REQUEST FOR PROPOSALS
RFP #2016-05

The City of Holly Springs (COHS), located at 3237 Holly Springs Parkway, Holly Springs, Georgia, 30115 will receive sealed proposals until:

Friday, March 3, 2017, 3:00 PM

For the project known as:

Master Development Services for the COHS Town Center Project

Proposals are due by 3:00 PM and will be opened and read aloud shortly thereafter in the City Hall Conference Room, 3237 Holly Springs Parkway, Holly Springs, Georgia 30115. No other determination of award will take place at the proposal opening. Proposals received after the designated time will not be considered. The owner of the project is the City of Holly Springs (COHS).

A mandatory pre-proposal conference will be held on January 27, 2017, 3:00 PM at the Holly Springs Municipal Building, 3235 Holly Springs Parkway, Holly Springs, Georgia 30115.

All questions should be directed in writing to Robert H. Logan, City Manager via e-mail to: rlogan@hollyspringsga.us. The deadline for questions is February 10, 2017, 5:00 PM. Questions received after this date and time may not be answered.

COHS must receive eight (8) hard copies and one (1) copy in digital format, in Microsoft Word format, no later than Friday, March 3, 2017, at 3:00 PM. Each proposal must be submitted in a sealed envelope, addressed to the City of Holly Springs (COHS). Each sealed envelope containing a proposal must be plainly marked on the outside as "Master Development Services for the COHS Town Center Project" and the envelope should bear the name and address of the proposer and RFP #2016-05 on the outside of the envelope. Proposals shall not exceed twenty-five (25) pages (8.5x11), inclusive of resumes and firm experience. Cover sheets, budgets exhibits and an introductory letter shall not count against these maximums.

PROPOSAL SIGNATURE AND CERTIFICATION

I certify that this proposal is made without prior understanding, agreement, or connection with any corporation, firm, or person submitting a proposal ("Offeror") for the same materials, supplies, equipment, or services and is in all respects fair and without collusion or fraud. I understand collusive bidding is a violation of state and federal law and can result in fines, prison sentences, and civil damage awards. I agree to abide by all conditions of the proposal and certify that I am authorized to sign this proposal for Offeror. I further certify that the provisions of O.C.G.A. § 45-10-20, et seq. have not been violated and will not be violated in any respect.

Authorized Signature for Offeror _____

Date _____

Print/Type Name

_____

Print/Type Offeror Name Here

_____

TABLE OF CONTENTS

SECTION 1: BACKGROUND

The City of Holly Springs (COHS) began acquiring property for the Town Center Project over a decade ago. The Mayor and City Council understood the importance of creating a mixed-use destination in downtown Holly Springs that provides a wide variety of residential options, retail, restaurants, a new City Hall, an amphitheater, event lawn and gateway park years ago. The City has worked with a variety of consultants to compile information about the property and formulate plans to develop the Town Center. The intent of this process is to acquire sufficient information regarding the approach, concept, financial approach, financial condition, and other factors indicated as bases of selection in other sections of this document to allow the City to rank Offerors in order of desirability. The ranking and selection will be followed by a period of negotiation during which a final agreement will be concluded or negotiations terminated and negotiations entered into with the next ranked firm.

PROJECT SITE

As indicated in Exhibit A to this RFP, the City of Holly Springs (COHS) and the Holly Springs Downtown Development Authority (DDA) currently control multiple parcels within the Town Center District comprised of 22.4 acres of undeveloped land.

For development purposes, the ridgeline parallel to Hickory Road is set aside for the development of a New City Hall, amphitheater and event lawn surrounded by retail, restaurant and office uses. The current schematic shows multi-family and single-family residential uses, a senior living facility and a parking deck.

UPDATES TO TOWN CENTER SCHEMATIC PLAN

The City of Holly Springs contracted with Wakefield, Beasley & Associates in 2016 to update the land plan for the Town Center Project. Wakefield, Beasley & Associates redesigned the schematic plan to make the best use of the topography on the site and utilize the available land in the most advantageous methods possible for each intended use.

PROJECT COMPONENTS

The Town Center Project Components are listed below:

1. The single-family, multi-family and senior housing units
2. The commercial and office uses
3. The project site infrastructure, which includes streets, sidewalks, sanitary and storm sewer systems, natural gas and electrical distribution, street lighting, etc.
4. The park/green space, gateway feature and amphitheater with the related landscape/hardscape and any minor structures that might be required
5. The City Hall, which will include office space for all City governmental functions,

facilities for the interface of citizens and government, City Council chambers, and conference facilities for use by public and private entities

6. A major parking structure (in the range of 500 cars) which will be located along the northwest side of the site adjacent to the railroad

The City has various incentives available to the Master Developer including a tax allocation district (TAD) which was approved by the Georgia Department of Revenue in 2016 (Exhibit I), the waiver of building inspection fees and Special Purpose Local Option Sales Tax I (SPLOST I) funding for sidewalks within the development. In addition, the COHS has already made significant public infrastructure investments in the area that have the potential to lower private development costs on the Project Site. Specific projects with potential cost savings for the Master Developer include the installation of a sanitary sewer main that will serve the project and the recent completion of the Livable Centers Initiative (LCI) Streetscapes Project along Hickory Road. In addition, the COHS entered into an agreement in the fall with a contractor to realign Rickman Industrial Drive, improve the intersection at Hickory Road and Holly Springs Parkway and remove most of Jackson Street. The City of Holly Springs has also entered into a contract with AEC for the performance of preliminary infrastructure engineering a cost estimate for site preparation (Exhibit B and Exhibit D). COHS also entered into an agreement with NOVA for the performance of preliminary geotechnical services for the site (Exhibit C).

Offerors should understand that the approach described above is not proscriptive. If an Offeror wishes to propose an alternative approach (i.e., development concept or financial arrangements) that still meets the overall goals of the Town Center Project, it will be considered without prejudice. The City of Holly Springs does not wish to limit or discourage the creativity of the Offerors.

SECTION 2: SUBMISSION FORMAT AND CONTENTS

- **Component 1: Development Concept for Single-Family, Multi-Family and Senior Housing Units:** The City's objectives include mixed-use development on the Project Site, with a preference for owner-occupied housing, as dictated by market demand. The proposal should provide a detailed response to the following:

    a. Proposed Uses: Square footage estimates for all proposed structures and uses in the private development. Describe why this development has a realistic opportunity to be successful
    b. Site Plan: Show the proposed private development areas, including building shape and orientation, location of parking lots or structures, sidewalks, site amenities, and proposed landscape design, including hardscape and planting
    c. Elevation Drawings: Show proposed architectural character, including proposed materials, architectural treatment, fenestration, height, roof treatment, and other details as appropriate to describe developer's conceptual design
    d. Architectural Rendering(s): Show proposed development on the parcel, including

at a minimum, a bird's eye perspective of the entire site and other sketches/renderings as required describing the scheme

e. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

f. Pricing and Financing: Include information about the firm's proposed price for the land, relevant financing information, and a signed Letter of Intent. The City is interested in selecting and negotiating with a firm having a realistic plan, adequate financial resources and demonstrated willingness to move forward diligently to bring the Project to completion

g. Proposed project timeline: Provide detailed timeline for all phases of project through completion.

- **Component 2: Development Concept for Commercial and Office Uses:**

a. Proposed Uses: Square footage estimates for all proposed structures and uses in the private development. Describe why this development has a realistic opportunity to be successful pursuant to information in Exhibit E

b. Site Plan: Show the proposed private development areas, including building shape and orientation, location of parking lots or structures, sidewalks, site amenities, and proposed landscape design, including hardscape and planting

c. Elevation Drawings: Show proposed architectural character, including proposed materials, architectural treatment, fenestration, height, roof treatment, and other details as appropriate to describe developer's conceptual design

d. Architectural Rendering(s): Show proposed development on the parcel, including at a minimum, a bird's eye perspective of the entire site and other sketches/renderings as required describing the scheme

e. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

- **Component 3: Development Concept for Project Site Infrastructure:**

a. Site Plan: Include details for all electrical, communications and natural gas lines, water and sanitary sewer mains, stormwater systems including detention/retention ponds, curb and gutter, catch basins, inlets and flumes, street lights (Exhibit G),

roadways (Exhibit D), sidewalks, signage, traffic control devices and other related public infrastructure stamped by a professional engineer (PE)

b. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

- **Component 4: Development Concept for Park/Green Space, Gateway Feature and Amphitheater:**

a. Site Plan: Show the proposed park/green space areas as well as the proposed amphitheater including proposed design, shape, landscaping and orientation on the property

b. Elevation Drawings: Show architectural character, proposed building materials, height, roof treatment and other relevant details of the gateway feature and amphitheater

c. Architectural Rendering(s): Show proposed development on the parcel, including at a minimum, a bird's eye perspective of the entire site and other sketches/renderings as required describing the scheme

d. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

- **Component 5: Development Concept for City Hall:**

a. Site Plan: Show the proposed City Hall based on the renderings (Exhibit B) and from the Space Needs Assessment shown in Exhibit C

b. Elevation Drawings: Show architectural character, proposed building materials, height, roof treatment and other relevant details of the City Hall

c. Architectural Rendering(s): Show proposed development on the parcel, including at a minimum, a bird's eye perspective of the entire site and other sketches/renderings as required describing the scheme

d. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

- **<u>Component 6: Development Concept for Major Parking Structure:</u>**

a. Site Plan: Show the proposed Major Parking Structure based on the schematic plan developed by Wakefield, Beasley & Associates and review the preliminary geotechnical engineering report regarding site conditions shown in Exhibit F
b. Elevation Drawings: Show architectural character, proposed building materials, height, roof treatment and other relevant details of the Major Parking Structure
c. Architectural Rendering(s): Show proposed development on the parcel, including at a minimum, a bird's eye perspective of the entire site and other sketches/renderings as required describing the scheme
d. Project Team: Identify all firms and Project team members anticipated to be involved. Full acknowledgement/clarification of your Project team must be identified in the proposal. In addition, please address how Offeror proposes to address potential loss of key team members during the duration of this project should it occur

The City is open to responses that consider all types of public-private partnership opportunities and financing alternatives, including taxable or tax-exempt financing or other powers pursuant to the Development Authorities Law (O.C.G.A. § 36-62-1, et seq.). The City expects to receive fair market value for any land it sells or leases. The City intends to contract with the Holly Springs Downtown Development Authority (DDA) for the disposition of property and to offer tax allocation district financing for public infrastructure within the project limits

Specifically this section should include:

a. Price – In exchange for the land and the City's proposed development of a City park, civic elements and infrastructure, as described in Section 1, describe the firm's offer and any relevant business terms or payment schedules. The proposed price should clearly indicate whether or not the Offeror would purchase the property outright or would propose an alternative proposal such as a long-term lease. The proposed price should also indicate any proposed use of City incentives or any use of downtown development authority (DDA) financing.
b. Relevant pricing information: If the Offeror does not intend to pay full cost at closing, provide detailed information related to any proposed financing of the development including how these payments will be structured and scheduled. Please include a statement detailing the source (bank, private equity partners, cash on hand, etc.) of the anticipated private funding.

Should the City choose to use the program management and construction management services of the Master Developer for any of the above components, the procurement of any public facility / infrastructure construction must comply with the provisions of applicable procurement laws

including, but not limited to, Georgia Public Works Construction Law (O.C.G.A. § 36-91-1, et seq.) and City codes, ordinances and policies. The winning proposal would be assigned to the Master Developer to manage on behalf of the City and the City would be obligated to make payments for those items.

SECTION 3: SELECTION PROCESS AND NEGOTIATION

The City intends to assess proposals and confirm references of the Master Developer. In-person interviews will be conducted for qualified teams, as outlined in the schedule in Section 8. At the City's sole discretion, the most responsive Offeror will then be identified and the City will proceed to the negotiation of a Master Development Agreement and other definitive documents, which would detail the rights and responsibilities of the Master Developer and the City.

SECTION 4: EVALUATION CRITERIA

The proposal components listed in Section 2 will be rated based on the evaluation criteria below:

Components 1and 2: Development Concept for Private Development:

- The City desires proposals that include owner occupied housing, as dictated by market demand
- How quickly can the developer complete this development (It is the City's intent that the development be completed as expeditiously as possible)
- Is the developer capable of following through with the financial and other obligations related to this Project
- Do the Master Developer and Project team members have the institutional depth to ensure Project completion of construction and success should individual members of the team exit the Project
- Is the City being offered a market-based value for the land, given the unique nature of the Project and considering the level of City investments and incentives proposed

Components 3, 4, 5 and 6: City Facilities Development Management:

- Provide qualifications of Offeror in proving these services, including previous experience
- Proposed fee structure for services

In-person presentations and interviews will be conducted for the acceptable Offerors. Following in-person interviews, the City will evaluate the Offerors based on the criteria stated in this RFP. The selection committee will make a recommendation to City Council of the Offeror that best meets the evaluation criteria. The final selection will be made by the Holly Springs City Council. The City anticipates there will be financial and contract negotiations with a single potential Master Developer. Should negotiations fail to yield a mutually acceptable contract, the City may select another firm and begin negotiations.

SECTION 5: INQUIRIES

There will be a pre-proposal conference on January 27, 2017 at 3:00 PM. at the Holly Springs Municipal Building located at 3235 Holly Springs Parkway, Holly Springs, GA 30115. A question and answer time will follow the pre-proposal conference. Any written inquiries must be delivered no later than 5:00 PM on February 10,2017. After this date, no further questions will be accepted. Requests for information and questions should be submitted to City of Holly Springs, Robert H. Logan, City Manager, P.O. Box 990, Holly Springs, GA 30142 or by e-mail at rlogan@hollyspringsga.us.

Responses to questions and any additional information relating to this RFP will be distributed via email to each firm's designated contact. Informal verbal communications during the pre-proposal conference or at any other time, by any person other than the conference organizer, shall be considered unofficial and the City shall have no responsibility to verify any information that is not contained in this RFP or future addenda.

SECTION 6: RESPONSE DEADLINES

COHS must receive eight (8) hard copies and one (1) copy in digital format, in Microsoft Word format, no later than Friday, March 3, 2017, at 3:00 PM. Each proposal must be submitted in a sealed envelope, addressed to the City of Holly Springs (COHS). Each sealed envelope containing a proposal must be plainly marked on the outside as "Master Development Services for the COHS Town Center Project" and the envelope should bear the name and address of the proposer and RFP #2016-05 on the outside of the envelope. Proposals shall not exceed twenty-five (25) pages (8.5x11), inclusive of resumes and firm experience. Cover sheets, budgets exhibits and an introductory letter shall not count against these maximums. Font size should be a minimum of 10 point in all cases.

SECTION 7: TERMS AND CONDITIONS

All proposals and supporting materials as well as correspondence relating to this RFP become property of the City of Holly Springs when received. Any proprietary information contained in the proposal should be so indicated; however, a general indication that the entire contents, or a major portion, of the proposal is proprietary will not be honored. The following terms and conditions shall also apply:

A. All applicable federal and State of Georgia laws, City of Holly Springs and Cherokee County ordinances, licenses and regulations of all agencies having jurisdiction shall apply to the Offerors throughout and are incorporated herein.

B. Professionals requiring special licenses must be licensed in the State of Georgia, and shall be responsible for those portions of the work as may be required by law.

C. No response shall be accepted from, and no contract will be awarded to, any person, firm, or corporation that (i) is in arrears to the City with respect to any debt, (ii) is in default with respect to any obligation to the City, or (iii) is deemed irresponsible or unreliable by the City.

D. The City shall be able to request of the Offerors satisfactory evidence that they have the necessary financial resources to accomplish the requirements of the RFP.

E. From the date this RFP is issued until a Project team is selected, Offerors are not allowed to communicate with any staff or elected officials of the City regarding this procurement, except at the direction of Robert H. Logan, City Manager for the City of Holly Springs). Any unauthorized contact may disqualify the Offeror from further consideration.

F. The costs for developing and delivering responses to this RFP and any subsequent presentations of the response as requested by the City are entirely the responsibility of the Offeror. The City is not liable for any expense incurred by the Offeror in the preparation and presentation of its response.

G. While the City of Holly Springs has every intention to make an award as a result of this multi-phase solicitation, issuance of the RFP in no way constitutes a commitment by the City to designate a Master Developer or to award and execute a contract. Upon a determination such actions would be in its best interest, the City, in its sole discretion, reserves the right to:

1. Cancel or terminate this RFP at any time. A notice of cancellation will be issued in writing to the RFP participants. If the RFP is cancelled, the City will not reimburse any Offeror for the preparation of its proposal. Proposals may be returned upon request if unopened;
2. reject any or all proposals received in response to this RFP, make a contract award based directly on the proposals received in the best interest of the City, in its sole discretion, or enter into further discussions with one (1) or more Offerors;
3. waive and/or amend any undesirable, inconsequential, or inconsistent provisions/specifications of this RFP which would not have significant impact on any response;
4. make partial award or no award if it is in the best interest of the City to do so; and
5. Terminate any contract if the City determines adequate funds are not available.

SECTION 8: PROPOSED SCHEDULE OF EVENTS

Release of RFP.....January 6, 2017

Opening of Written Question and Answer Period……...…January 9, 2017

Mandatory Pre-Proposal Conference ……January 27, 2017

Deadline for Receipt of Written Questions on RFP.....February 10, 2017

Deadline for Publication of Written Answers to Qualified Participants *.....February 15, 2017

Proposals from Qualified Firms due.....March 3, 2017

Proposal Review Process..... March 6, 2017 – March 17, 2017

Interviews with Qualified Firms.....March 27, 2017 – March 31, 2017

City Council Selection.....April 17, 2017

Master Development Agreement Negotiation…… April - June 2017

Deadline for Master Agreement Execution……..……July 2017

*The City may publish answers more than once during the question and answer period.

SECTION 9: EXHIBITS

Exhibit A: PROJECT SITE – SCHEMATIC PLAN

Exhibit B: PRELIMINARY INFRASTRUCTURE ENGINEERING DOCUMENTS

Exhibit C: PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

Exhibit D: CONCEPTUAL COST ESTIMATE

Exhibit E: CITY HALL RENDERINGS

Exhibit F: CITY HALL PROGRAMMING SPACE NEEDS ASSESSMENT

Exhibit G: TOWN CENTER TRANSPORTATION STUDY & PLAN

Exhibit H: DOWNTOWN HOLLY SPRINGS MIXED USE MARKET ANALYSIS

Exhibit I: TAX ALLOCATION DISTRICT NUMBER 2 – NEW TOWN CENTER

Exhibit J: CERTIFICATION OF CONSULTANT – DRUG-FREE WORKPLACE

Exhibit K: CONTRACTOR AFFIDAVIT AND AGREEMENT UNDER O.C.G.A. § 13-10-91(b) (1)

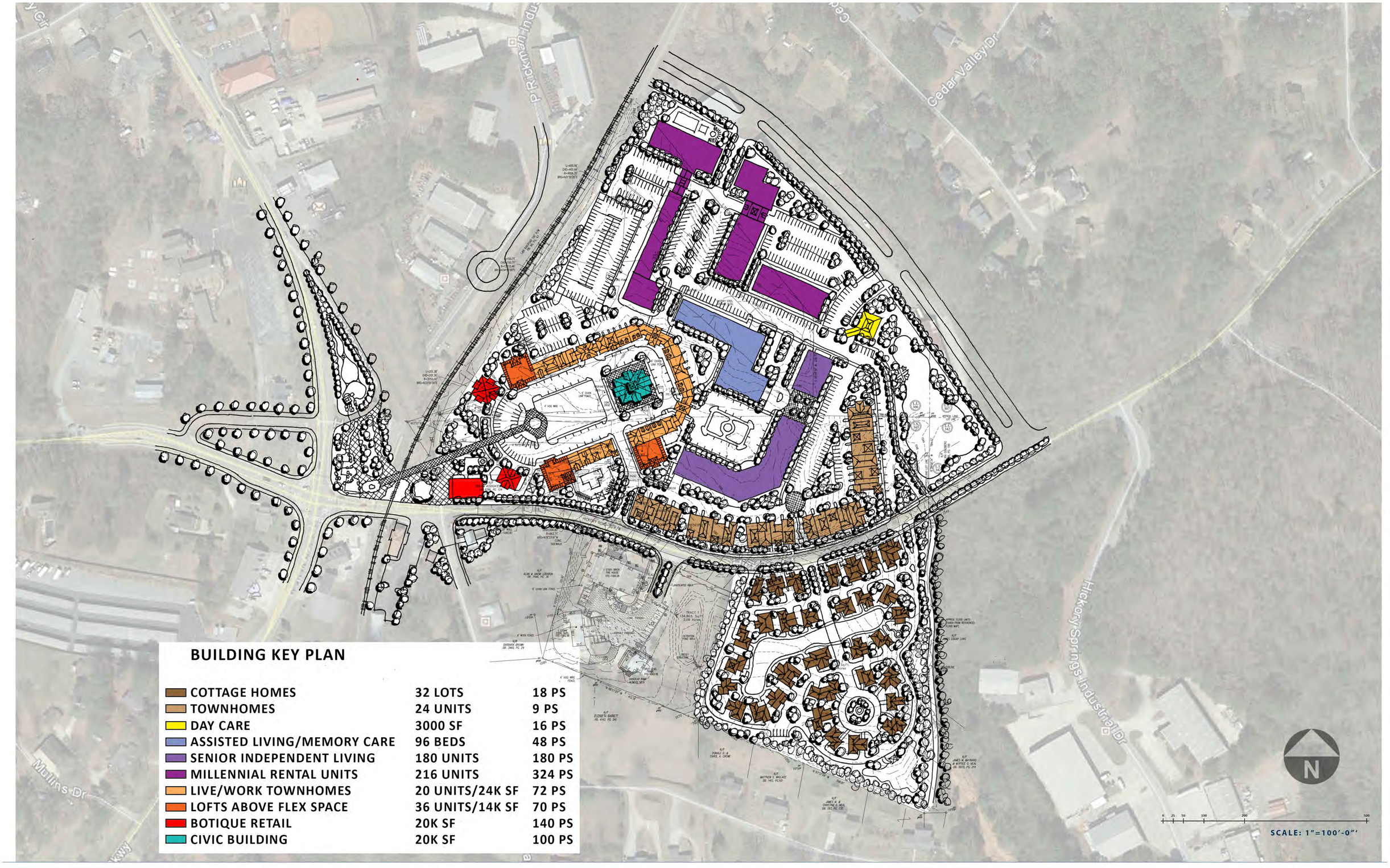
EXHIBIT A
Project Site – Schematic Plan

WAKEFIELD BEASLEY & ASSOCIATES

WAKEFIELD BEASLEY & ASSOCIATES

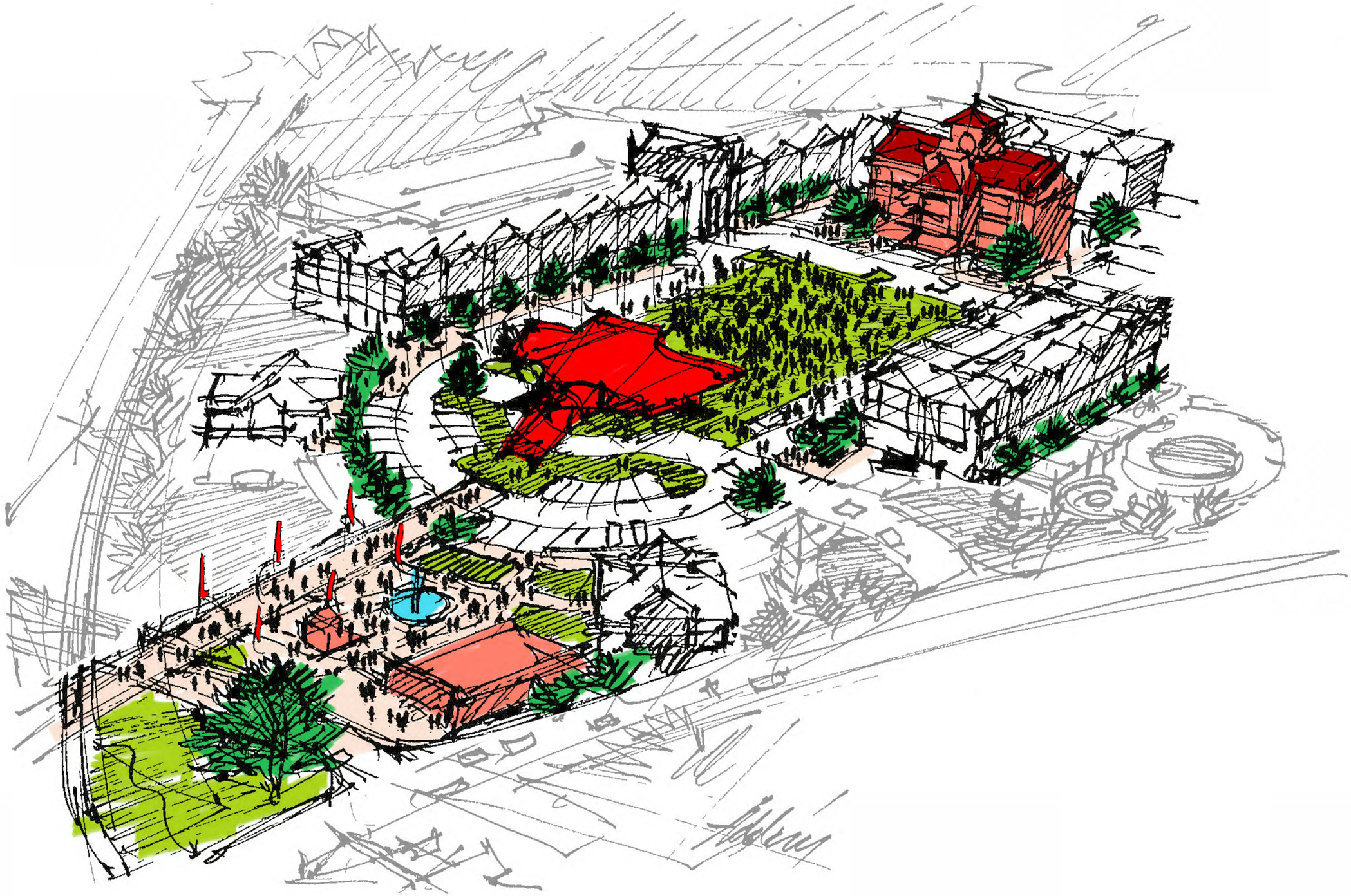
HOLLY SPRINGS TOWN CENTER

HOLLY SPRINGS | GEORGIA
REV: 08 SEPTEMBER, 2016



BUILDING KEY PLAN

COTTAGE HOMES	32 LOTS	18 PS
TOWNHOMES	24 UNITS	9 PS
DAY CARE	3000 SF	16 PS
ASSISTED LIVING/MEMORY CARE	96 BEDS	48 PS
SENIOR INDEPENDENT LIVING	180 UNITS	180 PS
MILLENNIAL RENTAL UNITS	216 UNITS	324 PS
LIVE/WORK TOWNHOMES	20 UNITS/24K SF	72 PS
LOFTS ABOVE FLEX SPACE	36 UNITS/14K SF	70 PS
BOTIQUE RETAIL	20K SF	140 PS
CIVIC BUILDING	20K SF	100 PS



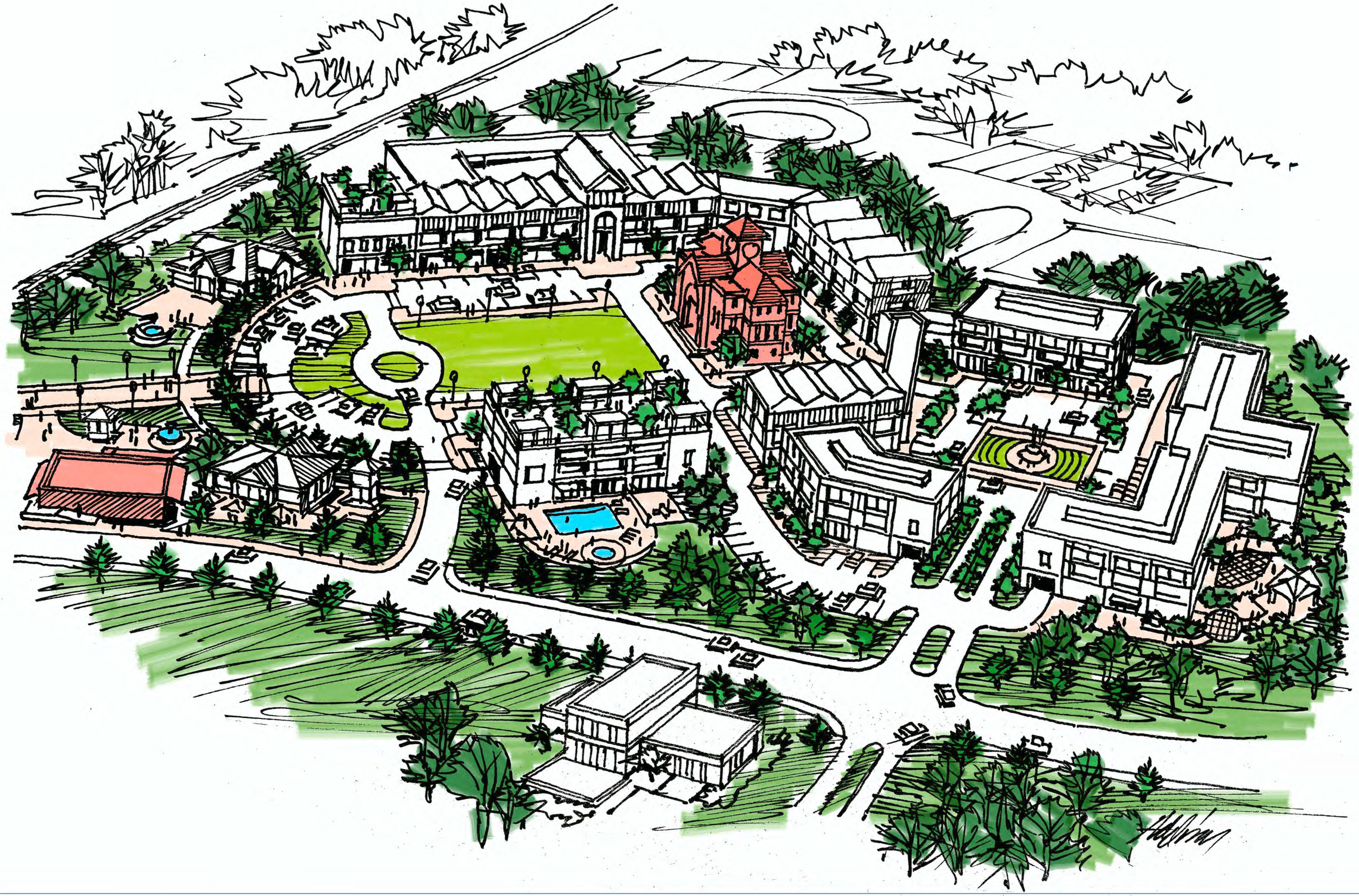
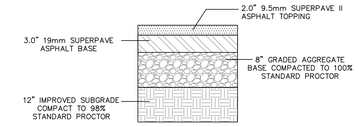
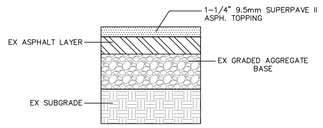


EXHIBIT B

Preliminary Infrastructure Engineering Documents



NEW ROAD
PAVEMENT SECTION
NTS



MILLED AREA PAVEMENT
SECTION
NTS

A·E·C
CIVIL ENGINEERING · PLANNING · LANDSCAPE ARCHITECTURE
50 Warm Springs Circle
Roswell · Georgia · 30075
(770) 641-1942 · www.aecatl.com

NORTH
60 0 60 120

PRELIMINARY SITE PLAN

DOWNTOWN HOLLY SPRINGS

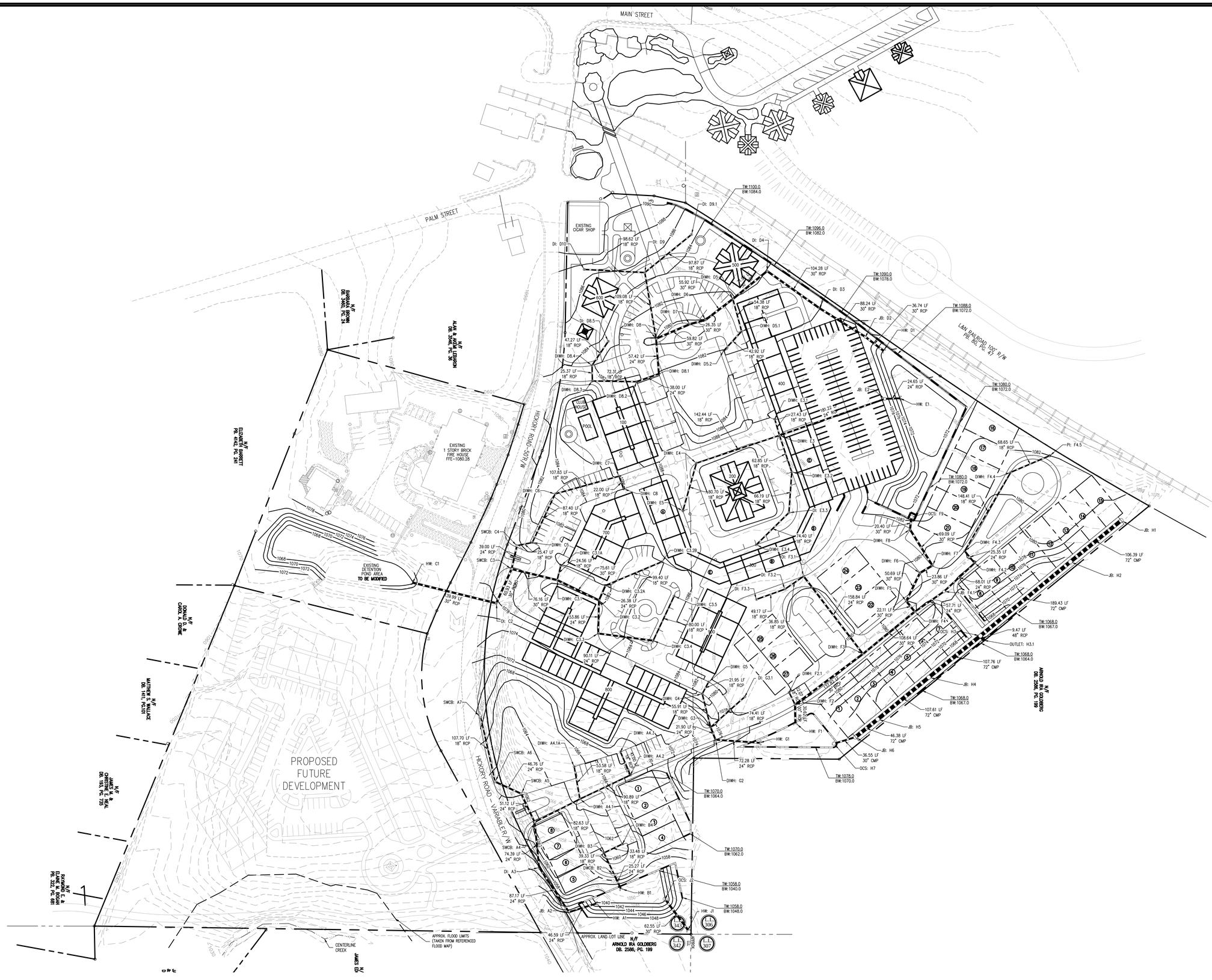
Holly Springs, GA

PROJECT INFORMATION
PROJECT NO.: 15-3835.10
DATE: 12-16-15
SCALE: 1" = 60'
FILE NAME: 15-3835P04.dwg
DESIGN/DRAWN: SLY/SCH/CJW

EARTHWORK VOLUMES

TOTAL CUT: 117,447.0 CY (INCLUDING TOP SOIL)
TOTAL FILL (ADJUSTED): 25,175.9

NET VOLUME: 92,271.10 CY (CUT)



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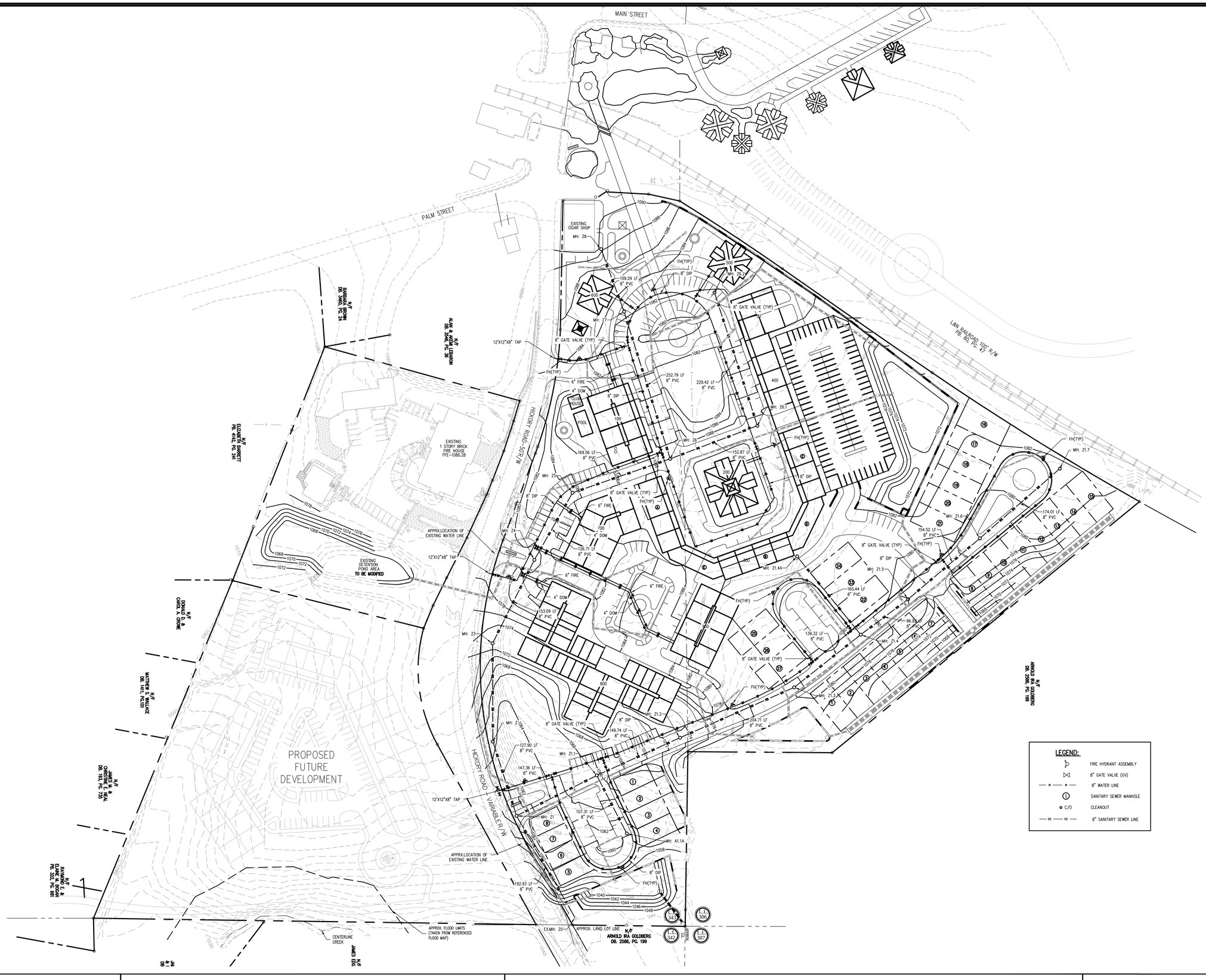
CIVIL ENGINEERING + PLANNING + LANDSCAPE ARCHITECTURE
50 Warm Springs Circle
Roswell • Georgia • 30075
(770) 641-1942 • www.aecatl.com

PRELIMINARY GRADING PLAN

DOWNTOWN HOLLY SPRINGS

Holly Springs, GA

PROJECT INFORMATION
PROJECT NO.: 15-3835.10
DATE: 12-16-15
SCALE: 1" = 60'
FILE NAME: 15-3835P04.dwg
DESIGN/DRAWN: SLY/SCH/CJW



A+EC
CIVIL ENGINEERING + PLANNING + LANDSCAPE ARCHITECTURE
50 Warm Springs Circle
Roswell + Georgia + 30075
(770) 641-1942 + www.aecatl.com

NORTH

60 0 60 120

PRELIMINARY UTILITY PLAN

DOWNTOWN HOLLY SPRINGS

Holly Springs, GA

PROJECT INFORMATION
PROJECT NO.: 15-3835.10
DATE: 01-08-16
SCALE: 1" = 60'
FILE NAME: 15-3835P06.dwg
DESIGN/DRAWN: SLR/SCH/CJW

EXHIBIT C
Preliminary Geotechnical Engineering Report

PRELIMINARY GEOTECHNICAL ENGINEERING REPORT

PROPOSED DOWNTOWN REDEVELOPMENT PROJECT

Holly Springs, Georgia

PREPARED FOR:

AEC, Inc.
50 Warm Springs Circle
Roswell, Georgia 30075

NOVA Project Number: 2016046

April 21, 2016

NOVA
PROFESSIONAL | PRACTICAL | PROVEN

NOVA

April 21, 2016

AEC, Inc.
50 Warm Springs Circle
Roswell, Georgia 30075

Attention: Mr. Christopher J. Finke, P.E., LEED A.P.
President

Subject: Preliminary Geotechnical Engineering Report
Proposed Downtown Redevelopment Project
Holly Springs, Georgia
NOVA Project Number 2016034

Dear Mr. Finke:

NOVA Engineering and Environmental, LLC (NOVA) has completed the authorized Preliminary Geotechnical Engineering Report for the proposed Downtown Redevlopment Project located in Holly Springs, Georgia. The work was performed in general accordance with NOVA Proposal Number 002-20152669, dated October 27, 2015. This report briefly discusses our understanding of the project at the time of the subsurface exploration, describes the geotechnical consulting services provided by NOVA, and presents our preliminary findings, conclusions, and recommendations.

