veh	71.9	45.5	27.4	42.2	50.9	0.0	50.9	0.0	82.7	69.9	35.6	35.3
LnGrp LOS	E	D	C	D	D		D		F	E	D	D
Approach Vol, veh/h		2518			895			255			1806	
Approach Delay, s/veh		48.8			50.7			75.5			59.2	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	33.0	41.1	41.0	24.9	8.7	65.4	9.8	56.1
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	26.0	32.0	34.0	20.0	3.0	55.0	5.6	50.9
Max Q Clear Time (g_c+I1), s	27.2	24.0	34.5	17.3	3.2	51.8	5.9	19.9
Green Ext Time (p_c), s	0.0	5.7	0.0	0.6	0.0	2.6	0.0	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	53.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	287	1773	150	18	805	389	53	85	53	514	69	188
Future Volume (veh/h)	287	1773	150	18	805	389	53	85	53	514	69	188
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	312	1927	163	20	875	0	58	92	58	559	172	140
Adj No. of Lanes	1	2	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	442	1867	835	68	2164	674	216	110	69	610	481	408
Arrive On Green	0.11	0.53	0.53	0.01	0.43	0.00	0.03	0.10	0.10	0.17	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	5085	1583	1774	1070	674	3548	1863	1583
Grp Volume(v), veh/h	312	1927	163	20	875	0	58	0	150	559	172	140
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1583	1774	0	1744	1774	1863	1583
Q Serve(g_s), s	14.3	79.1	8.1	1.0	17.9	0.0	4.4	0.0	12.7	23.2	11.3	10.8
Cycle Q Clear(g_c), s	14.3	79.1	8.1	1.0	17.9	0.0	4.4	0.0	12.7	23.2	11.3	10.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.39	1.00		1.00
Lane Grp Cap(c), veh/h	442	1867	835	68	2164	674	216	0	179	610	481	408
V/C Ratio(X)	0.71	1.03	0.20	0.29	0.40	0.00	0.27	0.00	0.84	0.92	0.36	0.34
Avail Cap(c_a), veh/h	714	1867	835	83	2164	674	216	0	285	662	621	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.9	35.4	18.7	37.6	29.9	0.0	57.9	0.0	66.1	61.1	45.5	45.3
Incr Delay (d2), s/veh	0.8	29.7	0.5	0.6	0.4	0.0	0.7	0.0	6.2	16.2	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.1	46.1	3.7	0.5	8.4	0.0	2.2	0.0	6.4	12.8	5.9	4.7
LnGrp Delay(d),s/veh	21.7	65.1	19.2	38.3	30.3	0.0	58.5	0.0	72.2	77.2	45.7	45.5
LnGrp LOS	C	F	B	D	C		E		E	E	D	D
Approach Vol, veh/h		2402			895			208			871	
Approach Delay, s/veh		56.4			30.5			68.4			65.9	
Approach LOS		E			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	70.8	32.8	22.4	8.7	86.1	9.5	45.7
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	40.0	29.5	28.0	24.5	3.0	66.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	16.3	19.9	25.2	14.7	3.0	81.1	6.4	13.3
Green Ext Time (p_c), s	0.6	6.7	0.6	0.7	0.0	0.0	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	53.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	254	1596	150	18	724	757	53	97	53	1012	85	144
Future Volume (veh/h)	254	1596	150	18	724	757	53	97	53	1012	85	144
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	276	1735	163	20	787	0	58	105	58	1100	141	124
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	354	1890	588	84	1334	415	241	123	68	1090	737	626
Arrive On Green	0.12	0.37	0.37	0.01	0.26	0.00	0.04	0.11	0.11	0.31	0.40	0.40
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1129	624	3548	1863	1583
Grp Volume(v), veh/h	276	1735	163	20	787	0	58	0	163	1100	141	124
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1753	1774	1863	1583
Q Serve(g_s), s	15.5	45.6	10.1	1.2	18.9	0.0	4.0	0.0	12.8	43.0	6.9	7.2
Cycle Q Clear(g_c), s	15.5	45.6	10.1	1.2	18.9	0.0	4.0	0.0	12.8	43.0	6.9	7.2
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	354	1890	588	84	1334	415	241	0	191	1090	737	626
V/C Ratio(X)	0.78	0.92	0.28	0.24	0.59	0.00	0.24	0.00	0.85	1.01	0.19	0.20
Avail Cap(c_a), veh/h	354	1890	588	100	1334	415	242	0	250	1090	798	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	42.0	30.8	40.8	45.1	0.0	52.6	0.0	61.3	48.5	27.7	27.8
Incr Delay (d2), s/veh	9.7	8.7	1.2	0.4	1.4	0.0	0.5	0.0	15.7	29.6	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	22.9	4.6	0.6	9.1	0.0	2.0	0.0	7.0	25.5	3.6	3.2
LnGrp Delay(d),s/veh	42.4	50.6	32.0	41.2	46.5	0.0	53.1	0.0	77.0	78.1	27.7	27.8
LnGrp LOS	D	D	C	D	D		D		E	F	C	C
Approach Vol, veh/h		2174			807			221			1365	
Approach Delay, s/veh		48.2			46.3			70.7			68.3	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	24.0	43.7	50.0	22.3	8.7	59.0	9.9	62.4
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	17.0	32.0	43.0	20.0	3.0	46.0	5.5	60.0
Max Q Clear Time (g_c+I1), s	17.5	20.9	45.0	14.8	3.2	47.6	6.0	9.2
Green Ext Time (p_c), s	0.0	6.6	0.0	0.5	0.0	0.0	0.0	0.9

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	271	1596	150	18	724	1111	53	117	53	1494	113	167
Future Volume (veh/h)	271	1596	150	18	724	1111	53	117	53	1494	113	167
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	295	1735	163	20	787	0	58	127	58	1624	167	152
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	364	1843	574	81	1196	372	219	113	51	1769	753	640
Arrive On Green	0.14	0.36	0.36	0.01	0.24	0.00	0.04	0.09	0.09	0.33	0.40	0.40
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1212	553	5322	1863	1583
Grp Volume(v), veh/h	295	1735	163	20	787	0	58	0	185	1624	167	152
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1765	1774	1863	1583
Q Serve(g_s), s	17.1	46.2	10.2	1.2	19.6	0.0	4.1	0.0	13.0	41.0	8.2	8.9
Cycle Q Clear(g_c), s	17.1	46.2	10.2	1.2	19.6	0.0	4.1	0.0	13.0	41.0	8.2	8.9
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.31	1.00		1.00
Lane Grp Cap(c), veh/h	364	1843	574	81	1196	372	219	0	164	1769	753	640
V/C Ratio(X)	0.81	0.94	0.28	0.25	0.66	0.00	0.27	0.00	1.13	0.92	0.22	0.24
Avail Cap(c_a), veh/h	497	1843	574	97	1196	372	219	0	164	1901	798	679
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	34.2	43.2	31.7	43.2	48.4	0.0	54.5	0.0	63.5	44.9	27.3	27.5
Incr Delay (d2), s/veh	5.0	11.1	1.2	0.4	2.1	0.0	0.6	0.0	109.1	7.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.8	23.6	4.7	0.6	9.4	0.0	2.0	0.0	11.3	21.3	4.2	3.9
LnGrp Delay(d),s/veh	39.3	54.3	33.0	43.7	50.5	0.0	55.2	0.0	172.6	51.9	27.4	27.6
LnGrp LOS	D	D	C	D	D		E		F	D	C	C
Approach Vol, veh/h		2193			807			243			1943	
Approach Delay, s/veh		50.7			50.4			144.5			47.9	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.5	39.9	53.5	20.0	8.7	57.7	10.0	63.6
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	30.0	19.0	50.0	13.0	3.0	46.0	5.5	60.0
Max Q Clear Time (g_c+I1), s	19.1	21.6	43.0	15.0	3.2	48.2	6.1	10.9
Green Ext Time (p_c), s	0.5	0.0	3.5	0.0	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	54.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	239	1596	150	18	724	463	53	80	53	613	62	124
Future Volume (veh/h)	239	1596	150	18	724	463	53	80	53	613	62	124
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	260	1735	163	20	787	0	58	87	58	666	118	101
Adj No. of Lanes	1	2	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	409	1777	795	74	2118	659	221	103	68	716	528	449
Arrive On Green	0.10	0.50	0.50	0.00	0.14	0.00	0.03	0.10	0.10	0.20	0.28	0.28
Sat Flow, veh/h	1774	3539	1583	1774	5085	1583	1774	1044	696	3548	1863	1583
Grp Volume(v), veh/h	260	1735	163	20	787	0	58	0	145	666	118	101
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1583	1774	0	1740	1774	1863	1583
Q Serve(g_s), s	12.2	71.8	8.6	1.0	21.1	0.0	4.4	0.0	12.3	27.7	7.3	7.3
Cycle Q Clear(g_c), s	12.2	71.8	8.6	1.0	21.1	0.0	4.4	0.0	12.3	27.7	7.3	7.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.40	1.00		1.00
Lane Grp Cap(c), veh/h	409	1777	795	74	2118	659	221	0	171	716	528	449
V/C Ratio(X)	0.64	0.98	0.21	0.27	0.37	0.00	0.26	0.00	0.85	0.93	0.22	0.23
Avail Cap(c_a), veh/h	497	1777	795	89	2118	659	221	0	238	757	621	528
HCM Platoon Ratio	1.00	1.00	1.00	0.33	0.33	0.33	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.6	36.5	20.7	37.7	46.9	0.0	58.5	0.0	66.5	58.8	41.1	41.1
Incr Delay (d2), s/veh	0.9	16.5	0.6	0.5	0.4	0.0	0.6	0.0	13.8	17.0	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.0	39.0	3.9	0.5	10.0	0.0	2.2	0.0	6.6	15.3	3.7	3.2
LnGrp Delay(d),s/veh	23.5	52.9	21.3	38.2	47.2	0.0	59.1	0.0	80.3	75.8	41.2	41.2
LnGrp LOS	C	D	C	D	D		E		F	E	D	D
Approach Vol, veh/h		2158			807			203			885	
Approach Delay, s/veh		47.0			47.0			74.3			67.3	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	21.5	69.5	37.3	21.7	8.7	82.3	9.5	49.5
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	22.0	47.5	32.0	20.5	3.0	66.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	14.2	23.1	29.7	14.3	3.0	73.8	6.4	9.3
Green Ext Time (p_c), s	0.3	10.3	0.6	0.4	0.0	0.0	0.0	0.7