We appreciate your selection of NOVA and the opportunity to be of service on this project. If you have any questions, or if we may be of further assistance, please do not hesitate to contact us.

Sincerely,
NOVA Engineering and Environmental, LLC

Peter J. Keller
Project Geotechnical Engineer

GEORGIA REGISTERED No. PE031295 PROFESSIONAL 4/21/16 ENGINEER WAYNE M. SHELBURNE, P.E.

Wayne M. Shelburne, Ph.D., P.E.
Senior Engineer
P.E. License 31295

Copies Submitted: Addressee (electronic)

TABLE OF CONTENTS

1.0 INTRODUCTION

1.1 PROJECT INFORMATION

Our understanding of this project is based on discussions with AEC, Inc., review of the provided site plans, a site reconnaissance during boring layout, and our experience with similar projects.

1.1.1 Site Plans and Documents

We were furnished with the following plans and documents:

- Holly Springs Downtown Master Plan Sketch
- Downtown Redevelopment Property Sketch
- Google Earth aerial image of site with property outline

1.1.2 Proposed Structures

The site is proposed as a mixed used development consisting of cottages, townhomes, senior living, office, retail, and restaurant space, as well as associated drive and parking areas and a multi-story parking deck. Residential units will likely be single-story, while the townhome units may be two to three-stories. Office and retail spaces will likely be one or two-stories. The number of levels of the parking deck has not be determined at the time of the issuance of this report, however it is our understanding that it will constructed of precast concrete.

1.1.3 Maximum Loads

Structural loads were not available at the time of issuance of this report. However, based upon previous experience with similar structures, the following loads have been assumed. The residential and office units will have maximum column loads on the order of 150 kips or less, with wall loads on the order of 5 kips per linear foot (klf) or less. Depending upon the number of levels in the parking deck, maximum column loads may reach as high as 2,000 kips.

1.1.4 Floor Elevations / Site Grading

No proposed building finished floor elevations have been provided. No site grading information was available during the time of this study. However, we have assumed that cuts and fills of up to 5 feet will be required for site grading.

1.2 SCOPE OF WORK

AEC, Inc. engaged NOVA to provide geotechnical engineering consulting services for the proposed Downton Redevelopment Project located in Holly Springs, Georgia. This report briefly discusses our understanding of the project, describes our exploratory procedures, and presents our findings, conclusions, and recommendations.

The primary objective of this study was to perform a geotechnical exploration within the area of the proposed construction and to assess these findings as they relate to geotechnical aspects of the planned site development. The authorized geotechnical engineering services included a site reconnaissance, a soil test boring and sampling program, in-situ testing, engineering evaluation of the field data, and the preparation of this report.

The services were performed substantially as outlined in our proposal number 002-20152669, dated October 27, 2015, and in general accordance with industry standards.

As authorized per the above referenced proposal, the completed geotechnical report was to include:

- A description of the site, fieldwork, and general soil conditions encountered, as well as a Boring Location Plan, and individual Test Boring Records.
- Discussion on potential earthwork-related concerns indicated by the exploration, such as materials that would require difficult excavation techniques, shallow groundwater, weak subgrade soils, etc.
- Recommendations for controlling groundwater and/or run-off during construction, and the need for permanent de-watering systems based on the anticipated post construction groundwater levels.
- Preliminary recommendations for shallow foundation design and construction, including allowable bearing capacities and bearing depths.
- Recommendations for lateral earth pressure coefficients for the design of below-grade walls.
- Slab-on-grade construction considerations based on the geotechnical findings, including the need for a sub-slab vapor barrier or a capillary barrier.
- Recommended quality control measures (i.e. sampling, testing, and inspection requirements) for site grading. Soil compaction requirements for structural fill and pavements were to be provided.
- General assessment of the suitability of on-site soils for re-use as structural fill and backfill. Additionally, the criteria for suitable fill materials were to be provided.
- Recommendations for additional geotechnical evaluation, if warranted.

The assessment of the presence of wetlands, floodplains, or water classified as State Waters of Georgia was beyond the scope of this study. Additionally, the assessment of site environmental conditions, including the detection of pollutants in the soil, rock, or groundwater, at the site was also beyond the scope of this geotechnical study. If desired by the client, NOVA can provide these services.

2.0 SITE DESCRIPTION

2.1 LOCATION AND LEGAL DESCRIPTION

The Subject Property is located east of the intersection of Holly Springs Parkway and Hickory Street in Holly Springs, Cherokee County, Georgia. The Subject Property consists of an approximately 25-acre site consisting of several parcels.

A Site Location Map and a Topographic Map depicting the location of the Subject Property and its surrounding topography are included in Appendix A (Figures 1 and 2). The approximate latitude and longitude coordinates of the subject site are 34.174051° north and 84.498515° west, respectively.

2.2 SUBJECT PROPERTY AND VICINITY GENERAL CHARACTERISTICS

The generally irregularly shaped Subject Property is located within the Canton, Georgia, United States Geological Survey, 7.5-minute series topographic quadrangle map.

2.3 CURRENT USE OF THE PROPERTY

The Subject Property currently consists of both developed and undeveloped areas. The undeveloped areas are primarily tree covered lots, while the developed areas consist primarily of light industrial and retail structures.

2.4 DESCRIPTIONS OF PROPERTY IMPROVEMENTS

The Subject Property is currently developed with several light industrial one to two-story structures and residential buildings. The majority of the site is wooded. The site is bordered on the west/north by railroad tracks, on the east by a residential development, and Hickory Street to the south. A portion of the site to the east extend across Hickory Street to the south and is bordered to the east by a light industrial complex, to the south by a series of residences and to the west by the Holly Springs Fire Department.

3.0 FIELD AND LABORATORY PROCEDURES

3.1 FIELD EXPLORATION

Boring locations were established in the field by NOVA personnel using the provided site plan, a handheld GPS devise and estimating/taping distances and angles from site landmarks. The approximate locations are shown on Figure 3 in Appendix A. Consequently, referenced boring locations and elevations are approximate. If increased accuracy is desired by the client, NOVA recommends that the boring locations and elevations be surveyed.

Our field exploration was conducted during the period of April 4th to 5th, 2016 and included twenty (20) soil test borings (B-1 through B-20) drilled to depths of 17 to 20 feet below the existing ground surface.

The soil test borings were performed using the guidelines of ASTM Designation D-1586, "Penetration Test and Split-Barrel Sampling of Soils". A hollow-stem auger drilling process was used to advance the borings. At regular intervals, soil samples were obtained with a standard 1.4-inch I.D., 2.0-inch O.D., split-tube sampler. The sampler was first seated six inches and then driven an additional foot with blows of a 140 pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final foot is designated the "Penetration Resistance". The penetration resistance, when properly interpreted, is an index to the soil strength and density. Representative portions of the soil samples, obtained from the sampler, were placed in glass jars and transported to our laboratory for further evaluation and laboratory testing.

Test Boring Records in Appendix B show the standard penetration test (SPT) resistances, or “N-values”, and present the soil conditions encountered in the borings. These records represent our interpretation of the subsurface conditions based on the field exploration data, visual examination of the split-barrel samples, and generally accepted geotechnical engineering practices. The stratification lines and depth designations represent approximate boundaries between various subsurface strata. Actual transitions between materials may be gradual.

The groundwater levels reported on the Test Boring Records represent measurements made at the completion of the soil test boring. The soil test borings were subsequently backfilled with the soil cuttings.

3.2 LABORATORY TESTING

A laboratory testing program consisting of soil classification was conducted to characterize materials existed at the site using split-barrel samples recovered from the site. Soil classification provides a general guide to the engineering properties of various soil types and enables the engineer to apply past experience to current problems. In our explorations, samples obtained during drilling operations are observed in our laboratory and visually classified by an engineer. The soils are classified according to consistency (based on number of blows from standard penetration tests), color and texture. These classification descriptions are included on our "Test Boring Records". The classification system discussed above is primarily qualitative; laboratory testing is generally performed for detailed soil classification. Using the test results, the soils were classified using the Unified Soil Classification Systems. This classification system and the in-place physical soil properties provide an index for estimating the soil's behavior. The soil classification and physical properties obtained are presented in this report.

It should be noted that all soil samples will be properly disposed of 30 days following the submittal of this NOVA subsurface exploration report unless you request otherwise.

4.0 SUBSURFACE CONDITIONS

4.1 GEOLOGY

The site is located in the Piedmont Geologic Region, a broad northeasterly trending province underlain by crystalline rocks up to 600 million years old. The Piedmont is bounded on the northwest by the Blue Ridge Range of the Appalachian Mountains, and on the southeast by the leading edge of Coastal Plain sediments, commonly referred to as the "Fall Line". Numerous episodes of crystal deformation have produced varying degrees of metamorphism, folding and shearing in the underlying rock. The resulting metamorphic rock types in this area of the Piedmont are predominantly a series of Precambrian age schists and gneisses, with scattered granitic or quartzite intrusions.

According to the "Geology of the Greater Atlanta Region" by McConnell and Abrams, 1984, the site is generally underlain by the Powers Ferry Formation (pfu), shown in Figure 4 in Appendix A. This geologic formation typically consists of undifferentiated biotite-quartz-plagioclase gneiss (meta-graywacke), mica schist, and amphibolite.

Residual soils in the region are primarily the product of in-situ chemical decomposition of the parent rock. The extent of the weathering is influenced by the mineral composition of the rock and defects such as fissures, faults, and fractures. The residual profile can generally be divided into three zones:

- An upper zone near the ground surface consisting of red clays and clayey silts which have undergone the most advanced weathering,

- An intermediate zone of less weathered micaceous sandy silts and silty sands, frequently described as "saprolite", whose mineralogy, texture, and banded appearance reflects the structure of the original rock, and

- A transitional zone between soil and rock termed partially weathered rock (PWR). Partially weathered rock is defined locally by standard penetration resistances exceeding 100 blows per foot.

The boundaries between zones of soil, partially weathered rock, and bedrock are erratic and poorly defined. Weathering is often more advanced next to fractures and joints that transmit water, and in mineral bands that are more susceptible to decomposition. Boulders and rock lenses are sometimes encountered within the overlying PWR or soil matrix. Consequently, significant fluctuations in depths to materials requiring difficult excavation techniques may occur over short horizontal distances.

4.2 SOIL CONDITIONS

The following paragraphs provide generalized descriptions of the subsurface profiles and soil conditions encountered by the borings conducted during this study.

The Test Boring Records in Appendix B should be reviewed to provide more detailed descriptions of the subsurface conditions encountered at each boring location. These records represent our interpretation of the subsurface conditions based on the field logs and visual observations of samples by an engineer. The lines designating the interface between various strata on the Boring Logs represent the approximate interface locations and elevation. The actual transition between strata may be gradual. Groundwater levels shown on the Boring Logs represent the conditions at the time of drilling. It should be understood that soil conditions may vary between boring locations.

4.2.1 Surface Materials

Topsoil: Approximately 1 to 6½ inches of topsoil was encountered in borings B-5, B-12, B-13, B-14, B-15, B-16, B-19, and B-20. Topsoil was also noted underneath the gravel in boring B-18. Topsoil thickness is frequently erratic, and thicker zones of topsoil should be anticipated.

Gravel: Gravel was encountered in boring B-18 to a depth of 1 inch. Graded aggregate base (GAB) was also encountered beneath the concrete in several borings.

Concrete: Approximately 4 to 8 inches of concrete was encountered in borings B-1, B-2, B-3, B-4, and B-6.

4.2.2 Fill

Fill was encountered in borings B-1, B-2, B-3, B-4, B-5, and B-7 from beneath the surficial materials and extending to depths of 3 to 18 feet below the existing ground surface. The fill was described as silty clays, silts, clayey silts, and silty sands, with rock fragments, organics and/or other deleterious debris. Standard penetration resistances in the fill varied from 6 to 30 blows per foot (bpf).

Based on our experience, we anticipate fill materials likely exist at other locations between our borings. Fills can often be erratic in composition and consistency.

4.2.3 Residual Soils

Residual soils were encountered in all borings beneath the fills and surficial materials. The residuum was described as silty clay, silty sand or sandy silt. Standard penetration resistance values ranged from 4 to 47 bpf, but more typically varied from 7 to 18 bpf.

4.2.4 Partially Weathered Rock

Partially weathered rock (PWR) is a transitional material between soil and the underlying parent rock that is defined locally as materials that exhibit a standard penetration resistance exceeding 100 bpf.

PWR was encountered in boring B-19 at a depth of 13 feet below the ground surface. PWR was observed immediately above auger refusal level.

4.2.5 Auger Refusal Materials

Auger refusal materials are any very hard or very dense material, frequently boulders or the upper surface of bedrock, which cannot be penetrated by a the drilling equipment. Auger refusal was encountered in boring B-19 at a depth of 17 feet below the existing ground surface. Rock coring to determine the nature and continuity of refusal materials was beyond the scope of this exploration.

4.3 GROUNDWATER CONDITIONS

4.3.1 General

Groundwater in the Piedmont typically occurs as an unconfined or semi-confined aquifer condition. Recharge is provided by the infiltration of rainfall and surface water through the soil overburden. More permeable zones in the soil matrix, as well as fractures, joints, and discontinuities in the underlying bedrock can affect groundwater conditions. The groundwater table in the Piedmont is expected to be a subdued replica of the original surface topography.

Groundwater levels vary with changes in season and rainfall, construction activity, surface water runoff, and other site-specific factors. Groundwater levels in the Holly Springs area are typically lowest in the late summer-early fall and highest in the late winter-early spring, with annual groundwater fluctuations of 4 to 8 feet; consequently, the water table may vary at times.

4.3.2 Soil Test Boring Groundwater Conditions

Groundwater was observed during the drilling process in borings B-1, B-2, and B-20 at depths ranging from 5½ to 17½ feet below the existing ground surface. The following table depicts the locations and depths where groundwater was encountered during this study.

BORING	DEPTH (feet)
B-1	17
B-2	5½
B-20	17½

5.0 CONCLUSIONS AND RECOMMENDATIONS

The following preliminary conclusions and recommendations are based on our understanding of the proposed construction, site observations, our evaluation and interpretation of the field and laboratory data obtained during this exploration, our experience with similar subsurface conditions, and generally accepted geotechnical engineering principles and practices.

Subsurface conditions in unexplored locations or at other times may vary from those encountered at specific boring locations. If such variations are noted during construction, or if project development plans are changed, we request the opportunity to review the changes and amend our recommendations, if necessary.

As previously noted, boring locations were established by estimating distances and angles from site landmarks. If increased accuracy is desired by the client, we recommend that the boring locations and elevations be surveyed.

5.1 SITE PREPARATION

5.1.1 General

Several structures that will require demolition currently occupy the site. Prior to proceeding with construction, all slabs, foundations, pavements, vegetation, root systems, topsoil, and other deleterious non-soil materials should be stripped from proposed construction areas. Clean topsoil may be stockpiled and subsequently re-used in landscaped areas. Debris-laden materials should be excavated, transported, and disposed of off-site in accordance with appropriate solid waste rules and regulations. All existing utility locations should be reviewed to assess their impact on the proposed construction and relocated/grouted in-place as appropriate.

After clearing and stripping, areas which are at grade or will receive fill should be carefully evaluated by a NOVA geotechnical engineer. The engineer will require proofrolling of the subgrade with multiple passes of a 20 to 30 ton loaded truck, a 10 to 12 ton vibratory roller, or other vehicle of similar size and weight.

The purpose of the proofrolling is to locate soft, weak, or excessively wet fill or residual soils present at the time of construction. Unstable materials observed during the evaluation and proof-rolling operations should be undercut and replaced with structural fill or stabilized in-place by scarifying and re-densifying.

In the event that low consistency and/or debris laden fill materials are encountered during construction, typical recommendations would include undercutting and backfilling with structural fill and/or stabilizing in-place with fabric, stone, and/or other remedial techniques. Actual remedial recommendations can best be determined by the geotechnical engineer in the field at the time of construction.

The site should be graded during construction such that positive drainage is maintained away from the construction areas, to prevent ponding of storm water on the site during and shortly following significant rain events. The construction areas should also be sealed and crowned with a smooth roller to minimize ponding water from storm events at the end of each day of work.

5.1.2 Existing / Old Fill

Previously placed fill materials were encountered during this exploration. Based on our experience, we anticipate fill materials likely exist at other locations between our borings. Old fills are frequently erratic in composition and consistency. In the event that low consistency and/or debris-laden fill materials are encountered during construction, typical recommendations would include undercutting and backfilling with structural fill and/or stabilizing in-place with fabric, stone, and/or other remedial techniques. Actual remedial recommendations can best be determined by the geotechnical engineer in the field at the time of construction.

5.1.3 Difficult Excavation

None of the borings encountered dense soil, PWR, or rock above planned finished grades. However, as previously discussed, the weathering process at this site is erratic and variations in the partially weathered rock or rock profile can occur in small lateral distances. Therefore, it is possible that dense soil, PWR, and/or rock may be encountered in areas between the boring locations.

5.2 FILL PLACEMENT

5.2.1 Fill Suitability

Fill materials should be low plasticity soil (Plasticity Index less than 30), free of non-soil materials and rock fragments larger than 3 inches in any one dimension. Based on visual examination and limited laboratory testing, the existing residual soils, except for the plastic clay soils, and much of the existing fill, which does not contain appreciable amounts of debris, rock organics or other deleterious materials encountered during this exploration generally appear suitable for re-

use as structural fill. Prior to construction, bulk samples of the proposed fill materials should be laboratory-tested to confirm their suitability.

All materials to be used for backfill or compacted fill construction should be evaluated and, if necessary, tested by NOVA prior to placement to determine if they are suitable for the intended use. Any off-site materials used as fill should be approved by NOVA prior to acquisition.

Organic and/or debris-laden material is not suitable for re-use as structural fill. Topsoil, mulch, and similar organic materials can be wasted in architectural areas. Debris-laden materials should be excavated, transported, and disposed of off-site in accordance with appropriate solid waste rules and regulations.

5.2.2 Soil Compaction

Fill should be placed in thin, horizontal loose lifts (maximum 8-inch) and compacted to at least 95 percent of the standard Proctor maximum dry density (ASTM D 698). The upper 8 inches of soil beneath pavements and slab-on-grade should be compacted to at least 98 percent. In confined areas, such as utility trenches or behind retaining walls, portable compaction equipment and thinner fill lifts (3 to 4 inches) may be necessary. Fill materials used in structural areas should have a target maximum dry density of at least 95 pounds per cubic foot (pcf). If lighter weight fill materials are used, the NOVA geotechnical engineer should be consulted to assess the impact on design recommendations.

Soil moisture content should be maintained within 3 percent of the optimum moisture content. We recommend that the grading contractor have equipment on site during earthwork for both drying and wetting fill soils. Moisture control may be difficult during rainy weather.

Filling operations should be observed by a NOVA soils technician, who can confirm suitability of material used and uniformity and appropriateness of compaction efforts. He/she can also document compliance with the specifications by performing field density tests using thin-walled tube, nuclear, or sand cone testing methods (ASTM D 2937, D 2922, or D 1556, respectively). One test per 400 cubic yards and every 2 feet of placed fill is recommended, with test locations well distributed throughout the fill mass. When filling in small areas, at least one test per day per area should be performed.

5.3 GROUNDWATER CONTROL

During the current study, depths to groundwater ranged from 5½ to 17½ feet below the existing ground surface. Depending on the area of the site under consideration, groundwater levels have differing implications for design and construction. The extent and nature of any dewatering required during construction will be dependent on the actual groundwater conditions prevalent at the time of construction and the effectiveness of construction drainage to prevent run-off into open excavations.

Finished floor elevations have not been provided for any portion of the projects on this site. However, based on the depth that groundwater was encountered and the fact that it was not encountered in the majority of the borings, we do not anticipate significant groundwater control problems during mass grading of the site.

As previously noted, groundwater levels are subject to seasonal, climatic, and other variations and may be different at other times and locations. The extent and nature of any dewatering required during construction will be dependent on the actual groundwater conditions prevalent at the time of construction and the effectiveness of construction drainage to prevent run-off into open excavations.

5.4 FOUNDATIONS

Based on the information provided and the assumed loads, the majority of the structures can be supported on shallow spread footing foundations. However, the due to the unknown nature of the loads for the parking deck at this time, it would be prudent to revisit the foundations for the parking deck when the loads are further defined. If the loads are light, the use of spread footings may be an acceptable foundation. The recommendations below are primarily for the relatively lightly loaded cottages, townhomes, senior living, office, retail, and restaurant spaces.

5.4.1 Shallow Foundations

Design: After the recommended site and subgrade preparation and fill placement, we recommend that the proposed structures can be supported by conventional shallow foundations. Foundations bearing on undisturbed residual soils and/or compacted structural fill may be designed for a maximum allowable bearing pressure of 2,500 pounds per square foot (psf). The aforementioned bearing pressure is based on the foundation bottoms being compacted to 95% of the Modified Proctor maximum dry density to a minimum depth of 2 feet below the foundation bearing surface.

Previously placed fill materials were encountered on the site. In the event that low consistency or debris-laden fill materials are present in foundation excavations, undercutting and backfilling with crushed stone or structural fill may be required.

We recommend minimum foundation widths of 24 inches for ease of construction and to reduce the possibility of localized shear failures. Exterior foundation bottoms should be at least 18 inches below exterior grades for protection against frost damage.

Construction: Foundation excavations should be evaluated by the NOVA geotechnical engineer prior to reinforcing steel placement to observe foundation subgrade preparation and confirm bearing pressure capacity.

Foundation excavations should be level and free of debris, ponded water, mud, and loose, frozen, or water-softened soils. Concrete should be placed as soon as is practical after the foundation is excavated and the subgrade evaluated. Foundation concrete should not be placed on frozen or saturated soil. If a foundation excavation remains open overnight, or if rain or snow is imminent, a 3 to 4-inch thick "mud mat" of lean concrete should be placed in the bottom of the excavation to protect the bearing soils until reinforcing steel and concrete can be placed.

5.5 SLAB-ON-GRADE

The conditions exposed at subgrade levels will vary across the site and may include structural fill and residual soils. Slabs-on-grade may be adequately supported on these subgrade conditions subject to the recommendations in this report. Slabs-on-grade should be jointed around columns and along walls to reduce cracking due to differential movement.

An underdrain system is not required. However, we recommend a minimum of 6-inches of graded aggregate base (GAB) beneath the slabs to:

- Reduce non-uniform support conditions
- Provide a stable base to support construction traffic
- Provide a base material that can be fine graded to design tolerances.

GAB should be compacted to 98 percent of the maximum dry density as determined by the modified Proctor compaction test (ASTM D 1557) and overlain by a conventional plastic vapor barrier.

Once grading is completed, the subgrade is usually exposed to adverse construction activities and weather conditions during the period of sub-slab utility installation. The subgrade should be well-drained to prevent the accumulation of water. If the exposed subgrade becomes saturated or frozen, the geotechnical engineer should be consulted.

After utilities have been installed and backfilled, a final subgrade evaluation should be performed by the geotechnical engineer immediately prior to slab-on-grade placement. If practical, proofrolling may be used to redensify the surface and to detect any soil that has become excessively wet or otherwise loosened.

5.6 BELOW GRADE WALLS

The magnitude and distribution of earth pressures against below grade walls depends on the deformation condition (rotation) of the wall, soil properties and water conditions. When the soil behind the wall is prevented from lateral strain, the resulting force is known as the at-rest earth pressure (K_O). If the retaining structure moves away from the soil mass, the earth pressure decreases with the increasing lateral expansion until a minimum pressure, known as the active earth pressure (K_A), is reached. If the wall is forced into the soil mass, the earth pressure increases until a maximum pressure, known as the passive earth pressure (K_P), is obtained.

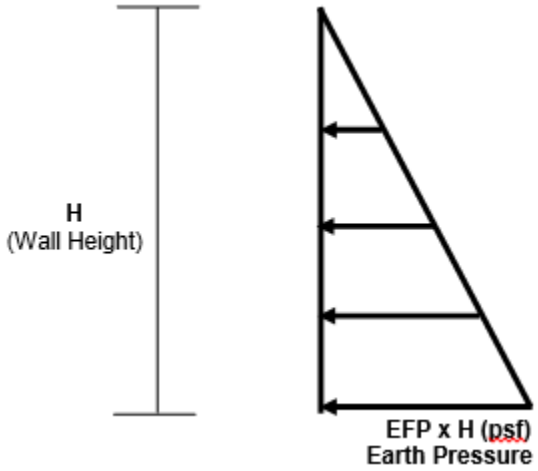
Free-standing retaining walls are usually designed for active earth pressures. Rigid basement walls are typically designed for at-rest earth pressures. If basement walls will be backfilled before they are braced by the floor slabs, they should also be designed to withstand active earth pressures as self-supporting cantilever walls. However, the earth pressures must be compatible with the wall rotation, which is limited by the wall rigidity, foundation support conditions and connections to adjoining structures. If active earth pressure development requires horizontal wall movements that cannot occur, or which are architecturally undesirable, walls should be designed for an intermediate pressure based on restraint conditions.

Laboratory analysis to determine actual soil shear strength properties was beyond the authorized scope of services. Based on our experience with similar soils and construction, we have provided the earth pressure estimates shown in the following table:

Earth Pressure Condition	Earth Pressure Coefficient	Equivalent Fluid Pressure (pcf)	
		Above Water Table	Below Water Table
Active (K_a)	0.33	40	80
At-Rest (K_o)	0.50	60	89
Passive (K_p)	3.00	150*	TBD**

* *Passive earth pressure is frequently used in retaining wall design to resist active earth pressures. Wall movements required to develop full passive earth pressures are significantly greater than movements necessary for active earth pressures. Consequently, this passive pressure value has been reduced by at least 50% for wall design*

** *Passive earth pressure for submerged wall design shall be determined on a case-by-case basis.*



We recommend a value of 0.35 as the coefficient of friction (sliding resistance) between wall foundations and the underlying residual or fill soils. This design value does not contain a safety factor.

Our lateral earth pressure recommendations assume that:

- The ground surface adjacent to the wall is level,
- Residual soils will be reused for wall backfill, compacted between 95% to 98% of the standard proctor maximum dry density,
- Soil backfill weight is a maximum of 120 pcf
- Heavy construction equipment does not operate within 5 feet of the walls,

- A constantly functioning drainage system is installed between the wall and the soil backfill to prevent hydrostatic pressures from acting on the wall,
- Foundations or other significant surcharge loads are located outside the wall a distance at least equal to the wall height,
- For active earth pressure, wall must rotate about base, with top lateral movements of about 0.002 H to 0.004 H, where H is wall height.
- For passive earth pressure to develop, wall must move horizontally to mobilize resistance.

5.7 SUPPLEMENTAL GEOTECHNICAL STUDY

Once design plans are more advanced, including building locations, elevations, and loads, we believe it would be prudent to re-visit the geotechnical data to assess whether or not modifications to the recommendations are necessary. We also recommend a future design meeting between NOVA and other design team members to address geotechnical concerns at specific locations. A final geotechnical exploration should subsequently be performed to provide additional information with regard to site preparation, excavation, groundwater conditions, and foundation design recommendations at specific structure locations.

We note that depending upon the final parking deck configuration, actual loads may be higher than anticipated. Additional exploratory work should be performed in the area of the parking deck to evaluate subsurface conditions deeper than 20 feet, if required.

6.0 CONSTRUCTION OBSERVATIONS

6.1 SHALLOW FOUNDATIONS

Foundation excavations should be level and free of debris, ponded water, mud, and loose, frozen or water-softened soils. All foundation excavations should be evaluated by the NOVA geotechnical engineer prior to reinforcing steel placement to observe foundation subgrade preparation and confirm bearing pressure capacity. Due to variable site subsurface and construction conditions, some adjustments in isolated foundation bearing pressures, depth of foundations or undercutting and replacement with controlled structural fill may be necessary.

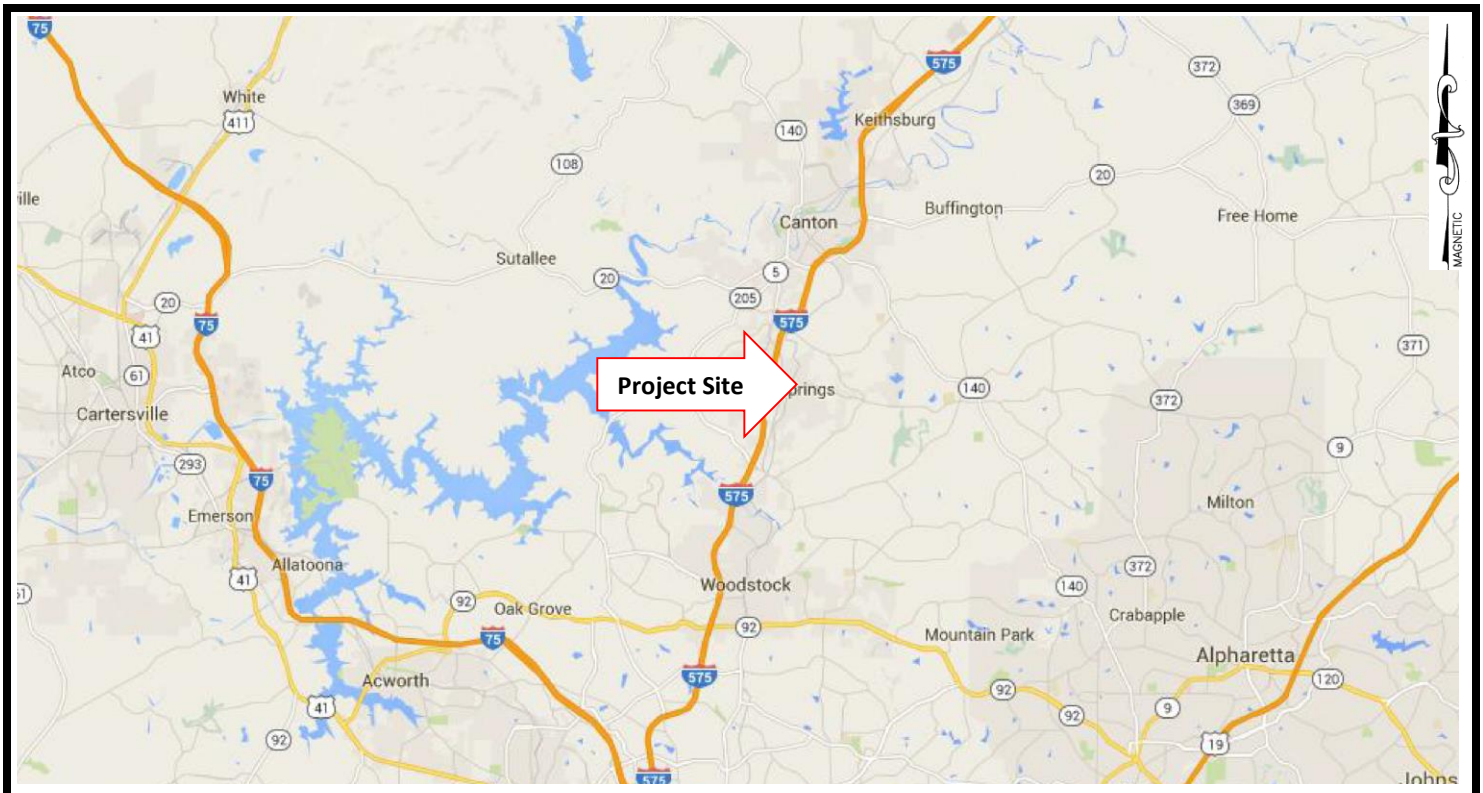
6.2 SUBGRADE

Once site grading is completed, the subgrade may be exposed to adverse construction activities and weather conditions. The subgrade should be well-drained to prevent the accumulation of water. If the exposed subgrade becomes saturated or frozen, the NOVA geotechnical engineer should be consulted.

A final subgrade evaluation should be performed by the NOVA geotechnical engineer immediately prior to pavements or slab-on-grade placement. If practical, proofrolling may be used to re-densify the surface and to detect any soil, which has become excessively wet or otherwise loosened.

APPENDIX A

FIGURES AND MAPS



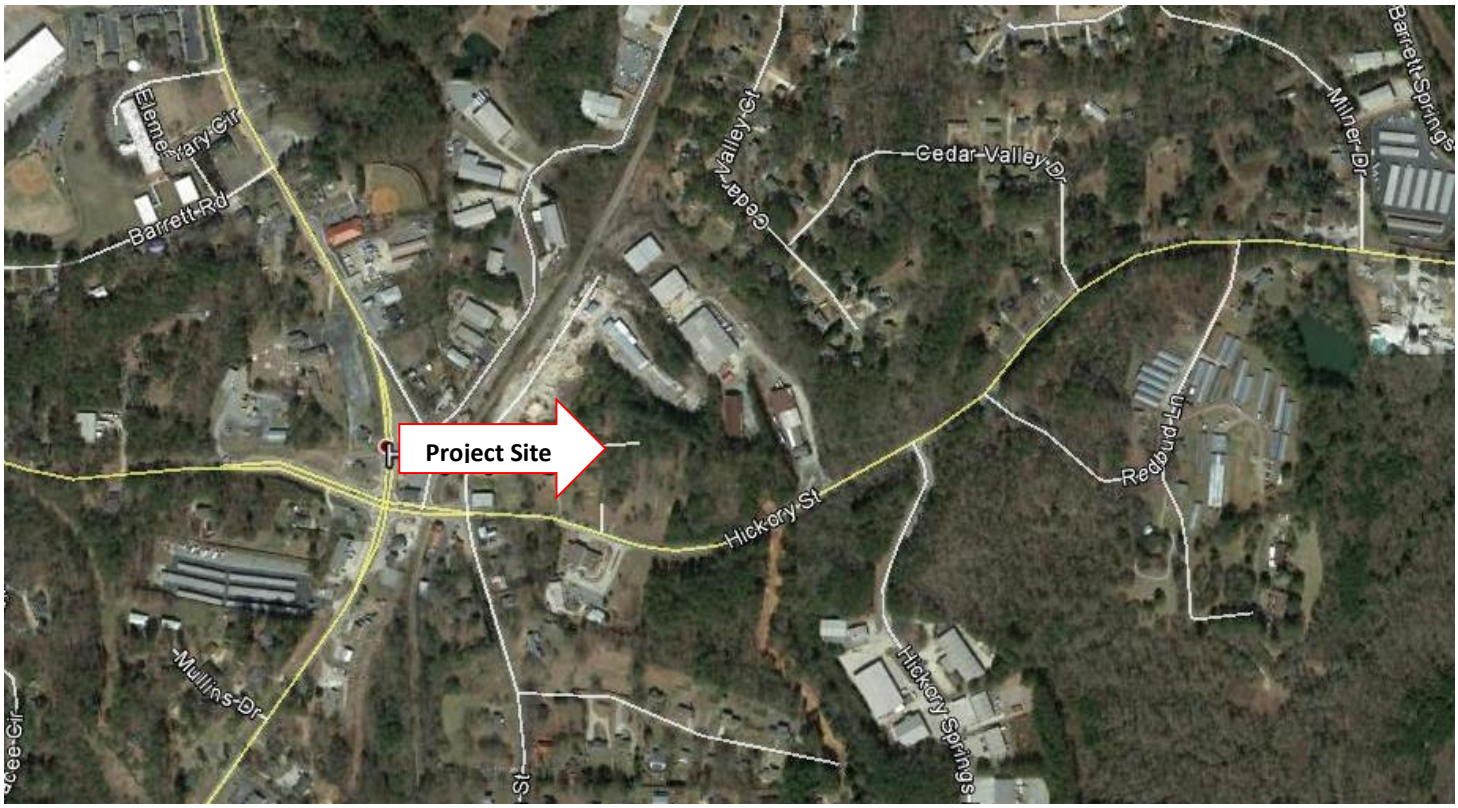


FIGURE 1
SITE LOCATION MAP
SOURCE: Google Maps and Google Earth
SCALE: NTS

NOVA
PROFESSIONAL | PRACTICAL | PROVEN

AEC, Inc.
Proposed Downtown Redevelopment Project
Holly Springs, Georgia
NOVA Project Number 2016046

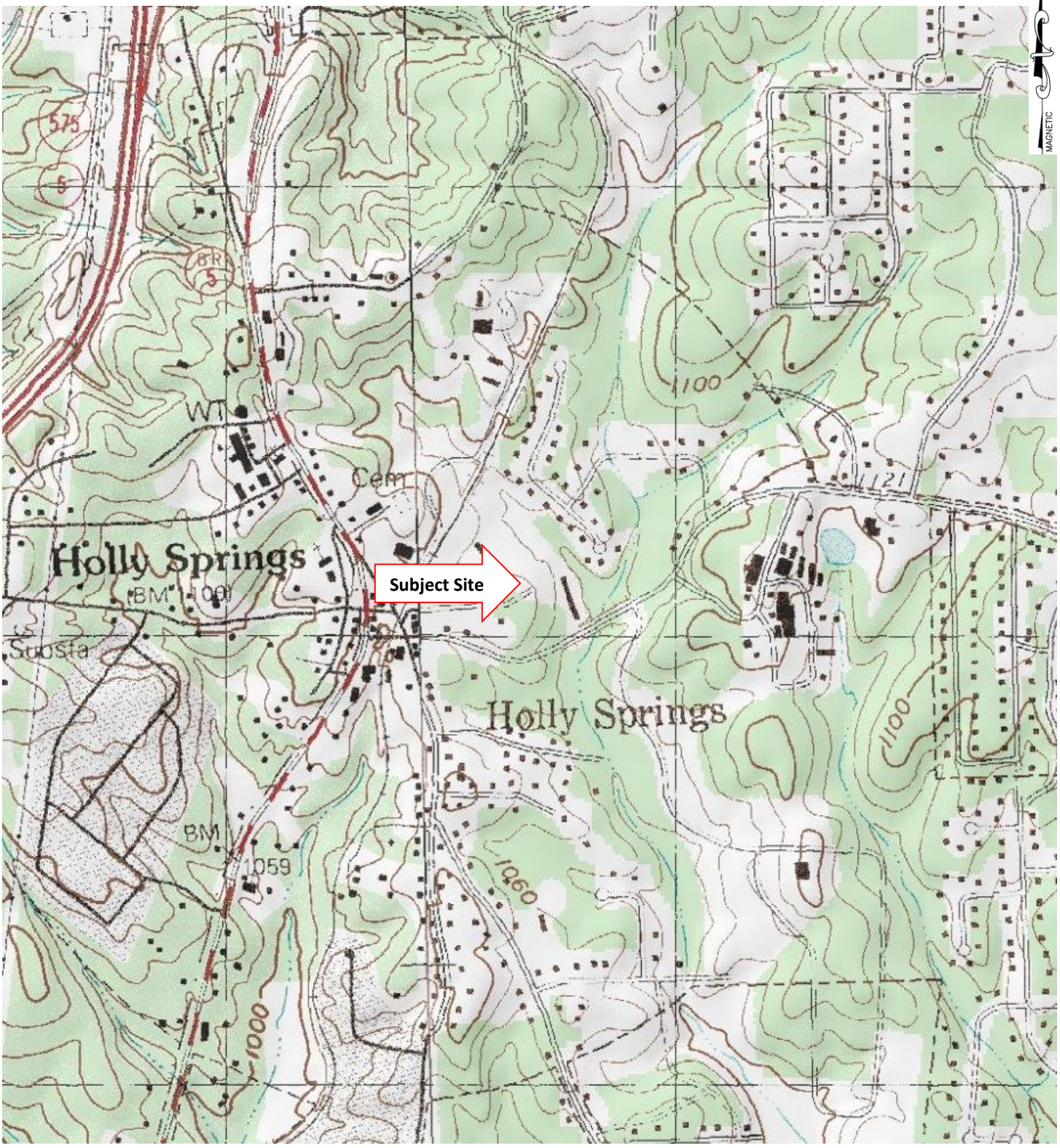


FIGURE 2
AREA TOPOGRAPHIC MAP
SOURCE: http://mapserver.mytopo.com
SCALE: NTS

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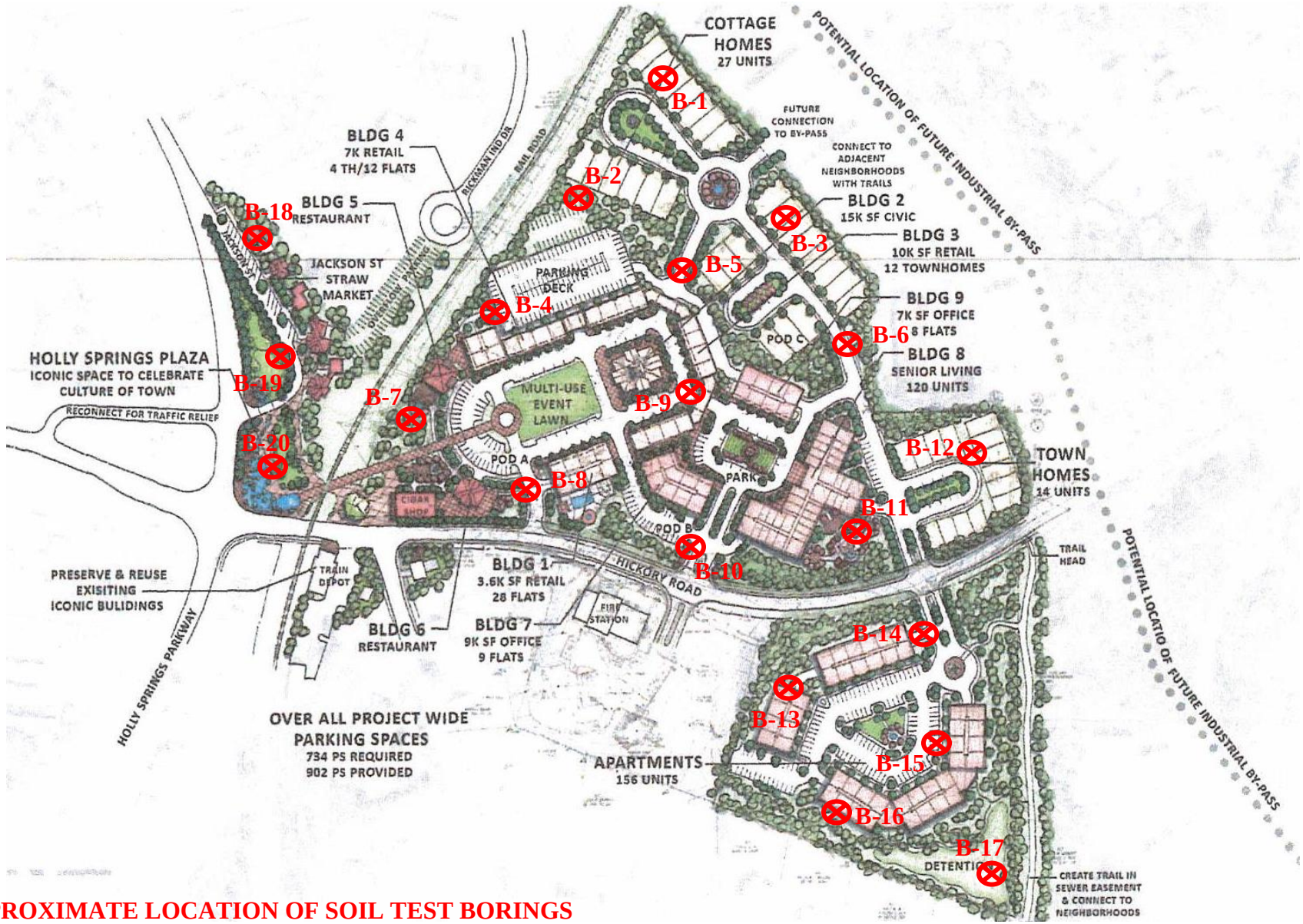
AEC, Inc.
Proposed Downtown Redevelopment Project
Holly Springs, Georgia
NOVA Project Number 2016046



⊗ APPROXIMATE LOCATION OF SOIL TEST BORINGS

FIGURE 3
BORING LOCATION PLAN
SOURCE: Client Provided Concept Plan
DATED: 07/17/2015
SCALE: NTS

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AEC, Inc.
Proposed Downtown Redevelopment Project
Holly Springs, Georgia
NOVA Project Number 2016046

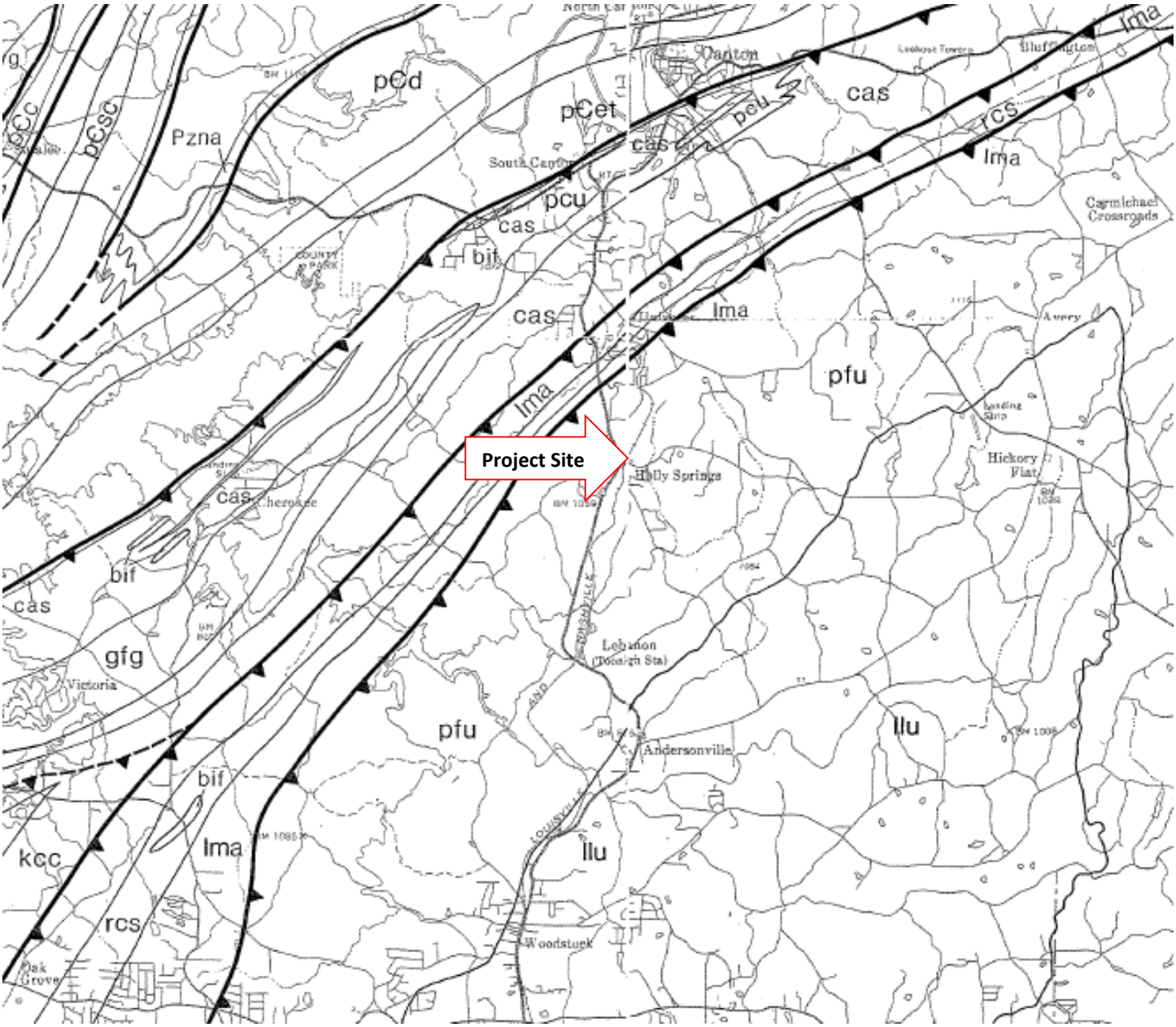

FIGURE 4
REGIONAL GEOLOGY
SOURCE: McConnell and Abrams, 1984
SCALE: NTS

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AEC, Inc.
Proposed Downtown Redevelopment Project
Holly Springs, Georgia
NOVA Project Number 2016046

APPENDIX B

SUBSURFACE DATA

KEY TO SYMBOLS AND CLASSIFICATIONS

DRILLING SYMBOLS

	Split Spoon Sample
	Undisturbed Sample (UD)
	Standard Penetration Resistance (ASTM D1586-67)
	Water Table at least 24 Hours after Drilling
	Water Table 1 Hour or less after Drilling
100/2”	Number of Blows (100) to Drive the Spoon a Number of Inches (2)
NX, NQ	Core Barrel Sizes: 2⅛- and 2-Inch Diameter Rock Core, Respectively
REC	Percentage of Rock Core Recovered
RQD	Rock Quality Designation – Percentage of Recovered Core Segments 4 or more Inches Long
	Loss of Drilling Water
MC	Moisture Content Test Performed

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	Number of Blows, “N”	Approximate Relative Density
	0 – 4	Very Loose
	5 – 10	Loose
SANDS	11 – 30	Medium Dense
	31 – 50	Dense
	Over 50	Very Dense

	Number of Blows, “N”	Approximate Consistency
	0 – 2	Very Soft
	3 – 4	Soft
SILTS	5 – 8	Firm
and	9 – 15	Stiff
CLAYS	16 – 30	Very Stiff
	31 – 50	Hard
	Over 50	Very Hard

DRILLING PROCEDURES

Soil sampling and standard penetration testing performed in accordance with ASTM D1586-67. The standard penetration resistance is the number of blows of a 140 pound hammer falling 30 inches to drive a 2-inch O.D., 1⅜-inch I.D. split spoon sampler one foot. Core drilling performed in accordance with ASTM D2113-08. The undisturbed sampling procedure is described by ASTM D1587-08 (2012). Soil and rock samples will be discarded 60 days after the date of the final report unless otherwise directed.

NOVA

SOIL CLASSIFICATION CHART

COARSE GRAINED SOILS	**GRAVELS**	Clean Gravel less than 5% fines	GW	Well graded gravel
			GP	Poorly graded gravel
		Gravels with Fines more than 12% fines	GM	Silty gravel
			GC	Clayey gravel
	SANDS	Clean Sand less than 5% fines	SW	Well graded sand
			SP	Poorly graded sand
		Sands with Fines more than 12% fines	SM	Silty sand
			SC	Clayey sand
FINE GRAINED SOILS	**SILTS AND CLAYS** Liquid Limit less than 50	Inorganic	CL	Lean clay
			ML	Silt
		Organic	OL	Organic clay and silt
	SILTS AND CLAYS Liquid Limit 50 or more	Inorganic	CH	Fat clay
			MH	Elastic silt
		Organic	OH	Organic clay and silt
HIGHLY ORGANIC SOILS		Organic matter, dark color, organic odor	PT	Peat

PARTICLE SIZE IDENTIFICATION

GRAVELS	Coarse	¾ inch to 3 inches
	Fine	No. 4 to ¾ inch
SANDS	Coarse	No. 10 to No. 4
	Medium	No. 40 to No. 10
	Fine	No. 200 to No. 40
SILTS AND CLAYS		Passing No. 200

NOVA

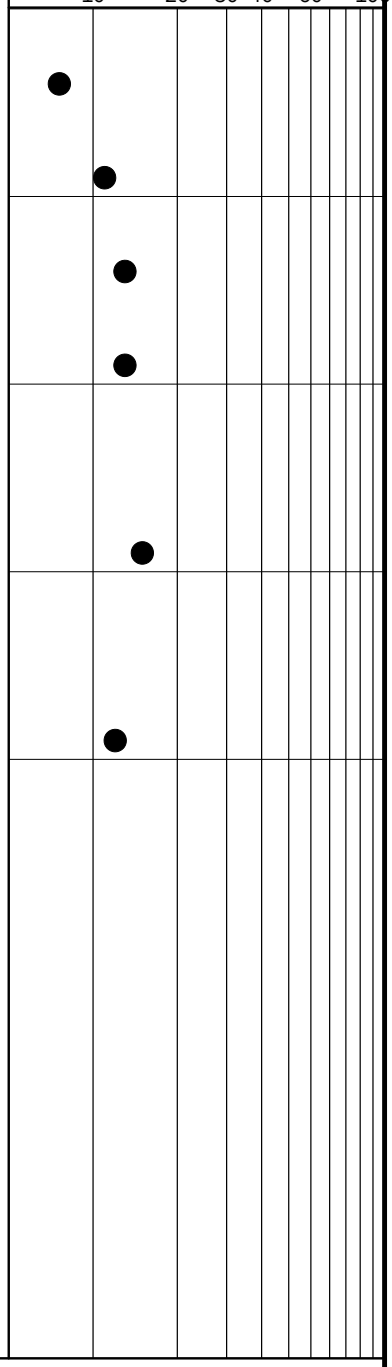
TEST BORING RECORD B-1

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: ▽ 17 | AFTER 24 HOURS: ▼ N/M | CAVING> C 17

Depth (feet)	Description	Graphic	Groundwater	Sample Type	N-Value
0	CONCRETE: 8 inches				
	FILL: Firm to stiff red brown silty CLAY with trace fine sand, mica and organics				6
5					11
					13
	FILL: Stiff red brown and orange brown SILT with little to some fine sand and trace clay and clay seams				
10					13
	FILL: Medium dense red brown and orange brown GRAVEL with some medium to fine sand and trace silt and clay				
15			▽		15
	RESIDUUM: Medium dense brown slightly micaceous silty medium to fine SAND with trace clay				
20					12
	Boring Terminated at 20 ft.				
25					
30					
35					

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

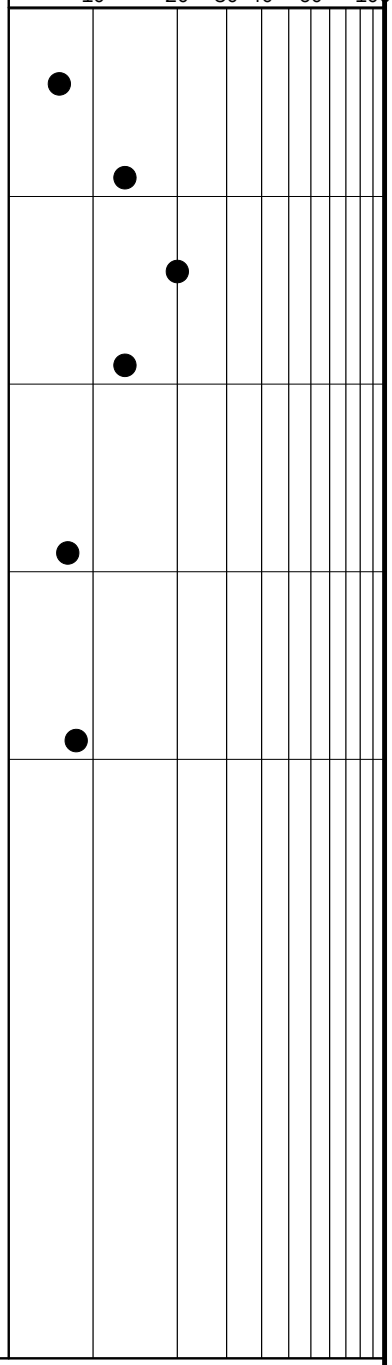
TEST BORING RECORD B-2

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: ▽ 5.5 | AFTER 24 HOURS: ▼ N/M | CAVING> C 19.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		CONCRETE: 6 inches, GAB: 2 inches				
		FILL: Loose to medium dense brown coarse to fine SAND with trace silt and rock fragments				6
5						13
		Medium dense brown and orange brown slightly micaceous silty coarse to fine SAND with trace to little silt and rock fragments		▽		20
		RESIDUUM: Medium dense brown micaceous silty medium to fine SAND				13
10						
		Loose brown and gray brown slightly micaceous silty medium to fine SAND				7
15						
				C		8
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

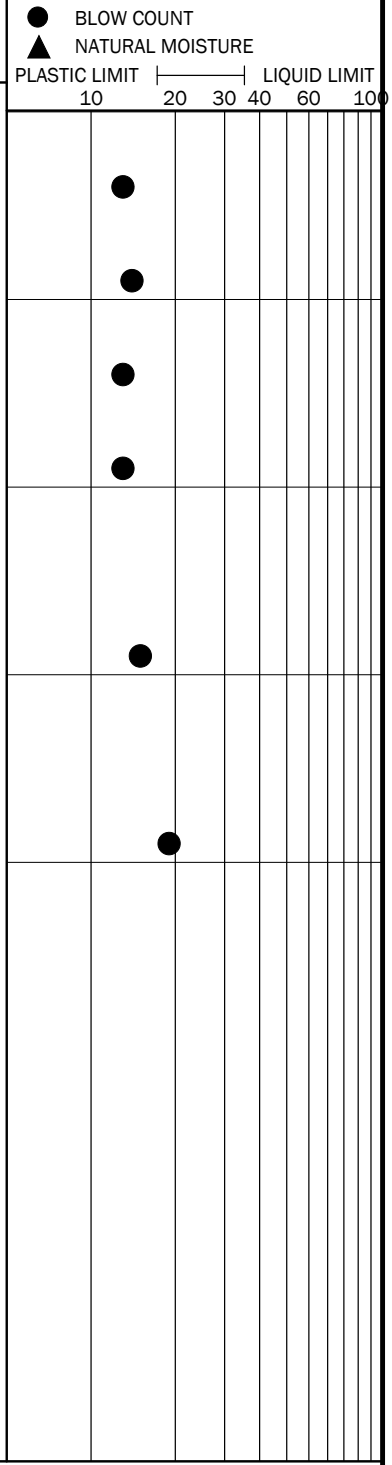
NOVA

TEST BORING RECORD B-3

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E AFTER 24 HOURS: N/M CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		CONCRETE: 18 inches				
		FILL: stiff brown and red brown clayey SILT with trace to little fine sand				13
5		RESIDUUM: Stiff red brown silty CLAY with trace fine sand and mica				14
		RESIDUUM: Medium dense brown and red brown slightly micaceous silty medium to fine SAND				13
10						13
		Medium dense brown slightly micaceous silty fine SAND		C		15
15						
20						19
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction



This information pertains only to this boring and should not be interpreted as being indicative of the site.

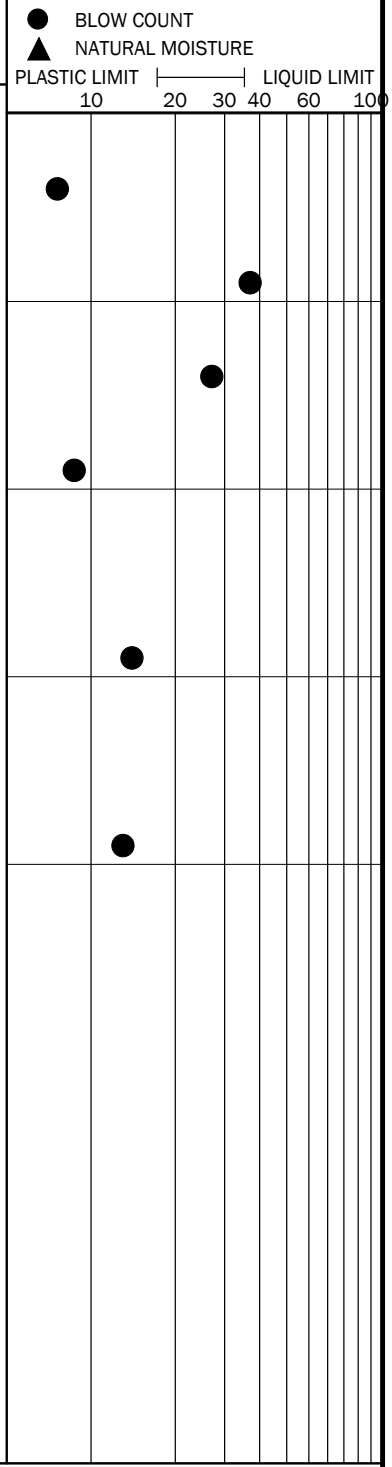
NOVA

TEST BORING RECORD B-4

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E AFTER 24 HOURS: N/M CAVING> C 15

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		CONCRETE: 4 inches				
		FILL: Loose brown, red brown, and black silty medium to fine SAND with rock fragments				6
5		RESIDUUM: Hard red brown silty CLAY with trace fine sand				37
		Very stiff red brown silty CLAY with trace fine sand with white fine sand seams				27
10		Firm red brown silty CLAY with trace fine sand, mica and rock fragments				8
15		Medium dense red brown, tan, and black silty clayey medium to fine SAND with rock fragments		C		14
20						13
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

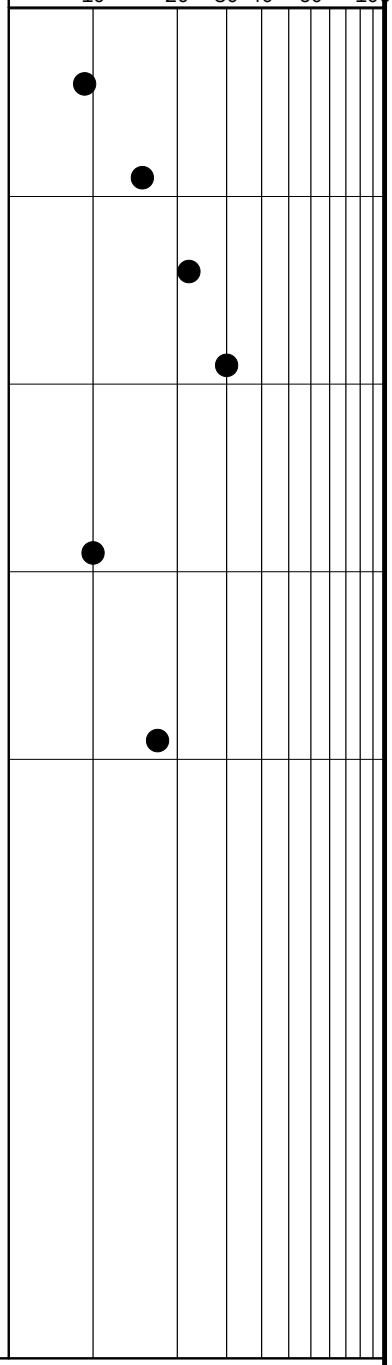
TEST BORING RECORD B-5

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 1 inch				
		FILL: Loose brown coarse to fine SAND with rock fragments and trace to little silt				9
		Medium dense red brown silty coarse to fine SAND with rock fragments at 8 feet				15
5						22
						30
10						
		RESIDUUM: Stiff red brown slightly micaceous clayey SILT with trace fine sand and rock fragments				10
15				C		
		RESIDUUM: Medium dense red brown and brown slightly micaceous silty fine SAND				17
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

BLOW COUNT
NATURAL MOISTURE
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

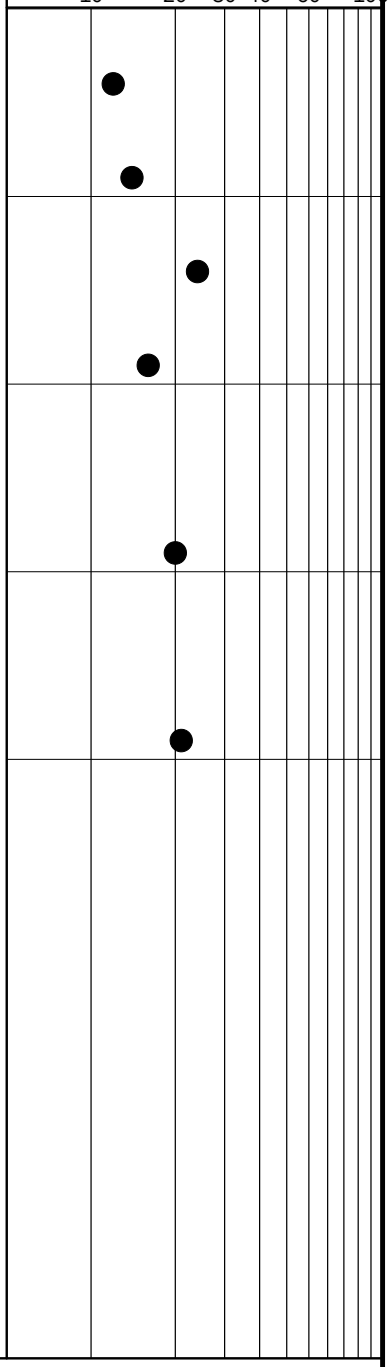
TEST BORING RECORD B-6

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		CONCRETE: 6 inches				
		RESIDUUM: Medium dense red and tan slightly micaceous silty fine SAND				12
5						14
		Medium dense brown and red slightly micaceous medium to fine SAND with trace silt				24
		Medium dense brown, red, and black slightly micaceous silty medium to fine SAND				16
10						
15				C		20
		Medium dense brown, red, and black medium to fine SAND with trace silt				21
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

BLOW COUNT
NATURAL MOISTURE
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-7

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0						
		FILL: Stiff to firm red brown silty CLAY with trace sand and quartz fragments				9
5		No Sample Recovery				8
		RESIDUUM: Loose orange brown silty fine SAND				6
10		RESIDUUM: Firm red brown clayey SILT with little fine sand and rock fragments				6
15		RESIDUUM: Loose orange brown silty medium to fine SAND with rock fragments at 18 feet		C		6
20						7
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-8

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		RESIDUUM: Firm red brown clayey SILT with trace fine sand and mica				7
5		Stiff red brown fine sandy SILT with trace mica				10
		Firm red brown clayey SILT with trace to little fine sand and mica				8
10		RESIDUUM: Loose red brown silty medium to fine SAND				8
15		Loose to medium dense red, brown, and tan slightly micaceous silty fine SAND		C		9
20						13
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

BLOW COUNT
NATURAL MOISTURE
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 60 100

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

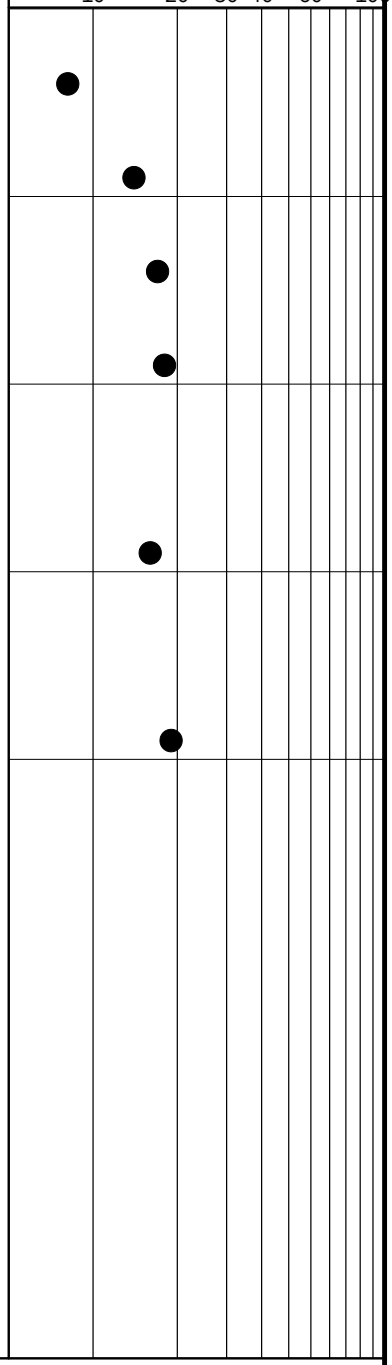
TEST BORING RECORD B-9

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		RESIDUUM: Firm red brown silty CLAY with trace fine sand, mica and organics				7
5		RESIDUUM: Medium dense red brown silty medium to fine SAND with trace mica, clay and clay seams				14
		Medium dense red and brown coarse to fine SAND with quartz fragments and trace to little silt				17
10		Medium dense brown slightly micaceous silty fine SAND				18
15		Medium dense brown and red silty fine SAND with trace rock fragments and mica		C		16
20						19
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-10

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		RESIDUUM: Loose brown to dark brown silty coarse to fine SAND with little clay and rock fragments				7
5		No Sample Recovery				9
		RESIDUUM: Stiff red and brown slightly micaceous fine sandy SILT				14
10		Stiff brown and red brown slightly micaceous fine sandy SILT				13
15						10
20		RESIDUUM: Loose brown and orange-brown slightly micaceous silty fine SAND				7
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

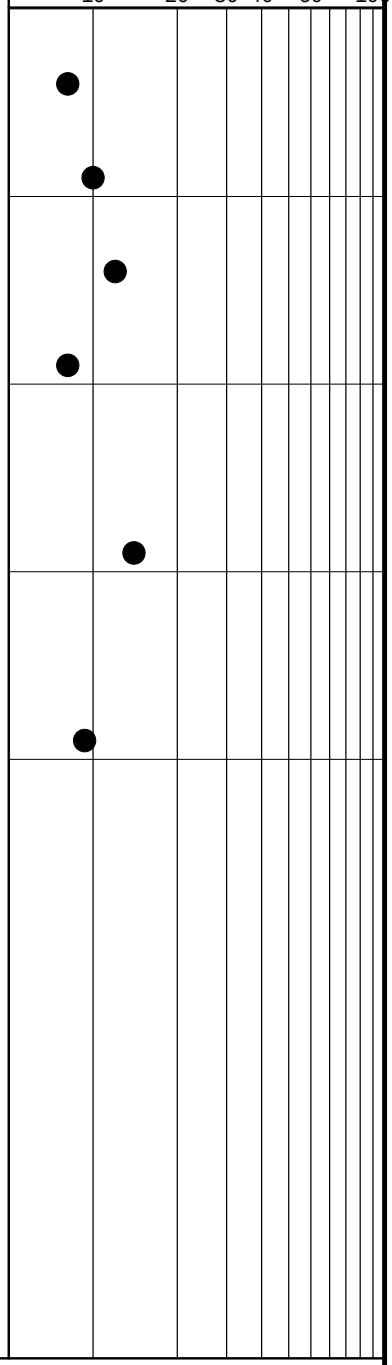
TEST BORING RECORD B-11

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		RESIDUUM: Firm red-brown silty CLAY				7
5		RESIDUUM: Loose brown and red brown silty medium to fine SAND with trace mica				10
		Medium dense brown silty medium to fine SAND with rock fragments				12
10		Loose brown, red, and black silty medium to fine SAND with little mica				7
15		Medium dense brown silty coarse to fine SAND with rock fragments		C		14
20		Loose white medium to fine SAND with little silt				9
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

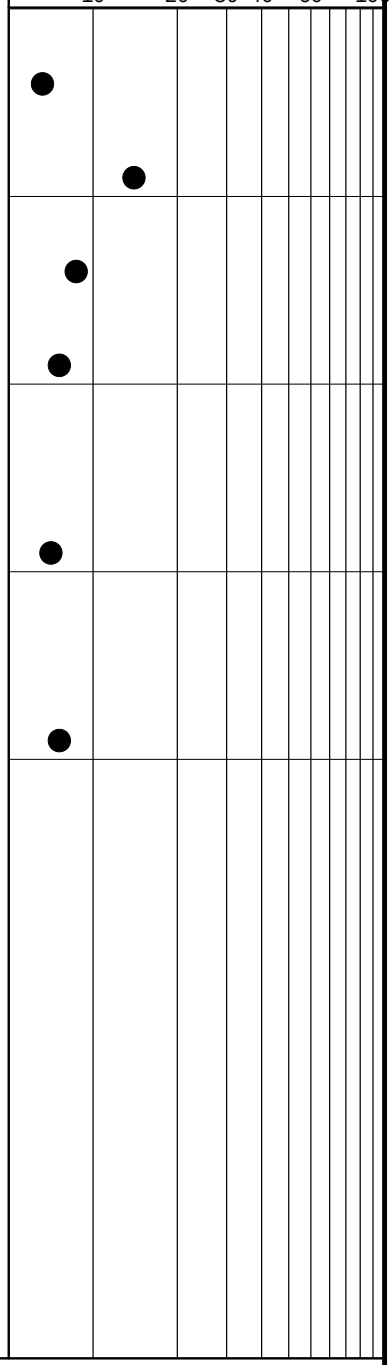
TEST BORING RECORD B-12

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 6.5 inches				
		FILL: Soft brown clayey SILT with little coarse to fine sand				4
5		Stiff red brown silty CLAY with trace fine sand, organics and mica				14
		RESIDUUM: Firm brown and orange brown silty CLAY with trace fine sand and rock fragments				8
10		Firm orange brown fine sandy SILT with trace mica				6
15		RESIDUUM: Loose brown slightly micaceous silty medium to fine SAND		C		5
20		No Sample Recovery				6
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

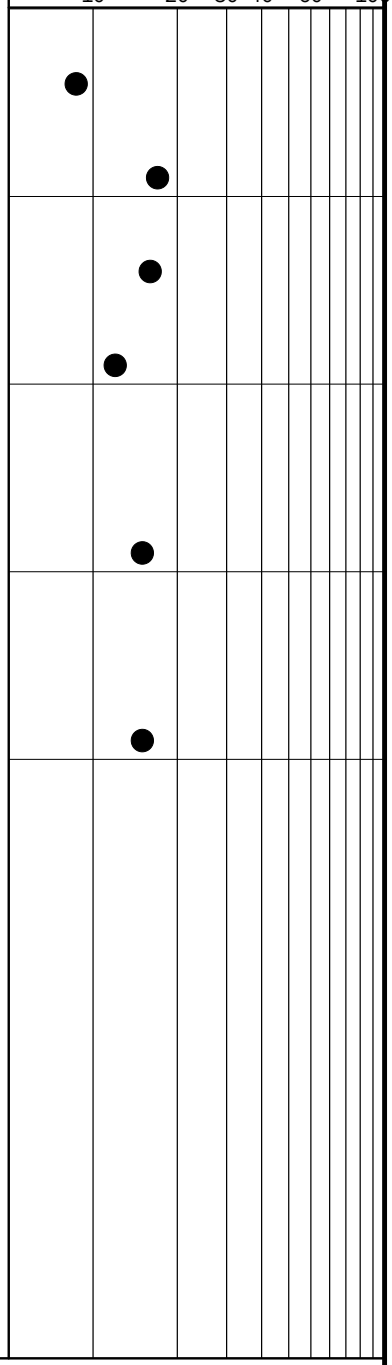
TEST BORING RECORD B-13

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 4 inches				
		RESIDUUM: Firm red brown silty CLAY with trace to little fine sand				8
5		RESIDUUM: Medium dense red brown silty medium to fine SAND with trace mica				17
		Medium dense brown and red slightly micaceous silty medium to fine SAND with trace organics				16
10		Medium dense brown and red brown slightly micaceous silty medium to fine SAND				12
15		Medium dense brown to dark brown slightly micaceous silty medium to fine SAND		C		15
20						15
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

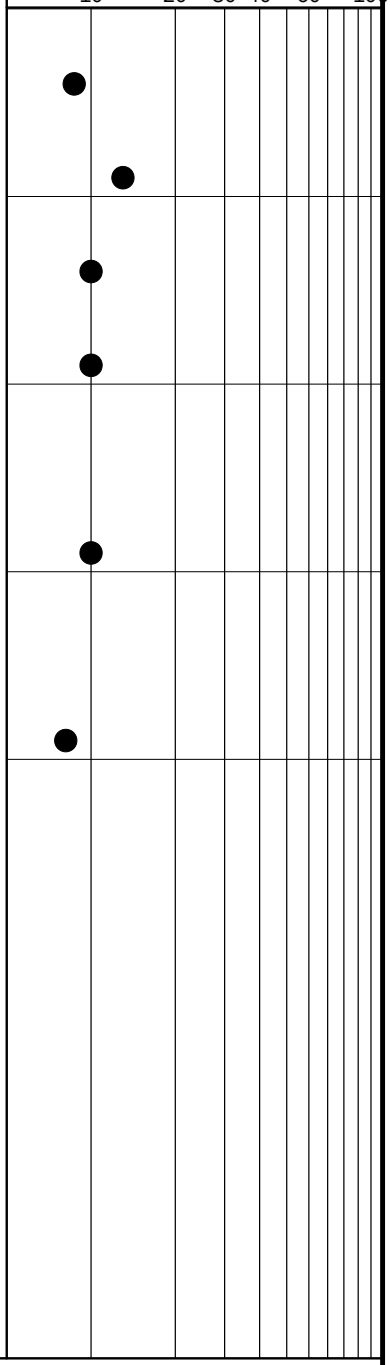
TEST BORING RECORD B-14

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 6.5 inches				
		RESIDUUM: Loose brown silty CLAY with trace fine SAND and mica				8
5		RESIDUUM: Stiff red brown clayey SILT with trace sand and mica				13
						10
		Stiff brown, red, and tan clayey SILT with trace fine sand				10
10						
15		RESIDUUM: Loose brown and dark brown slightly micaceous silty fine SAND		C		10
20						7
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

BLOW COUNT
NATURAL MOISTURE
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-15

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E AFTER 24 HOURS: N/M CAVING> 18.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 2 inches				
		RESIDUUM: Firm red brown clayey SILT with trace mica				7
		RESIDUUM: Loose brown and red brown silty medium to fine SAND with trace clay and clay seams				6
5		Medium dense brown medium to fine SAND with trace silt and rock fragments				14
						11
10						
		Loose brown slightly micaceous silty medium to fine SAND				8
15						
		Loose brown, red brown, and black silty medium to fine SAND with rock fragments				8
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