Intersection Summary	
HCM 2010 Ctrl Delay	52.8
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	380	1773	150	18	805	606	53	122	53	807	119	315
Future Volume (veh/h)	380	1773	150	18	805	606	53	122	53	807	119	315
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	413	1927	163	20	875	0	58	133	58	877	289	236
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	432	2026	631	84	1112	346	235	157	68	873	661	562
Arrive On Green	0.19	0.40	0.40	0.01	0.22	0.00	0.04	0.13	0.13	0.25	0.35	0.35
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1231	537	3548	1863	1583
Grp Volume(v), veh/h	413	1927	163	20	875	0	58	0	191	877	289	236
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1768	1774	1863	1583
Q Serve(g_s), s	23.2	47.7	9.0	1.1	21.1	0.0	3.7	0.0	13.7	32.0	15.4	14.7
Cycle Q Clear(g_c), s	23.2	47.7	9.0	1.1	21.1	0.0	3.7	0.0	13.7	32.0	15.4	14.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.30	1.00		1.00
Lane Grp Cap(c), veh/h	432	2026	631	84	1112	346	235	0	226	873	661	562
V/C Ratio(X)	0.96	0.95	0.26	0.24	0.79	0.00	0.25	0.00	0.85	1.00	0.44	0.42
Avail Cap(c_a), veh/h	432	2026	631	102	1112	346	235	0	279	873	716	609
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.5	37.9	26.2	41.4	47.9	0.0	46.8	0.0	55.5	49.0	32.0	31.8
Incr Delay (d2), s/veh	31.9	11.4	1.0	0.4	4.2	0.0	0.5	0.0	15.2	31.5	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	18.4	24.4	4.1	0.6	10.3	0.0	1.8	0.0	7.7	19.5	8.0	6.4
LnGrp Delay(d),s/veh	64.4	49.2	27.2	41.8	52.1	0.0	47.3	0.0	70.7	80.5	32.2	32.0
LnGrp LOS	E	D	C	D	D		D		E	F	C	C
Approach Vol, veh/h		2503			895			249			1402	
Approach Delay, s/veh		50.3			51.9			65.2			62.4	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	32.0	35.4	39.0	23.6	8.6	58.8	9.5	53.1
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	25.0	24.5	32.0	20.5	3.0	46.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	25.2	23.1	34.0	15.7	3.1	49.7	5.7	17.4
Green Ext Time (p_c), s	0.0	1.2	0.0	0.8	0.0	0.0	0.0	1.5

Intersection Summary	
HCM 2010 Ctrl Delay	54.7
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	437	1773	150	18	805	788	53	145	53	1054	151	392
Future Volume (veh/h)	437	1773	150	18	805	788	53	145	53	1054	151	392
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	475	1927	163	20	875	0	58	158	58	1146	360	295
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	502	2348	731	99	1300	405	186	108	40	1295	567	482
Arrive On Green	0.22	0.46	0.46	0.01	0.26	0.00	0.04	0.08	0.08	0.24	0.30	0.30
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1301	478	5322	1863	1583
Grp Volume(v), veh/h	475	1927	163	20	875	0	58	0	216	1146	360	295
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1778	1774	1863	1583
Q Serve(g_s), s	27.6	46.0	8.6	1.2	21.7	0.0	4.2	0.0	11.6	29.1	23.3	22.3
Cycle Q Clear(g_c), s	27.6	46.0	8.6	1.2	21.7	0.0	4.2	0.0	11.6	29.1	23.3	22.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.27	1.00		1.00
Lane Grp Cap(c), veh/h	502	2348	731	99	1300	405	186	0	147	1295	567	482
V/C Ratio(X)	0.95	0.82	0.22	0.20	0.67	0.00	0.31	0.00	1.47	0.89	0.63	0.61
Avail Cap(c_a), veh/h	673	2348	731	116	1300	405	211	0	147	1559	633	538
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	31.9	32.7	22.6	39.1	46.9	0.0	55.7	0.0	64.2	51.1	42.0	41.6
Incr Delay (d2), s/veh	16.9	3.4	0.7	0.3	2.1	0.0	0.9	0.0	242.8	5.0	1.1	1.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	20.3	22.1	3.9	0.6	10.4	0.0	2.1	0.0	15.6	14.8	12.2	9.9
LnGrp Delay(d),s/veh	48.8	36.0	23.3	39.4	48.9	0.0	56.7	0.0	307.0	56.1	43.1	42.6
LnGrp LOS	D	D	C	D	D		E		F	E	D	D
Approach Vol, veh/h		2565			895			274			1801	
Approach Delay, s/veh		37.6			48.7			254.0			51.3	
Approach LOS		D			D			F			D	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	37.6	42.8	41.1	18.6	8.7	71.6	10.0	49.6
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	44.0	15.4	41.0	11.6	3.0	56.4	7.5	47.6
Max Q Clear Time (g_c+I1), s	29.6	23.7	31.1	13.6	3.2	48.0	6.2	25.3
Green Ext Time (p_c), s	1.0	0.0	3.0	0.0	0.0	6.0	0.0	1.8

Intersection Summary	
HCM 2010 Ctrl Delay	54.6
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	308	1773	150	18	805	380	53	93	53	502	81	218
Future Volume (veh/h)	308	1773	150	18	805	380	53	93	53	502	81	218
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	335	1927	163	20	875	0	58	101	58	546	200	162
Adj No. of Lanes	1	2	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	1859	832	68	2105	655	217	120	69	598	484	412
Arrive On Green	0.12	0.53	0.53	0.02	0.83	0.00	0.03	0.11	0.11	0.17	0.26	0.26
Sat Flow, veh/h	1774	3539	1583	1774	5085	1583	1774	1112	638	3548	1863	1583
Grp Volume(v), veh/h	335	1927	163	20	875	0	58	0	159	546	200	162
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1583	1774	0	1750	1774	1863	1583
Q Serve(g_s), s	15.7	78.8	8.2	1.0	6.8	0.0	4.4	0.0	13.4	22.7	13.4	12.7
Cycle Q Clear(g_c), s	15.7	78.8	8.2	1.0	6.8	0.0	4.4	0.0	13.4	22.7	13.4	12.7
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.36	1.00		1.00
Lane Grp Cap(c), veh/h	498	1859	832	68	2105	655	217	0	189	598	484	412
V/C Ratio(X)	0.67	1.04	0.20	0.29	0.42	0.00	0.27	0.00	0.84	0.91	0.41	0.39
Avail Cap(c_a), veh/h	884	1859	832	83	2105	655	217	0	286	662	621	528
HCM Platoon Ratio	1.00	1.00	1.00	2.00	2.00	2.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	19.3	35.6	18.8	37.5	8.2	0.0	57.2	0.0	65.6	61.3	46.0	45.8
Incr Delay (d2), s/veh	0.6	31.0	0.5	0.6	0.4	0.0	0.7	0.0	8.3	15.3	0.2	0.2
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	7.7	46.2	3.7	0.5	3.2	0.0	2.2	0.0	6.9	12.4	6.9	5.6
LnGrp Delay(d),s/veh	19.9	66.6	19.4	38.1	8.6	0.0	57.8	0.0	73.9	76.5	46.2	46.0
LnGrp LOS	B	F	B	D	A		E		E	E	D	D
Approach Vol, veh/h		2425			895			217			908	
Approach Delay, s/veh		56.9			9.3			69.6			64.4	
Approach LOS		E			A			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.4	69.1	32.3	23.2	8.7	85.8	9.5	46.0
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	51.0	18.5	28.0	24.5	3.0	66.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	17.7	8.8	24.7	15.4	3.0	80.8	6.4	15.4
Green Ext Time (p_c), s	0.7	6.8	0.6	0.8	0.0	0.0	0.0	1.1

Intersection Summary	
HCM 2010 Ctrl Delay	49.5
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	265	1596	150	18	724	736	53	111	53	984	104	159
Future Volume (veh/h)	265	1596	150	18	724	736	53	111	53	984	104	159
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	288	1735	163	20	787	0	58	121	58	1070	158	143
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	365	1883	586	84	1263	393	246	140	67	1064	739	629
Arrive On Green	0.13	0.37	0.37	0.01	0.25	0.00	0.04	0.12	0.12	0.30	0.40	0.40
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1191	571	3548	1863	1583
Grp Volume(v), veh/h	288	1735	163	20	787	0	58	0	179	1070	158	143
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1762	1774	1863	1583
Q Serve(g_s), s	16.4	45.7	10.1	1.2	19.3	0.0	4.0	0.0	14.0	42.0	7.8	8.4
Cycle Q Clear(g_c), s	16.4	45.7	10.1	1.2	19.3	0.0	4.0	0.0	14.0	42.0	7.8	8.4
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.32	1.00		1.00
Lane Grp Cap(c), veh/h	365	1883	586	84	1263	393	246	0	207	1064	739	629
V/C Ratio(X)	0.79	0.92	0.28	0.24	0.62	0.00	0.24	0.00	0.87	1.01	0.21	0.23
Avail Cap(c_a), veh/h	482	1883	586	100	1263	393	247	0	252	1064	785	667
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	33.2	42.1	30.9	41.9	46.8	0.0	51.6	0.0	60.7	49.0	27.8	28.0
Incr Delay (d2), s/veh	4.5	8.9	1.2	0.4	1.7	0.0	0.5	0.0	19.7	28.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.5	22.9	4.6	0.6	9.2	0.0	2.0	0.0	7.9	24.8	4.0	3.7
LnGrp Delay(d),s/veh	37.7	51.1	32.1	42.3	48.5	0.0	52.1	0.0	80.4	77.9	27.9	28.1
LnGrp LOS	D	D	C	D	D		D		F	F	C	C
Approach Vol, veh/h		2186			807			237			1371	
Approach Delay, s/veh		47.9			48.3			73.5			66.9	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	25.8	41.8	49.0	23.4	8.7	58.8	9.9	62.6
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	28.0	22.0	42.0	20.0	3.0	47.0	5.5	59.0
Max Q Clear Time (g_c+I1), s	18.4	21.3	44.0	16.0	3.2	47.7	6.0	10.4
Green Ext Time (p_c), s	0.4	0.6	0.0	0.5	0.0	0.0	0.0	1.0

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	285	1596	150	18	724	1028	53	135	53	1381	137	186
Future Volume (veh/h)	285	1596	150	18	724	1028	53	135	53	1381	137	186
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	310	1735	163	20	787	0	58	147	58	1501	189	176
Adj No. of Lanes	1	3	1	1	3	1	1	1	0	3	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	371	1806	562	82	1112	346	257	169	67	1515	742	631
Arrive On Green	0.15	0.36	0.36	0.01	0.22	0.00	0.04	0.13	0.13	0.28	0.40	0.40
Sat Flow, veh/h	1774	5085	1583	1774	5085	1583	1774	1272	502	5322	1863	1583
Grp Volume(v), veh/h	310	1735	163	20	787	0	58	0	205	1501	189	176
Grp Sat Flow(s),veh/h/ln	1774	1695	1583	1774	1695	1583	1774	0	1774	1774	1863	1583
Q Serve(g_s), s	17.0	43.4	9.6	1.1	18.6	0.0	3.6	0.0	14.7	36.5	8.8	9.8
Cycle Q Clear(g_c), s	17.0	43.4	9.6	1.1	18.6	0.0	3.6	0.0	14.7	36.5	8.8	9.8
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.28	1.00		1.00
Lane Grp Cap(c), veh/h	371	1806	562	82	1112	346	257	0	235	1515	742	631
V/C Ratio(X)	0.84	0.96	0.29	0.24	0.71	0.00	0.23	0.00	0.87	0.99	0.25	0.28
Avail Cap(c_a), veh/h	448	1806	562	101	1112	346	263	0	273	1515	775	659
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	1.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	32.7	41.0	30.1	41.6	47.0	0.0	46.2	0.0	55.3	46.3	26.2	26.5
Incr Delay (d2), s/veh	9.4	13.8	1.3	0.6	3.8	0.0	0.4	0.0	20.8	20.9	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	9.2	22.5	4.4	0.6	9.1	0.0	1.8	0.0	8.6	20.9	4.6	4.3
LnGrp Delay(d),s/veh	42.2	54.8	31.4	42.2	50.8	0.0	46.7	0.0	76.1	67.2	26.3	26.6
LnGrp LOS	D	D	C	D	D		D		E	E	C	C
Approach Vol, veh/h		2208			807			263			1866	
Approach Delay, s/veh		51.3			50.6			69.6			59.2	
Approach LOS		D			D			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	26.4	35.4	44.0	24.2	8.6	53.2	9.4	58.8
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	25.0	20.0	37.0	20.0	3.0	42.0	5.4	54.1
Max Q Clear Time (g_c+I1), s	19.0	20.6	38.5	16.7	3.1	45.4	5.6	11.8
Green Ext Time (p_c), s	0.4	0.0	0.0	0.5	0.0	0.0	0.0	1.2