BLOW COUNT
NATURAL MOISTURE
PLASTIC LIMIT — LIQUID LIMIT
10 20 30 40 60 100

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-16

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 16.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL - 6 inches				
		RESIDUUM: Firm red brown silty CLAY with trace fine sand, mica and organics				5
5		Stiff to soft red brown clayey SILT with trace fine sand, mica and rock fragments				9
						6
10						4
		RESIDUUM: Loose gray brown silty medium to fine SAND		C		7
15						
		Loose brown and red brown slightly micaceous silty medium to fine SAND				7
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction
● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100

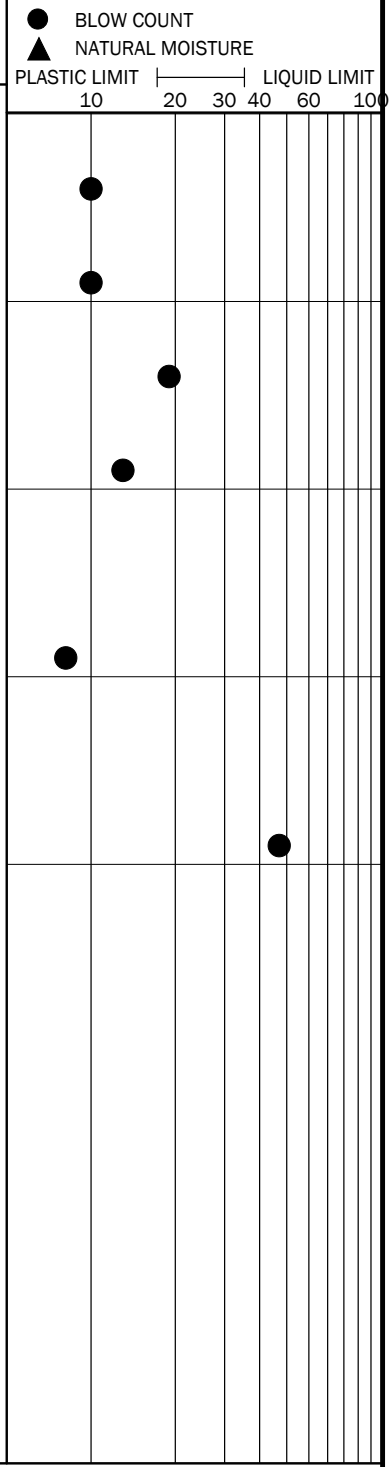
NOVA

TEST BORING RECORD B-17

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/5/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C 18

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		RESIDUUM: Stiff red brown silty CLAY with trace fine sand, mica, and organics				10
5		RESIDUUM: Loose red brown silty fine SAND with trace mica				10
		Medium dense brown silty coarse to fine SAND with rock fragments				19
10		Medium dense brown and gray silty medium SAND to fine with little mica				13
15		Loose red brown slightly micaceous silty medium to fine SAND with trace clay		C		7
20		Dense gray and red silty coarse to fine SAND with rock fragments				47
		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

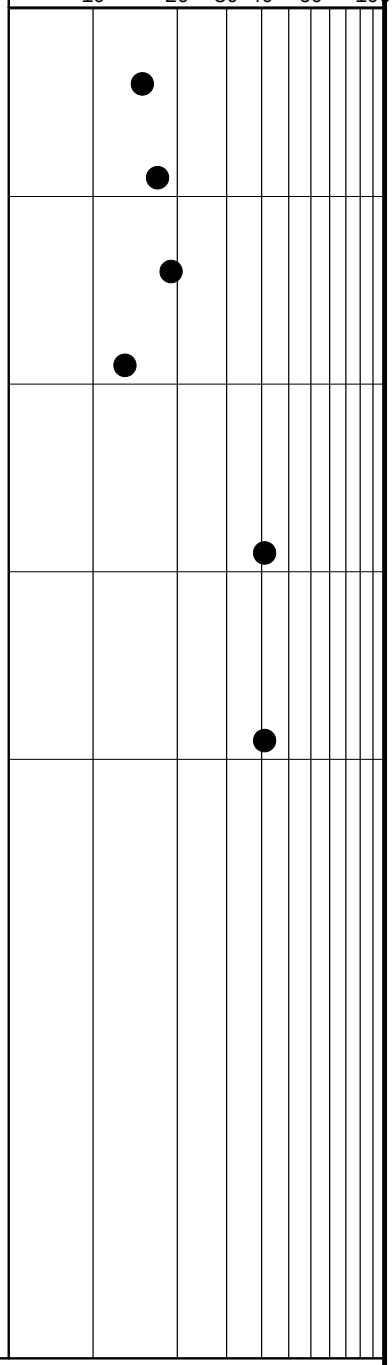
TEST BORING RECORD B-18

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E | AFTER 24 HOURS: N/M | CAVING> C N/M

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		GAB: 1 inch				
		TOPSOIL : 2 inches				
		RESIDUUM: Stiff red brown silty CLAY with trace sand and mica				15
5		RESIDUUM: Medium dense red brown slightly micaceous silty medium to fine SAND with rock fragments				17
		Medium dense brown and red brown slightly micaceous silty medium to fine SAND				19
10						13
		Dense brown, tan, and dark brown medium to fine SAND with little silt				41
15						
		Dense red brown and black silty medium to fine SAND with rock fragments				41
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

TEST BORING RECORD B-19

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: N/E AFTER 24 HOURS: N/M CAVING> C 16.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 3 inches				
		RESIDUUM: Firm to soft red brown silty CLAY with trace fine sand				5
5						4
		RESIDUUM: Very loose red brown clayey SILT with trace fine sand				4
		RESIDUUM: Very stiff red brown clayey sandy SILT with rock fragments				17
10						
		PARTIALLY WEATHERED ROCK: Sampled as hard red brown clayey sandy SILT with rock fragments		C		100/8"
15						
		Auger Refusal at 17 ft.				
20						
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100

This information pertains only to this boring and should not be interpreted as being indicative of the site.

NOVA

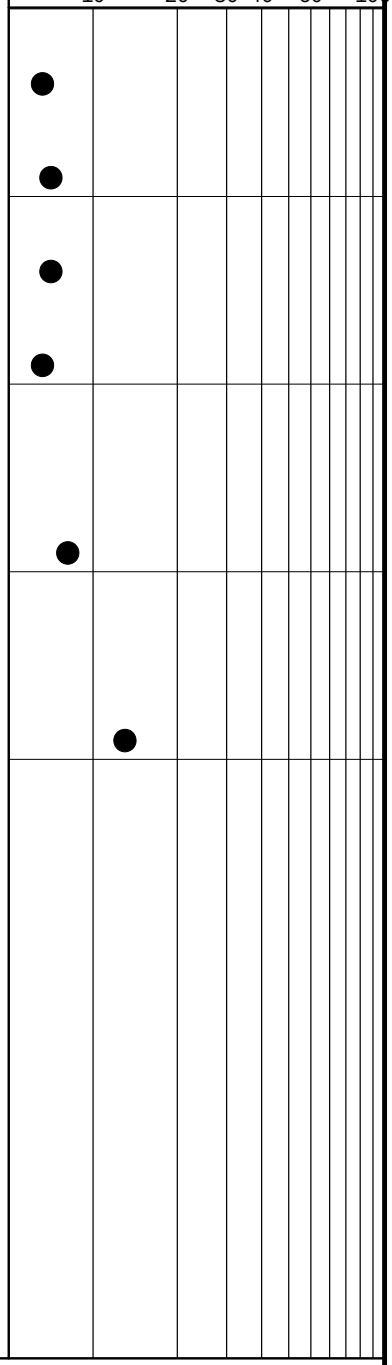
TEST BORING RECORD B-20

PROJECT: Downtown Redevelopment Project | PROJECT NO.: 2016046
CLIENT: AEC, Inc.
PROJECT LOCATION: Hickory Street
LOCATION: Holly Springs, Georgia | ELEVATION:
DRILLER: Bore & Core Drilling, LLC | LOGGED BY: P. Keller
DRILLING METHOD: Hollow Stem Auger | DATE: 4/4/16
DEPTH TO - WATER> INITIAL: ▽ 17.5 | AFTER 24 HOURS: ▽ N/M | CAVING> C 16.5

Depth (feet)	Elevation (ft-MSL)	Description	Graphic	Groundwater	Sample Type	N-Value
0		TOPSOIL: 4 inches				
		RESIDUUM: Soft brown medium to fine sandy CLAY with silt and organics				4
		Firm red brown silty CLAY with trace sand and organics				5
5		Firm brown and orange-brown clayey SILT with trace fine sand, mica, and rock fragments				5
		RESIDUUM: Very loose brown and red slightly micaceous silty fine SAND				4
10						
		RESIDUUM: Firm red brown silty CLAY with trace sand and rock fragments; wet		C ▽		7
15						
		RESIDUUM: Medium dense red brown silty SAND with trace clay and rock fragments; wet				13
20		Boring Terminated at 20 ft.				
25						
30						
35						

Graphic Depiction

● BLOW COUNT
▲ NATURAL MOISTURE
PLASTIC LIMIT ⊢——⊣ LIQUID LIMIT
10 20 30 40 60 100



This information pertains only to this boring and should not be interpreted as being indicative of the site.

APPENDIX C

QUALIFICATIONS OF RECOMMENDATIONS

QUALIFICATIONS OF RECOMMENDATIONS

The findings, conclusions and recommendations presented in this report represent our professional opinions concerning subsurface conditions at the site. The opinions presented are relative to the dates of our site work and should not be relied on to represent conditions at later dates or at locations not explored. The opinions included herein are based on information provided to us, the data obtained at specific locations during the study and our past experience. If additional information becomes available that might impact our geotechnical opinions, it will be necessary for NOVA to review the information, reassess the potential concerns, and re-evaluate our conclusions and recommendations.

Regardless of the thoroughness of a geotechnical exploration, there is the possibility that conditions between borings will differ from those encountered at specific boring locations, that conditions are not as anticipated by the designers and/or the contractors, or that either natural events or the construction process have altered the subsurface conditions. These variations are an inherent risk associated with subsurface conditions in this region and the approximate methods used to obtain the data. These variations may not be apparent until construction.

The professional opinions presented in this geotechnical report are not final. Field observations and foundation installation monitoring by the geotechnical engineer, as well as soil density testing and other quality assurance functions associated with site earthwork and foundation construction, are an extension of this report. Therefore, NOVA should be retained by the owner to observe all earthwork and foundation construction to document that the conditions anticipated in this study actually exist, and to finalize or amend our conclusions and recommendations. NOVA is not responsible or liable for the conclusions and recommendations presented in this report if NOVA does not perform these observation and testing services.

This report is intended for the sole use of ***AEC, Inc.*** only. The scope of work performed during this study was developed for purposes specifically intended by ***AEC, Inc.*** and may not satisfy other users' requirements. Use of this report or the findings, conclusions or recommendations by others will be at the sole risk of the user. NOVA is not responsible or liable for the interpretation by others of the data in this report, nor their conclusions, recommendations or opinions.

Our professional services have been performed, our findings obtained, our conclusions derived and our recommendations prepared in accordance with generally accepted geotechnical engineering principles and practices in the State of Georgia. This warranty is in lieu of all other statements or warranties, either expressed or implied.

Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a civil engineer may not fulfill the needs of a constructor — a construction contractor — or even another civil engineer. Because each geotechnical- engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. No one except you should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply this report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical-engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

Geotechnical Engineers Base Each Report on a Unique Set of Project-Specific Factors

Geotechnical engineers consider many unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk-management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical-engineering report that was:

- not prepared for you;
- not prepared for your project;
- not prepared for the specific site explored; or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical-engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical-engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *Do not rely on a geotechnical-engineering report whose adequacy may have been affected by*: the passage of time; man-made events, such as construction on or adjacent to the site; or natural events, such as floods, droughts, earthquakes, or groundwater fluctuations. *Contact the geotechnical engineer before applying this report to determine if it is still reliable.* A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ — sometimes significantly — from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide geotechnical-construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are Not Final

Do not overrely on the confirmation-dependent recommendations included in your report. *Confirmation-dependent recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's confirmation-dependent recommendations if that engineer does not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A Geotechnical-Engineering Report Is Subject to Misinterpretation

Other design-team members' misinterpretation of geotechnical-engineering reports has resulted in costly

problems. Confront that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Constructors can also misinterpret a geotechnical-engineering report. Confront that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing geotechnical construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical-engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical-engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and constructors fail to recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Environmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold-prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, many mold- prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical- engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; *none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.*

Rely, on Your GBC-Member Geotechnical Engineer for Additional Assistance

Membership in the Geotechnical Business Council of the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you GBC-Member geotechnical engineer for more information.

GEOTECHNICAL BUSINESS COUNCIL
of the Geoprofessional Business Association

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@geoprofessional.org www.geoprofessional.org

EXHIBIT D
Conceptual Cost Estimate

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
SUMMARY SHEET				
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
I. CLEARING AND GRADING				
			SUBTOTAL	$781,500.00
II. EROSION CONTROL				
			SUBTOTAL	$211,650.00
III. STORM DRAINAGE				
			SUBTOTAL	$739,899.20
IV. SANITARY SEWER				
			SUBTOTAL	$313,930.00
V. WATER				
			SUBTOTAL	$476,907.50
VI. PAVING, CURB & GUTTER				
			SUBTOTAL	$677,082.20
VII. MISCELLANEOUS				
			SUBTOTAL	$846,730.00
VIII. CONTINGENCY (20%)				
				$809,539.78
		TOTAL COST		**$4,857,238.68**
Assumptions & Conditions:				
- Adequate water supply is available for tapping.				
- Sanitary Sewer is available at the site.				
- Sanitary Sewer and Water Line quantities are based on immediate site availability.				
- Geotechnical exploration and consultation is advised to confirm subsurface rock.				
- Paving, Curb and Gutter quantities do not include any offsite work Beyond Road frontage				
- Quantities and unit costs are subject to change at final construction documents and permitting.				
- Cost estimate has been compiled for preliminary evaluation purposes.				
- Tree/Landscape and Hardscape is not included in this estimate.				

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
CLEARING AND GRADING				
CLEARING-Burning	AC		$3,000.00	$0.00
CLEARING - Chipping	AC	15	$6,000.00	$90,000.00
MOBILIZATION- GENERAL	EA	1	$25,000.00	$25,000.00
MOBILIZATION - ADDITIONAL	EA		$10,000.00	$0.00
IMPORT FILL	CY		$12.00	$0.00
EXPORT UNSUITABLE MATERIAL	CY		$14.00	$0.00
MASS CUT TO HAUL OFF	CY		$5.00	$0.00
GRUBBING	AC	15	$1,500.00	$22,500.00
CUT TO FILL	CY	75000	$6.60	$495,000.00
BACKFILL AND COMPACT	CY		$13.75	$0.00
MOVE OTHER SPOILS	CY		$5.72	$0.00
GAB #57 STONE	TON		$16.34	$0.00
ROCK BLASTING	CY		$12.00	$0.00
ROCK HAUL-OFF	CY		$80.00	$0.00
OVER-EX AND RECOMPACT	CY		$4.50	$0.00
HAUL-OFF SPOILS (ON SITE)	CY		$5.72	$0.00
HAUL-IN	CY		$8.00	$0.00
HAUL- OFF (topsoil)	CY	6000	$12.00	$72,000.00
FINE GRADING	AC	15	$1,800.00	$27,000.00
DEMOLITION	SY	2000	$25.00	$50,000.00
			SUBTOTAL	$781,500.00

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
EROSION CONTROL				
SILT FENCE	LF		$3.86	$0.00
SILT FENCE (TYPE "C")	LF	3500	$5.00	$17,500.00
SILT TRAPS	EA	70	$250.00	$17,500.00
TEMPORARY SEEDING/MULCHING	AC	15	$750.00	$11,250.00
EROSION CONTROL MATTING	SY	10000	$2.00	$20,000.00
STREET SWEEPING EQUIPMENT	HR	100	$80.00	$8,000.00
CONSTRUCTION ENTRANCES	EA	3	$5,000.00	$15,000.00
CONSTRUCTION EXITS	EA		$1,750.00	$0.00
SEDIMENT PONDS	EA	4	$2,500.00	$10,000.00
DIVERSION DIKES	LF	1000	$2.00	$2,000.00
RIP RAP	TN	1000	$30.00	$30,000.00
GRASSING	AC	10	$1,200.00	$12,000.00
TREE FENCE	LF	2300	$2.00	$4,600.00
TREE FENCE (WIRE BACKED)	LF	2300	$6.00	$13,800.00
MAINTENANCE	LS	1	$50,000.00	$50,000.00
			SUBTOTAL	$211,650.00

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
STORM DRAINAGE				
15" CMP	LF		$16.00	$0.00
12" DIP	LF		$41.71	$0.00
12" HDPE	LF		$15.00	$0.00
16" DIP	LF		$56.93	$0.00
12" RCP	LF		$27.00	$0.00
15" RCP	LF		$27.00	$0.00
18" CMP	LF	0	$18.50	$0.00
18" RCP	LF	2375	$27.00	$64,125.00
18" HDPE	LF		$19.00	$0.00
24" CMP	LF	0	$21.00	$0.00
24" RCP	LF	1220	$33.01	$40,272.20
24" HDPE	LF		$26.00	$0.00
27" RCP	LF		$48.10	$0.00
30" CMP	LF	0	$26.00	$0.00
30" RCP	LF	1220	$48.10	$58,682.00
30" HDPE	LF		$33.00	$0.00
36" CMP	LF	0	$32.00	$0.00
36" RCP	LF		$59.47	$0.00
36" HDPE	LF		$41.00	$0.00
42" CMP	LF	0		$0.00
42" RCP	LF		$72.07	$0.00
48" RCP	LF		$96.22	$0.00
48" HDPE	LF		$63.00	$0.00
54" CMP	LF	0		$0.00
54" RCP	LF		$120.77	$0.00
60" CMP	LF	0		$0.00
60" RCP	LF		$128.00	$0.00
72" CMP	LF	600	$150.00	$90,000.00
72" RCP	LF	0	$176.69	$0.00
STORM MANHOLES	EA		$2,000.00	$0.00
8' DIA. MH	VF	60	$394.00	$23,640.00
5' DIA. MH	VF		$220.00	$0.00
4" DIA. MH	VF	750	$125.00	$93,750.00
6' MH BASE	EA	0	$175.00	$0.00
8' MH BASE	EA	6	$130.00	$780.00
4' MH BASE	EA	75	$80.00	$6,000.00
6 TO 4 REDUCER	EA		$540.00	$0.00
5 TO 4 REDUCER	EA		$415.00	$0.00
STORM MANHOLES	EA		$2,200.00	$0.00
STORM DRAIN INLETS	EA		$2,200.00	$0.00
EXTRA DEPTH MANHOLE	VLF	190	$140.00	$26,600.00
HOODED CURB INLET	EA	49	$2,500.00	$122,500.00
AREA INLET	EA	14	$2,500.00	$35,000.00
YARD INLET	EA	20	$2,500.00	$50,000.00
SINGLE-WING INLET	EA	6	$1,800.00	$10,800.00
DOUBLE-WING INLET	EA	1	$1,800.00	$1,800.00
JUNCTION BOX	EA	10	$1,200.00	$12,000.00
PEDESTAL INLET	EA	1	$1,400.00	$1,400.00
18" HEADWALL	EA		$350.00	$0.00
24" HEADWALL	EA	3	$400.00	$1,200.00
30" HEADWALL	EA	3	$450.00	$1,350.00
36" HEADWALL	EA			$0.00
42" HEADWALL	EA	0	$550.00	$0.00
48" HEADWALL	EA	0	$600.00	$0.00
54" HEADWALL	EA			$0.00
60" HEADWALL	EA	0	$700.00	$0.00
72" HEADWALL	EA			$0.00
DETENTION POND	EA	4	$25,000.00	$100,000.00
UNDERGROUND DETENTION	EA	0	$650,000.00	$0.00
CDS	EA			$0.00
STORMCEPTORS	LS		$7,500.00	$0.00
VORTECHNICS	LS		$0.00	$0.00
BOX CULVERT	LF		$300.00	$0.00
ARCH CULVERT	LF		$200.00	$0.00
				$0.00
			SUBTOTAL	$739,899.20

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
SANITARY SEWER				
8" PVC	LF		$12.00	$0.00
8" PVC SDR 35	LF	0	$15.00	$0.00
8" DIP	LF	3000	$40.00	$120,000.00
6" PVC	LF		$11.00	$0.00
6" PVC SDR 35	LF		$12.00	$0.00
6" DIP	LF	700	$30.00	$21,000.00
4" PVC	LF		$24.66	$0.00
4" DIP	LF		$26.50	$0.00
INVERT	EA	20	$350.00	$7,000.00
BOOTS	EA	60	$70.00	$4,200.00
DUMPSTER DRAIN	EA	10	$1,500.00	$15,000.00
MANHOLE TOP, RING & INV.	EA	20	$300.00	$6,000.00
SANITARY MANHOLES	EA	20	$2,559.00	$51,180.00
4' DIA. BASE	EA	20	$80.00	$1,600.00
4' DIA. MH	VLF	0	$125.00	$0.00
EXTRA DEPTH MANHOLE	VLF	50	$120.00	$6,000.00
1500 GALLON GREASETRAPS AND TMH	EA	5	$6,500.00	$32,500.00
CLEAN OUT	EA	50	$400.00	$20,000.00
LATERAL SERVICES	EA	42	$100.00	$4,200.00
STONE	TN	500	$25.00	$12,500.00
Y-CONNECTION	EA	30	$400.00	$12,000.00
TIE TO AN EXISTING SSMH	EA	1	$750.00	$750.00
			SUBTOTAL	$313,930.00

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
V. WATER				
8" TAP TO EX. MAIN	EA	3	$1,200.00	$3,600.00
12" DIP	LF	0	$32.15	$0.00
8" DIP	LF	3755	$26.50	$99,507.50
8" PVC (C900)	LF			$0.00
6" DIP	LF	500	$23.00	$11,500.00
6" PVC (C900)	LF			$0.00
4" DIP	LF	500	$20.00	$10,000.00
4" PVC (C900)	LF			$0.00
WATER VALVE	EA	28	$750.00	$21,000.00
8" GATE VALVE AND BOX	EA	10	$1,200.00	$12,000.00
6" GATE VALVE AND BOX	EA	10	$850.00	$8,500.00
FIRE HYDRANT	EA	12	$1,900.00	$22,800.00
WATER SERVICE(LONG SIDE)	EA	36	$500.00	$18,000.00
WATER SERVICE(SHORT SIDE)	EA	0	$300.00	$0.00
WATER METER -(" SIZE)	EA		$0.00	$0.00
3/4" BF PREV./BOX	EA	35	$250.00	$8,750.00
3/4" METER BOX	EA	35	$250.00	$8,750.00
2" BF PREV. / BOX	EA	2	$2,500.00	$5,000.00
2" METER / BOX	EA	2	$1,000.00	$2,000.00
4" BF PREV / BOX	EA	5	$15,000.00	$75,000.00
4" METER BOX	EA	5	$10,000.00	$50,000.00
6" BF PREV/BOX	EA	1	$15,000.00	$15,000.00
6" METER BOX	EA	1	$10,000.00	$10,000.00
8" DOUBLE DETECTOR CHECK	EA	0	$2,000.00	$0.00
6" DOUBLE DETECTOR CHECK	EA	8	$8,000.00	$64,000.00
FIRE DEPT. CONNECTION	EA	8	$3,000.00	$24,000.00
WATER VAULT	EA		$10,000.00	$0.00
THRUST BLOCKING	EA	30	$250.00	$7,500.00
			SUBTOTAL	$476,907.50

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
PAVING, CURB & GUTTER				
RIGHT TURN/ DECEL LANE	LS	2	$85,000.00	$170,000.00
STREET ASPHALT (8",3.5",1.5")	SY	7715	$34.28	$264,470.20
LIGHT DUTY ASPHALT (6",2")	SY	0	$22.00	$0.00
ASPHALT PAVING (6-2-1)	SY		$20.00	$0.00
PATCHING	SY		$50.00	$0.00
MILL AND REPAVE 1.25"	SY	4223	$9.00	$38,007.00
CURB AND GUTTER REPLACEMENT	LF		$13.80	$0.00
30" CURB AND GUTTER	LF		$15.00	$0.00
24" ROLL CURB & GUTTER	LF		$13.80	$0.00
24" STD. CURB & GUTTER	LF	12475	$13.80	$172,155.00
CONCRETE SIDEWALK	SY	1095	$10.00	$10,950.00
SPECIAL CONCRETE PAVING	SY	0	$15.00	$0.00
STRIPING (PAINT)	LF			$0.00
STRIPING (THERMOPLASTIC)	LF	7000	$2.00	$14,000.00
TRAFFIC SIGNAGE	EA	30	$250.00	$7,500.00
			SUBTOTAL	$677,082.20

CONCEPTUAL COST ESTIMATE				
Holly Springs Master			1/8/2016	
ITEM	***UNIT***	***QNTY***	***UNIT COST***	***TOTAL COST***
MISCELLANEOUS				
OPEN CUT HICKORY ROAD	LS	1	$50,000.00	$50,000.00
CRANE ROADS	SY		$19.95	$0.00
HORSE RAIL FENCE WITH HOG WIRE	LF		$18.60	$0.00
RUBBLE WALLS	SF		$54.39	$0.00
FIBERGLASS COFFINS	EA		$6,800.00	$0.00
MODULAR BLOCK RET. WALL	SF	1000	$30.00	$30,000.00
CONCRETE DETENTION WALL	SF	21445	$34.00	$729,130.00
WALL SAFETY RAIL (42" ALUMINUM PICKET FENCE)	LF	800	$22.00	$17,600.00
STORMTECH CHAMBERS	LF	0	$250.00	$0.00
STORMWATER PARK BUDGET	EA	0	$250,000.00	$0.00
ELECTRICAL DUCTBACK	SF		$76.00	$0.00
MANHOLE ELECTRICAL	EA		$7,500.00	$0.00
LAND DISTURBANCE PERMIT FEES (ESTIMATED)	LS	1	$20,000.00	$20,000.00
SEWER & WATER IMPACT FEE	LS		$0.00	$0.00
DEVELOPMENT IMPACT FEE	LS		$0.00	$0.00
			SUBTOTAL	$846,730.00

EXHIBIT E
City Hall Renderings

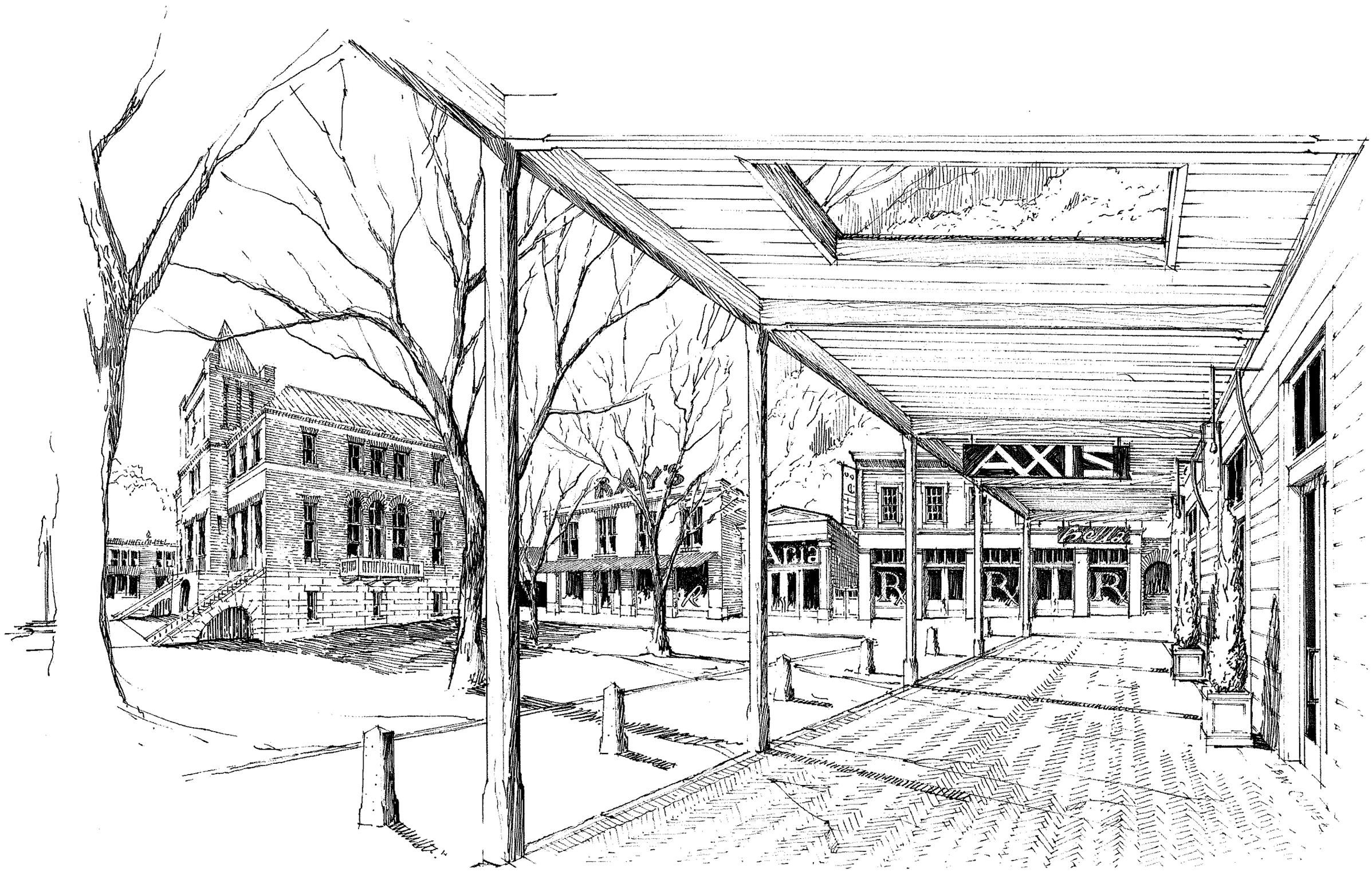

AXIS
Bell
R
R
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EXHIBIT F

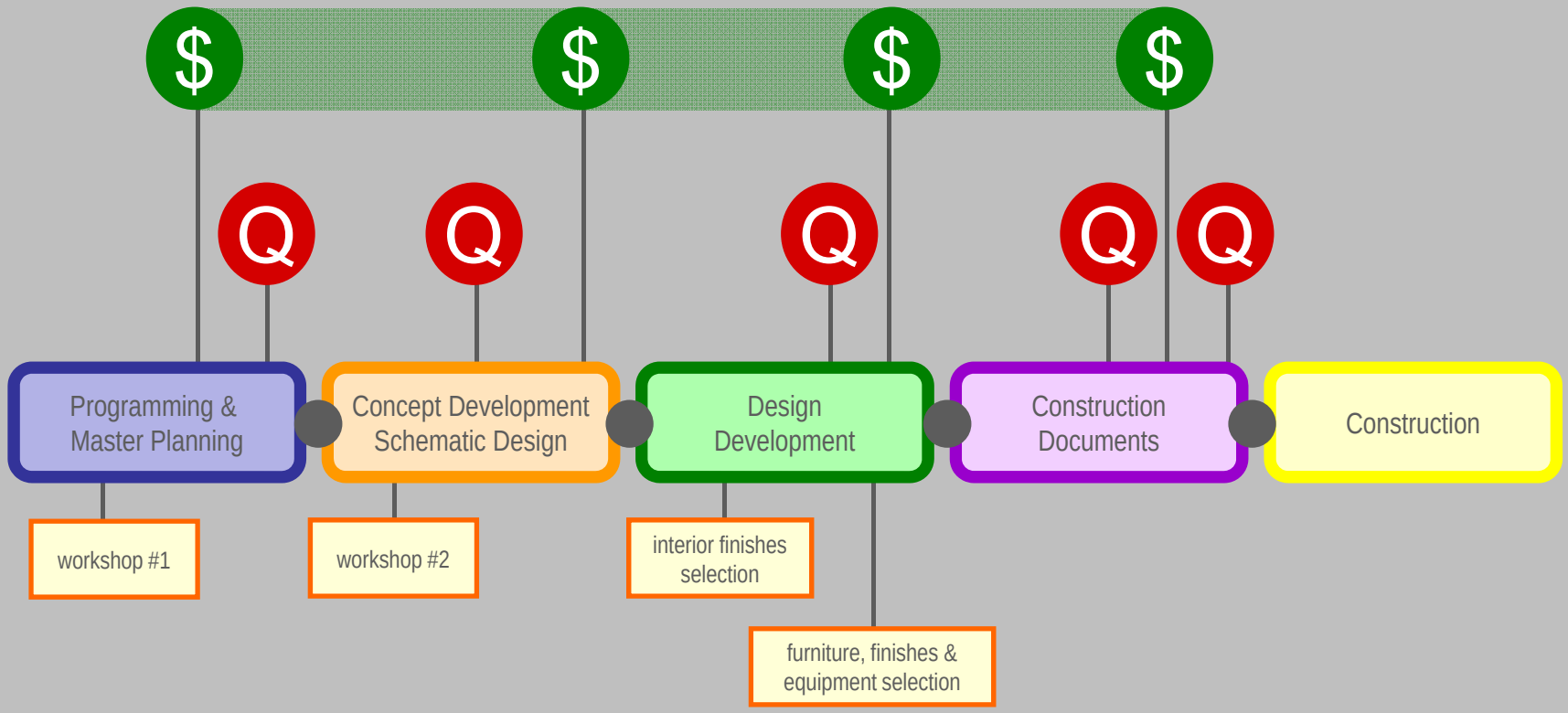
City Hall Programming Space Needs Assessment

City Hall Programming

Mayor+Council Presentation

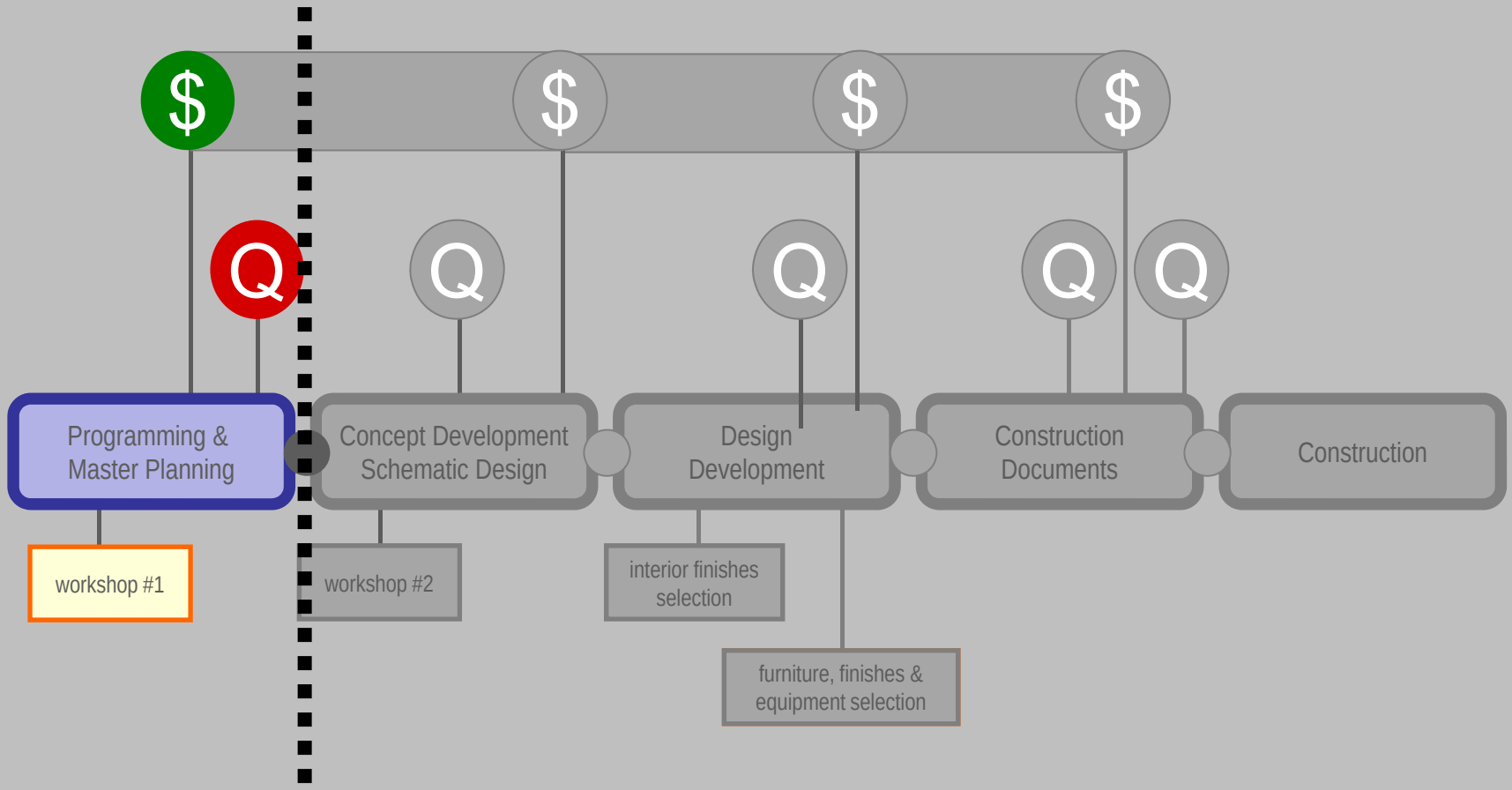
16May2016

…the end result is a building, built with documents.

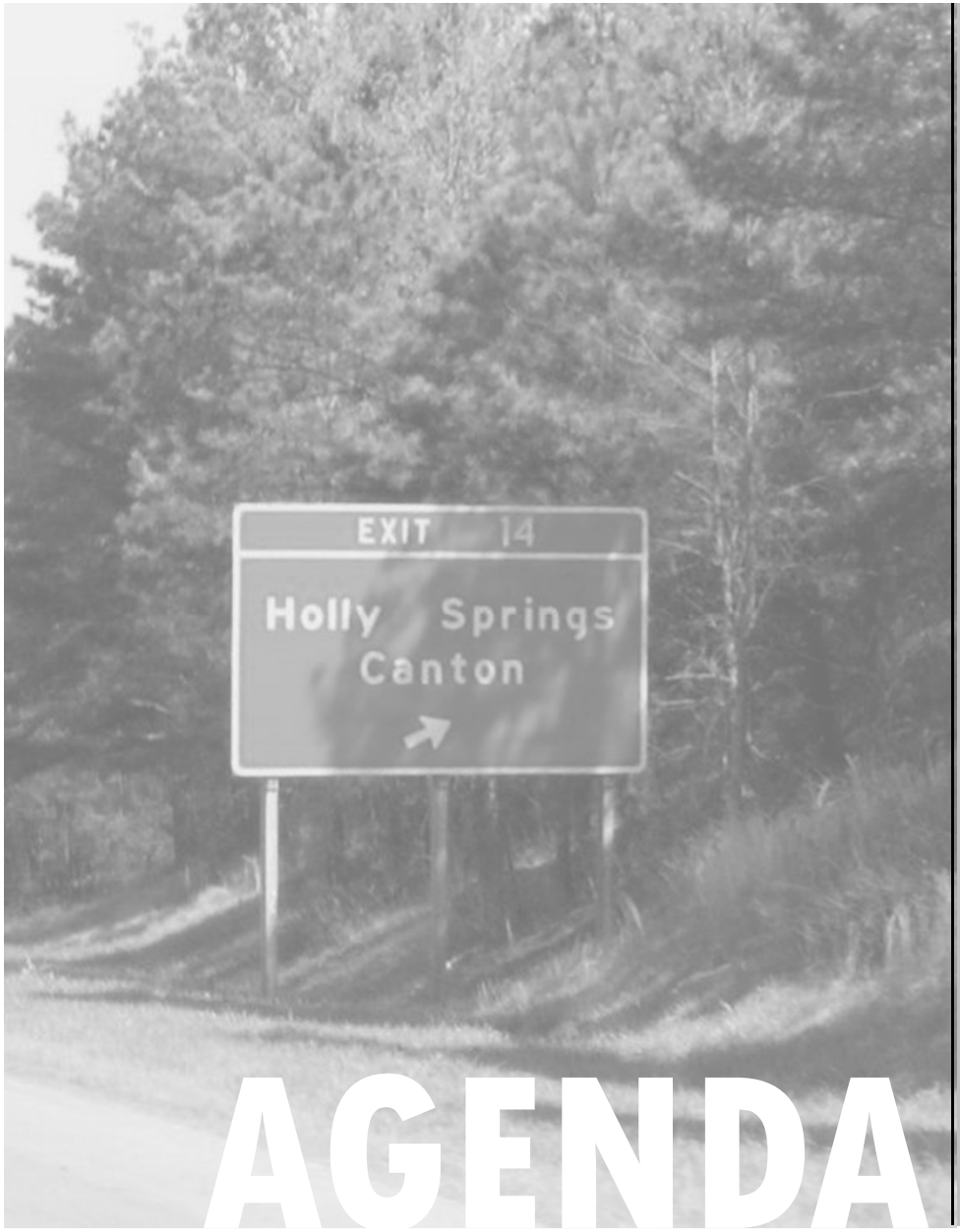


TYPICAL A/E PROCESS

…the end result is a document, not a building.