Intersection Summary	
HCM 2010 Ctrl Delay	55.0
HCM 2010 LOS	D

Notes

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	248	1596	150	18	724	485	53	90	53	644	76	136
Future Volume (veh/h)	248	1596	150	18	724	485	53	90	53	644	76	136
Number	1	6	16	5	2	12	7	4	14	3	8	18
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1863	1863	1863	1863	1863	1863	1900	1863	1863	1863
Adj Flow Rate, veh/h	270	1735	163	20	787	0	58	98	58	700	132	116
Adj No. of Lanes	1	2	1	1	3	1	1	1	0	2	1	1
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	428	1729	773	68	2011	626	225	114	68	743	553	470
Arrive On Green	0.10	0.49	0.49	0.01	0.40	0.00	0.03	0.10	0.10	0.21	0.30	0.30
Sat Flow, veh/h	1774	3539	1583	1774	5085	1583	1774	1098	650	3548	1863	1583
Grp Volume(v), veh/h	270	1735	163	20	787	0	58	0	156	700	132	116
Grp Sat Flow(s),veh/h/ln	1774	1770	1583	1774	1695	1583	1774	0	1748	1774	1863	1583
Q Serve(g_s), s	13.1	73.3	8.8	1.0	16.6	0.0	4.4	0.0	13.2	29.1	8.0	8.3
Cycle Q Clear(g_c), s	13.1	73.3	8.8	1.0	16.6	0.0	4.4	0.0	13.2	29.1	8.0	8.3
Prop In Lane	1.00		1.00	1.00		1.00	1.00		0.37	1.00		1.00
Lane Grp Cap(c), veh/h	428	1729	773	68	2011	626	225	0	182	743	553	470
V/C Ratio(X)	0.63	1.00	0.21	0.29	0.39	0.00	0.26	0.00	0.86	0.94	0.24	0.25
Avail Cap(c_a), veh/h	728	1729	773	83	2011	626	225	0	239	757	621	528
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	1.00	1.00	0.73	0.73	0.00	1.00	0.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	22.9	38.4	21.9	38.4	32.4	0.0	57.7	0.0	66.1	58.4	39.9	40.0
Incr Delay (d2), s/veh	0.6	22.5	0.6	0.6	0.4	0.0	0.6	0.0	16.9	19.5	0.1	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	6.4	41.2	4.0	0.5	7.9	0.0	2.2	0.0	7.2	16.3	4.2	3.7
LnGrp Delay(d),s/veh	23.4	60.9	22.5	39.1	32.8	0.0	58.3	0.0	83.0	77.9	40.0	40.1
LnGrp LOS	C	F	C	D	C		E		F	E	D	D
Approach Vol, veh/h		2168			807			214			948	
Approach Delay, s/veh		53.3			33.0			76.3			68.0	
Approach LOS		D			C			E			E	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	22.7	66.3	38.4	22.6	8.7	80.3	9.5	51.5
Change Period (Y+Rc), s	7.0	7.0	7.0	7.0	7.0	7.0	4.5	7.0
Max Green Setting (Gmax), s	41.0	28.5	32.0	20.5	3.0	66.5	5.0	50.0
Max Q Clear Time (g_c+I1), s	15.1	18.6	31.1	15.2	3.0	75.3	6.4	10.3
Green Ext Time (p_c), s	0.5	6.2	0.3	0.5	0.0	0.0	0.0	0.8

Intersection Summary	
HCM 2010 Ctrl Delay	53.9
HCM 2010 LOS	D

Notes

APPENDIX E
TRIP GENERATION CALCULATIONS

TRIP GENERATION
River North Mixed-Use Development-Phase 1 Evaluation

Office – 3,029,000 square feet

Use ITE Land Use Code 710 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic – Use Average Rate for Average Daily Traffic on a Weekday

LN (T) = 0.76 LN (X/1000) + 3.68
LN (T) = 0.76 LN (3,029) + 3.68
T = 17,538

A.M. Peak Hour - Use Average Rate for AM Peak Hour of the Adjacent Street (between 7:00 AM and 9:00 AM)

LN (T) = 0.8 LN (X/1000) + 1.57
LN (T) = 0.8 LN (3,029) + 1.57
T = 2,930

Enter = 0.88 (2,930) = 2,578
Exit = 0.12 (2,930) = 352

P.M. Peak Hour - Use Average Rate for PM Peak Hour of the Adjacent Street (between 4:00 PM and 6:00 PM)

T = 1.12 (X/1000) + 78.45
T = 1.12 (3,029) + 78.45
T = 3,471

Enter = 0.17 (3,471) = 590
Exit = 0.83 (3,471) = 2,881

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

Apartment – 1,735 Units

Use ITE Land Use Code 220 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic – Use the Fitted Curve Equation for Average Daily Traffic on a Weekday

T = 6.06 (X) + 123.56
T = 6.06 (1,735) + 123.56
T = 10,638

A.M. Peak Hour - Use the Fitted Curve Equation for the AM Peak Hour of the Adjacent Street Traffic (one hour between 7:00 AM and 9:00 AM) on a Weekday

T = 0.49 (X) + 3.73
T = 0.49 (1,735) + 3.73
T = 854

Enter = 0.20 (854) = 171
Exit = 0.80 (854) = 683

P.M. Peak Hour - Use the Fitted Curve Equation for the PM Peak Hour of the Adjacent Street Traffic (one hour between 4:00 PM and 6:00 PM) on a Weekday

T = 0.55 (X) + 17.65
T = 0.55 (1,735) + 17.65
T = 972

Enter = 0.65 (972) = 632
Exit = 0.35 (972) = 340

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

Hotel – 550 Rooms

Use ITE Land Use Code 310 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic – Use the Fitted Curve Equation for Average Daily Traffic on a Weekday

T = 8.95 (X) – 373.16
T = 8.95 (550) – 373.16
T = 4,549

A.M. Peak Hour - Use the Fitted Curve Equation for the AM Peak Hour of the Adjacent Street Traffic (one hour between 7:00 AM and 9:00 AM) on a Weekday

T = 0.53 (X)
T = 0.53 (550)
T = 292

Enter = 0.59 (292) = 172
Exit = 0.41 (292) = 120

P.M. Peak Hour - Use the Fitted Curve Equation for the PM Peak Hour of the Adjacent Street Traffic (one hour between 4:00 PM and 6:00 PM) on a Weekday

T = 0.60 (X)
T = 0.60 (550)
T = 330

Enter = 0.51 (330) = 168
Exit = 0.49 (330) = 162

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

Specialty Retail – 200,000 square feet

Use ITE Land Use Code 826 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic

T = 42.78 (X/1000) + 37.66
T = 42.78 (200) + 37.66
T = 8,594

AM Peak Hour – None in the Trip Gen Manual- Assumed 50% of the PM Peak Hour.

PM Peak Hour - Use PM Peak Hour of the Adjacent Street (between 4:00 and 6:00 PM)

T = 2.40(X/1000) +21.48
T = 2.40(200) +21.48
T = 501

Enter = 0.44 (501) = 221
Exit = 0.56 (501) = 281

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

Quality Restaurant – 27,840 square feet

Use ITE Land Use Code 931 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic
T = 89.95 (X/1000)
T = 89.95 (27.840)
T = 2,504

A.M. Peak Hour - Use average rate for the AM Peak Hour of the Adjacent Street (between 7:00 AM and 9:00 AM). Directional Distribution not provided, use AM Peak Hour of Generator distribution.

T = 0.81 (X/1000)
T = 0.81 (27.840)
T = 23

Enter = 0.82 (23) = 18
Exit = 0.18 (23) = 5

P.M. Peak Hour - Use average rate for the PM Peak Hour of the Adjacent Street (between 4:00 PM and 6:00 PM)

T = 7.49 (X/1000)
T = 7.49 (27.840)
T = 209

Enter = 0.67 (209) = 140
Exit = 0.33 (209) = 69

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

High Turnover Restaurant – 27,840 square feet

Use ITE Land Use Code 932 and associated trip generation rates for 24-hour total trips and peak hour trips.

Average Daily Traffic
T = 127.15 (X/1000)
T = 127.15 (27.840)
T = 3,540

A.M. Peak Hour - Use average rate for the AM Peak Hour of the Adjacent Street (between 7:00 AM and 9:00 AM). Directional Distribution not provided, use AM Peak Hour of Generator distribution.

T = 10.81 (X/1000)
T = 10.81 (27.840)
T = 301

Enter = 0.55 (301) = 166
Exit = 0.45 (301) = 135

P.M. Peak Hour - Use average rate for the PM Peak Hour of the Adjacent Street (between 4:00 PM and 6:00 PM)

T = 9.85 (X/1000)
T = 9.85 (27.840)
T = 274

Enter = 0.60 (274) = 164
Exit = 0.40 (274) = 110

TRIP GENERATION
River North Mixed-Use Development – Phase 1 Evaluation

Coffee/Donut Shop without Drive-Through Window – 2,320 square feet

Use ITE Land Use Code 936 and associated trip generation rates peak hour trips.

Average Daily Traffic – Assume AM peak hour trips account for 20% of average daily traffic

T = 5 (AM Peak Hour)
T = 5 (251)
T = 1,257

A.M. Peak Hour – Use AM Peak Hour of the Adjacent Street (between 7:00 AM and 9:00 AM)

T = 108.38 (X/1000)
T = 108.38 (2.320)
T = 251

Enter = 0.51 (251) = 128
Exit = 0.49 (251) = 123

P.M. Peak Hour - Use PM Peak Hour of the Adjacent Street (between 4:00 PM and 6:00 PM)

T = 40.75 (X/1000)
T = 40.75 (2.320)
T = 95

Enter = 0.50 (95) = 47
Exit = 0.50 (95) = 47

NCHRP 684 Internal Trip Capture Estimator

Project Name:	River North	Organization:	KCI Technologies, Inc
Project Location:		Performed By:	
Scenario Description:		Date:	
Analysis Year:		Checked By:	
Analysis Period:	AM Peak Hour	Date:	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data			Estimated Vehicle-Trips		
	ITE LUCs1	Quantity	Units	Total	Entering	Exiting
Office	710	0	ksf	2,930	2,578	352
Retail	826	0	ksf	251	110	140
Restaurant	932/931/ 936	0	ksf	575	312	263
Cinema/Entertainment	445	0	seats	0	0	0
Residential	220,230	0	du	854	171	683
Hotel	310	0	rooms	292	172	120
All Other Uses	-	0	-	0	0	0
Total	-	-	-	4,901	3,344	1,557

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Uses2	1.00	0%	0%	1.00	0%	0%
Total						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office	0	500	500	500	500	500
Retail	500	0	500	500	500	500
Restaurant	500	500	0	500	500	500
Cinema/Entertainment	500	500	500	0	500	500
Residential	500	500	500	500	0	500
Hotel	500	500	500	500	500	0