TYPICAL A/E PROCESS



AGENDA

1. **Due Diligence**
2. **Staff Interview Process**
   - Questionnaire
   - Index Cards
3. **Charts**
   - Department Personnel Growth
   - Department SF Growth
4. **Holly Springs Master Plan & City Hall Sketch**
5. **City Hall Blocking**
6. **Floor Plate Diagrams & Section**
7. **City Hall Cost Analysis**

What you have:

- Master Plan Site
  - Site Utilities Survey of (10/17/2006)
- Downtown Pedestrian Improvements
  - Site Utilities Survey along Holly Springs Parkway & Hickory Road (8/16/2010)
- Traffic Studies (2011)
- Town Center Transportation Study (2011)
- Master Plan concept for development site.
- Zoning and Developmental Ordinances

Needs Assessment:

- New and current Site Utilities Survey
- Flow tests along Master Plan development site.

Staff Interview Process

- Questionnaire
- Interview
- Space diagramming

EXECUTIVE STAKEHOLDER COMMITTEE

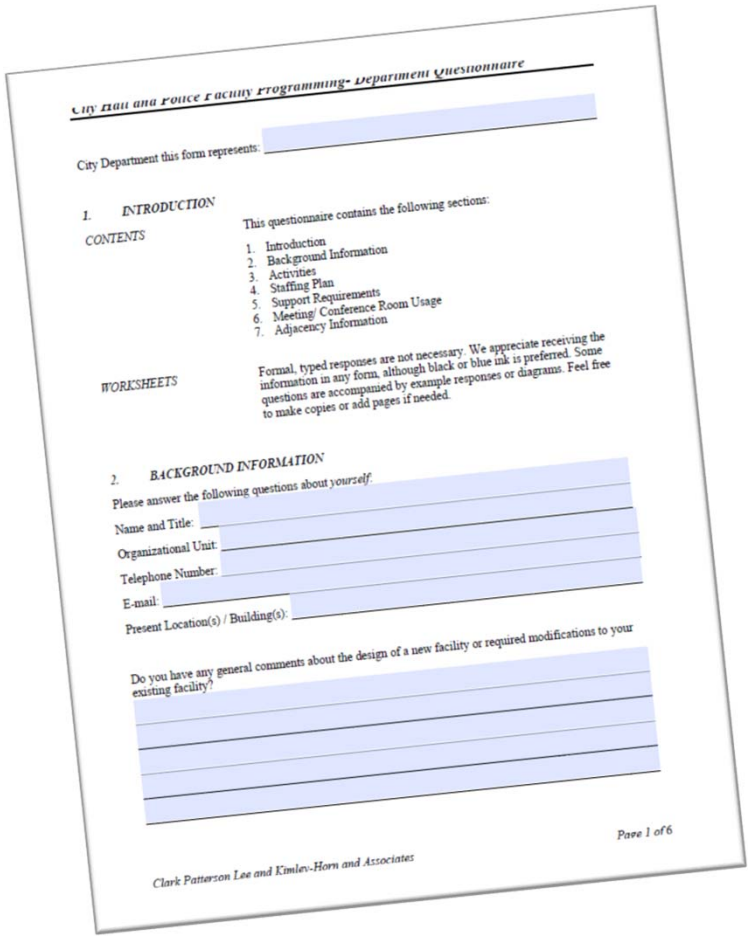
- Timothy Downing - Mayor
- Michael Zenchuk – City Council Member
- Robert Logan - City Manager/Finance Director
- Nancy Moon - Community Development Director
- Karen Norred - City Clerk/Human Resources Director

QUESTIONNAIRE PARTICIPANTS

- Joe Alexander - Chief Building Official
- Becky Bruce - Community Development Technician
- Ron Carter - I.T. & Facility Manager
- Erin Honea - Main Street Director
- Denise Lamazares - Accounting Specialist
- Rob Logan - City Manager/Finance Director
- Nancy Moon - Community Development Director
- Karen Norred - City Clerk/HR Director
- Josh Rogers - Stormwater Coordinator

PROCESS

QUESTIONNAIRE



City Hall and Police Facility Programming- Department Questionnaire

City Department this form represents:

1. INTRODUCTION

CONTENTS

This questionnaire contains the following sections:

1. Introduction
2. Background Information
3. Activities
4. Staffing Plan
5. Support Requirements
6. Meeting/ Conference Room Usage
7. Adjacency Information

WORKSHEETS

Formal, typed responses are not necessary. We appreciate receiving the information in any form, although black or blue ink is preferred. Some questions are accompanied by example responses or diagrams. Feel free to make copies or add pages if needed.

2. BACKGROUND INFORMATION

Please answer the following questions about *yourself*.

Name and Title:

Organizational Unit:

Telephone Number:

E-mail:

Present Location(s) / Building(s):

Do you have any general comments about the design of a new facility or required modifications to your existing facility?

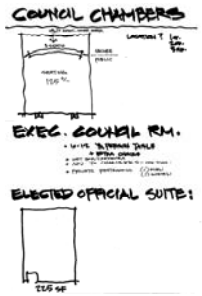
Page 1 of 6

Clark Patterson Lee and Kimley-Horn and Associates

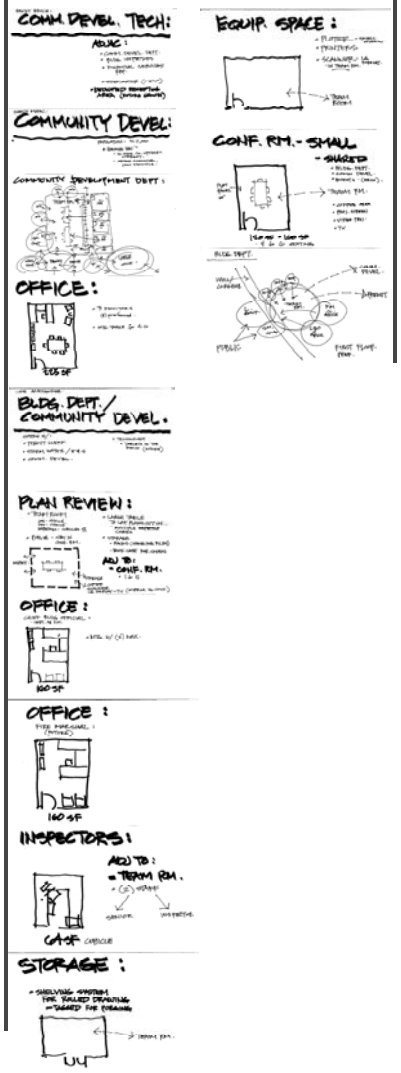
Staff Interview Process

1.0 – ADMIN.

2.0 – MAYOR & COUNCIL

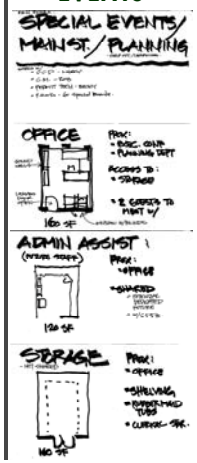


3.0 – BUILDING & COMMUNITY DEVELOPMENT DEPTARTMENT



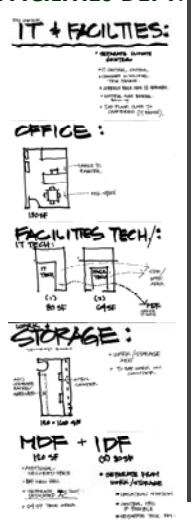
4.0 – FINANCE

5.0 – SPECIAL EVENTS



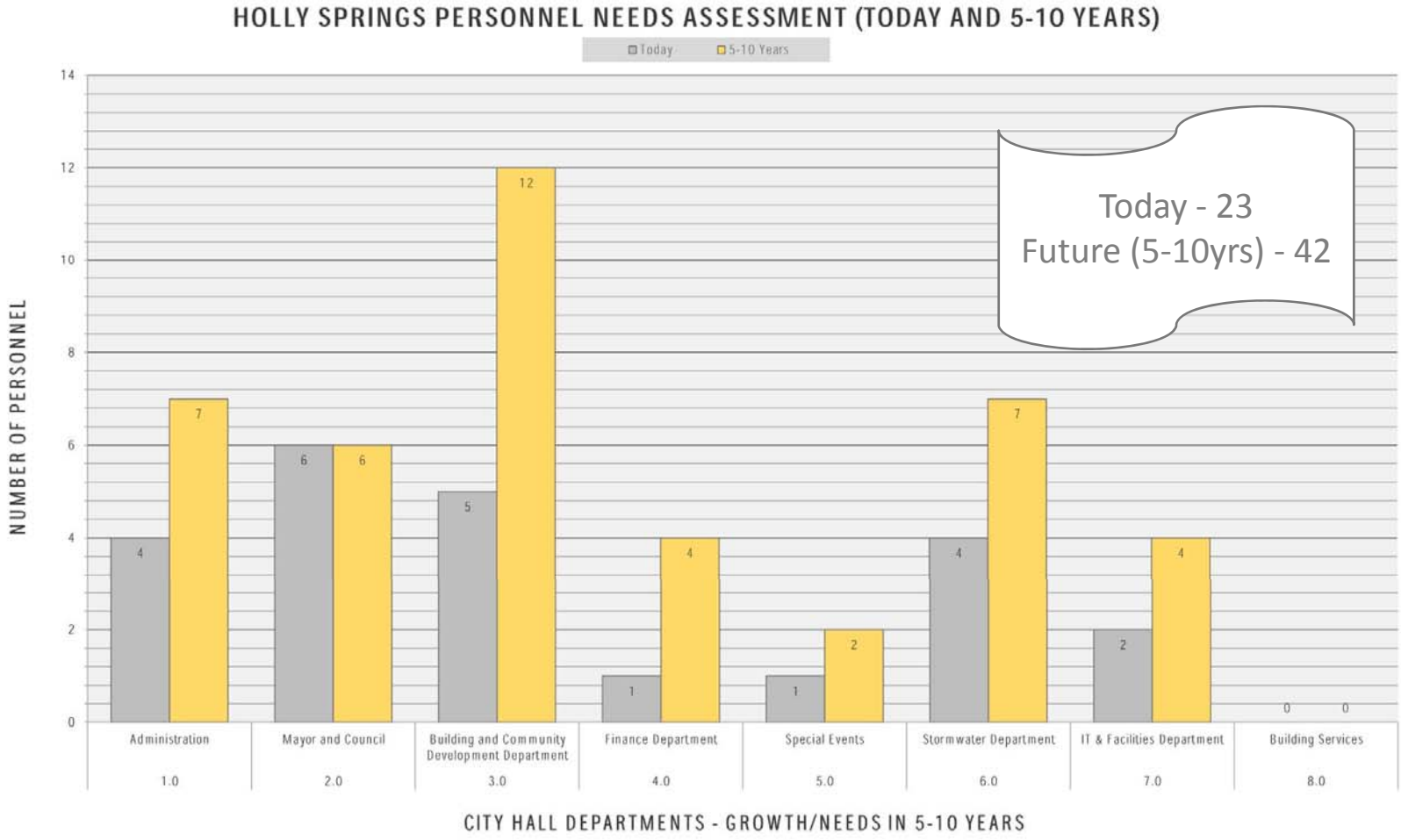
6.0 – STORM WATER DEPT.

7.0 – I.T. & FACILITIES DEPT.



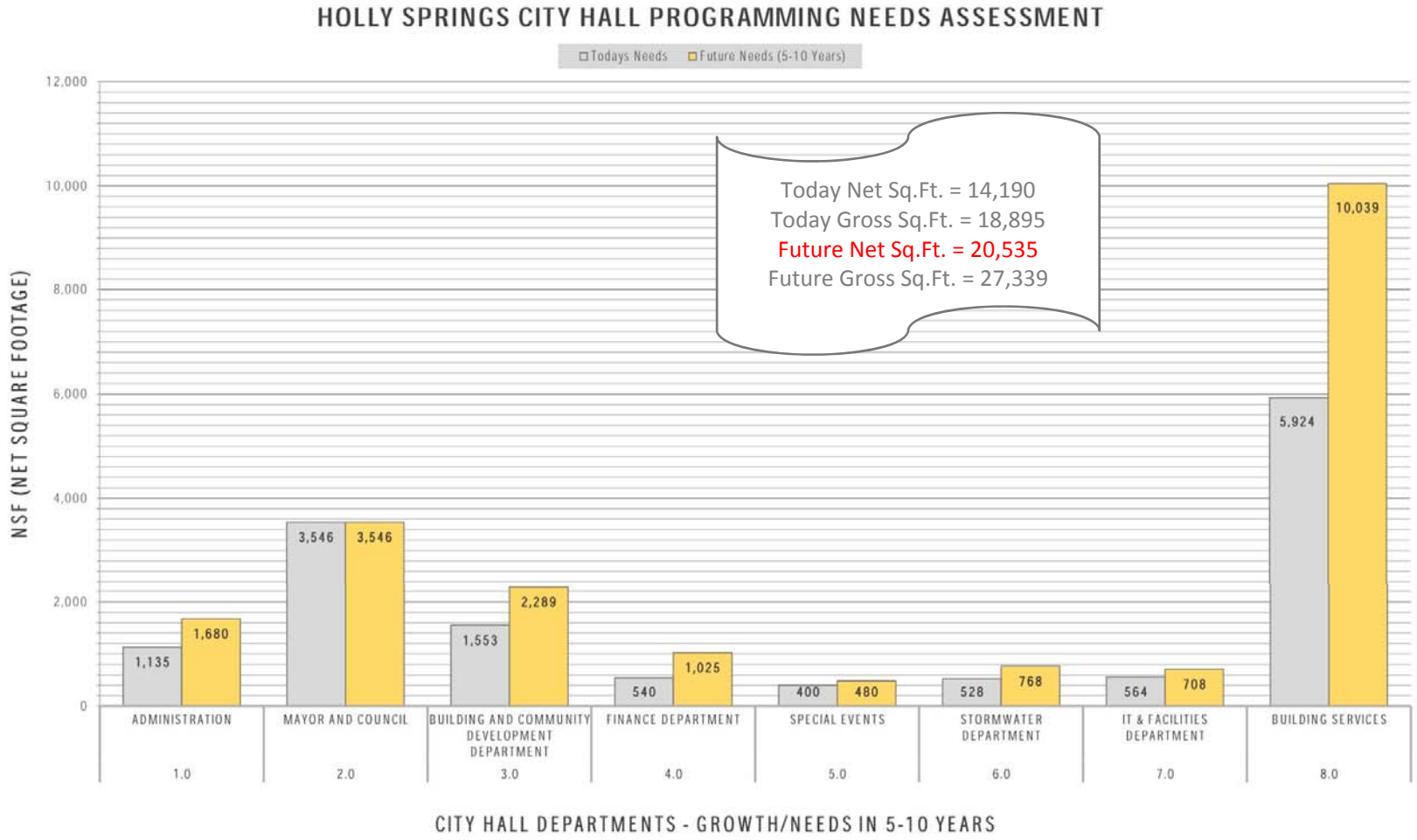
8.0 – BUILDING SERVICES

City Hall Personnel (per capita)

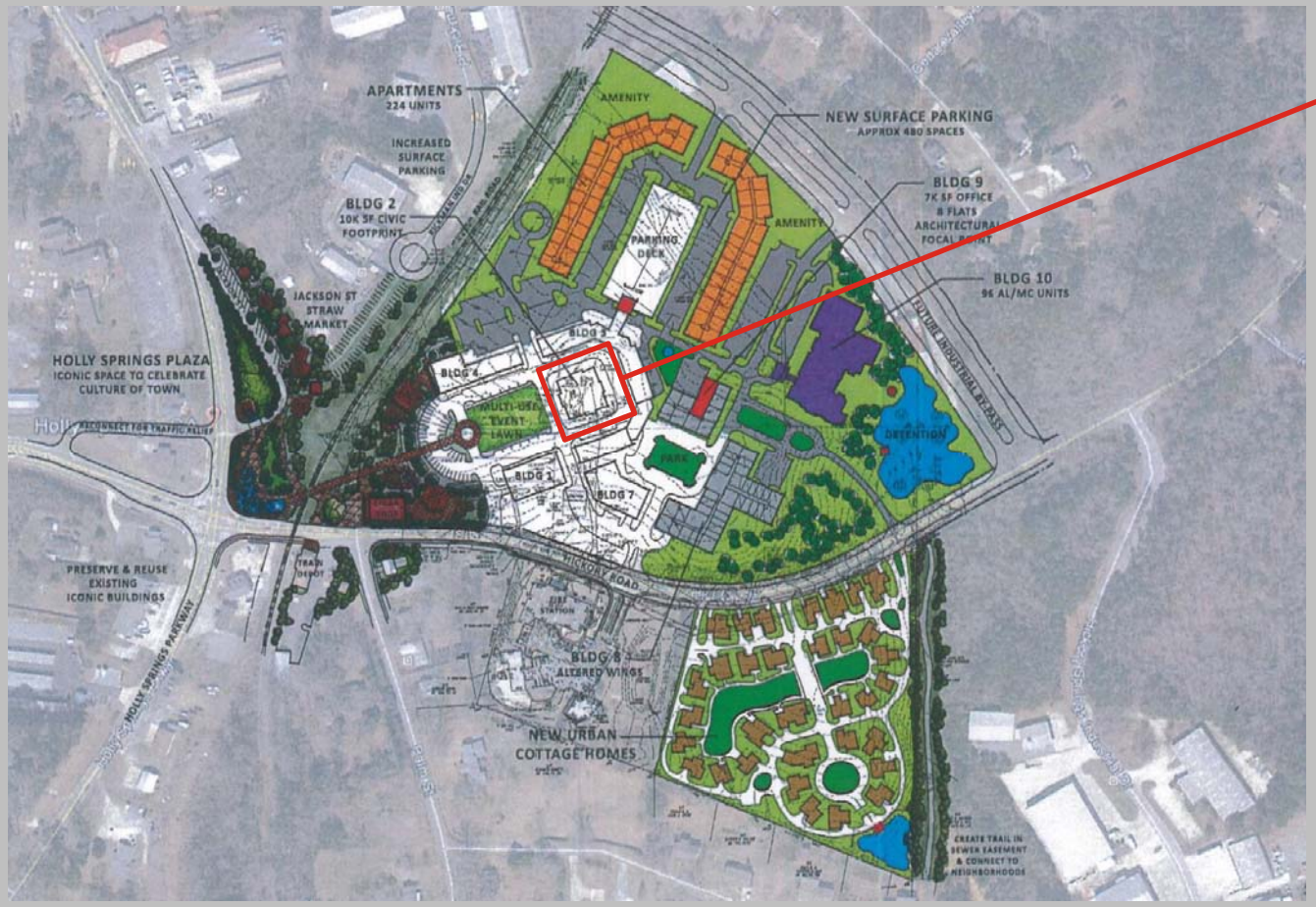


Today - 23
Future (5-10yrs) - 42

City Hall Department Area (SF)

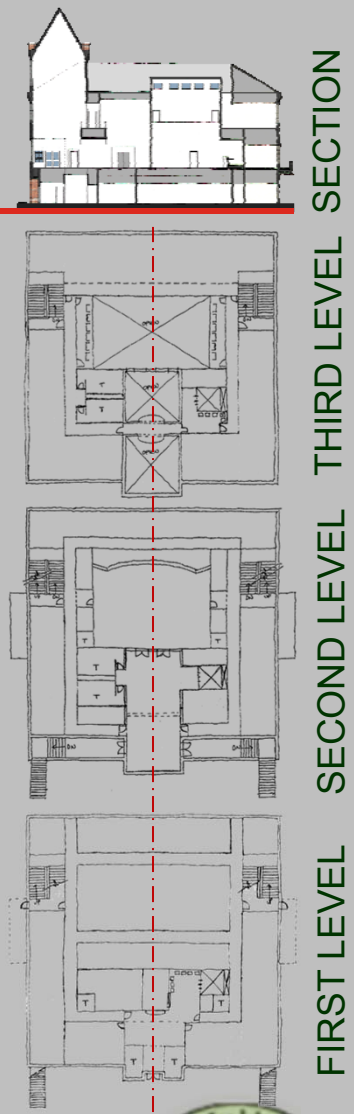


MASTER PLAN



City Hall Footprint = **10,000** sq.ft.

Site Plan by Others, Provided by the City of Holly Springs.

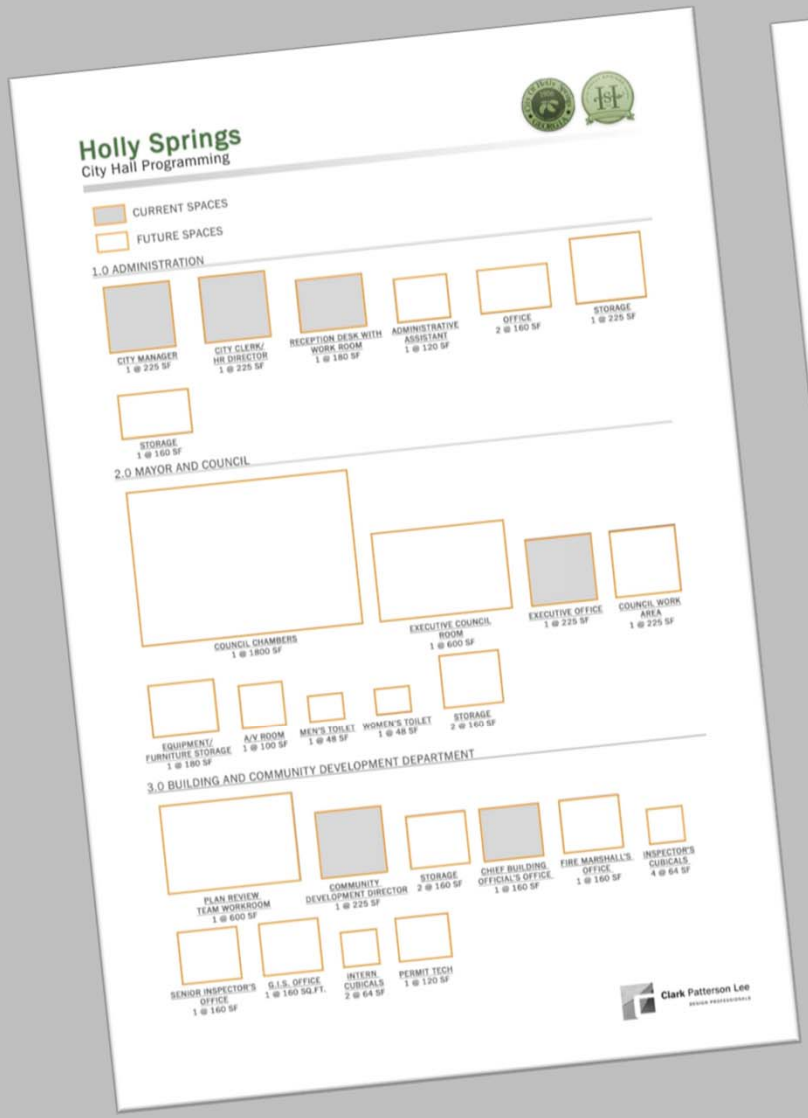


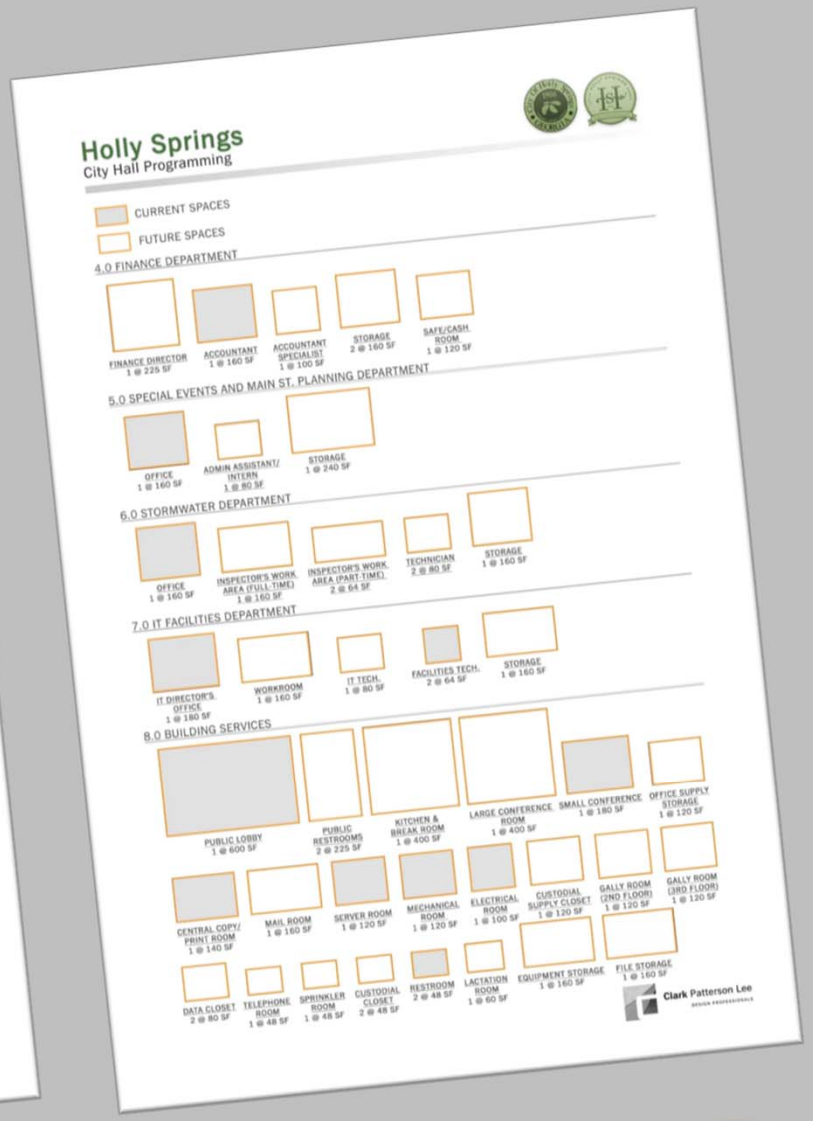
FIRST LEVEL SECOND LEVEL THIRD LEVEL SECTION

CITY HALL CONCEPT SKETCH

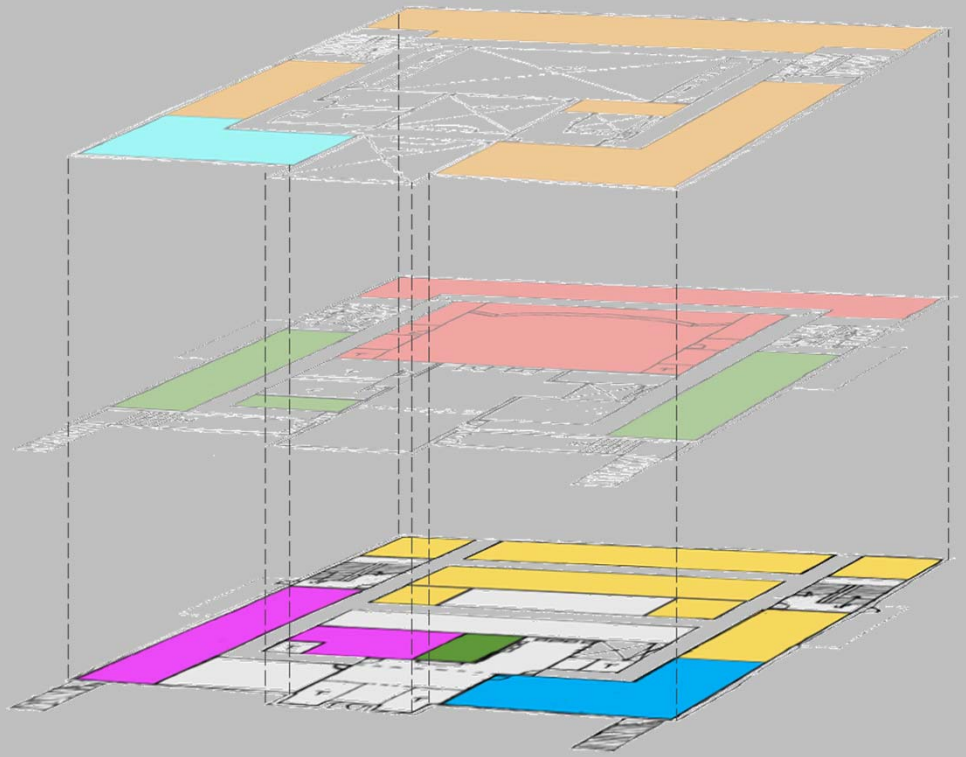
Sketch by Others, Provided by the City of Holly Springs.

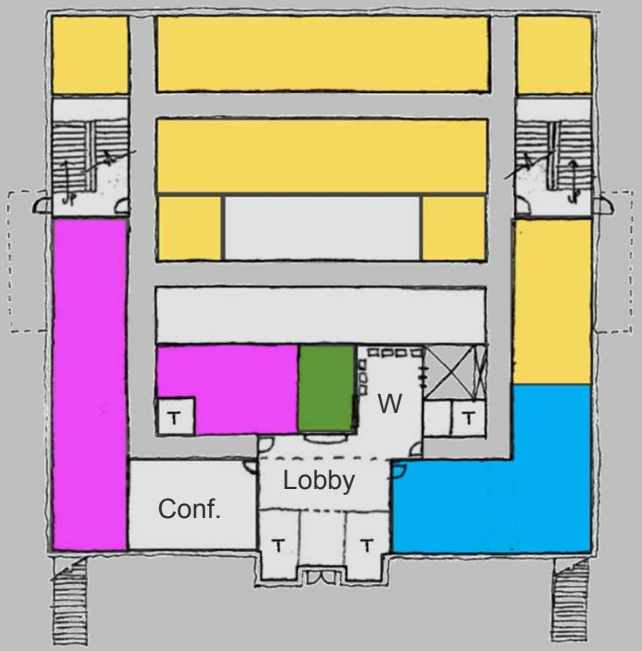
HOLLY SPRINGS CITY HALL PROGRAM BLOCKS





CITY HALL – FIRST LEVEL





Legend

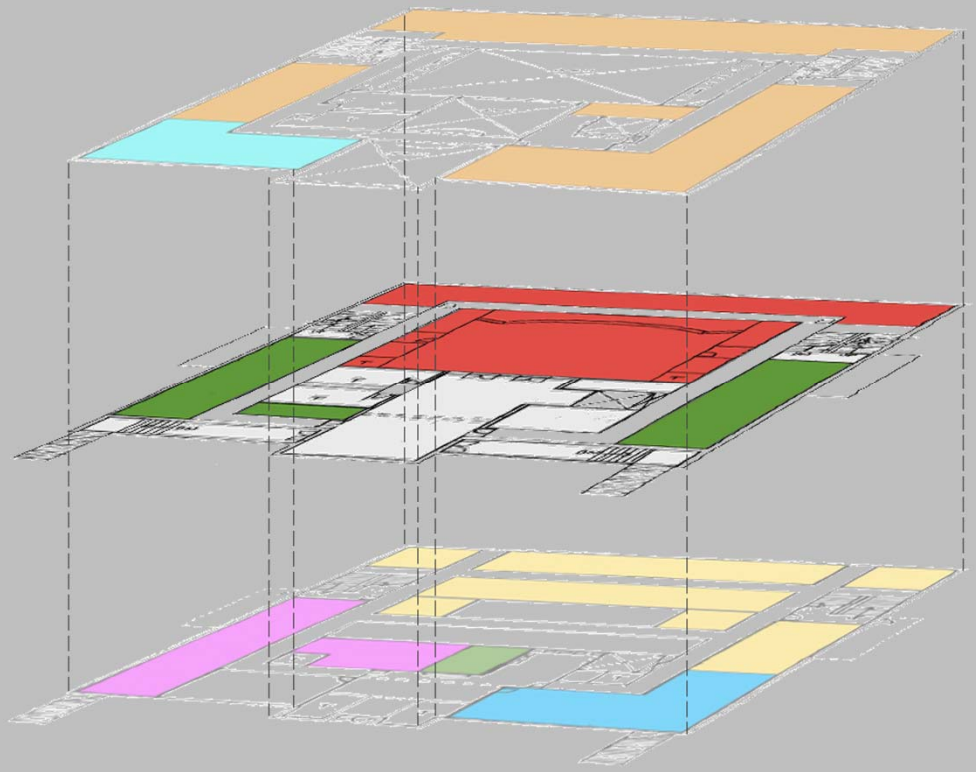
160	1.0 - Administration Department
1,025	4.0 - Finance Department
2,769	3.0 - Building and Community Development 5.0 - Special Events Department
768	6.0 - Stormwater Department
2,935	8.0 - Building Services

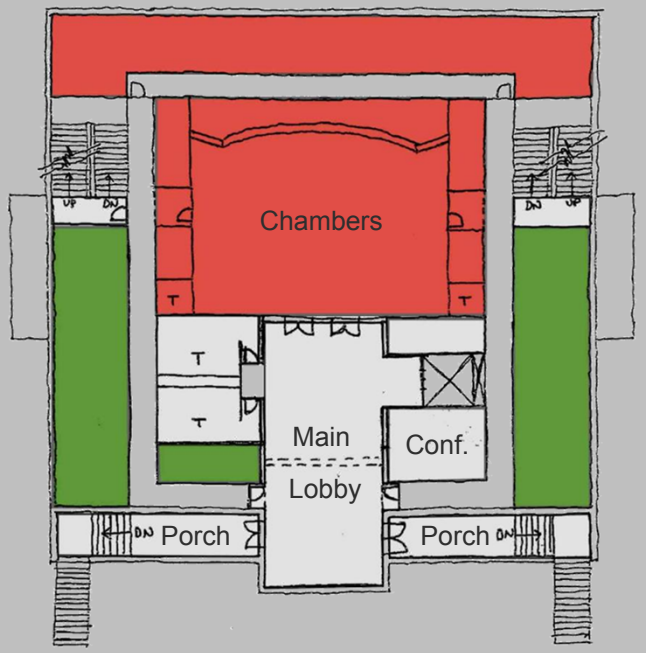
Total **7,657** NSF.

First Level Gross Area

10,120 SF.

CITY HALL – SECOND LEVEL





Legend

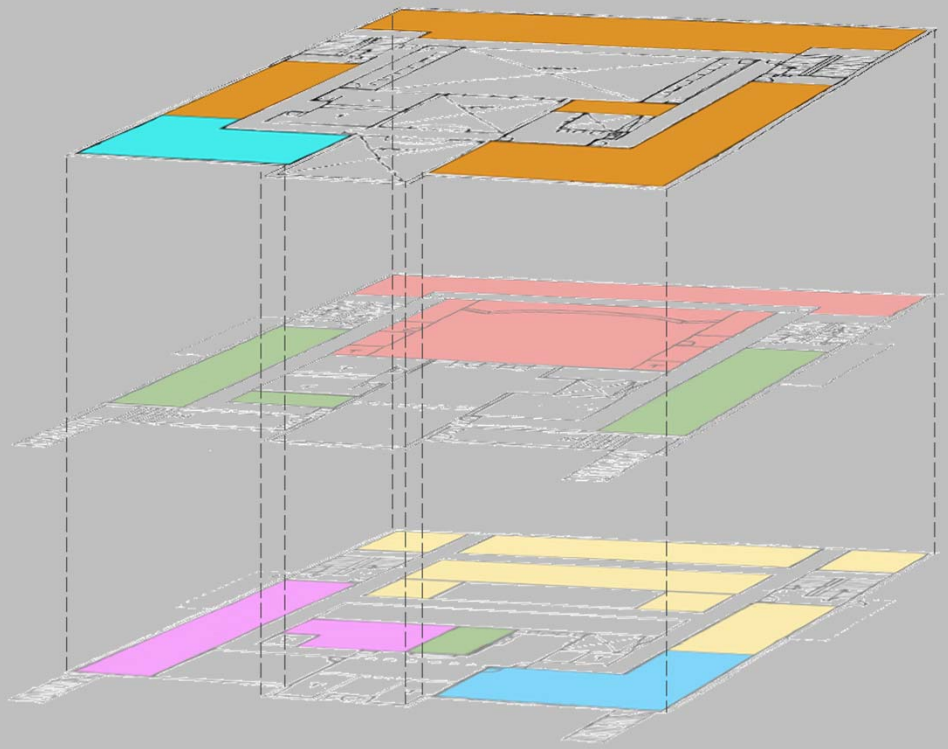
1,520	1.0 - Administration Department
3,546	2.0 - Mayor and Council
2,495	8.0 - Building Services

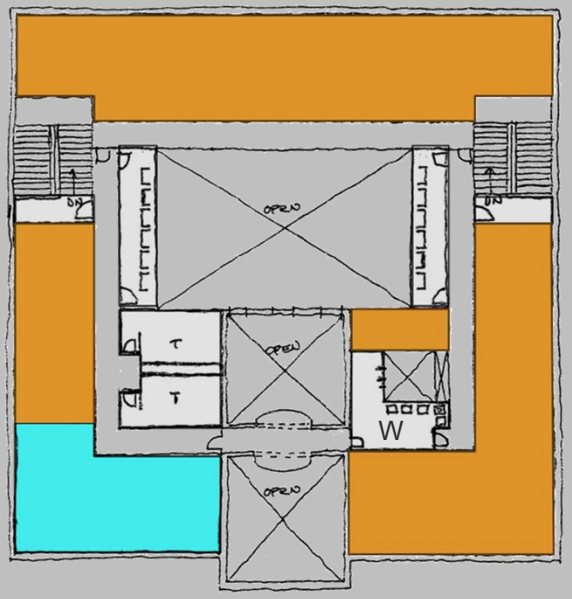
Total **7,561** NSF.

Second Level Gross Area

9,712 SF.

CITY HALL – THIRD LEVEL





Legend

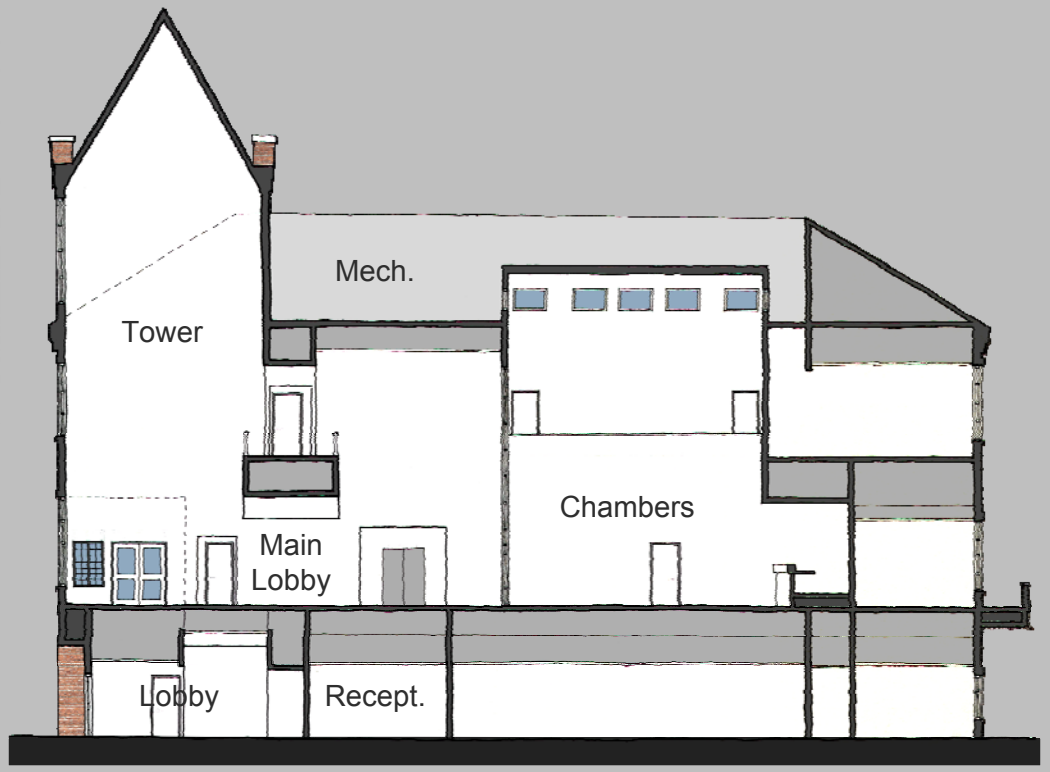
708	7.0 - I.T. & Facilities
1,053	8.0 - Building Services
3,556	Future Programmable Space

Total **5,317** NSF.

Third Level Gross Area

7,507 SF.

CITY HALL – SECTION



NET PROGRAM AREA

1st Floor: 7,657 SF.
2nd Floor: 7,561 SF.
3rd Floor: 5,317 SF.
Total: 20,535 SF.

GROSS PROGRAM AREA

1ST Floor: 10,120 SF.
2nd Floor: 9,712 SF.
3rd Floor: 7,507 SF.
Total: 27,339 SF.

CITY HALL – COST ANALYSIS

Holly Springs City Hall Project Cost Estimate

Building Cost Information			
Today GSF Total	5-10 Years GSF Total	Average Cost per SQ.FT.	Total Estimated
22,445	27,339	$259.15	$7,084,850.00

Project Cost Information			
#	Item	%	Cost of Construction
1A	FFE	8.0%	$566,788.00
2A	Site Work (Pad ready per M Plan Development	0.5%	$35,424.25
		Total	$602,212.25
	Total Cost of Construction (Rounded Up)		$7,687,850.00

Project Expenses			
#	Item	%	Estimated Expense
1B	Contingency	10.0%	$768,785.00
2B	Fees %	7.0%	$591,964.45
3B	Testing & Administrative Costs	2.0%	$153,757.00
	Total Cost of Project Expenses (Rounded Up)		$1,515,000.00

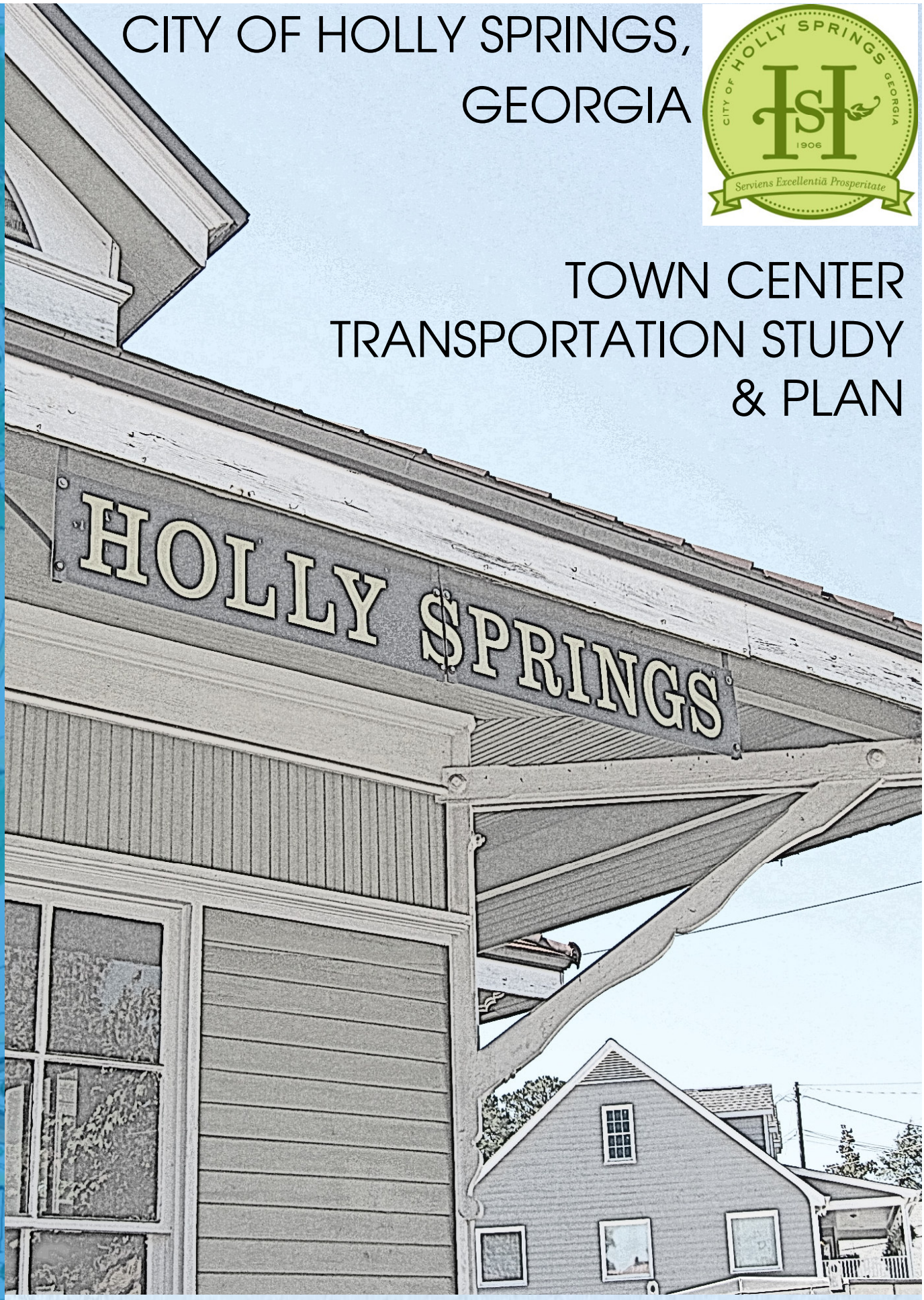
Estimated Total Solution Cost	$9,202,850.00

EXHIBIT G

Town Center Transportation Study & Plan

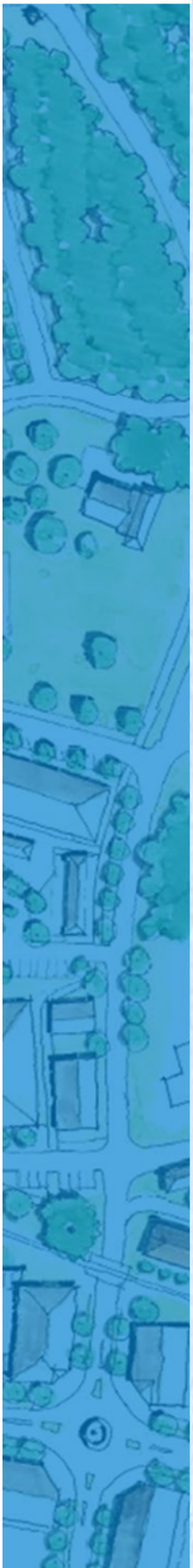
CITY OF HOLLY SPRINGS, GEORGIA

TOWN CENTER TRANSPORTATION STUDY & PLAN



FINAL – May 2, 2011

URS



TOWN CENTER TRANSPORTATION STUDY & PLAN

FINAL – May 2, 2011

URS Project # : 15280811

Prepared for:

The City of Holly Springs, Georgia
3237 Holly Springs Parkway
Holly Springs, GA 30115

Prepared by:

URS Corporation
400 Northpark Town Center
1000 Abernathy Road, NE
Suite 900
Atlanta, GA 30328
Tel: 678.808.8800
Fax: 678.808.8400
www.urscorp.com

TABLE OF CONTENTS

TABLE OF CONTENTS

I - INTRODUCTION

The City of Holly Springs is a community located in central Cherokee County, Georgia with a U.S. Census estimated 2009 population of 9,126 people. Located between county seat Canton and the City of Woodstock, the City of Holly Springs is served by two major interchanges with Interstate 575 – one at Exit 11 (Sixes Road) and one at Exit 14 (Holly Springs Parkway). While the community has historically been rural in nature, suburban growth has moved northwards from Atlanta, particularly in the past 10 years. A map of the City's location is provided in **Figure 1.1**.

In addition to the Interstate 575 access, the City is served primarily by one major north-south roadway (Holly Springs Parkway) which connects to the City to Canton to the north and to Woodstock to the south. The City is also served by one major east-west roadway (Hickory Street), which connects the City to the Hickory Flat area located to the east. The historical center of the City is located near the intersection of these two roadways, which is also the location of the City of Holly Spring's railroad depot located on the Georgia Northeastern Railroad (GNRR), a short line freight railroad that connects Marietta, Georgia to Blue Ridge, Georgia. This immediate center of the City has been the focus of an ongoing effort to create a new town center development, which has been planned for the area to the northeast of the Holly Springs Parkway/Hickory Street intersection. A map of the City's center (in effect the study area) is provided in **Figure 1.2**.

The town center planning effort has largely been conducted as part of the Livable Centers' Initiative (LCI), a program providing funding and planning assistance from the Atlanta Regional Commission (ARC), which serves as both the City's representative Metropolitan Planning Organization (MPO) and Regional Commission. The LCI program includes a variety of goals including the following:

- Encouraging mixed-use development
- Enhancing community aesthetics
- Improving access to multiple transportation modes
- Expanding housing and employment options
- Creating planning outreach programs with the local community

Over the past decade, the town center area has been the focus of several study initiatives as depicted in the graphic below.

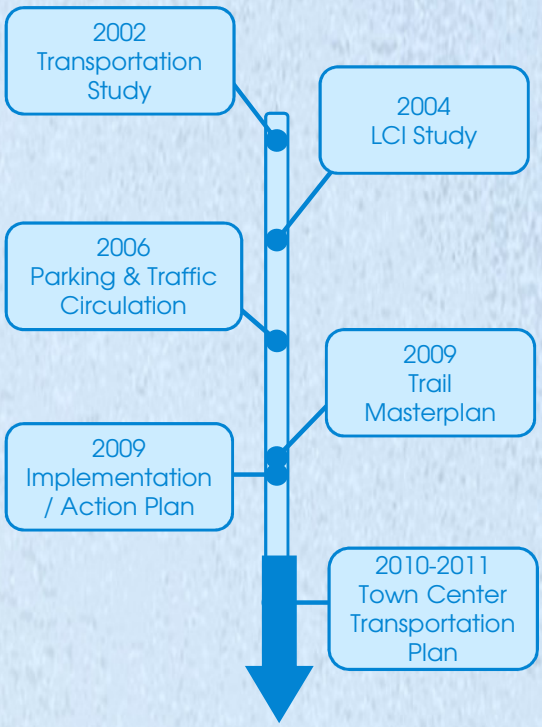


FIGURE 1.1
Holly Springs

FIGURE 1.2
Town Center Study Area

I - INTRODUCTION

With the commencement of this study, the Town Center Transportation Study & Plan, the City seeks to perform the following:

- Develop transportation improvements to facilitate town center progress
- Develop a grid network for the town center
- Plan for transportation impacts once the town center is implemented
- Develop an action plan to implement and fund transportation projects

As such, the study has been developed to incorporate a combination of both transportation planning and engineering methods with the goal in mind of developing feasible transportation projects that can be implemented in phases. While the study incorporated several analyses, to simplify the documentation process, the study is organized into the following four basic sections:

- Identification of existing needs
- Identification of future needs
- Stakeholder engagement
- Recommendations

II – IDENTIFICATION OF EXISTING NEEDS

Existing needs in the town center vicinity were identified using a variety of procedures as documented in the following section.

2.1 Data Collection

Data collection efforts including a substantial review of existing and new data relating to the town center area. The data collection effort consisted of three major components:

- Review of previous studies
- Site visits
- Collection of traffic data

2.1.1 Review of Previous Studies

The review of previous studies focused primarily on the studies pertaining to the LCI and town center area. The following is a summary of the findings from each study.

2002 Transportation Study

Similar to this study, this 2002 effort focused on transportation conditions in the immediate vicinity of central Holly Springs. A major theme throughout the study was to make the area safe and attractive to pedestrians and a variety of projects were subsequently proposed and implemented in the vicinity of the Railroad Depot.

2009 Trail Masterplan

This 2009 study developed a trail network to serve the town center area.

2009 Implementation & Action Plan

The 2009 implementation and action plan served as a documentation of the

An additional recommendation of the study was developed due to concerns about high levels of truck traffic on Hickory Street in the central area. An 'industrial connector' was proposed for such traffic to bypass the town center connecting Hickory Street to Holly Springs Parkway via a variety of different alignment alternatives all of which formed a northeastern arc around the town center area and included crossing the GNRR railroad through a variety of treatments including at-grade and grade-separations.

The study also identified the need to align the intersection of Holly Springs Parkway and Holly Street to the intersection of Holly Springs Parkway and Hickory Street, an improvement which was subsequently implemented.

2004 LCI Study

The 2004 LCI study focused primarily on conceiving the town center within central Holly Springs at its currently planned site northeast of the GNRR and Hickory Street.

2006 Parking & Traffic Circulation Study

This study refined some of the transportation ideas initially recommended in the 2002 Transportation Study while providing a variety of recommendations regarding public parking provisions in the town center area.

implementation status of the projects and studies associated with the LCI. In particular, the plan also serves as a formal documentation for the August 2008 charette that refined the town center concept from its incarnation developed as part of the 2004 LCI

Study. The charette's development of the town center is shown in the image below.

City of Holly Springs Comprehensive Plan

The City of Holly Springs Comprehensive Plan, adopted in February 2008, reaffirmed the town center concept in the center of Holly Springs through the development of a future land use map.

Atlanta Regional Commission Regional Transportation Plan

The most recently adopted transportation plan for the Atlanta region is the Envision6 (the Plan 2040 effort is underway currently) plan, which identified two transportation projects in the center of Holly Springs, both of which are depicted in **Figure 2.1**:

- CH-215: Industrial Drive extension from Holly Springs Parkway to Hickory Road (the "industrial connector")
- CH-218: Hickory Road and Holly Springs Parkway downtown pedestrian network improvements.

August 2008 Charette

FIGURE 2.1
ARC Projects

This map is for planning purposes only. The transportation projects are conceptual in nature and are not intended to indicate exact alignments or locations.

2.1.2 Site Visits

A series of site visits were conducted in the town center area in order to gain an understanding and appreciation of the opportunities and challenges for developing transportation projects to support the town center. The site visits were conducted during a variety of times of the day (morning peak, afternoon peak, mid-afternoon) on different days throughout the study effort. Additionally, the site visits were cross-referenced as part of the stakeholder engagement effort (documented in Section IV). The following is a summary of findings.

Hickory Street and Palm Street intersection

This intersection was reviewed on several visits due to a variety of challenges. Due to the proximity of the intersection to both the GNRR crossing and the signalized intersection at Holly Springs Parkway, the major movements on Hickory Street are controlled differently, with the eastbound movement (leaving the railroad crossing and signalized intersection) under no control in order to prevent queue backups onto the railroad or Holly Springs Parkway. In contrast, the westbound movement is stop-controlled in order to meter traffic entering into the railroad crossing and signalized intersection. While the stop-control works effectively as a safety feature, it is exacerbated by queues extending from the Holly Springs Parkway intersection that contribute to larger queues on Hickory Street particularly in the morning and afternoon peak periods. Additionally, traffic demand on Palm Street is not particularly high and large queues were not observed approaching the intersection but the inconsistency in traffic control on Hickory Street seems to create sporadic confusion regarding vehicle right of way.

Hickory Street and GNRR

The location of the GNRR crossing in the immediate vicinity of where Holly Springs Parkway, Jackson Street, and Palm Street can all be accessed by Hickory Street (shown in the photograph above) creates a variety of conflict points particularly due to the combination of closely spaced intersections and truck traffic. Additionally, per regulation, school bus traffic must come to a complete stop before proceeding through the railroad crossing. Due to a nearby school bus yard on Hickory Street, several buses were observed at the railroad crossing during the morning peak and mid-afternoon causing additional congestion along Hickory Street that often extends into the adjacent intersections.

Hickory Street and Holly Springs Parkway

This intersection was until recently offset from Holly Street. While the recent alignment of Hickory Street to Holly Street at a single signalized intersection has addressed a variety of safety and congestion issues, the intersection must still operate under a split phase operation (eastbound traffic is permitted separately from westbound traffic) due to site distance constraints.

Holly Springs Parkway corridor

While little congestion was observed on Holly Springs Parkway a few observations were made:

- The intersection at Jackson Street presents a variety of site distance challenges due to both extreme horizontal and vertical curves (shown in the photograph to the right). There is a relatively high demand of turning vehicles due to Jackson Street's use as a cut-through to avoid the intersection of Holly Springs Parkway and Hickory Street and access to the P. Rickman industrial area.
- There are a number of access management challenges including multiple access points from Holly Springs Parkway to single businesses, minimal inter-parcel connectivity, and access provided at less than optimal locations. For instance, access to the post office is located immediately north of the already challenging intersection with Jackson Street. On several occasions, vehicles were observed turning from Jackson Street onto Holly Springs Parkway but did not pick up appropriate speed due to an immediate right turn into the post office parking lot.

Hickory Street corridor

The Hickory Street corridor is limited mainly by the previously discussed issues at Holly Springs Parkway, the GNRR crossing, and Palm Street.

Jackson Street corridor

The Jackson Street corridor is challenged by both the aforementioned intersection at Holly Springs Parkway and its intersection with Hickory Street which closely spaced with Holly Springs Parkway, the GNRR crossing, and Palm Street. With few businesses and residences located on Jackson Street, the road appears to be used primarily as access to the P. Rickman industrial area and as a cut-through for traffic seeking to avoid the congestion at the intersection of Holly Springs Parkway and Hickory Street.

2.1.3 Traffic Data Collection

To supplement the site observations, traffic data was collected throughout the town center area. The count data consisted of peak period turning movement counts at intersections, 24 hour segment volume counts, and 24 hour vehicle classification counts. The data was collected on Tuesday, November 16. 2010 and Wednesday, November 17, 2010 (a typical work week while local schools were in session). The count program locations are depicted in **Figure 2.2.**

The resulting daily traffic volumes are shown in **Figure 2.3** indicating that the majority of traffic is on Hickory Street and Holly Springs Parkway to the north of the town center area. Additionally, the vehicle classification counts on both Hickory Street and Holly Springs Parkway indicate a relatively large presence of single unit trucks (which includes school buses) as shown in the graphic to the right.

The AM and PM peak period turning movement counts were analyzed to determine the peak hour of traffic demand at each intersection within each peak period. The resulting AM and PM peak hour turning movement volumes are shown in **Figure 2.4**, respectively. Additionally, the raw count volumes are provided in **Appendix A**.

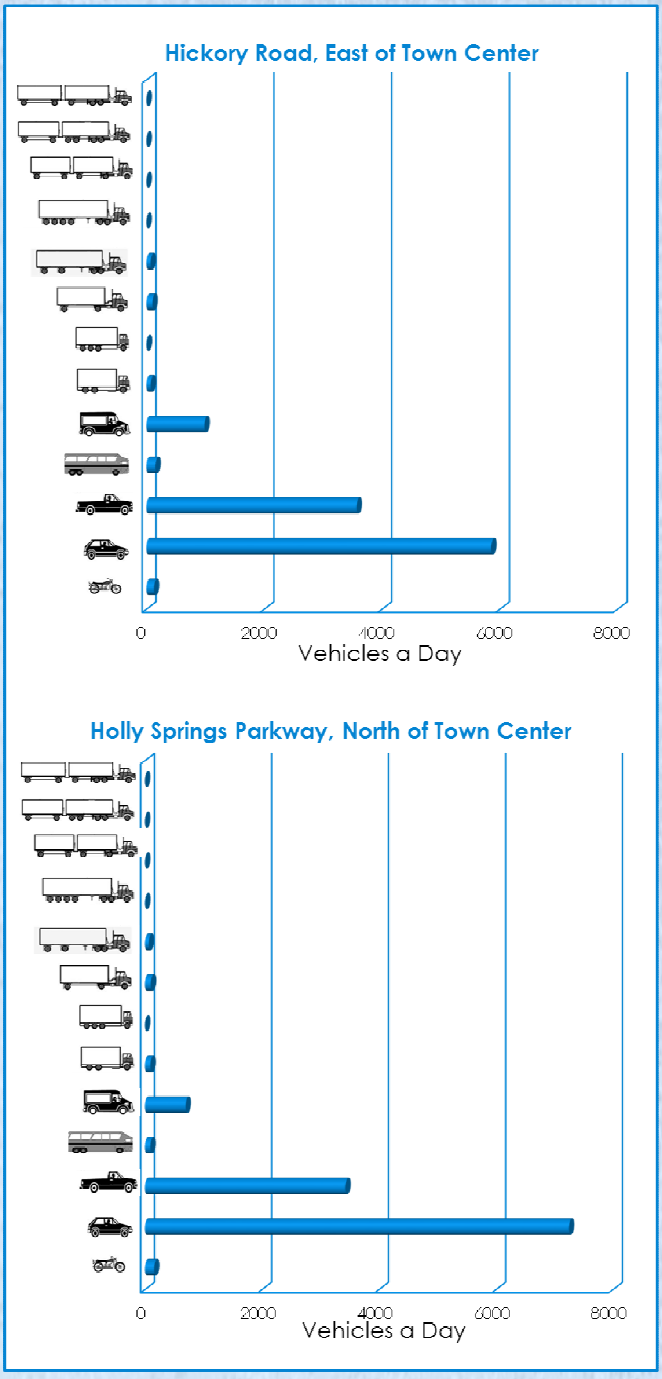
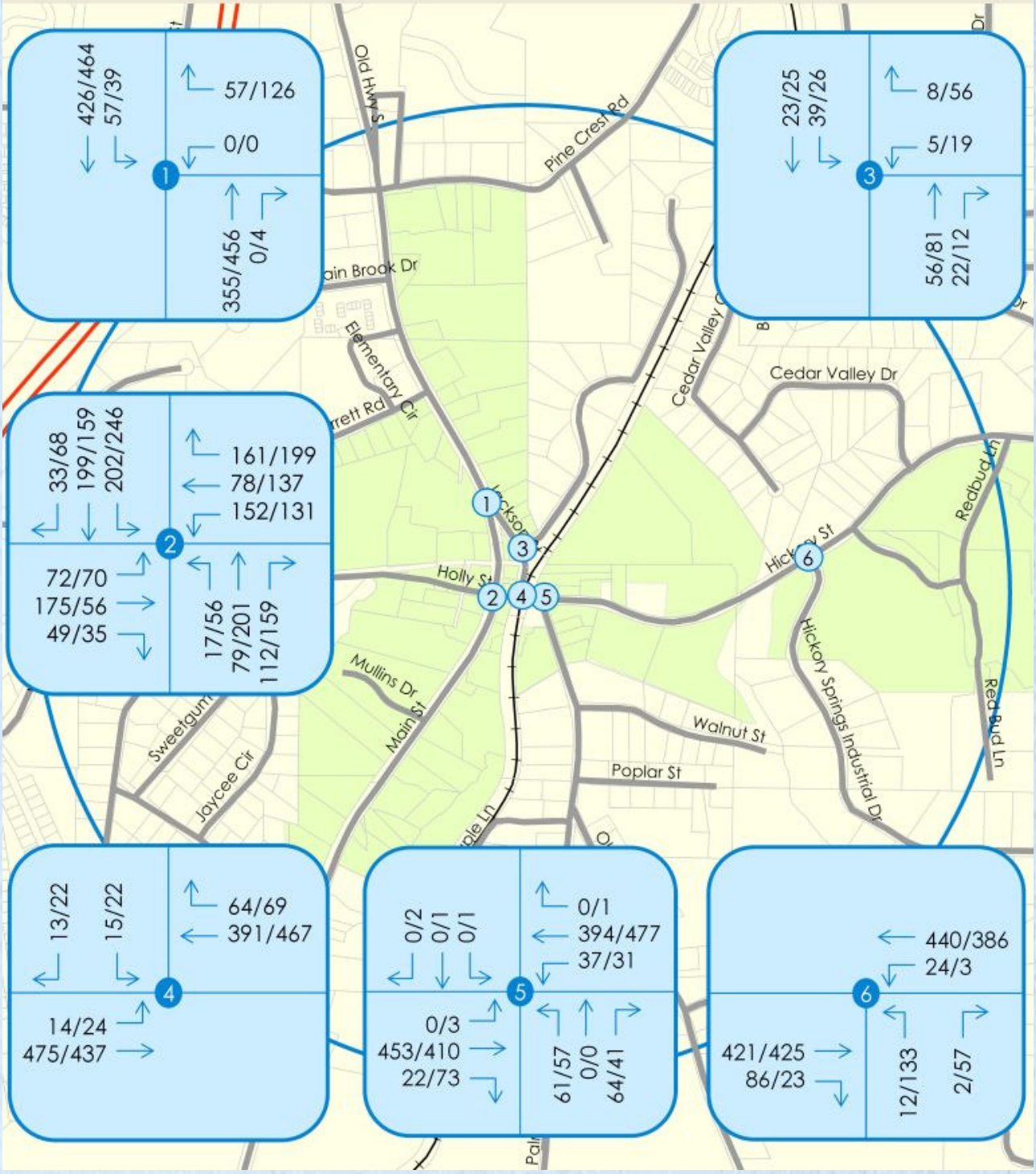


FIGURE 2.2
Traffic Count Program

FIGURE 2.3
Daily Traffic Volumes

FIGURE 2.4
Existing AM/PM Peak Hour Volumes

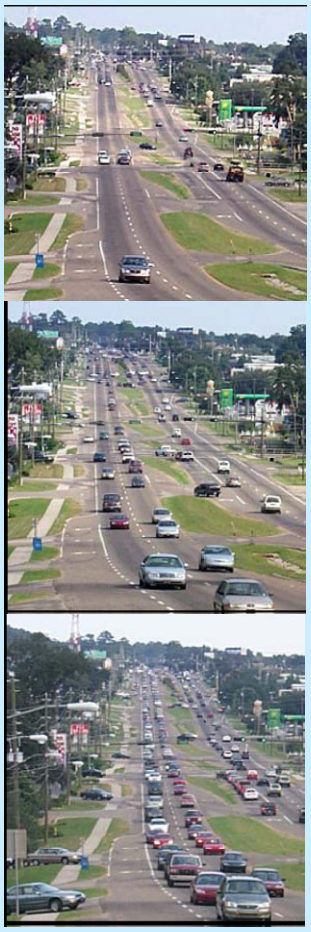


2.2 Analysis of Existing Conditions

In order to quantify the existing conditions in the town center area, a traffic engineering analysis of typical weekday peak hour congestion was conducted at the study area intersections. The following section defines the methodology and documents the results of this analysis.

2.2.1 Analysis Methodology

The standard approach to defining traffic congestion is the use of Level of Service (LOS), a quantifiable measure of congestion that is correlated to the delay experienced by the average vehicle. LOS is measured on a letter grade scale from A to F, with LOS A indicating free-flow conditions and LOS F indicating severe congestion as shown in the graphic to the right. Typically, LOS E and F are defined as undesirable – for the purposes of a transportation impact analysis, evidence of LOS E or F conditions indicates the potential need to provide transportation improvements.



Source: FDOT Quality Level of Service Manual

The standard methodologies for defining LOS are documented in the Highway Capacity Manual (HCM) and vary by the type of intersection being analyzed (signal controlled versus unsignalized). For unsignalized intersections, the HCM defines LOS for each of the individual approaches that are under stop control. For these approaches, the average control delay per vehicle correlates to LOS as shown in **Table 2.1**. The average control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. Several factors affect the controlled delay for unsignalized intersections, such as availability and distribution of gaps in the conflicting traffic stream, critical gaps, and follow-up time for a vehicle in the queue.

Table 2.1
LOS Thresholds for Unsignalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10.0
B	> 10.0 and ≤15.0
C	> 15.0 and ≤25.0
D	> 25.0 and ≤35.0
E	> 35.0 and ≤50.0
F	> 50.0

Source: 2000 Highway Capacity Manual

For signalized intersections, LOS is defined in terms of average control delay per vehicle for all movements, which is composed of initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. **Table 2.2** presents LOS thresholds for signalized intersections.

Table 2.2
LOS Thresholds for Signalized Intersections

Level of Service	Average Control Delay (sec/veh)
A	≤ 10.0
B	> 10.0 and ≤20.0
C	> 20.0 and ≤35.0
D	> 35.0 and ≤55.0
E	> 55.0 and ≤80.0
F	> 80.0

Source: 2000 Highway Capacity Manual

2.2.2 Level of Service Analysis

The analysis to determine existing peak hour LOS was conducted using Synchro 7.0, a software program that utilizes the methodologies recommended in the HCM. The LOS results are indicated in **Table 2.3,** with the correlated average delays indicated in **Table 2.4**. Raw output from Synchro is included in **Appendix B**.

The results indicate LOS D or better conditions with the exception of the Hickory Springs Industrial intersection in the PM peak hour. Site observations did not indicate any major congestion issues at the intersection and the analysis results are more likely due to limitations inherent in analyzing unsignalizing intersections in which uniform gaps in traffic (for turning vehicles to turn into) are assumed. Converting Synchro into a SimTraffic visual simulation (where the interaction of adjacent intersections is incorporated and therefore gaps in traffic are better estimated) of traffic did not indicate any noteable congestion. Likewise, LOS at the Palm Street intersection could not be determined due to limitations in the analysis but the SimTraffic simulations did indicate congestion in the westbound direction as has been observed in the site visits.

Table 2.3
Existing Level of Service

Intersection	AM	PM
Holly Springs Parkway @ Hickory Street	C	D
Holly Springs Parkway @ Jackson Street		
Jackson Street Stop Approach	B	B
Jackson Street @ P. Rickman Industrial		
P. Rickman Stop Approach	A	B
Hickory Street @ Jackson Street		
Jackson Street Stop Approach	C	C
Hickory Street @ Palm Street		
Hickory Street Stop Approach	N/A	N/A
Palm Street Stop Approach	N/A	N/A
Hickory Street @ Hickory Springs Industrial		
Hickory Springs Industrial Stop Approach	C	F

N/A = intersection configuration not allowed in HCM analysis

Table 2.4
Existing Average Control Delay (sec/veh)

Intersection	AM	PM
Holly Springs Parkway @ Hickory Street	28.8	44.9
Holly Springs Parkway @ Jackson Street		
Jackson Street Stop Approach	12.2	13.8
Jackson Street @ P. Rickman Industrial		
P. Rickman Stop Approach	9.5	10.1
Hickory Street @ Jackson Street		
Jackson Street Stop Approach	16.8	18.6
Hickory Street @ Palm Street		
Hickory Street Stop Approach	N/A	N/A
Palm Street Stop Approach	N/A	N/A
Hickory Street @ Hickory Springs Industrial		
Hickory Springs Industrial Stop Approach	20.3	53.3

N/A = intersection configuration not allowed in HCM analysis

2.3 Safety Analysis

In addition, to supplement the site reviews a transportation safety analysis was conducted of the town center area. This was conducted by collecting crash data in the study area from the years 2005 through 2009. Analysis of the crash data, did not indicate any patterns or crashes of correctible nature. The raw crash data is provided in **Appendix C**.

2.4 Existing Transportation Needs

Based on the analyses conducted of the existing conditions, the major congestion and safety issues were determined to be the connections to Jackson Street and the area surrounding the GNRR crossing and the adjacent intersections. Therefore the following needs were articulated:

- Need to close access to Jackson Street and provide new access to P. Rickman Industrial
- Need to limit conflict points on Hickory Street near the GNRR crossing, including moving major access to Palm Street away from the railroad

While the need to construct the 'industrial connector' to divert traffic away from the Hickory Street/GNRR crossing has been strong in the community for some time, these two needs will also address the issues at the crossing and can be resolved through easier-to-implement and cheaper transportation projects, allowing efforts to plan the 'industrial connector' to continue while offering shorter term relief. The following is a summary of why these needs were determined.

Jackson Street Closure and Access to P. Rickman Industrial Area

The main concern with Jackson Street is associated with its access. At Holly Springs Parkway, the intersection angle creates a potential safety hazard for vehicles turning from Jackson Street as well as vehicles on Holly Springs Parkway approaching the intersection. While the analysis of crashes did not indicate any overall patterns that could be mitigated, the intersection remains a challenge for Holly Springs. Likewise, Jackson Street's connection to Hickory Road, immediately to the west of the GNRR crossing creates additional safety and congestion issues. While there have been some thoughts to modify Jackson Street to be a northbound one-way street, there will be limitations using this approach in providing access to the P. Rickman Industrial area. In keeping with the City's long term goals to enhance the downtown area, the best option is likely to close the access from Holly Springs Parkway and Hickory Street to Jackson Street and replace access to the P. Rickman Industrial area through a new connection directly to Holly Springs Parkway.

Limit Conflict Points On Hickory Street Corridor

Along Hickory Street, the numerous conflict points in the short distance between Palm Street and Holly Springs Parkway needs to be reduced. Closing the access to Jackson Street will reduce some of these conflicts, but

treatment is needed for the Palm Street intersection as well. The current stop control on the westbound approach at this intersection causes both congestion and confusion to drivers regarding vehicular right of way due to the free flow control on the eastbound Hickory Street approach.

The intersection's adjacency to the GNRR crossing also creates challenges. While previous ideas have included signalizing the intersection and tying the phasing to the Holly Springs Parkway intersection there are numerous challenges to this strategy.

- First, the peak hour volumes at the intersection and crash history at the intersection would not likely warrant a signal.
- Second, if such a strategy were implemented, a complicated phasing would need to be utilized to coordinate all the movements between Holly Street, Hickory Street, Holly Springs Parkway, and Palm Street. This phasing would likely create more congestion through the area and would need to be similar to the set up previously used along Holly Springs Parkway to coordinate the separate intersections at Holly Street and Hickory Street.

Therefore, the best option is to limit access to Palm Street at its current location and supplement this access by an extension of Palm Street further to the east along Hickory Street in order to remove the major turning movements from its immediate adjacency to the GNRR crossing and Holly Springs Parkway intersection. As an additional value, this new intersection could act as a gateway into the new town center and tie into whatever transportation network is eventually developed internal to that site.

III – IDENTIFICATION OF FUTURE NEEDS

To identify future needs of the town center area, it was necessary to define what may affect transportation conditions in the future. The following section addresses the analyses and methods used to address future condition and establish future transportation needs.

3.1 Regional Transportation Growth

To develop regional transportation growth, there are two generally accepted methods. As population and employment growth rates cannot be correlated directly to transportation growth, travel demand models are often used to translate expectations in future development to traffic growth. Likewise, analysis of historical traffic volumes can often suggest statistically valid patterns in growth that can be extrapolated to estimate future conditions.

3.1.1 Travel Demand Model Based Growth

Travel demand models are useful tools to correlate population and employment growth into transportation demand. In the Atlanta region, ARC develops and maintains a travel demand model for a variety of uses including developing long range transportation plans and determine air quality conformity. **Table 3.1** summarizes both actual count data and model projected data in existing conditions, indicating that the model is generally reasonable in predicting traffic volumes in the Holly Springs area.

Table 3.1
Travel Demand Model and Existing Counts

Data	Holly Springs Parkway, north of Hickory Street	Hickory Street, east of Town Center
2005 GDOT Count	12,410	N/A
2005 Travel Demand Model	10,760	10,380
2010 Project Count	11,900	10,900
2010 Travel Demand Model	11,430	12,540

Establishing that the model's predicative capabilities in Holly Springs are strong, future year travel demand model output for the year 2030 was compared to the 2005 and 2010 counts as shown in **Table 3.2**.

Table 3.2
Travel Demand Model Growth

Data	Holly Springs Parkway, north of Hickory Street	Hickory Street, east of Town Center
2005 Travel Demand Model	10,760	10,380
2010 Travel Demand Model	11,430	12,540
2030 Travel Demand Model	19,240	24,490(1)
2010 – 2030 Annual Growth Rate	3.4%	4.8%

(1) Model projection includes volumes on Industrial Connector which is included as a future east-west alternative to Hickory Road in the 2030 model

The model indicates very aggressive annual growth rates of 3.4 percent on Holly Springs Parkway and 4.8 percent on Hickory Street. While these rates are generally high, they are based on the general assumption that Holly Springs (as well as Cherokee County and the northern suburbs of Atlanta) will continue to aggressively grow despite the current economic downturn.

3.1.2 Historical Traffic Trends Based Growth

Georgia Department of Transportation (GDOT) historical traffic counts were analyzed in the Holly Springs area. Only one location (Count Station #0016) is located in the immediate vicinity of the town center area on Holly Springs Parkway, north of Hickory Street. Using a trend analysis of this historical data, an R^2 (a value representing the statistical strength of the trend where 75 percent or better is typically considered strong) and annual growth rate was determined, as shown in **Table 3.3.**

Table 3.3
Historical Traffic Trend Analysis

Data	Holly Springs Parkway, north of Hickory Street
2005 GDOT Count	12,410
2006 GDOT Count	12,610
2007 GDOT Count	11,990
2008 GDOT Count	11,690
2009 GDOT Count	11,710
R^2	79.2%
Growth Rate	-1.97%

Despite a strong statistical correlation, the traffic trend analysis indicates a declining growth rate, which while realistic in recent years during the economic downturn would not be reasonable to sustain over a long period of time moving into the future.

As a result of the declining growth rate indicated by using the historical traffic trend analysis, the model growth rates shown in **Table 3.2** are most appropriate for forecasting future conditions.