Table 4-A: Internal Person-Trip Origin-Destination Matrix

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		35	72	0	0	0
Retail	41		18	0	3	0
Restaurant	81	9		0	9	7
Cinema/Entertainment	0	0	0		0	0
Residential	102	7	62	0		0
Hotel	77	4	11	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	4,901	3,344	1,557
Internal Trips	1,076	538	538
Interal Capture Percentage	22.0%	16.1%	34.5%
External Vehicle-Trips3	3,825	2,806	1,019
External Transit-Trips4	0	0	0
External Non-motorized Trips4	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	11.7%	30.4%
Retail	49.9%	44.2%
Restaurant	52.2%	40.4%
Cinema/Entertainment	#DIV/0!	#DIV/0!
Residential	7.0%	25.0%
Hotel	4.1%	77.0%

1 Land Use Codes (LUCs) from Trip Generation Informational Report, ITE.
2 Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator.
3 Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A
4 Person-trips

NCHRP 684 Internal Trip Capture Estimator

Project Name:		Organization:	KCI Technologies, Inc
Project Location:		Performed By:	
Scenario Description:		Date:	
Analysis Year:		Checked By:	
Analysis Period:	PM Peak Hour	Date:	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data			Estimated Vehicle-Trips		
	ITE LUCs1	Quantity	Units	Total	Entering	Exiting
Office	710	0	ksf	3,471	590	2,881
Retail	826	0	ksf	501	221	281
Restaurant	932/931/ 936	0	ksf	577	352	226
Cinema/Entertainment	445	0	seats	0	0	0
Residential	220,230	0	du	972	632	340
Hotel	310	0	rooms	330	168	162
All Other Uses	-	0	-	0	0	0
Total	-	-	-	5,852	1,962	3,889

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.	% Transit	% Non-Motorized	Veh. Occ.	% Transit	% Non-Motorized
Office	1.00	0%	0%	1.00	0%	0%
Retail	1.00	0%	0%	1.00	0%	0%
Restaurant	1.00	0%	0%	1.00	0%	0%
Cinema/Entertainment	1.00	0%	0%	1.00	0%	0%
Residential	1.00	0%	0%	1.00	0%	0%
Hotel	1.00	0%	0%	1.00	0%	0%
All Other Uses2	1.00	0%	0%	1.00	0%	0%
Total						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office	0	500	500	500	500	500
Retail	500	0	500	500	500	500
Restaurant	500	500	0	500	500	500
Cinema/Entertainment	500	500	500	0	500	500
Residential	500	500	500	500	0	500
Hotel	500	500	500	500	500	0

Table 4-P: Internal Person-Trip Origin-Destination Matrix

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		18	7	0	95	0
Retail	6		81	0	73	14
Restaurant	7	93		0	41	16
Cinema/Entertainment	0	0	0		0	0
Residential	14	22	49	0		10
Hotel	0	4	18	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	5,852	1,962	3,889
Internal Trips	1,136	568	568
Interal Capture Percentage	19.4%	28.9%	14.6%
External Vehicle-Trips3	4,716	1,394	3,321
External Transit-Trips4	0	0	0
External Non-motorized Trips4	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	4.6%	4.2%
Retail	62.1%	62.0%
Restaurant	44.1%	69.5%
Cinema/Entertainment	#DIV/0!	#DIV/0!
Residential	33.1%	27.9%
Hotel	23.8%	13.6%

1 Land Use Codes (LUCs) from Trip Generation Informational Report, ITE.

2 Total estimate for all other land uses at mixed-use development site-not subject to internal trip capture computations in this estimator.

3 Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

4 Person-trips

TRIP GENERATION

TOTAL SITE-GENERATED TRAFFIC

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HR.		PM PEAK HR.	
			ENTER	EXIT	ENTER	EXIT
Office	3,029,000 s.f.	17,538	2,578	352	590	2,881
Specialty Retail	200,000 s.f.	8,594	110	140	221	281
Restaurant	58,000 s.f.	7,301	312	263	352	226
Apartments	1,735 d.u.	10,638	171	683	632	340
Hotel	550 rooms	4,549	172	120	168	162
TOTAL		**48,620**	**3,343**	**1,558**	**1,963**	**3,890**

TRIP GENERATION

INTERNAL SITE-GENERATED TRAFFIC

Assumes: 20% Internal (for daily traffic)

use internal capture spread sheet for AM and PM reduction factor

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HR.		PM PEAK HR.	
			ENTER	EXIT	ENTER	EXIT
Office	3,029,000 s.f.	3,508	301	107	27	120
Specialty Retail	200,000 s.f.	1,719	55	62	137	174
Restaurant	58,000 s.f.	1,460	163	106	155	157
Apartments	1,735 d.u.	2,128	12	171	209	95
Hotel	550 rooms	910	7	92	40	22
TOTAL		**9,725**	**538**	**538**	**568**	**568**

TRIP GENERATION

EXTERNAL SITE-GENERATED TRAFFIC

Assumes: 20% Internal (for daily traffic)

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HR.		PM PEAK HR.	
			ENTER	EXIT	ENTER	EXIT
Office	3,029,000 s.f.	14,030	2,277	245	563	2,761
Specialty Retail	200,000 s.f.	6,875	55	78	84	107
Restaurant	58,000 s.f.	5,841	149	157	197	69
Apartments	1,735 d.u.	8,510	159	512	423	245
Hotel	550 rooms	3,639	165	28	128	140
TOTAL		**38,895**	**2,805**	**1,020**	**1,395**	**3,322**

TRIP GENERATION
ALTERNATE MODE SITE-GENERATED TRAFFIC

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC				Use:
			AM PEAK HR.		PM PEAK HR.		
			ENTER	EXIT	ENTER	EXIT	
Office	3,029,000 s.f.	702	114	12	28	138	5%
Specialty Retail	200,000 s.f.	344	3	4	4	5	5%
Restaurant	58,000 s.f.	292	7	8	10	3	5%
Apartments	1,735 d.u.	426	8	26	21	12	5%
Hotel	550 rooms	182	8	1	6	7	5%
TOTAL		**1,338**	**124**	**24**	**42**	**146**	

TRIP GENERATION
NEW SITE-GENERATED VEHICULAR TRAFFIC

LAND USE	SIZE	DAILY TRAFFIC	GENERATED TRAFFIC			
			AM PEAK HR.		PM PEAK HR.	
			ENTER	EXIT	ENTER	EXIT
Office	3,029,000 s.f.	13,328	2,163	233	535	2,623
Specialty Retail	200,000 s.f.	6,531	52	74	80	102
Restaurant	58,000 s.f.	5,549	142	149	187	66
Apartments	1,735 d.u.	8,084	151	486	402	233
Hotel	550 rooms	3,457	157	27	122	133
TOTAL		**36,949**	**2,665**	**969**	**1,326**	**3,157**

SUBSTITUTE ORDINANCE NO. BL2017-933

An ordinance to amend Title 17 of the Metropolitan Code of Laws, the Zoning Ordinance of The Metropolitan Government of Nashville and Davidson County, by changing from R6 and CN to R6-A zoning on various properties located along Scovel Street, Monroe Street,9th Avenue North, 10th Avenue North, Mary Street, 11th Avenue North, Garfield Street, Jenkins Street, Nassau Street, and Buchanan Street, at the northwest corner of Scovel Street and 9th Avenue North (~~48.23~~ 45.99 acres), all of which is described herein (Proposal No. 2017Z-111PR-001).

NOW, THEREFORE, BE IT ENACTED BY THE COUNCIL OF THE METROPOLITAN GOVERNMENT OF NASHVILLE AND DAVIDSON COUNTY:

Section 1. That Title 17 of the Code of Laws of The Metropolitan Government of Nashville and Davidson County, is hereby amended by changing the Official Zoning Map for Metropolitan Nashville and Davidson County, which is made a part of Title 17 by reference, as follows:

By changing from R6 and CN to R6-A zoning on various properties located along Scovel Street, Monroe Street,9th Avenue North, 10th Avenue North, Mary Street, 11th Avenue North, Garfield Street, Jenkins Street, Nassau Street, and Buchanan Street, at the northwest corner of Scovel Street and 9th Avenue North (~~48.23~~ 45.99 acres), being various maps of the Official Property Identification Maps of The Metropolitan Government of Nashville and Davidson County, all of which is described by lines, words and figures on the attached sketch, which is attached to and made a part of this ordinance as though copied herein.

Section 2. Be it further enacted, that the Metropolitan Clerk is hereby authorized and directed, upon the enactment and approval of this ordinance, to cause the change to be made on various maps of said Official Zoning Map for Metropolitan Nashville and Davidson County, as set out in Section 1 of this ordinance, and to make notation thereon of reference to the date of passage and approval of this amendatory ordinance.

Section 3. Be it further enacted, that this ordinance take effect immediately after its passage and such change be published in a newspaper of general circulation, the welfare of The Metropolitan Government of Nashville and Davidson County requiring it.

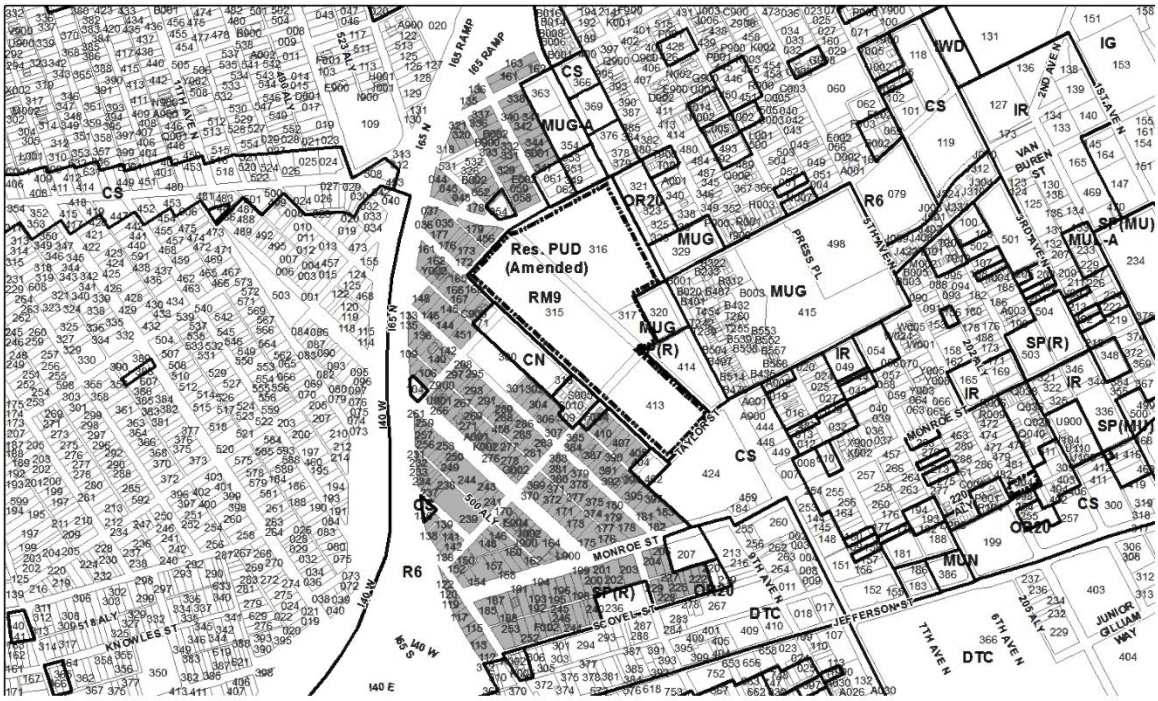
INTRODUCED BY:

_____

Freddie O'Connell
Member of Council

2017Z-111PR-001
Map 081-08, Parcel(s) 135-136, 160-163, ~~318~~, 319-321, ~~325-327~~, 328-333, 335-344, 346, ~~531-532~~
Map 081-08-3-B, Parcel(s) 001-002, 900
Map 081-08-4-S, Parcel(s) 001-002, 900
Map 081-12, Parcel(s) 035-037, 044-049, 052, 054, 057-059, 104-109, 133, 135-137, 139-148, 161, 162, 165-169, 171-179, 182, 231-239, 241-244, 249-253, 255-261, 266, 267, 269, 271, 275-278, 281-295, 297-299, 301-308, 369-385, 387-392, 394-397, 402-410, 451, 452, 454-456, 458
Map 081-12-0-E, Parcel(s) 001-003
Map 081-12-0-F, Parcel(s) 001-005, 900
Map 081-12-0-G, Parcel(s) 001-004, 900-901
Map 081-12-0-K, Parcel(s) 001-002, 900
Map 081-12-0-U, Parcel(s) 001-002, 900
Map 081-12-0-V, Parcel(s) 001-002, 900
Map 081-12-0-W, Parcel(s) 001-002, 900
Map 081-12-0-X, Parcel(s) 001-002, 900
Map 081-12-0-Y, Parcel(s) 001-002, 900
Map 081-12-0-Z, Parcel(s) 001-002, 900
Map 081-12-1-B, Parcel(s) 001-002, 900
Map 081-12-1-C, Parcel(s) 001-002, 900
Map 081-12-3-A, Parcel(s) 001-002, 900
Map 081-12-3-B, Parcel(s) 001-002, 900
Map 081-12-3-C, Parcel(s) 001-002, 900
Map 081-12-4-B, Parcel(s) 001-002, 900
Map 081-16, Parcel(s) 112-120, 122-124, 138.01, 138.02, 138.03, 136-142, 146-155, 157-162, 164, 165, 170-183, 185, 187, 188, 191-206, 221-225, 227-229, 240-247, 249, 250, 252-254, 736
Map 081-16-0-E, Parcel(s) 001-004, 900-901
Map 081-16-0-F, Parcel(s) 001-002, 900
Map 081-16-0-I, Parcel(s) 001-002, 900
Map 081-16-0-J, Parcel(s) 001-002, 900
Map 081-16-0-L, Parcel(s) 001-002, 900
Map 081-16-0-M, Parcel(s) 001-002, 900
Subarea 08, North Nashville
District 19 (O'Connell)
Application fee paid by: Fee waived by Council

A request to rezone from R6 and CN to R6-A zoning on various properties located along Scovel Street, Monroe Street,9th Avenue North, 10th Avenue North, Mary Street, 11th Avenue North, Garfield Street, Jenkins Street, Nassau Street, and Buchanan Street, at the northwest corner of Scovel Street and 9th Avenue North (~~48.23~~ 45.99 acres), requested by Councilmember Freddie O'Connell, applicant; various owners.



APN	Owner	Prop Addr	Prop City	Prop State	Prop Zip
08108032800	EARLY, JOANN	1711 NASSAU ST	NASHVILLE	TN	37208
08108032900	EARLY, JOANN	1713 NASSAU ST	NASHVILLE	TN	37208
08108033000	PERKINS, BRIAN & LAUREN E.	1715 NASSAU ST	NASHVILLE	TN	37208
08108033100	GULLO, JASON	1717 NASSAU ST	NASHVILLE	TN	37208
08108033200	STARKS, TERRELL	1719 NASSAU ST	NASHVILLE	TN	37208
08108033300	M. D. H. A.	1721 A NASSAU ST	NASHVILLE	TN	37208
08108033500	TREEHOUSE INVESTMENTS, LLC	1725 NASSAU ST	NASHVILLE	TN	37208
08108033600	HEWELL, THOMAS M. ETUX	1727 NASSAU ST	NASHVILLE	TN	37208
08108033700	M. D. H. A.	1729 NASSAU ST	NASHVILLE	TN	37208
08108033800	TAYLOR, BARBARA & JAMES A.	1726 NASSAU ST	NASHVILLE	TN	37208
08108033900	FINNEY, TERRY D. ET UX	1724 NASSAU ST	NASHVILLE	TN	37208
08108034000	NEW LEVEL, LLC	1722 NASSAU ST	NASHVILLE	TN	37208
08108034100	MAHER, HOLLEY	1720 NASSAU ST	NASHVILLE	TN	37208
08108034200	COFFMAN, MATTHEW D. & PERALTA, MARIA C.	1718 NASSAU ST	NASHVILLE	TN	37208
08108034300	KEENAN, ROGER	1716 NASSAU ST	NASHVILLE	TN	37208
08108034400	VANCE, WARDELL	1714 NASSAU ST	NASHVILLE	TN	37208
08108034600	BORDERS, GLENDA A. & RONALD	1710 NASSAU ST	NASHVILLE	TN	37208
08108013500	JOHNSON, JOYCE L.	1801 NASSAU ST	NASHVILLE	TN	37208
08108013600	JOHNSON, WALTER F., SR. ET UX	1803 NASSAU ST	NASHVILLE	TN	37208
08108016000	PRATER, HUBERT & JIMMY R.	1802 NASSAU ST	NASHVILLE	TN	37208
08108016100	CHRISTIAN, THOMAS	1800 NASSAU ST	NASHVILLE	TN	37208
08108016200	ALLEN, SAM ELLA	1801 ROSA L PARKS BLVD	NASHVILLE	TN	37208
08108016300	CHRISTIAN, THOMAS ETUX	1803 ROSA L PARKS BLVD	NASHVILLE	TN	37208
08108031900	STARKS, TERRELL	823 BUCHANAN ST	NASHVILLE	TN	37208
08108032000	WHITEHEAD, L. SHANE	821 BUCHANAN ST	NASHVILLE	TN	37208
08108032100	KIANI, SANAZ	819 BUCHANAN ST	NASHVILLE	TN	37208
08116014600	NUBER, LUKE & KRISTA	1021 CHEATHAM PL	NASHVILLE	TN	37208
08116014700	COBUCCI, PHIL	1023 CHEATHAM PL	NASHVILLE	TN	37208
08116014800	FOOTE, NORA	1025 CHEATHAM PL	NASHVILLE	TN	37208
08116014900	PFOX, LLC	1027 CHEATHAM PL	NASHVILLE	TN	37208
08116015000	PFOX, LLC	1029 CHEATHAM PL	NASHVILLE	TN	37208
08116015100	RANSOM, VIRGINIA & HUNTER, VERA	1031 CHEATHAM PL	NASHVILLE	TN	37208
08116015200	PERRY, WILLIE & ESTER	1033 CHEATHAM PL	NASHVILLE	TN	37208
08116015300	DENWIDDIE, JOCELYN	1036 MONROE ST	NASHVILLE	TN	37208
08116015400	CAMPBELL, BELINDA F.	1034 MONROE ST	NASHVILLE	TN	37208
08116015500	MT. CARMEL BAPTIST CHURCH, TRS.	1032 MONROE ST	NASHVILLE	TN	37208
08116015700	SCOVEL-MONROE, LLC	1028 MONROE ST	NASHVILLE	TN	37208
08116015800	CLEARWATER PROPERTIES, LLC	1026 MONROE ST	NASHVILLE	TN	37208
08116015900	RECTOR, BENJAMIN E.	1024 MONROE ST	NASHVILLE	TN	37208
08116016000	MCAFEE, DENNIS, SR. & RUBY	1022 MONROE ST	NASHVILLE	TN	37208
08116016100	CHEVRETTE, ROBERTA J.	1020 MONROE ST	NASHVILLE	TN	37208
08116016200	CHARITY MISSION FOR CHRIST	1018 MONROE ST	NASHVILLE	TN	37208
08116016400	CASTE, LORI WOOD	1401 ARTHUR AVE	NASHVILLE	TN	37208
08116016500	TRAVIS, DANIEL N. & SMITH, WILLIAM CHAD	1403 ARTHUR AVE	NASHVILLE	TN	37208
08112045100	CHRIST TEMPLE APOSTOLIC FAITH CHURCH, TR	1600 10TH AVE N	NASHVILLE	TN	37208
08112045200	RADFORD, WILLIAM	0 BUCHANAN ST	NASHVILLE	TN	37208
08112045400	MT RENTAL PROPERTIES, LLC	1710 DELTA AVE	NASHVILLE	TN	37208
08112045500	MARTIN, HUGH D. ET UX	1708 DELTA AVE	NASHVILLE	TN	37208

08112045600	RADFORD, WILLIAM A. & SONCERIA JULIA	833 BUCHANAN ST	NASHVILLE	TN	37208
08112045800	EVANS, PAUL A. & WILLIA C.	1511 B 10TH AVE N	NASHVILLE	TN	37208
08116017000	ELLIOTT, SALLIE A.	1413 ARTHUR AVE	NASHVILLE	TN	37208
08116017100	RIDLEY, DIANNE L.	1404 ARTHUR AVE	NASHVILLE	TN	37208
08116017200	ULMER, ETHEL MOORE & DANIEL, MARY	1402 ARTHUR AVE	NASHVILLE	TN	37208
08116017300	WILLIS, TEMORE	1400 ARTHUR AVE	NASHVILLE	TN	37208
08116017400	WILLIS, TEMORE	1400 A ARTHUR AVE	NASHVILLE	TN	37208
08116017500	WILLIS, TEMORE	1006 MONROE ST	NASHVILLE	TN	37208
08116017600	HARDIMAN, WARDELL	1004 MONROE ST	NASHVILLE	TN	37208
08116017700	WILLIS, TEMORE	1002 MONROE ST	NASHVILLE	TN	37208
08116017800	HOPEWELL BAPTIST CHURCH TRS.	1000 MONROE ST	NASHVILLE	TN	37208
08116017900	NASHVILLE INTOWN DEVELOPMENT CO.	1303 10TH AVE N	NASHVILLE	TN	37208
08116018000	M. D. H. A.	1401 A 10TH AVE N	NASHVILLE	TN	37208
08116018100	HOPEWELL BAPTIST CHURCH, TRS.	1302 10TH AVE N	NASHVILLE	TN	37208
08116018200	HOPEWELL BAPTIST CHURCH TRS.	908 MONROE ST	NASHVILLE	TN	37208
08116018300	TRUSTEES OF HOPEWELL BAPTIST CHURCH	904 MONROE ST	NASHVILLE	TN	37208
08116018500	METRO GOV'T P PARK BOARD	1043 MONROE ST	NASHVILLE	TN	37208
08116018700	M. D. H. A.	1037 A MONROE ST	NASHVILLE	TN	37208
08116018800	JDG INVESTMENTS, LLC	1035 MONROE ST	NASHVILLE	TN	37208
08116019100	HELLER INVESTMENTS, LLC	1029 MONROE ST	NASHVILLE	TN	37208
08116019200	PELLAND, PATRICK & B. CHRISTINE & SALA, CHRISTA & MARK	1027 MONROE ST	NASHVILLE	TN	37208
08116019300	SALA, MARK & CHRISTA	1025 MONROE ST	NASHVILLE	TN	37208
08116019400	SMITH, DUANE	1023 MONROE ST	NASHVILLE	TN	37208
08116019500	M. D. H. A.	1021 A MONROE ST	NASHVILLE	TN	37208
08116019600	M. D. H. A.	1019 A MONROE ST	NASHVILLE	TN	37208
08116019700	ZHANG, JUN YEN	1017 MONROE ST	NASHVILLE	TN	37208
08116019800	CARROLL, ROSE E., TRUSTEE	1015 MONROE ST	NASHVILLE	TN	37208
08116019900	IRA INNOVATIONS, LLC	1013 MONROE ST	NASHVILLE	TN	37208
08116020000	DORNBUSCH, CHRISTOPHER A. & BEASLEY, MICHAEL T.	1011 MONROE ST	NASHVILLE	TN	37208
08116020100	MAXSON, KENT DOUGLAS & CINDY M.	1009 MONROE ST	NASHVILLE	TN	37208
08116020200	TURNER, ROSSI	1003 MONROE ST	NASHVILLE	TN	37208
08116020300	METRO GOV'T L NORTH BRANCH	1001 MONROE ST	NASHVILLE	TN	37208
08116020400	WILLIAMS, NATHANIEL & SHIRLEY	921 MONROE ST	NASHVILLE	TN	37208
08116020500	WILSON, SHAWN L.	919 MONROE ST	NASHVILLE	TN	37208
08116020600	CLAY, SHAWANDA D.	917 MONROE ST	NASHVILLE	TN	37208
08112003500	NEW METRO. CHRISTIAN MISS. BAPT.CH.,INC.	1700 9TH AVE N	NASHVILLE	TN	37208
08112003600	NEW METRO. CHRISTIAN MISS. BAPT.CH.,INC.	1702 9TH AVE N	NASHVILLE	TN	37208
08112003700	METRO GOV'T BT BACK TAX SALE	0 BUCHANAN ST	NASHVILLE	TN	37208
08116022100	KOCH, SEBASTIAN & PEANGCHAI MAGNER	912 SCOVEL ST	NASHVILLE	TN	37208
08116022200	TAYLOR, JAMES I.	916 SCOVEL ST	NASHVILLE	TN	37208
08116022300	FIFTEENTH AVENUE BAPTIST CHURCH, INCORPORATED	918 SCOVEL ST	NASHVILLE	TN	37208
08116022400	M. D. H. A.	922 SCOVEL ST	NASHVILLE	TN	37208
08116022500	M. D. H. A.	924 SCOVEL ST	NASHVILLE	TN	37208
08116022700	FIFTEENTH AVENUE BAPTIST CHURCH, INCORPORATED	928 SCOVEL ST	NASHVILLE	TN	37208
08116022800	FIFTEENTH AVENUE BAPTIST CHURCH, INCORPORATED	930 SCOVEL ST	NASHVILLE	TN	37208
08116022900	FIFTEENTH AVENUE BAPTIST CHURCH, INCORPORATED	932 SCOVEL ST	NASHVILLE	TN	37208
08116024000	BRANDON, DEBORAH F.	1022 SCOVEL ST	NASHVILLE	TN	37208
08116024100	MCREYNOLDS, JASON B.	1024 SCOVEL ST	NASHVILLE	TN	37208
08116024200	FIFTEENTH AVE BAPTIST COMMUNITY DEV, THE	1026 SCOVEL ST	NASHVILLE	TN	37208
08116024300	WOODBINE COMMUNITY ORGANIZATION (WCO), INC.	1028 SCOVEL ST	NASHVILLE	TN	37208
08116024400	KECK, CLIFTON D. & KATHLEEN L.	1030 SCOVEL ST	NASHVILLE	TN	37208
08116024500	WILLIAM R. MCCARTY, JR. LIVING TRUST	1032 SCOVEL ST	NASHVILLE	TN	37208

08112004400	POLLARD, GREGORY	1707 DELTA AVE	NASHVILLE	TN	37208
08112004500	WASHINGTON, SHELIA	1705 DELTA AVE	NASHVILLE	TN	37208
08112004600	METRO GOV'T P PARKS	836 JANE ST	NASHVILLE	TN	37208
08112004700	METRO GOV'T P PARKS	834 JANE ST	NASHVILLE	TN	37208
08112004800	ROUSE, MICHAEL	830 JANE ST	NASHVILLE	TN	37208
08112004900	DOCTORA, JOE	1703 DELTA AVE	NASHVILLE	TN	37208
08112005200	NOBLE, WILLIE J. & NOBLE, W. S.	1712 DELTA AVE	NASHVILLE	TN	37208
08112005700	SMITH, JOANN	1703 NASSAU ST	NASHVILLE	TN	37208
08112005800	COUSSA, TIMOTHY JOHN	1705 NASSAU ST	NASHVILLE	TN	37208
08112005900	BARTON, PATIENCE M.	1707 NASSAU ST	NASHVILLE	TN	37208
08116024600	WADE, STACIE R.	1034 SCOVEL ST	NASHVILLE	TN	37208
08116024700	HAILEY, PAMELA D.	1036 SCOVEL ST	NASHVILLE	TN	37208
08116024900	BAUMAN, AUSTIN	1040 SCOVEL ST	NASHVILLE	TN	37208
08116025000	JDG INVESTMENTS, LLC	1042 B SCOVEL ST	NASHVILLE	TN	37208
08116025200	FUSON, PATRICIA C. & WILLIAM BLAKE & KIMBERLY PAIGE	1046 SCOVEL ST	NASHVILLE	TN	37208
08116025300	FRIERSON, J. W.	1048 SCOVEL ST	NASHVILLE	TN	37208
08116025400	METRO GOV'T P PARK BOARD	1054 SCOVEL ST	NASHVILLE	TN	37208
08112010500	JANNIE CARTER WILLIAMS REVOCABLE LIVING TRUST	1020 GARFIELD ST	NASHVILLE	TN	37208
08112010600	HAVRON, DOUGLAS B. & COREEN K.	1016 GARFIELD ST	NASHVILLE	TN	37208
08112010700	METRO GOV'T BT BACK TAX SALE	1604 ARTHUR AVE	NASHVILLE	TN	37208
08112010800	TAYLOR, JOHN & SHEILA	1606 ARTHUR AVE	NASHVILLE	TN	37208
08112010900	TAYLOR, JOHN & SHEILA	1608 ARTHUR AVE	NASHVILLE	TN	37208
08112013300	METRO GOV'T BT BACK TAX SALE	1615 10TH AVE N	NASHVILLE	TN	37208
08112013500	DIXON, TONYA	1611 10TH AVE N	NASHVILLE	TN	37208
08112013600	LUDIE LOU HOLDINGS, LLC & RXR, LLC	1609 10TH AVE N	NASHVILLE	TN	37208
08112013700	SMALLMAN, WILLIAM	1607 10TH AVE N	NASHVILLE	TN	37208
08112013900	RIZZO, SHANNON M.	1012 GARFIELD ST	NASHVILLE	TN	37208
08112014000	WAYNICK, MARK	1008 GARFIELD ST	NASHVILLE	TN	37208
08112014100	FARMER, DARLENE F. & CALVIN D.	1004 GARFIELD ST	NASHVILLE	TN	37208
08112014200	WAYNICK, MARK	1000 GARFIELD ST	NASHVILLE	TN	37208
08112014300	MURPHY, SARAH & JOHN	1604 10TH AVE N	NASHVILLE	TN	37208
08112014400	LACKEY, STEPHEN	1606 10TH AVE N	NASHVILLE	TN	37208
08112014500	PEERCY, LISA	1608 10TH AVE N	NASHVILLE	TN	37208
08112014600	PEERCY, LISA	1610 10TH AVE N	NASHVILLE	TN	37208
08112014700	HOBSON, THOMAS BERNARD & UERE C.	1612 10TH AVE N	NASHVILLE	TN	37208
08112014800	CAMBRONERO, ALFREDO & GINETTE	1614 10TH AVE N	NASHVILLE	TN	37208
08112016100	DOBBINS, JAMES A. ET UX	1623 9TH AVE N	NASHVILLE	TN	37208
08112016200	COFFIN, JENNIFER N. & MCCRARY, ROBERT L., JR.	1621 9TH AVE N	NASHVILLE	TN	37208
08112016500	GARDNER, DORIS & ANDREW JR.	1613 9TH AVE N	NASHVILLE	TN	37208
08112016600	BEAN, FELIX E. & LATRIKA N.	1611 9TH AVE N	NASHVILLE	TN	37208
08112016700	BREWER, ELLA MARGARET	1609 9TH AVE N	NASHVILLE	TN	37208
08112016800	COFFIN, JENNIFER N. & MCCRARY, ROBERT L., JR.	1607 9TH AVE N	NASHVILLE	TN	37208
08112016900	ARCHIBALD, ALTON	1605 9TH AVE N	NASHVILLE	TN	37208
08112017200	SMITH, JASPER JR.	1618 9TH AVE N	NASHVILLE	TN	37208
08112017300	HAMPTON, DEBORAH R.	1620 9TH AVE N	NASHVILLE	TN	37208
08112017400	KOTSIRIS, LEONIDAS & JOVANOVIC, LJUBICA	1622 9TH AVE N	NASHVILLE	TN	37208
08112017500	PASIFICA INVESTMENT, LLC & BORNO, SAMIR EL	1622 B 9TH AVE N	NASHVILLE	TN	37208
08112017600	NEW METRO. CHRISTIAN MISS. BAPT.CH.,INC.	1624 9TH AVE N	NASHVILLE	TN	37208
08112017700	NEW METRO. CHRISTIAN MISS. BAPT.CH.,INC.	1626 9TH AVE N	NASHVILLE	TN	37208
08112017800	BROWN, DAVID W.(LE) & SIMPKINS, DEANNA	829 JANE ST	NASHVILLE	TN	37208
08112017900	RADFORD, WILLIAM A. & SONCERIA JULIA	839 BUCHANAN ST	NASHVILLE	TN	37208
08112018200	RADFORD, WILLIAM A. & SONCERIA JULIA	835 BUCHANAN ST	NASHVILLE	TN	37208