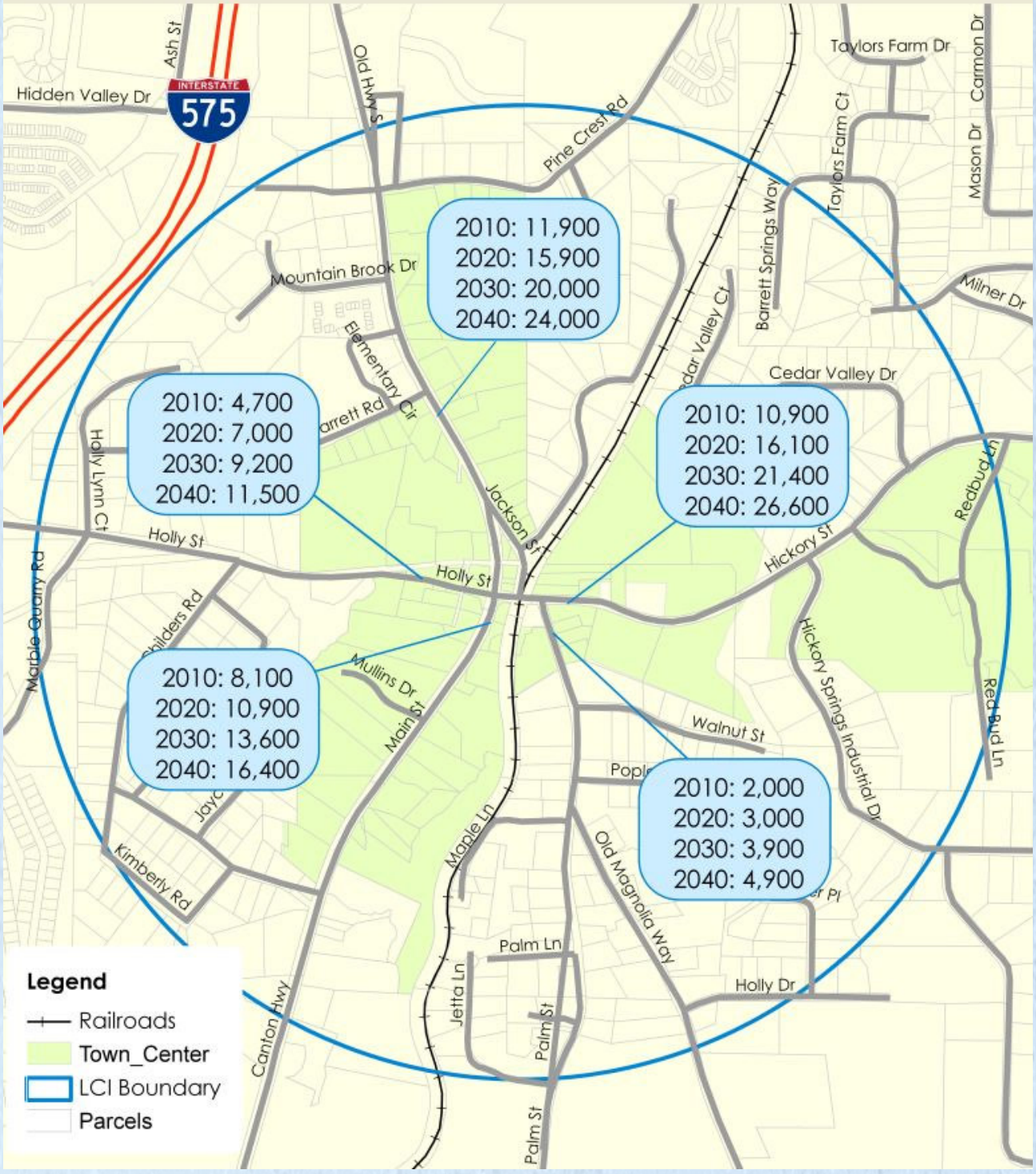
3.1.3 Traffic Forecast and Planning Analysis

To develop a planning level analysis of long term future conditions, the model based growth rates were projected to a variety of future years to estimate daily traffic on the major area transportation facilities. For Holly and Palm Streets, the growth rate determined for Hickory Street was utilized. The results are shown in **Table 3.4** and **Figure 3.1**.

Table 3.4
Daily Traffic Forecast

Data	Holly Springs Parkway, north of Hickory Street	Holly Springs, Parkway south of Hickory Street	Hickory Street, east of Town Center	Holly Street, west of Holly Springs Parkway	Palm Street, south of Hickory Street
2010 Traffic	11,900	8,100	10,900	4,700	2,000
2020 Traffic	15,900	10,900	16,100	7,000	3,000
2030 Traffic	20,000	13,600	21,400	9,200	3,900
2040 Traffic	24,000	16,400	26,600	11,500	4,900

FIGURE 3.1
Projected Daily Traffic Volumes



These forecasted volumes were then compared to generalized LOS thresholds developed by the Georgia Regional Transportation Authority (GRTA). These thresholds represent generalized conditions in which additional through lanes would be required to avoid a LOS of F. As shown in **Table 3.5**, if these growth rates were to sustain themselves, it is likely that widening to four lanes would be necessary to accommodate future traffic demand on Holly Springs Parkway as early as 2030 and as early as 2020 on Hickory Street.

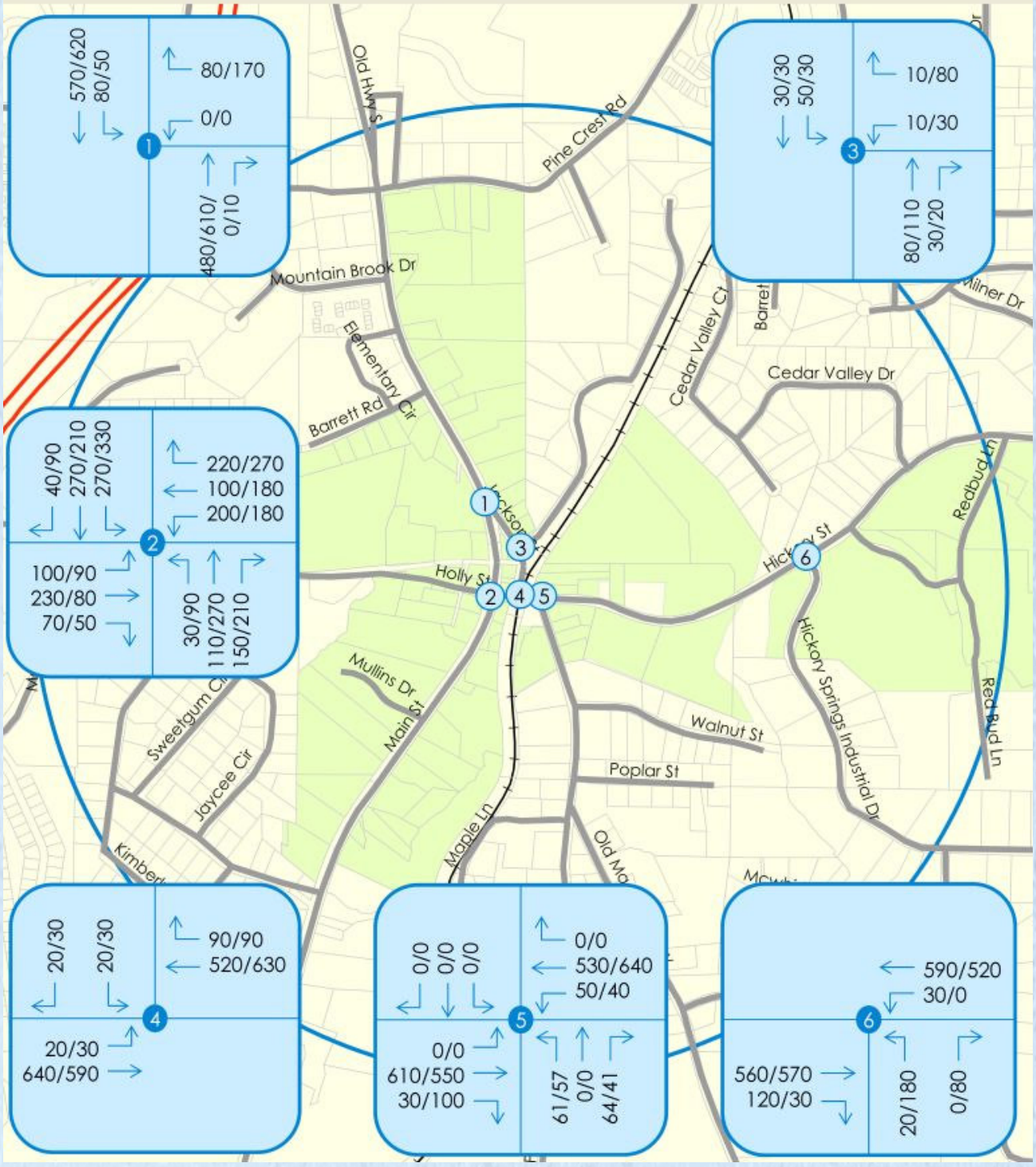
Table 3.5
Planning Analysis of Number of Lanes Needed

Data	Holly Springs Parkway, north of Hickory Street	Holly Springs, Parkway south of Hickory Street	Hickory Street, east of Town Center	Holly Street, west of Holly Springs Parkway	Palm Street, south of Hickory Street
LOS F threshold (1)	16,000	16,000	16,000	16,000	16,000
2010 Lanes Needed	2	2	2	2	2
2020 Lanes Needed	2	2	4	2	2
2030 Lanes Needed	4	2	4	2	2
2040 Lanes Needed	4	4	4	2	2

(1) Source: GRTA DRI Technical Guidelines. Threshold based on non-state major city and county roadways.

In addition, the growth rates were applied to the 2010 AM/PM peak hour volumes shown previously on **Figure 2.4** to develop AM and PM peak hour volumes for the year 2020. This year was chosen for the detailed peak hour forecast in order to isolate any issues indicated by the analysis associated more with the long term lane needs throughout the corridor and instead focus on the detailed intersection and operational issues that can be anticipated. The resulting volumes are shown in **Figure 3.2**.

FIGURE 3.2
2020 Projected AM/PM Peak Hour Volumes



3.2 Analysis of Future Conditions

As with the analysis to determine existing peak hour LOS, an analysis of 2020 conditions was conducted using Synchro 7.0. The was conducted using the existing number of lanes and intersections (i.e. no extension of Palm Street, Jackson Street remaining open) in order to prepare an assessment of the future. The LOS results are indicated in **Table 3.6,** with the correlated average delays indicated in **Table 3.7**. Raw output from Synchro is included in **Appendix B**.

Table 3.6
2020 Level of Service

Intersection	AM	PM
Holly Springs Parkway @ Hickory Street	D	F
Holly Springs Parkway @ Jackson Street *Jackson Street Stop Approach*	C	C
Jackson Street @ P. Rickman Industrial *P. Rickman Stop Approach*	B	B
Hickory Street @ Jackson Street *Jackson Street Stop Approach*	D	E
Hickory Street @ Palm Street *Hickory Street Stop Approach* *Palm Street Stop Approach*	N/A N/A	N/A N/A
Hickory Street @ Hickory Springs Industrial *Hickory Springs Industrial Stop Approach*	E	F

N/A = intersection configuration not allowed in HCM analysis

Table 3.7
2020 Average Control Delay (sec/veh)

Intersection	AM	PM
Holly Springs Parkway @ Hickory Street	47.2	149.6
Holly Springs Parkway @ Jackson Street *Jackson Street Stop Approach*	15.2	20.0
Jackson Street @ P. Rickman Industrial *P. Rickman Stop Approach*	10.2	11.2
Hickory Street @ Jackson Street *Jackson Street Stop Approach*	29.4	39.3
Hickory Street @ Palm Street *Hickory Street Stop Approach* *Palm Street Stop Approach*	N/A N/A	N/A N/A
Hickory Street @ Hickory Springs Industrial *Hickory Springs Industrial Stop Approach*	43.8	363.6

N/A = intersection configuration not allowed in HCM analysis

The results indicate a general worsening of traffic conditions with several instances of LOS E or F. However, at the unsignalized intersections the LOS E and F results appear to be due mostly to the previously mentioned limitation in the analysis assuming uniform gaps in traffic. However, the congestion predicted at the signalized intersection of Holly Springs Parkway and Hickory Street does appear to be reasonably estimated due to the combination of the split phase operation (eastbound and westbound being permitted in separate phases) of the signal a particularly high southbound left turning movement that would typically require dual turn lanes. Without a downstream widening of Hickory Street (which would be challenging due to the proximity of the GNRR crossing and the railroad depot), such an improvement could not be installed. This LOS result underscores the long term need to widen Hickory Street and/or provide an alternative east-west movement around the town center area (i.e. the "industrial connector).

3.3 Town Center Considerations

The aggressive growth rates and the manner in which they were developed (using the travel demand model) would typically indicate that general traffic growth anticipated with the town center is already incorporated into the traffic forecast. Likewise, as the town center concept evolves and specific site plans and development expectations are made for the site, the site's developer may be required to perform a detailed traffic analysis to determine the specific short-term impacts of the site. To avoid speculation of what will eventually occur at the site, such an analysis is not replicated for this study. However, by the use of the aggressive growth rates throughout the study area, the general impacts likely to be associated with the town center are incorporated into planning the transportation needs of the major roadways surrounding the town center.

However, there are some general site and access needs that are relevant regardless of the outcome of development in the town center. As developed in the previous planning efforts relating to the town center, there are a variety of considerations that should be undertaken in developing the site.

Among the most important considerations is the use of a 'grid' network of roadways internal to the town center. While such a grid would be relatively small, it will allow for transportation opportunities within the town center – in particular, such a system will minimize the possibility of traffic having to utilize Hickory Street to travel from one side of the town center to another.

Vehicular access to the site may also include a variety of options. The Palm Street extension suggested in Section 2.4 is a logical tie-in location for the main vehicular access to the town center. Depending on the traffic generated specifically by the site, a four way intersection with Hickory Street to the east and west, Palm Street to the south, and the town center to the north may require a traffic signal or roundabout treatment. While a traffic signal would be the typical choice for such an intersection, the roundabout (despite some initial unease in the community) may be a more effective

option in addressing traffic congestion and could act as a gateway in the town center. Additional vehicular access into the town center from Hickory Street should be considered carefully. While several additional access points from Hickory Street would reinforce an on-site 'grid' network, a series of several closely spaced intersections could create safety and congestion issues along Hickory Street. In short, the goal should be to seek a balance between accessibility to the site and maintaining safe and efficient traffic flow on Hickory Street.

A particular location to not provide vehicular access to the town center that has been included in several previous conceptions of the town center is directly across from Palm Street at Brackett Plaza. While vehicular access will likely need to be retained to the Signature Walk at Brackett Plaza and existing business, providing full access to the town center would undo any benefit derived from limiting access to Palm Street at its current location adjacent to the GNRR crossing.

Additionally, providing multimodal access to the town center may be critical to its success. As envisioned by the community, the town center will include a variety of different land uses utilizing urban design principles that promote walking and biking within in addition to the possible use of recreational space on the site. By providing walking and biking options to the site that can connect to surrounding areas of Holly Springs, the site's viability and relationship to the larger community can be reinforced. Additionally, this can encourage Holly Springs residents to not use their vehicles to access the town center, which cumulatively can help with traffic congestion concerns. Likewise, if the town center ends up hosting events such as concerts, outdoor movies, and festivals (like several other Atlanta region town centers), providing means for local residents to access the town center without having to use their vehicle will certainly reduce congestion associated with such events in addition to limiting the parking capacity needed in the town center area.

3.4 Future Transportation Needs

Future transportation needs in the study area include both mid-term and long-term needs. Mid-term needs are those that will directly impact the town center's site planning and access as documented in **Section 3.3**. These include:

- Developing an on-site "grid" network
- Providing multi-modal transportation access to the site
- Providing vehicular access to the site

Long term transportation needs in the study area will likely include addressing general traffic growth in the town center area. Analysis indicates that should traffic grow aggressively in the future, there will likely be a need to widen both Holly Springs Parkway and Hickory Street from two to four lanes. Likewise, the ongoing need for the 'industrial connector' will be significantly stronger should Hickory Street traffic grow as projected. In fact, the current at-grade crossing on Hickory Street at the GNRR will likely continue to be a challenge even if some of the existing needs are addressed. If Hickory Street does need to be widened in the future, a grade-separated 'industrial connector' that would act as an extension of Hickory Street could be considered as a phase of that overall project. Additionally, the intersection of Holly Springs Parkway and Hickory Street is anticipated to operate under increasingly congested conditions which may be mitigated by some combination of widening Hickory Street and/or constructing the "Industrial Connector".

IV - STAKEHOLDER ENGAGEMENT

To gain a better understanding of the day to day transportation issues in Holly Springs and to vet recommendations, a stakeholder group was developed by the City of Holly Springs. The stakeholder engagement effort included two stakeholder meetings and one-on-one interviews with select stakeholders. While meeting and interview notes are included in **Appendix D**, the following is a summary of the effort. Please note that the names of stakeholders spoken to in the stakeholder interviews and meetings are not included in order to protect any desired anonymity of their comments.

4.1 Stakeholder Meetings

Stakeholder meetings were held in the evenings on two occasions: Thursday, February 17, 2011 and Thursday, March 31, 2011. Each stakeholder meeting included a short presentation summarizing the context, goals, and methods used for the study. However, the majority of meeting time was dedicated to a group dialogue about the transportation issues in Holly Springs.

Stakeholder Meeting # 1

At the time of the first stakeholder meeting, the existing needs analysis had been conducted and the future needs analysis had begun. Therefore the discussion focused on both existing and future needs as well as tentative solutions. In general, the stakeholder group reinforced the ideas developed by the concept team to address Jackson Street and Hickory Street issues. Likewise, a long discussion of 'industrial connector' and its relationship to the town center was discussed. The general consensus was that while the 'industrial connector' is needed, challenges in its implementation would likely require the project to be incorporated into the later phases of the plan. Additional discussion focused on multimodal transportation improvements and their appropriateness in Holly Springs. Their direct correlation to developing the town center was reinforced but there were some concerns within the group about the overall appropriateness of implementing multimodal facilities throughout the community.

Stakeholder Meeting # 2

At the second meeting, the majority of project work had been completed (including the stakeholder interviews documented in **Section 4.2**) and the discussion focused mostly on preliminary recommendations. As part of the discussion, the group generally agreed that the best short term projects to pursue would be the Jackson Street closure/P. Rickman Industrial access and Palm Street extension. Additional discussion focused again on the long term need to implement the industrial connector as well as the long term needs for Holly Springs Parkway and Hickory Street.

Additional discussion focused on the town center itself and establishing and confirming the goals of the community. There was some stakeholder concern due to the current economic condition and how it could affect the eventual use of the site.

4.2 Stakeholder Interviews

One-on-one stakeholder interviews were conducted beginning the week of March 14, 2011 and included a set of pre-developed questions that were sent to each interviewee prior to the interview. The questions were:

1) Which of the proposed projects would best serve as a catalyst for development?

2) Which of the proposed projects is critical to development of the Town Center?

3) What barriers to project implementation are anticipated?

4) How do these projects rank within other community priorities?

5) To reach as broad an audience as possible, who should be involved in the study that could otherwise be overlooked?

6) Who may be opposed to the project(s) and why?

7) What would you like to see as an outcome of the Holly Springs Town Center Transportation Study?

8) What other transportation projects should be considered?

The interviews were conducted by telephone at the stakeholders' convenience and were used to supplement the stakeholder meetings. In general, the stakeholders were supportive of the study team's ideas with many ranking either the Palm Street extension or 'industrial connector' as the largest priority. Some concern was expressed regarding the vision for the town center site, which was subsequently clarified at the second stakeholder meeting.

V - RECOMMENDATIONS

As suggested throughout the report, the recommendations were developed with a combination of professional observations (site visits), technical analysis, and stakeholder engagement. The transportation needs were developed into projects and vetted for general feasibility in addition to any stakeholder concerns.

5.1 Project Recommendation Timeframe

Table 5.1 summarizes each project and a relative timeframe for implementation given the technical assessment, relative ease of implementation, and stakeholder concerns. The projects are also depicted on **Figure 5.1**. The table and figure are followed by a summary of each project recommendation.

Table 5.1
Project Recommendations and Implementation Timeframe

Project ID	Project Title	Description	Implementation Timeframe		
			Short-Term	Mid-Term	Long-Term
1	Palm Street Extension	• Limit access to Palm Street at Hickory Street through either a right-in/right-out modification or elimination of access altogether • Replace existing full access to Palm Street by extending Palm Street eastward (away from the GNRR crossing) to a new intersection on Hickory Street	●		
2	Jackson Street Closure and P. Rickman Industrial Access	• Close access to Jackson Street from Holly Springs Parkway and Hickory Street • Replace existing access with a new roadway connection from P. Rickman Industrial to Holly Springs Parkway • Coordinate with potential other phases of project including Industrial Connector (project #6) and Hickory Street Corridor widening (project #9)	●		
3	Town Center Grid Network	• As town center develops, utilize an internal grid network of roadways		●	
4 / CH-218	Town Center Multimodal Improvements	• Develop multimodal access to the town center • Coordinate as appropriate with previously planned ARC project CH-218 and Trail Masterplan recommendations		●	
5	Town Center Access Improvements	• Provide vehicular access to the town center at select locations along Hickory Street • Position new intersection with Palm Street extension as the major entrance into the town center		●	
6 / CH-215	Industrial Connector	• Provide a new grade-separation over the GNRR in order to alleviate Hickory Street • Coordinate with potential other phases of project include P. Rickman Industrial access (project #2) and Hickory Street Corridor widening (project #7)			●
7	Hickory Street Corridor Widening	• Widen Hickory Street from Holly Springs to Hickory Flat • Coordinate with potential other phases of project include P. Rickman Industrial access (project #2) and Industrial Connector (project #6)			●
8	Holly Springs Parkway Widening	• Widen Holly Springs Parkway from current four lane section south of I-575 to Hickory Street/Industrial Connector or current four lane section north of Sixes Road			●
9	P. Rickman Industrial – Pinecrest Connections	• Develop a grid network in the area bounded by Holly Springs Parkway to the west, P. Rickman Industrial to the east and south, and Pinecrest Road to the north			●

FIGURE 5.1
Recommended Projects

This map is for planning purposes only. The transportation projects are conceptual in nature and are not intended to indicate exact alignments or locations.

V - RECOMMENDATIONS

Project # 1
Palm Street extension

The Palm Street extension project would realign Palm Street south of Hickory Street so that it intersects Hickory Street east of the fire station (and away from the GNRR crossing and Holly Springs Parkway). The roadway would include one lane in each direction and sidewalks on both sides of the street. Initially, traffic control on Hickory Street could most likely under a free-flow condition in both directions with a stop control on Palm Street approaching northbound. However, at some point in the future signalization could be necessary especially if this new intersection would serve as the main vehicular access into the town center (see Project #5). The existing part of Palm Street that currently intersects Hickory Street immediately east of the GNRR crossing would subsequently be modified to discourage through traffic. A variety of different strategies could be used including:

- Traffic calming
- Modifying the current intersection to a right-in/right-out use only
- Closing direct access to Hickory Street

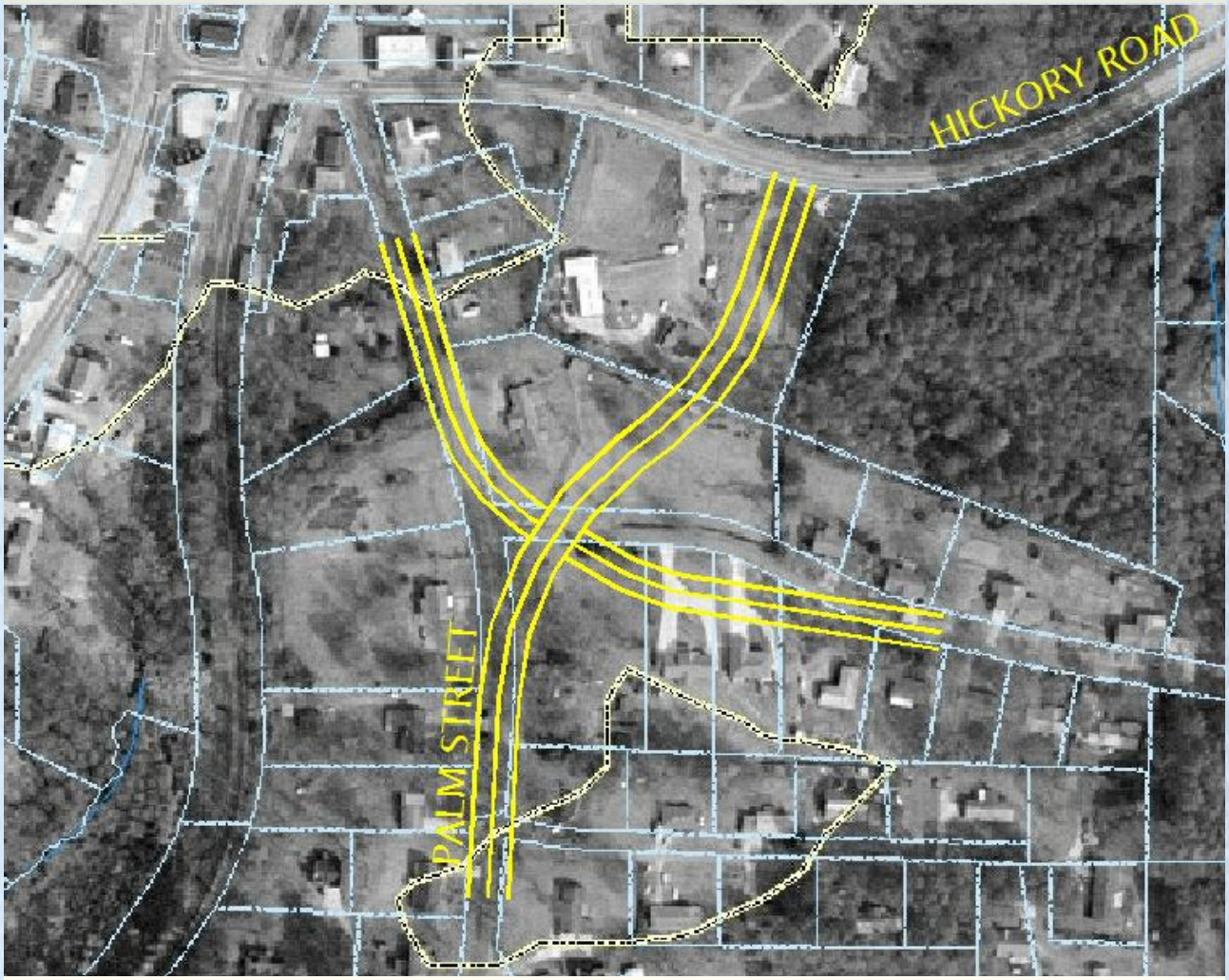
Due to the intended short-term nature of this project, a preliminary concept drawing was developed to gauge the feasibility of implementing the project. This drawing took into account the effect of speed on the roadway curvature, site distances at the intersections, and attempted to minimize right-of-way acquisition. **Figure 5.2** depicts the preliminary concept drawing and typical section.

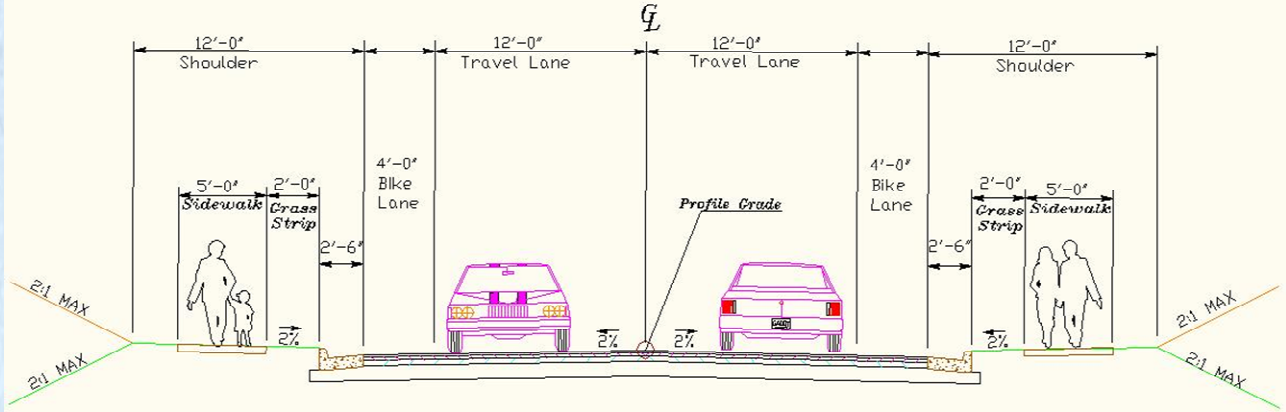
Project #2
Jackson Street Closure and P. Rickman Industrial Access

The Jackson Street closure would remove access to and from Jackson Street from both Holly Springs Parkway and Hickory Street. Initially, Jackson Street could remain open in between these intersections (with cul-de-sac treatments at the closed intersections) in order to retain access to existing businesses and residences but could eventually be closed altogether as the town center develops and properties are potentially redeveloped (as shown in the August 2008 charette drawings). In order to maintain access to P. Rickman Industrial Drive, the Jackson Street closure would occur in coordination with the construction of a new two lane roadway providing a direct connection from Holly Springs Parkway to P. Rickman Industrial Drive. This project could potentially be considered a western phase of the Industrial Connector (Project #6, CH-215).

Due to the intended short-term nature of this project, a preliminary concept drawing was developed to gauge the feasibility of implementing the project. This drawing took into account the effect of speed on the roadway curvature, site distances at the intersections, and attempted to minimize right-of-way acquisition. **Figure 5.3** depicts the preliminary concept drawing and typical section.

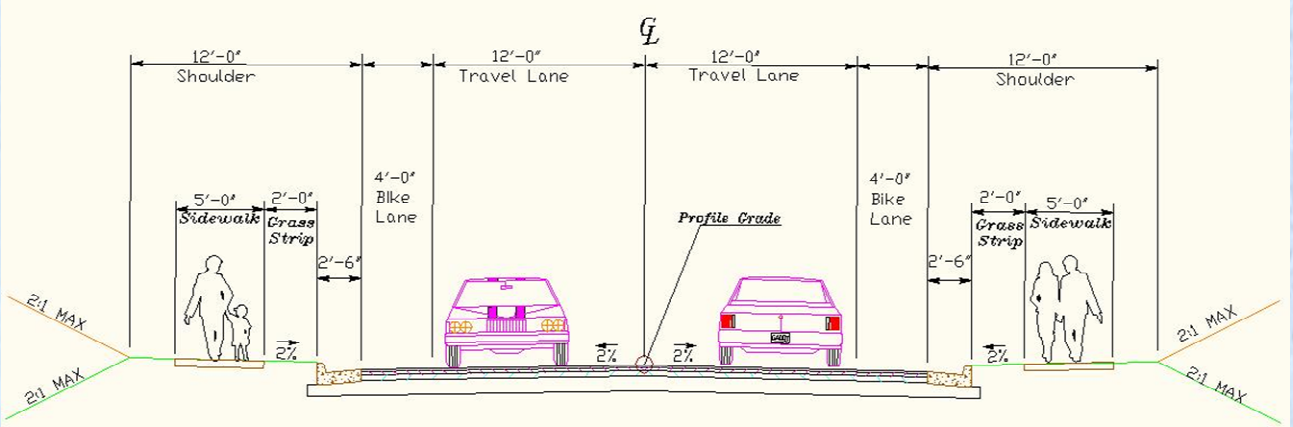
FIGURE 5.2
Palm Street Planning Concept





This map is for planning purposes only. The transportation projects are conceptual in nature and are not intended to indicate exact alignments or locations.

FIGURE 5.3
P. Rickman Industrial Access Planning Concept



This map is for planning purposes only. The transportation projects are conceptual in nature and are not intended to indicate exact alignments or locations.

V - RECOMMENDATIONS

Project #3
Town Center Grid Network

An internal town center grid network is recommended to be developed contingent with the development of the town center site. Such a network would allow for effective on-site circulation. In general, a network such as the one suggested in the August 2008 charette drawings would be appropriate.

Project #4 / CH-218
Town Center Multimodal Improvements

In order to provide a multitude of transportation opportunities to and from the town center, pedestrian and bicycle facilities should be constructed to connect the town center with the surrounding community. Several previously planned projects meet the spirit of this concept including the recommendations of the Trail Masterplan as well as ARC Project CH-218. In coordination with the town center development, an appropriate first phase could be to provide a multi-use path parallel to the Hickory and Holly Street corridors.

Project #5
Town Center Access Improvements

Vehicle access to the town center should include a limited number of intersections along Hickory Street. Having a single full access main entrance to the town center is encouraged with an appropriate location being at the newly created Palm Street extension/Hickory Street intersection (Project #1).

Project #6 / CH-215
Industrial Connector

As an ongoing planned project, the Industrial Connector should include a grade separated crossing over the GNRR connecting Hickory Street to Holly Springs Parkway in some manner along the northeastern arc of the town center. This project could potentially tie into other recommendations included here including the connection from Holly Springs Parkway to P. Rickman Industrial (Project #2) and the Hickory Street corridor widening (Project #7).

Project #7
Hickory Street Corridor Widening

A Hickory Street corridor widening from two to four lanes could be necessary at some point in the future and plans for its eventual widening to also include bicycle and pedestrian facilities should be considered. An appropriate widening location would be from the Hickory Flat area (at SR 140) to Holly Springs Parkway. Widening the roadway at the GNRR crossing and in front of the rail depot could be challenging as well as redundant to the Industrial Connector (Project #6). Therefore, a widening of Hickory Street could potentially be considered a phase of the Industrial Connector.

Project #8
Holly Springs Parkway Widening

A Holly Springs Parkway widening from two to four lanes could also be necessary at some point in the future and should be considered. This project

would widen the roadway and incorporate bicycle and pedestrian facilities from its current four lane section south of I-575 to one of two termini points: the more immediate need would extend to Hickory Street (or Project #6, the Industrial Connector should it be built as an alternative to Hickory Street) while a second phase would extend to the four lane section just north of Sixes Road.

Project #9
P. Rickman Industrial – Pinecrest Connectors

In the spirit of continuing a grid system and providing connectivity, future connections should be considered as appropriate in the area bounded by Pinecrest Road to the north, P. Rickman Industrial Drive to the east and south, and Holly Springs Parkway to the west.

5.2
Project Costs and Funding

Project costs were estimated using the ARC planning Level Cost Estimation Tool or previous costing efforts (as in the case for the previously planned ARC projects CH-215 and CH-218 that dovetail with the recommendations of this study). Assumptions were made for implementation schedule in order to incorporate inflation rates into the estimates. The raw cost estimate sheets are provided in **Appendix E**.

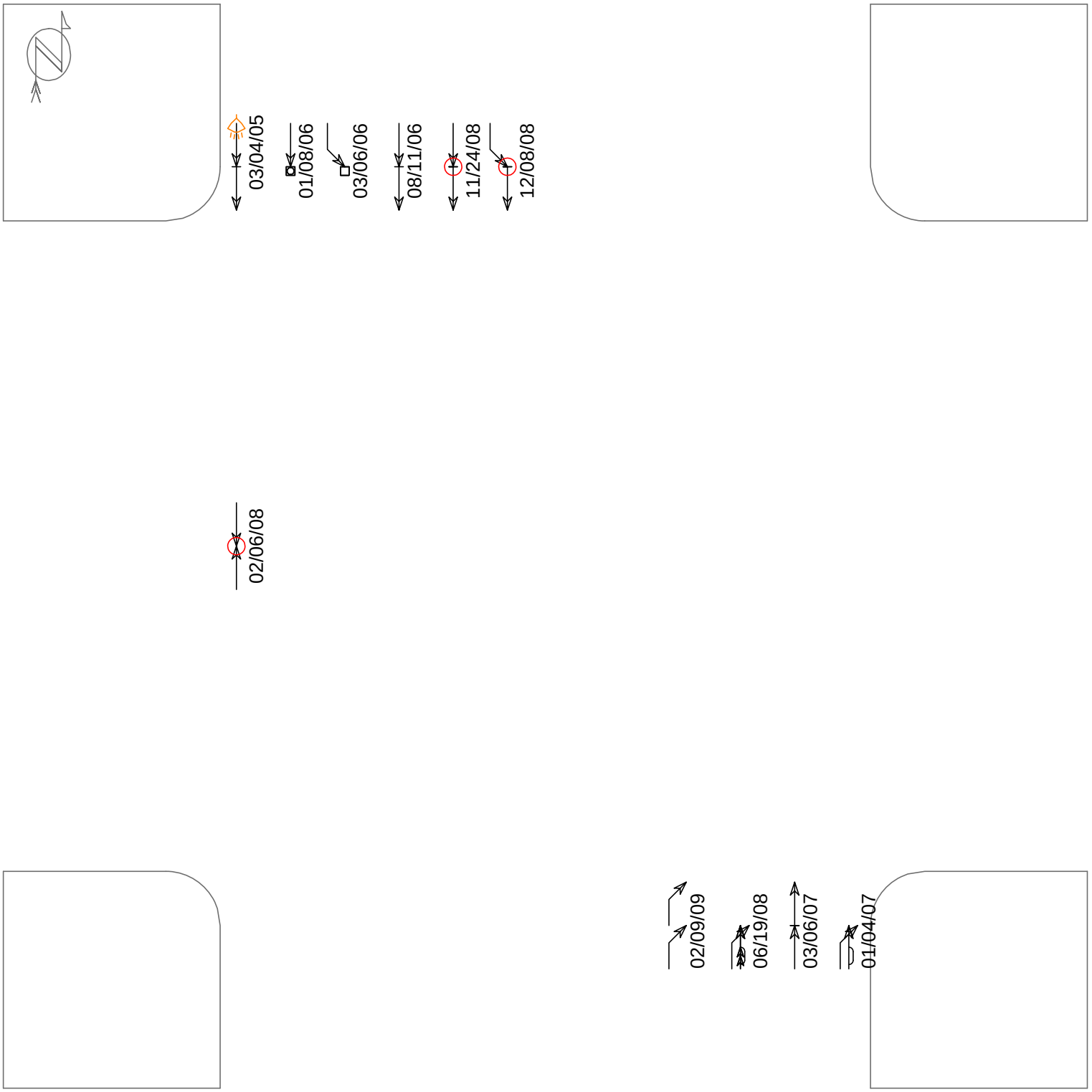
Additionally, potential funding sources were identified based on the nature of each project and the types of funding each project may subsequently be eligible to receive. The cost estimates and potential funding sources are shown in **Table 5.2**.