08112023100	MT. BETHEL BAPTIST CHURCH, TRUSTEES	1526 MARY ST	NASHVILLE	TN	37208
08112023200	MT. BETHEL BAPTIST CHURCH, TRUSTEES	1524 MARY ST	NASHVILLE	TN	37208
08112023300	MT. BETHEL BAPTIST CHURCH	1522 MARY ST	NASHVILLE	TN	37208
08112023400	MT. BETHEL BAPTIST CHURCH	1518 MARY ST	NASHVILLE	TN	37208
08112023500	MT. BETHEL BAPTIST CHURCH ET AL	1516 MARY ST	NASHVILLE	TN	37208
08112023600	TRUSTEES OF MT. BETHEL BAPTIST CHURCH	1514 MARY ST	NASHVILLE	TN	37208
08112023700	MT. BETHEL BAPTIST CHURCH, TRUSTEES	1512 MARY ST	NASHVILLE	TN	37208
08112023800	MT. BETHEL BAPTIST CHURCH, TRS.	1510 MARY ST	NASHVILLE	TN	37208
08112023900	MT. BETHEL BAPTIST CHURCH, TRUSTEES	1026 CHEATHAM PL	NASHVILLE	TN	37208
08112024100	MOUNT BETHEL MISS. BAPT. CH. TRS.	1501 ARTHUR AVE	NASHVILLE	TN	37208
08112024200	MT. BETHEL BAPTIST CHURCH, TRUSTEES	1503 ARTHUR AVE	NASHVILLE	TN	37208
08112024300	MT. BETHEL BAPTIST CHURCH, TRS.	1505 ARTHUR AVE	NASHVILLE	TN	37208
08112024400	MT. BETHEL BAPTIST CHURCH	1507 ARTHUR AVE	NASHVILLE	TN	37208
08112024900	GODDARD, RICHARD	1517 ARTHUR AVE	NASHVILLE	TN	37208
08112025000	WHITE-GILBERT, MARGARET	1519 ARTHUR AVE	NASHVILLE	TN	37208
08112025100	COOK, YANCY	1521 ARTHUR AVE	NASHVILLE	TN	37208
08112025200	SMITH, STEPHEN L.	1523 ARTHUR AVE	NASHVILLE	TN	37208
08112025300	EGY INVESTMENTS, LLC	1525 ARTHUR AVE	NASHVILLE	TN	37208
08112025500	ELROD RENTAL GROUP, LLC, THE	1529 ARTHUR AVE	NASHVILLE	TN	37208
08112025600	PREMIER CONSULTING INC., TRUSTEE	1531 ARTHUR AVE	NASHVILLE	TN	37208
08112025700	FARD, ASAD NARANGI	1533 ARTHUR AVE	NASHVILLE	TN	37208
08112025800	JENKINS, SHAWN MICHAEL	1535 ARTHUR AVE	NASHVILLE	TN	37208
08112025900	WELCH, SHENIKA D.	1537 ARTHUR AVE	NASHVILLE	TN	37208
08112026000	GODDARD, RICHARD	1539 ARTHUR AVE	NASHVILLE	TN	37208
08112026100	GODDARD, RICHARD	1541 ARTHUR AVE	NASHVILLE	TN	37208
08112026600	ROLLINS, SPENCER	1532 ARTHUR AVE	NASHVILLE	TN	37208
08112026700	ROLLINS, SPENCER	1530 ARTHUR AVE	NASHVILLE	TN	37208
08112026900	HOWSE, ERNEST, PLEAS, MARY, LOUISE ET AL	1526 ARTHUR AVE	NASHVILLE	TN	37208
08112027100	KUPIN, JACOB & MICHAEL & RHONDA	1520 ARTHUR AVE	NASHVILLE	TN	37208
08112027500	WHITE PINES BUIDING GROUP, LLC	1512 B ARTHUR AVE	NASHVILLE	TN	37208
08112027600	WHITE PINES BUILDING GROUP, LLC	1512 A ARTHUR AVE	NASHVILLE	TN	37208
08112027700	BROWN, ELLIOT	1510 ARTHUR AVE	NASHVILLE	TN	37208
08112027800	BROWN, ELLIOT	1508 ARTHUR AVE	NASHVILLE	TN	37208
08112028100	MCQUIDDY, JENICA & DARRELL	1006 CHEATHAM PL	NASHVILLE	TN	37208
08112028200	MCQUIDDY, JENICA & DARRELL	1004 CHEATHAM PL	NASHVILLE	TN	37208
08112028300	EVANS, TONY L.	1000 CHEATHAM PL	NASHVILLE	TN	37208
08112028400	HIPPS, WILLIAM L. ETUX	1505 10TH AVE N	NASHVILLE	TN	37208
08112028500	ELLIOTT, PAMELA KAY & WARRICK, JOHN GLENN	1507 10TH AVE N	NASHVILLE	TN	37208
08112028600	COOPER, NANCY JEAN	1509 10TH AVE N	NASHVILLE	TN	37208
08112028700	EVANS, PAUL A. & WILLIA	1511 A 10TH AVE N	NASHVILLE	TN	37208
08112028800	FILI, MATTHEW	1513 10TH AVE N	NASHVILLE	TN	37208
08112028900	HAYES, MICHAEL E. & PAULA W.	1515 10TH AVE N	NASHVILLE	TN	37208
08112029000	DEYOUNG, MARK R. & ANGELA	1517 10TH AVE N	NASHVILLE	TN	37208
08112029100	SJODIN, JON ERIC	1519 10TH AVE N	NASHVILLE	TN	37208
08112029200	MAJORS, MARNITA D.	1521 10TH AVE N	NASHVILLE	TN	37208
08112029300	JONES, EARNEST ETUX	1523 10TH AVE N	NASHVILLE	TN	37208
08112029400	DUNLAP, ANTONIO	1525 10TH AVE N	NASHVILLE	TN	37208
08112029500	DUNLAP, VANESSA & ANTONIO	1525 B 10TH AVE N	NASHVILLE	TN	37208
08112029700	DAVIS, LEROY R. & KATHLEEN F.	1009 GARFIELD ST	NASHVILLE	TN	37208
08112029800	BRADEN, HENRY L. ET UX	1531 10TH AVE N	NASHVILLE	TN	37208
08112029900	BUCHANAN, WAYNE	1529 10TH AVE N	NASHVILLE	TN	37208
08112030100	SIMS, BETTY & ANTHONY F. ET AL	1514 10TH AVE N	NASHVILLE	TN	37208

08112030200	COBB, ANTHONY B	1512 10TH AVE N	NASHVILLE	TN	37208
08112030300	UPCHURCH, DONNA W.	1510 10TH AVE N	NASHVILLE	TN	37208
08112030400	MATHENY, LESLEE & NICHOLAS	1508 10TH AVE N	NASHVILLE	TN	37208
08112030500	THOMAS, BETTINA	1506 10TH AVE N	NASHVILLE	TN	37208
08112030600	CLOUSE, TONY	1504 10TH AVE N	NASHVILLE	TN	37208
08112030700	RANDOLPH, RONALD R.	912 CHEATHAM PL	NASHVILLE	TN	37208
08112030800	KING SOLOMON BAPTIST CHURCH, INC.	908 CHEATHAM PL	NASHVILLE	TN	37208
08112036900	BARRETT, M. L., JR.	1414 ARTHUR AVE	NASHVILLE	TN	37208
08112037000	BARRETT, M. L., JR.	1412 ARTHUR AVE	NASHVILLE	TN	37208
08112037100	GRAY, CLINTON III	1410 ARTHUR AVE	NASHVILLE	TN	37208
08112037200	GRADY, RICHARD L.	1408 ARTHUR AVE	NASHVILLE	TN	37208
08112037300	HIMES, SCOTT R.	1406 ARTHUR AVE	NASHVILLE	TN	37208
08112037400	KNIGHT, ANGELIA GILBERT	1403 10TH AVE N	NASHVILLE	TN	37208
08112037500	WILLIS, TEMORE	1405 10TH AVE N	NASHVILLE	TN	37208
08112037600	WILLIAMS, PATRICIA	1407 10TH AVE N	NASHVILLE	TN	37208
08112037700	DIXON, VESTER	1409 10TH AVE N	NASHVILLE	TN	37208
08112037800	PAULA D. GODSEY TRUST, THE ET AL	1411 10TH AVE N	NASHVILLE	TN	37208
08112037900	KING SOLOMON BAPTIST CHURCH, INC.	1413 10TH AVE N	NASHVILLE	TN	37208
08112038000	KIRKPATRICK, ERBIE ETUX	1415 10TH AVE N	NASHVILLE	TN	37208
08112038100	KING SOLOMON MISSIONARY BAPTIST CH. FDN.	1417 10TH AVE N	NASHVILLE	TN	37208
08112038200	DAVIS, MAUDE & GERADO W. & TANJA L.	1007 CHEATHAM PL	NASHVILLE	TN	37208
08112038300	KING SOLOMON MISSIONARY BAPT. CH. FDN.	1419 10TH AVE N	NASHVILLE	TN	37208
08112038400	TURNER, BARBARA S.& POLLOCK, N.M.,CO-TRS	917 CHEATHAM PL	NASHVILLE	TN	37208
08112038500	TURNER, BARBARA S.& POLLOCK, N.M.,CO-TRS	909 CHEATHAM PL	NASHVILLE	TN	37208
08112038700	TURNER, BARBARA S.& POLLOCK, N.M.,CO-TRS	1416 10TH AVE N	NASHVILLE	TN	37208
08112038800	WRIGHT, MARK A. & BELINDA R.	1414 10TH AVE N	NASHVILLE	TN	37208
08112038900	BROWN, MORGANN	1412 10TH AVE N	NASHVILLE	TN	37208
08112039000	WESSON, CASEY	1410 10TH AVE N	NASHVILLE	TN	37208
08112039100	HOWARD, DEBBI F.	1408 10TH AVE N	NASHVILLE	TN	37208
08112039200	CURTIS, NICHOLAS I. & ANGELA D.	1406 10TH AVE N	NASHVILLE	TN	37208
08112039400	SMALL, RONALD C.	1402 A 10TH AVE N	NASHVILLE	TN	37208
08112039500	JONES, PAULETTE & GUARDIAN FOR SARAH L.	1400 10TH AVE N	NASHVILLE	TN	37208
08112039600	WRIGHT, MARK A. & BELINDA R.	1306 10TH AVE N	NASHVILLE	TN	37208
08112039700	HOPEWELL BAPTIST CHURCH, TRUSTEES	1304 10TH AVE N	NASHVILLE	TN	37208
08116011200	TURNER, KHIRA	1201 11TH AVE N	NASHVILLE	TN	37208
08116011300	BENTON, SARAH	1205 11TH AVE N	NASHVILLE	TN	37208
08116011400	BLANCHARD, ROBIN P. & CRAWFORD, KERRY	1207 11TH AVE N	NASHVILLE	TN	37208
08116011500	SMITH, MELVIN & LINDA BELL	1209 11TH AVE N	NASHVILLE	TN	37208
08116011600	SMITH, MELVIN & LINDA	1211 11TH AVE N	NASHVILLE	TN	37208
08116011700	CAM PROPERTIES, LLC	1213 11TH AVE N	NASHVILLE	TN	37208
08116011800	MCQUIDDY, BOBBY	1215 11TH AVE N	NASHVILLE	TN	37208
08116011900	MCQUIDDY, BOBBY	1217 11TH AVE N	NASHVILLE	TN	37208
08116012000	MERIWETHER, W. DELANO, SR.	1219 11TH AVE N	NASHVILLE	TN	37208
08116012200	WILLIAMS, AKIE C. & IYATUNDE E.	1223 11TH AVE N	NASHVILLE	TN	37208
08116012300	METRO GOV'T BT BACK TAX SALE	1225 11TH AVE N	NASHVILLE	TN	37208
08116012400	RIDLEY, MAY ALICE	1227 11TH AVE N	NASHVILLE	TN	37208
08116013700	KIRSHNER, ALDEN & PULS, GLORIA K.	1517 MARY ST	NASHVILLE	TN	37208
08116013800	MICHAEL, TERESA CLAYBROOKS	1400 11TH AVE N	NASHVILLE	TN	37208
08116013801	SMITH, KIMBERLY L.	1404 11TH AVE N	NASHVILLE	TN	37208
08116013802	METRO GOV'T	1408 11TH AVE N	NASHVILLE	TN	37208
08116013803	METRO GOV'T	1412 11TH AVE N	NASHVILLE	TN	37208
08116013900	EARLY, JOANN	1515 MARY ST	NASHVILLE	TN	37208

08116014000	STEELE, JOHN F., JR.	1509 MARY ST	NASHVILLE	TN	37208
08116014100	FITE, PHYLLIS MARIE	1505 MARY ST	NASHVILLE	TN	37208
08116014200	EASLEY, JOHNNY L.	1501 MARY ST	NASHVILLE	TN	37208
08112040500	BROOKS, MICHAEL ET UX	1405 9TH AVE N	NASHVILLE	TN	37208
08112040600	BOOKER, REGINALD & LISA L.	1407 9TH AVE N	NASHVILLE	TN	37208
08112040700	GREER, FREDDIE F.	1409 9TH AVE N	NASHVILLE	TN	37208
08112040800	GMAT HOLDINGS, GP	1411 9TH AVE N	NASHVILLE	TN	37208
08112040900	HALL, DOROTHY & JURI	1413 9TH AVE N	NASHVILLE	TN	37208
08112041000	CARTER, LISA	1415 9TH AVE N	NASHVILLE	TN	37208
08116073600	HOPEWELL BAPT. CHURCH TRS.	906 MONROE ST	NASHVILLE	TN	37208
081120E00100C	LAUTT, MARINELA M.	1709 B NASSAU ST	NASHVILLE	TN	37208
081120E00200C	LAUTT, CHAD, TRUSTEE	1709 A NASSAU ST	NASHVILLE	TN	37208
081120E00300C	O.I.C. NASSAU TOWNHOMES	1709 C NASSAU ST	NASHVILLE	TN	37208
081120F00100C	PATEL, MITEN	1419 9TH AVE N	NASHVILLE	TN	37208
081120F00200C	HARMON, MARK M. & PAMELA A.	1417 9TH AVE N	NASHVILLE	TN	37208
081120F00300C	O.I.C LEE ANDREWS CORNER AT CHEATHAM PLACE TOWNHOME	0 9TH AVE N	NASHVILLE	TN	37208
081120G00100(	CONNELL, MICHAEL D.	1506 ARTHUR AVE	NASHVILLE	TN	37208
081120G00200(	OWENS, ANTHONY T. & PERRI DUGARD	1504 ARTHUR AVE	NASHVILLE	TN	37208
081120G00300(	EPPS, TONYA MICHELE	1502 ARTHUR AVE	NASHVILLE	TN	37208
081120G00400(	EPPS, TONYA MICHELE	1500 ARTHUR AVE	NASHVILLE	TN	37208
081120G90000(	O.I.C. ARTHUR STREET CONDOMINIUM AMENDED	1506 B ARTHUR AVE	NASHVILLE	TN	37208
081120K00100C	RUDOLPH, CYNTHIA THOMPSON	1514 A ARTHUR AVE	NASHVILLE	TN	37208
081120K00200C	CATE, WESLEY P.	1514 B ARTHUR AVE	NASHVILLE	TN	37208
081120K90000C	O.I.C. ARTHUR AVENUE BROWNSTONES I	1514 C ARTHUR AVE	NASHVILLE	TN	37208
081120G90100(	O.I.C. ARTHUR STREET CONDOMINIUM AMENDED	1502 B ARTHUR AVE	NASHVILLE	TN	37208
081160E00100C	WHITE, ROBIN G. & JASON L.	1407 A ARTHUR AVE	NASHVILLE	TN	37208
081160E00200C	KELLY, MEGAN A.	1407 B ARTHUR AVE	NASHVILLE	TN	37208
081160E90000C	O.I.C. ARTHUR AVENUE TOWNHOMES	1407 C ARTHUR AVE	NASHVILLE	TN	37208
081160E00300C	MORGAN, CATHY L.	1409 A ARTHUR AVE	NASHVILLE	TN	37208
081160E00400C	MCNEIL, HAROLD G., III & EMILY J.	1409 B ARTHUR AVE	NASHVILLE	TN	37208
081160E90100C	O.I.C. ARTHUR AVENUE TOWNHOMES	1409 C ARTHUR AVE	NASHVILLE	TN	37208
081160F00100C	STONE, KENNETH III & SCHMITT, ROBERT JR & LAUREN	1038 A SCOVEL ST	NASHVILLE	TN	37208
081160F00200C	HEIAR, DEREK J.	1038 B SCOVEL ST	NASHVILLE	TN	37208
081160F90000C	O.I.C. 1038 SCOVEL STREET BROWNSTONES	1038 C SCOVEL ST	NASHVILLE	TN	37208
081120F00400C	MATTOX, GLENDA GAIL	1421 9TH AVE N	NASHVILLE	TN	37208
081120F00500C	COOPER, LAUREN E.	903 CHEATHAM PL	NASHVILLE	TN	37208
081120F90000C	O.I.C. THE LEE ANDREW'S CORNER AT CHEATHAM PL TOWNHOM	903 B CHEATHAM PL	NASHVILLE	TN	37208
081120U00100(	IRA INNOVATIONS, LLC FBO ROBERT LANDRY	1538 ARTHUR AVE	NASHVILLE	TN	37208
081120U00200(	GREGORY, AL L. & STURGILL, MATTHEW T.	1536 ARTHUR AVE	NASHVILLE	TN	37208
081120U90000(	O.I.C. ARTHUR AVENUE TOWNHOMES	1538 B ARTHUR AVE	NASHVILLE	TN	37208
081120V00100C	LESLIE, ALLAN & ERIKA	1617 B 9TH AVE N	NASHVILLE	TN	37208
081120V00200C	PARENT, FERRIS DALE & NATALIE SHELTON	1617 A 9TH AVE N	NASHVILLE	TN	37208
081120V90000C	O.I.C. 1617 9TH AVENUE TOWNHOMES	1617 C 9TH AVE N	NASHVILLE	TN	37208
081120W00100	GESTAUT, LAURA JENNIFER	1418 A 10TH AVE N	NASHVILLE	TN	37208
081120W00200	SCHALLER, RENE L.	1418 B 10TH AVE N	NASHVILLE	TN	37208
081120W90000	O.I.C. THE HOMES AT 1418 10TH AVENUE NORTH	1418 C 10TH AVE N	NASHVILLE	TN	37208
081120X00100C	MALOIAN, VALERIE	1516 A ARTHUR AVE	NASHVILLE	TN	37208
081120X00200C	LAUGHLIN, JOHN P. & RAECHELLE K.	1516 B ARTHUR AVE	NASHVILLE	TN	37208
081120X90000C	O.I.C. ARTHUR AVENUE BROWNSTONES II	1516 C ARTHUR AVE	NASHVILLE	TN	37208
081120Y00100C	MCNABB, TIFFANY RACHEAL	1619 A 9TH AVE N	NASHVILLE	TN	37208
081120Y00200C	SHEA, KATELYN	1619 B 9TH AVE N	NASHVILLE	TN	37208
081120Y90000C	O.I.C. 9TH AVENUE TOWNHOMES	1619 C 9TH AVE N	NASHVILLE	TN	37208

081120Z00100C	SLONSKI, RICHARD F & FRANKS, CAITLIN	1542 ARTHUR AVE	NASHVILLE	TN	37208
081120Z00200C	STRATFORD, STEPHANIE	1540 ARTHUR AVE	NASHVILLE	TN	37208
081120Z90000C	O.I.C. ARTHUR AVENUE TOWNHOMES PHASE 2	1542 B ARTHUR AVE	NASHVILLE	TN	37208
081160I00100C	WATSON, PAULA & ROBERT	1411 A ARTHUR AVE	NASHVILLE	TN	37208
081160I00200C	UMEHIRA-MCGUINESS FAMILY TRUST	1411 B ARTHUR AVE	NASHVILLE	TN	37208
081160I90000C	O.I.C. ARTHUR AVENUE TOWNHOMES	1411 C ARTHUR AVE	NASHVILLE	TN	37208
081160J00100C	BASILE, KENT	1405 A ARTHUR AVE	NASHVILLE	TN	37208
081160J00200C	CULP, JODI	1405 B ARTHUR AVE	NASHVILLE	TN	37208
081160J90000C	O.I.C. 1405 ARTHUR AVENUE TOWNHOMES	1405 C ARTHUR AVE	NASHVILLE	TN	37208
081123A00100C	909 DEVELOPMENT GROUP, LP	1518 A ARTHUR AVE	NASHVILLE	TN	37208
081123A00200C	909 DEVELOPMENT GROUP, LP	1518 B ARTHUR AVE	NASHVILLE	TN	37208
081123A90000C	O.I.C. AUTHOR TOWNHOMES	1518 C ARTHUR AVE	NASHVILLE	TN	37208
081083B00100C	WEATHERLY, JOHN M	1723 A NASSAU ST	NASHVILLE	TN	37208
081083B00200C	CHAPEL DEVELOPMENT, LLC	1723 B NASSAU ST	NASHVILLE	TN	37208
081083B90000C	O.I.C. 1723 NASSAU STREET COTTAGES	1723 C NASSAU ST	NASHVILLE	TN	37208
081084S00100C	VISIO PROPERTIES, LLC	1712 A NASSAU ST	NASHVILLE	TN	37208
081084S00200C	VISIO PROPERTIES, LLC	1712 B NASSAU ST	NASHVILLE	TN	37208
081084S90000C	O.I.C. 1712 NASSAU STREET TOWNHOMES	1712 C NASSAU ST	NASHVILLE	TN	37208
081123B00100C	WESTBERG, TYLER S. & NELSON, EMMA A. & ET AL	1528 A ARTHUR AVE	NASHVILLE	TN	37208
081123B00200C	JORDAN, LAMONT	1528 B ARTHUR AVE	NASHVILLE	TN	37208
081123B90000C	O.I.C. ARTHUR AVENUE TOWNHOMES	1528 C ARTHUR AVE	NASHVILLE	TN	37208
081121B00100C	MARCH VENTURES, LLC	1714 A DELTA AVE	NASHVILLE	TN	37208
081121B00200C	MARCH VENTURES, LLC	1714 B DELTA AVE	NASHVILLE	TN	37208
081121B90000C	O.I.C. 1714 A & B DELTA AVENUE TOWNHOMES	1714 C DELTA AVE	NASHVILLE	TN	37208
081121C00100C	WAYNE JAMES INVESTMENTS, LLC	1603 A 9TH AVE N	NASHVILLE	TN	37208
081121C00200C	WAYNE JAMES INVESTMENTS, LLC	1603 B 9TH AVE N	NASHVILLE	TN	37208
081121C90000C	O.I.C. 1603 9TH AVENUE NORTH TOWNHOMES	1603 C 9TH AVE N	NASHVILLE	TN	37208
081123C00100C	BUILD NASHVILLE DB2, LLC	1603 10TH AVE N	NASHVILLE	TN	37208
081123C00200C	MCFARLAND, MARSHALL THOMAS	1605 10TH AVE N	NASHVILLE	TN	37208
081123C90000C	O.I.C. HOMES AT 1605 10TH AVENUE NORTH	1605 B 10TH AVE N	NASHVILLE	TN	37208
081160L00100C	PFOX, LLC	1012 MONROE ST	NASHVILLE	TN	37208
081160L00200C	PFOX, LLC	1010 MONROE ST	NASHVILLE	TN	37208
081160L90000C	O.I.C. 1010 MONROE STREET HOMES	1012 B MONROE ST	NASHVILLE	TN	37208
081160M00100	HELLER INVESTMENTS, LLC	1031 MONROE ST	NASHVILLE	TN	37208
081160M00200	HELLER INVESTMENTS, LLC	1033 MONROE ST	NASHVILLE	TN	37208
081160M90000	O.I.C. HOMES AT 1033 MONROE STREET	1033 C MONROE ST	NASHVILLE	TN	37208
081124B00100C	NASHVILLE REDEFINED, LLC	1404 A 10TH AVE N	NASHVILLE	TN	37208
081124B00200C	NASHVILLE REDEFINED, LLC	1404 B 10TH AVE N	NASHVILLE	TN	37208
081124B90000C	O.I.C. HOMES AT 1404 10TH AVENUE NORTH	1404 C 10TH AVE N	NASHVILLE	TN	37208
08108034700	BH2-NASHVILLE PARKS A, LLC	1708 NASSAU ST	NASHVILLE	TN	37208
08112018300	HANTOULI, MUNIR A.	1615 DELTA AVE	NASHVILLE	TN	37208