Table 5.2
Project Recommendation Cost and Funding

Project ID	Project Title	Implementation Timeframe			Estimated Project Costs	Potential Funding Responsibilities
		Short-Term	Mid-Term	Long-Term		
1	Palm Street Extension	●			$1,960,000	•ARC (LCI funds) •City of Holly Springs
2	Jackson Street Closure and P. Rickman Industrial Access	●			$4,115,000	•ARC (LCI funds) •City of Holly Springs
3	Town Center Grid Network		●		N/A	•City of Holly Springs •Site Developer
4 / CH-218	Town Center Multimodal Improvements		●		$648,081	•ARC (LCI funds) •City of Holly Springs •Federal/GDOT
5	Town Center Access Improvements		●		N/A	•City of Holly Springs •Site Developer
6 / CH-215	Industrial Connector			●	$8,089,200	•City of Holly Springs •Cherokee County
7	Hickory Street Corridor Widening			●	$87,694,000	•City of Holly Springs •Cherokee County •Federal/GDOT
8	Holly Springs Parkway Widening			●	$45,711,000	•City of Holly Springs •Cherokee County •Federal/GDOT
9	P. Rickman Industrial – Pinecrest Connections			●	N/A	•City of Holly Springs •Site Developer

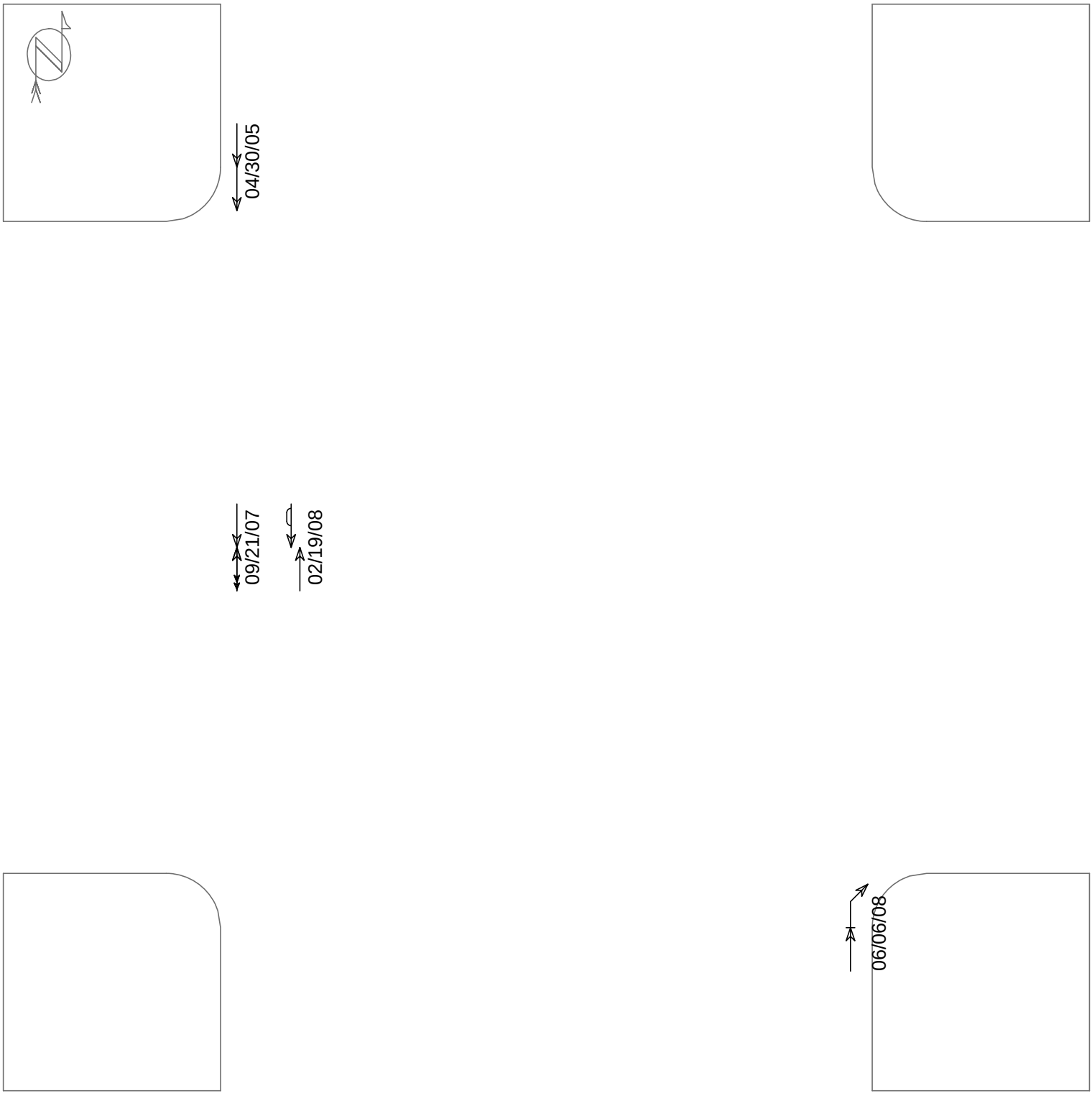
N/A = Cost of project contingent on actual development plans and therefore cannot be estimated at this time
Source: ARC Planning Level Cost Estimate Tool and ARC Envision 6 Regional Transportation Plan

APPENDIX C
Crash Analysis



(clear filter), (0) accidents with insufficient data for display

Straight	Parked	Pedestrian	Fixed objects:
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data



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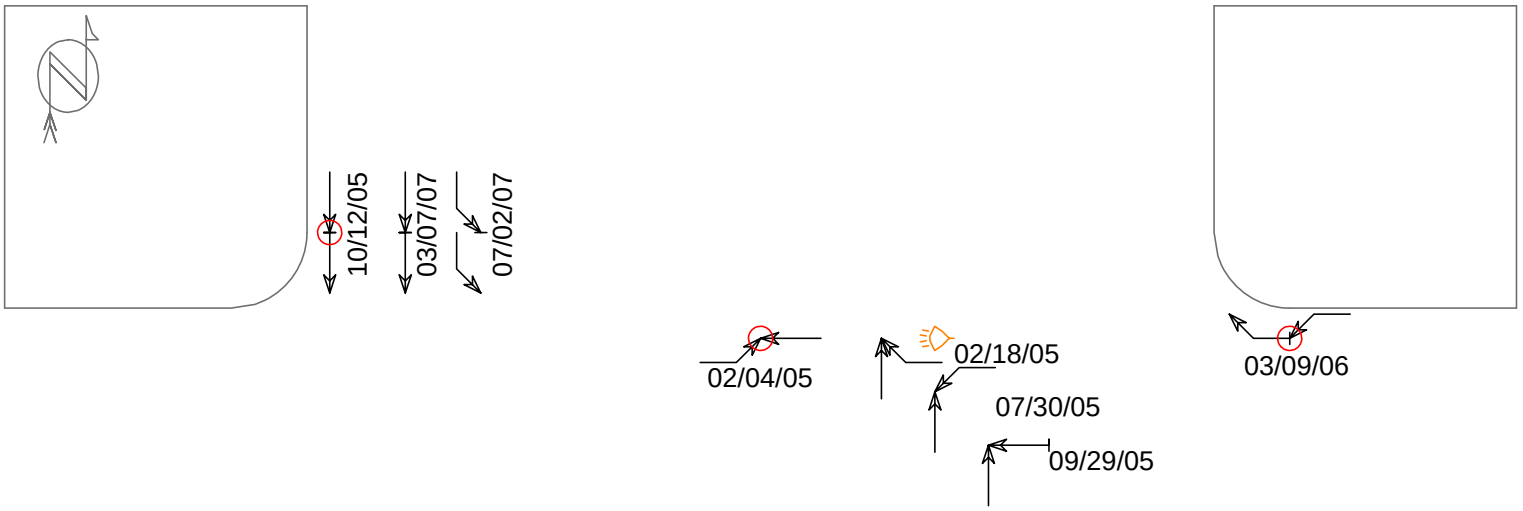
Stopped	Erratic	Bicycle	General, Pole
Unknown	Out of control	Injury	Signal, Curb
Backing	Right turn	Fatality	Tree, Animal
Overtaking	Left turn	Nighttime	3rd vehicle
Sideswipe	U-turn	DUI	Extra data



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- Backing
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- Sideswipe
- Parked
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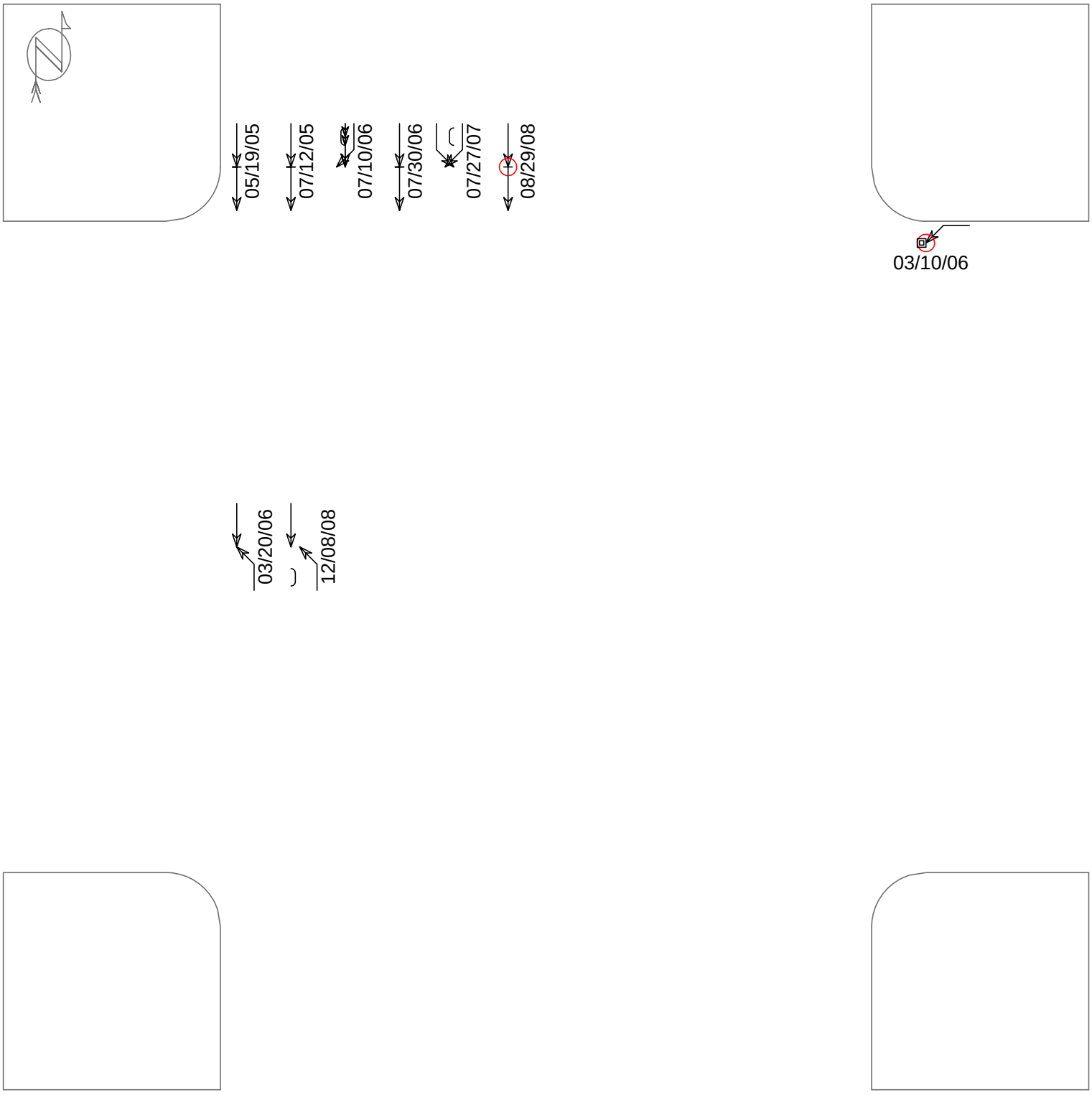
- Out of control
- Right turn
- Left turn
- U-turn
- Pedestrian
- Bicycle
- Injury
- Fatality
- Nighttime
- DUI

Fixed objects:

- General
- Signal
- Tree
- Pole
- Curb
- Animal

- 3rd vehicle
- Extra data



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- Tree
- Pole
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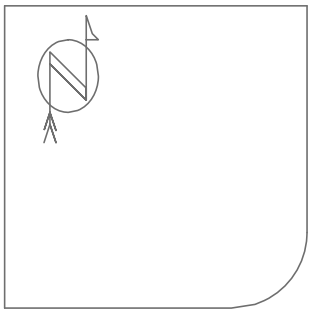
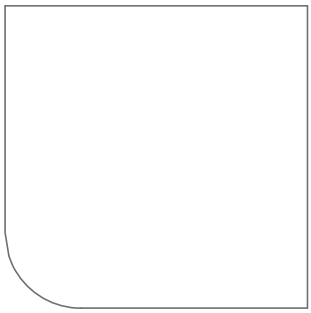
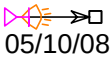
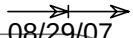
- Animal

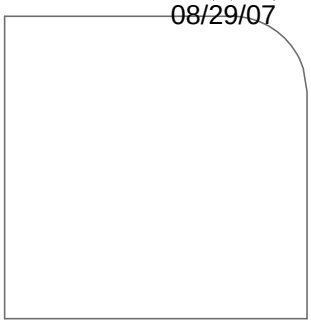
- 3rd vehicle
- Extra data

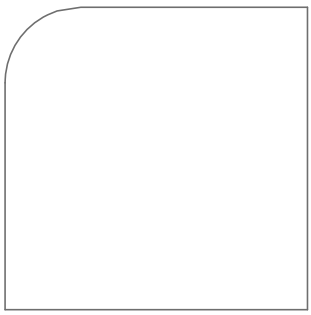












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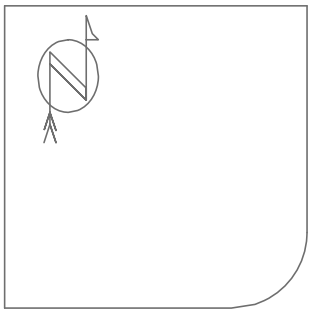

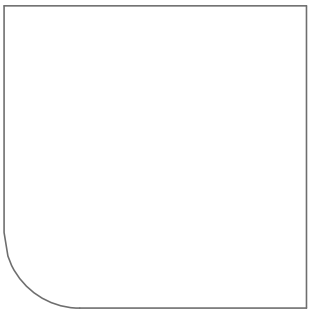

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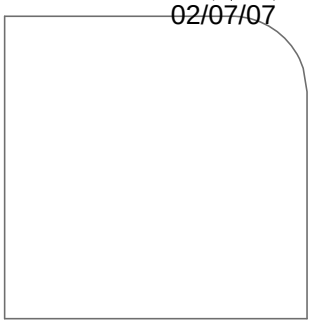

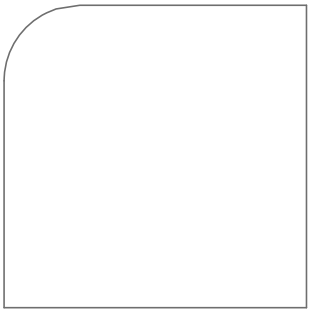

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EXHIBIT H

Downtown Holly Springs Mixed Use Market Analysis

DOWNTOWN HOLLY SPRINGS

MIXED USE MARKET ANALYSIS

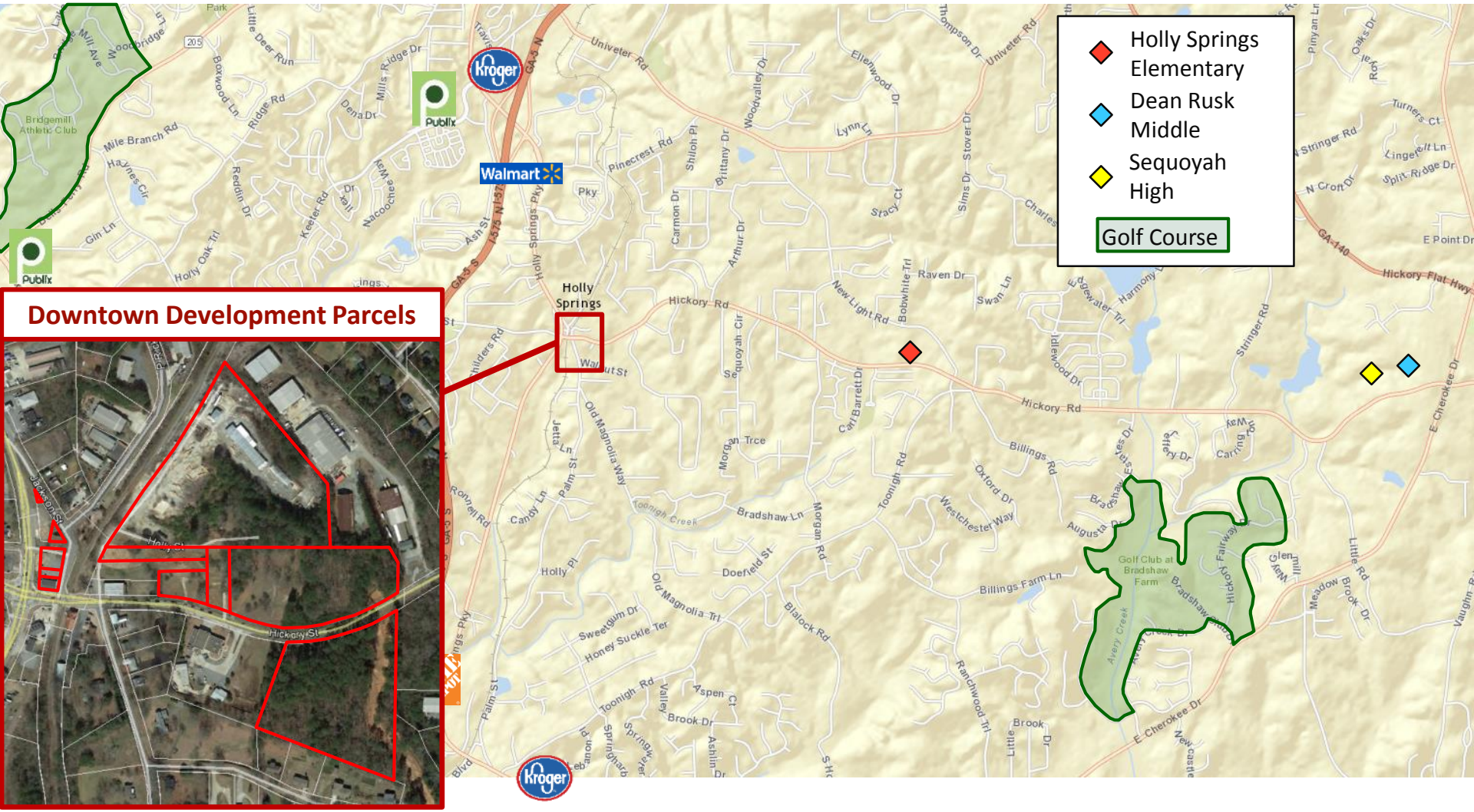
Bleakly Advisory Group

June 2015

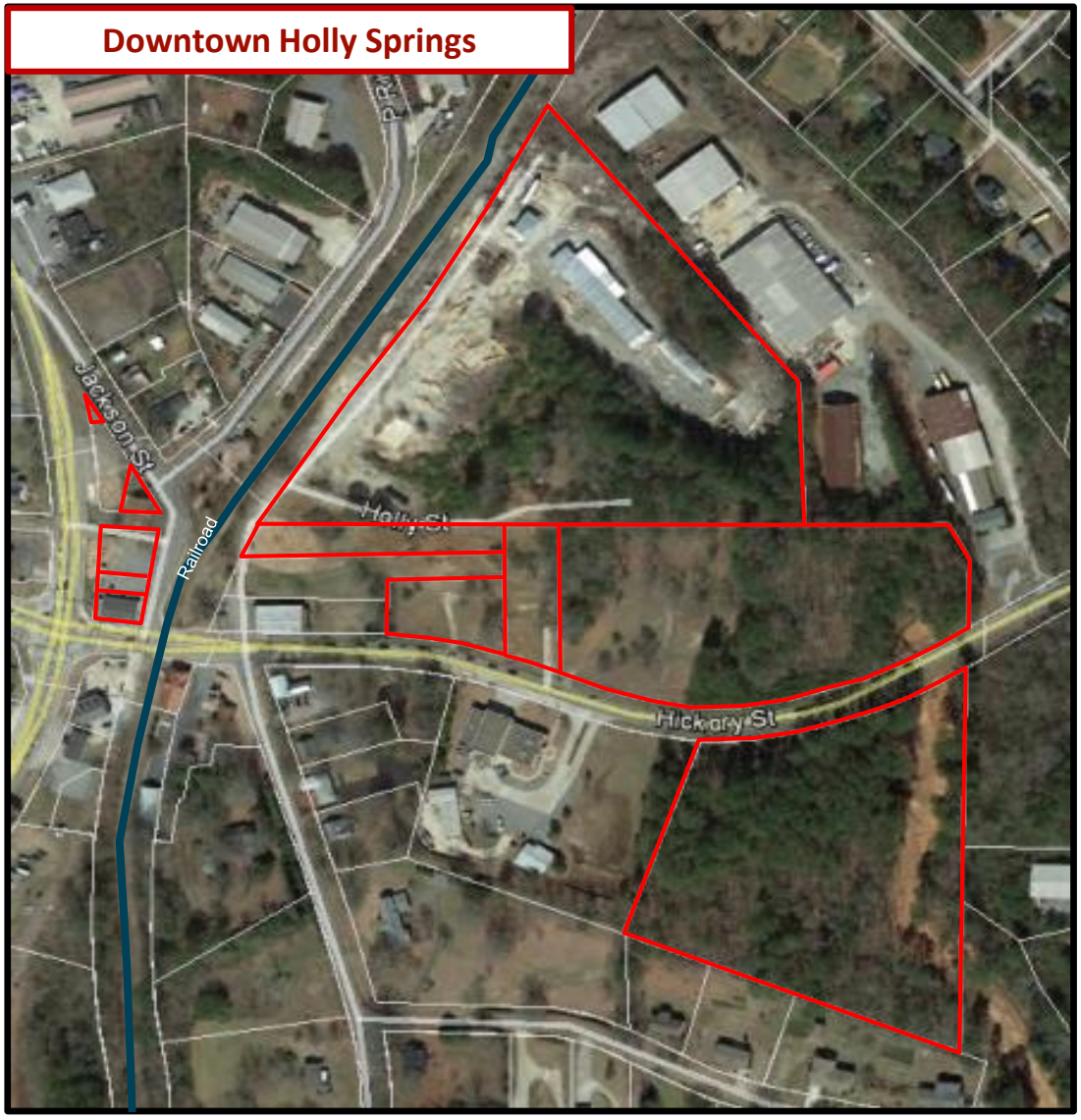
PROJECT DETAILS AND GOALS

- The City of Holly Springs is exploring the creation of a new vibrant walkable downtown that can reflect the heritage of the community while capitalizing on the growth that is occurring in Holly Springs and the surrounding area.
- The City owns many key parcels that can be developed to meet this goal.
- The City and the Macauley+Schmit development team are working jointly to get the vision for downtown Holly Springs implemented.
- The work included in this document is an independent assessment of the characteristics of the immediate market area in and around Holly Springs and a determination of which components of demand could be captured in the downtown area.

SITE CONTEXT



SITE CONTEXT



DEVELOPMENT CONCLUSIONS SUMMARY

- In creating a new town center in Holly Springs, anchored by civic amenities such as a city hall and public green space, the City can set the stage for a successful downtown that will attract new residents seeking a compact walkable living that is now in high demand, but a scarce commodity, in the Atlanta area.

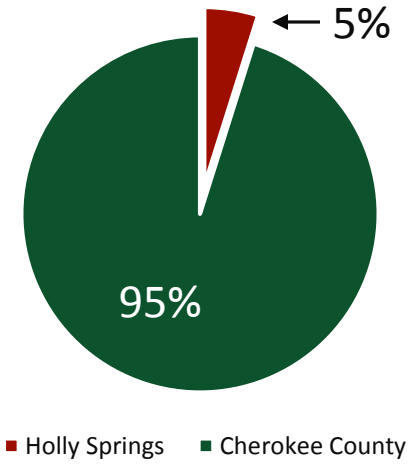
Recommendations

- Downtown Holly Springs can expect 35-40 new homes to sell annually:
  - 15+/- annual single-family sales at one price point: $450,000-$500,000
  - 15+/- annual townhome sales at two price points: $300,000-$350,000 & $400,000-$450,000
  - 7+/- annual condominium sales: $200,000-$250,000
- Potential for up to 150 new apartments and 150 senior units over a two-year lease-up period.
- Potential for up to 25,000 SF of commercial space in Downtown Holly Springs.

Demand Drivers:
Demographics

POPULATIONS AND HOUSEHOLDS

- The City of Holly Springs currently has 11,225 residents, which is 5% of Cherokee County's total population.



Population	Holly Springs	Cherokee County	Atlanta MSA
2000 Census	5,251	141,915	4,263,447
2010 Census	9,189	214,346	5,286,728
2015 Estimate	11,225	230,591	5,629,693
2020 Projection	12,196	246,435	5,962,664

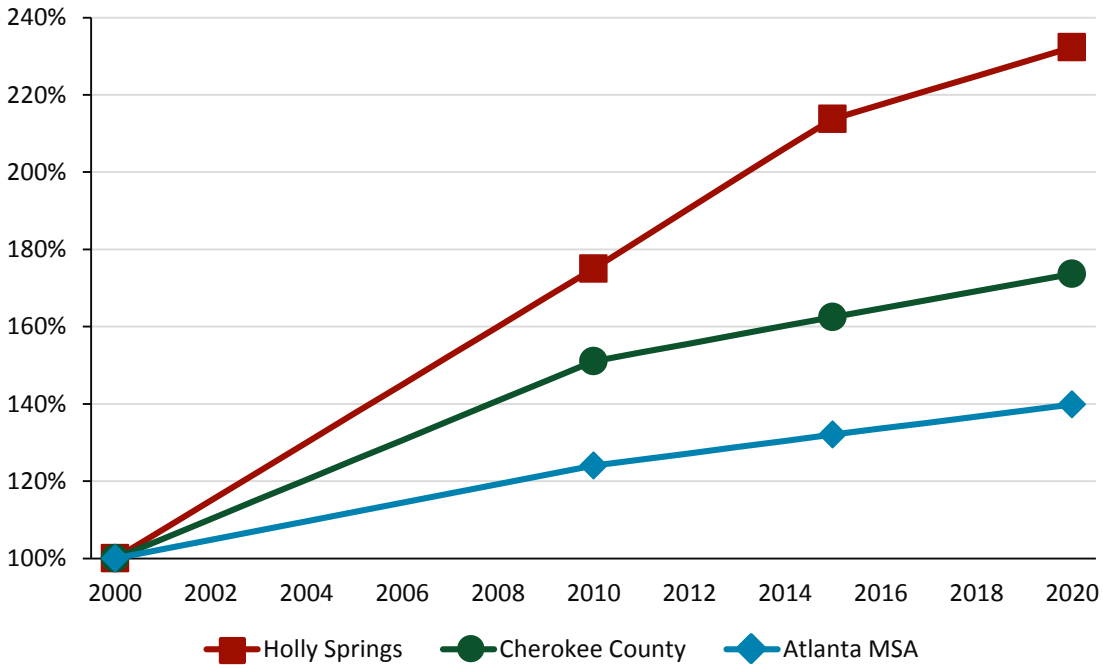
Households	Holly Springs	Cherokee County	Atlanta MSA
2000 Census	1,836	49,499	1,559,711
2010 Census	3,231	75,936	1,943,885
2015 Estimate	3,941	82,097	2,077,048
2020 Projection	4,275	87,860	2,205,230

Source: Nielsen, Inc.

POPULATION GROWTH

- The City of Holly Springs' population has grown at a faster rate than both Cherokee County and Metro Atlanta since 2000, with all having experienced robust growth.
- Holly Springs' population has more than doubled since 2000, a 114% increase, and is projected to continue growing through 2020.

Indexed Historic and Projected Population Growth

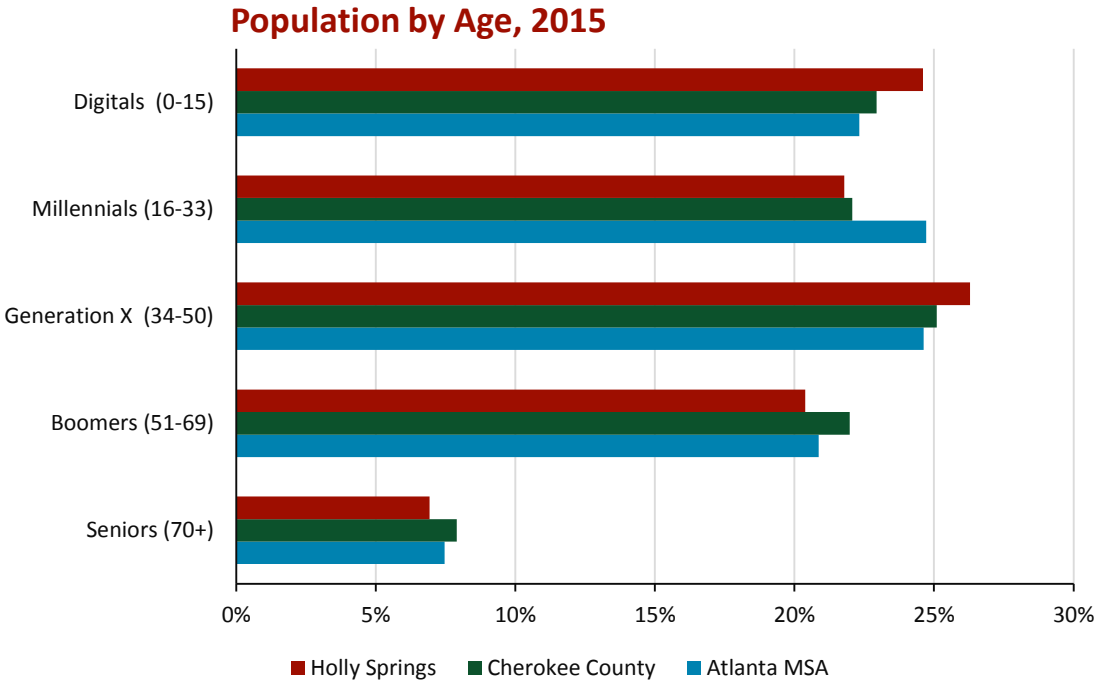


This growth index assesses growth since 2000 in relative terms. 2000 is the base year represented on the left axis at 100%.

Source: BAG, based on data from Nielsen, Inc.

AGE DISTRIBUTION

- Generation X (aged 34-50) is the largest age cohort in Holly Springs and in the county overall.
- Millennials are proportionally fewer than in the region—likely due to a lack of wide range of housing options.
- Residents of Holly Springs (average age: 36.5) tend to be slightly younger than those in Cherokee County (average age: 37.6).

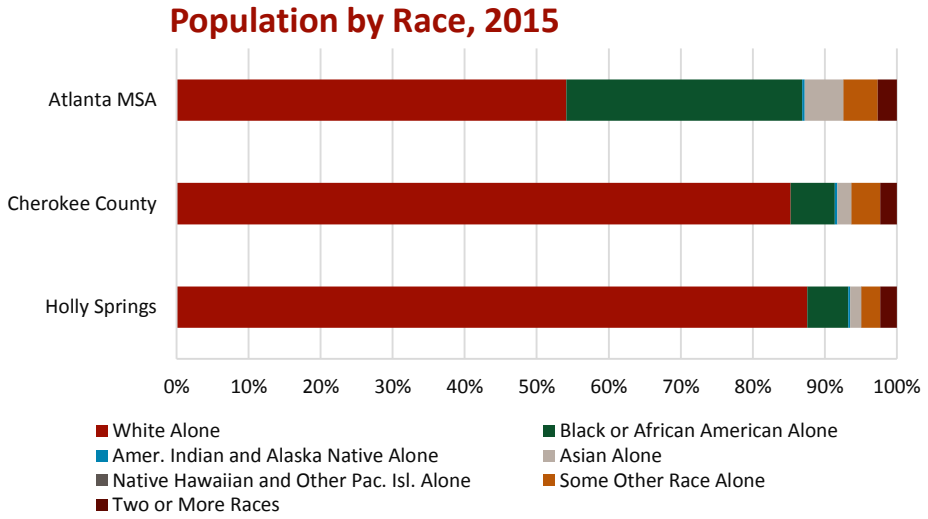


Age & Generational Cohort	Holly Springs		Cherokee County		Atlanta MSA	
Total Population	11,225		230,591		5,629,693	
Digitals (0-15)	2,762	25%	52,907	23%	1,256,490	22%
Millennials (16-33)	2,445	22%	50,901	22%	1,391,975	25%
Generation X (34-50)	2,951	26%	57,862	25%	1,386,312	25%
Boomers (51-69)	2,289	20%	50,694	22%	1,174,653	21%
Seniors (70+)	778	7%	18,230	8%	420,337	7%
2015 Est. Median Age	36.5		37.6		36.1	

Source: Nielsen, Inc.

RACE AND ETHNICITY

- The City of Holly Springs and Cherokee County are home to a greater proportion of whites than the overall region.
- The Hispanic presence in Holly Springs is less than in Cherokee County and the region.

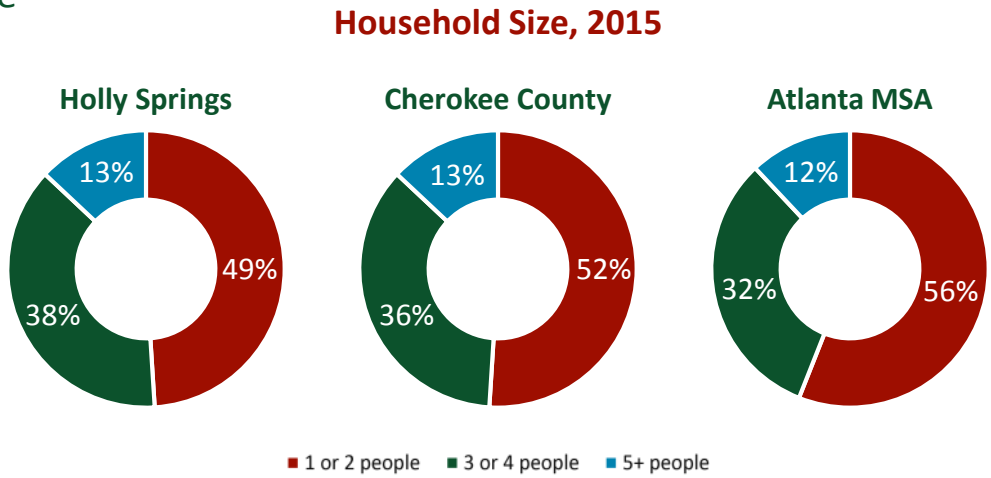


Race and Ethnicity	Holly Springs	Cherokee County	Atlanta MSA
2015 Est. Population by Single-Classification Race			
White Alone	88%	85%	54%
Black or African American Alone	6%	6%	33%
Amer. Indian and Alaska Native Alone	0%	0%	0%
Asian Alone	2%	2%	5%
Native Hawaiian and Other Pac. Isl. Alone	0%	0%	0%
Some Other Race Alone	3%	4%	5%
Two or More Races	2%	2%	3%
Hispanic or Latino			
Not Hispanic or Latino	93%	89%	89%
Hispanic or Latino:	7%	11%	11%
Language			
Speak Only English at Home	89%	86%	83%
Speak Other Language at Home	11%	14%	17%

Source: Nielsen, Inc.

HOUSEHOLD CHARACTERISTICS

- Households in Holly Springs tend to be slightly larger than those in Cherokee County or Metro Atlanta.
- Roughly half of all Holly Springs households (49%) contain one or two people compared to 52% and 56% in Cherokee and the Atlanta region respectively.
- Household with children are more common in Holly Springs (43%) than in the county (41%) or the region (38%).

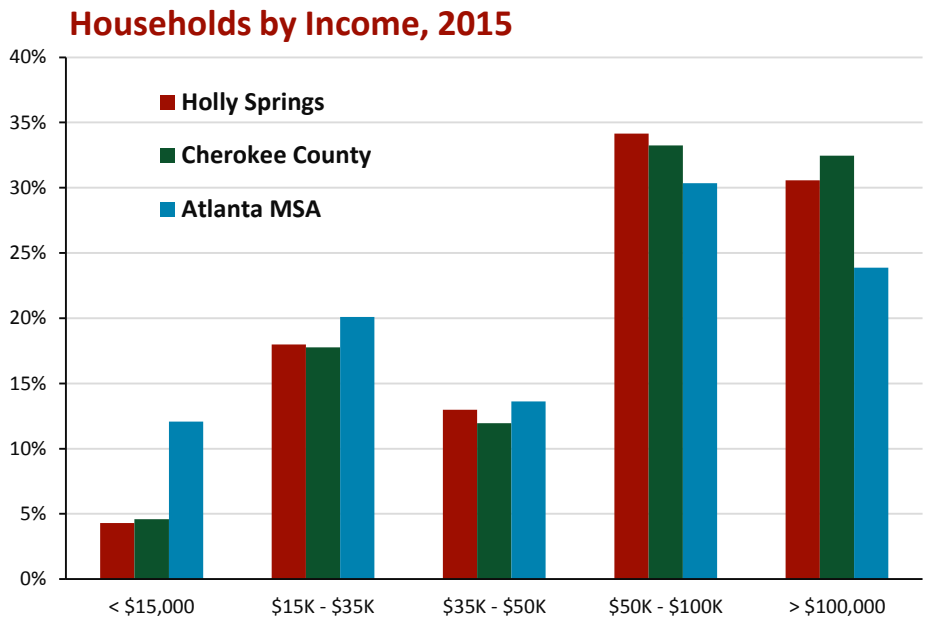


Household Characteristics	Holly Springs		Cherokee County		Atlanta MSA	
Est. Households	3,941		82,097		2,077,048	
Small Households (1 or 2 people)	1,935	49%	42,362	52%	1,155,826	56%
Large Households (5+)	509	13%	10,309	13%	256,550	12%
Households with Children	1,704	43%	33,953	41%	791,626	38%
Households without Children	2,237	57%	48,144	59%	1,285,422	62%
Non-Family Households	852	22%	19,580	24%	665,141	32%

Source: Nielsen, Inc.

HOUSEHOLD INCOME

- Median household incomes in Holly Springs and Cherokee County are significantly higher than Metro Atlanta.
  - Holly Springs @ $69,745: 25% higher
  - Cherokee County @ $71,042: 27% higher
- Households earning more than $100,000 a year account for nearly 1/3 of Holly Springs' and Cherokee's households, but less than 1/4 of Metro Atlanta households.



Household Income	Holly Springs		Cherokee County		Atlanta MSA	
2015 Est. Median Household Income	$ 69,745		$ 71,042		$ 55,755	
% of MSA Median Income	125%		127%		100%	
Households by Income						
HH with income < $15,000	169	4%	3,769	5%	250,674	12%
HH with income $15K - $35K	709	18%	14,582	18%	417,224	20%
HH with income $35K - $50K	512	13%	9,803	12%	282,845	14%
HH with income $50K - $100K	1,346	34%	27,296	33%	630,183	30%
HH with income > $100K	1,205	31%	26,647	32%	496,122	24%

Source: Nielsen, Inc.

KEY FINDINGS: DEMOGRAPHICS

Key Findings

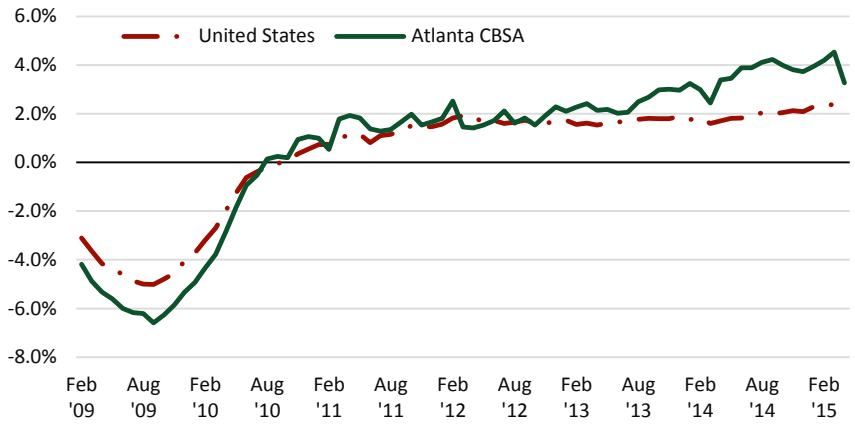
- The City of Holly Springs is home to 5% of Cherokee County's total population, at 11,225.
- Since 2000, Holly Springs has experienced robust growth more than doubled its population, increasing 114%, while Cherokee County has grown by 63%.
- Households in Holly Springs tend to be families with high median incomes.
  - Families account for 78% of Holly Springs', 76% of Cherokee County's, and 68% of Metro Atlanta's households.
  - Median household incomes in Holly Springs are $69,745 compared to $71,042 in Cherokee County and $55,755 in Metro Atlanta.
  - Households earning over $100,000 represent 31% of all Holly Springs households.

Demand Drivers:
Business & Employment

BUSINESS & EMPLOYMENT: REGIONAL ECONOMIC CONTEXT

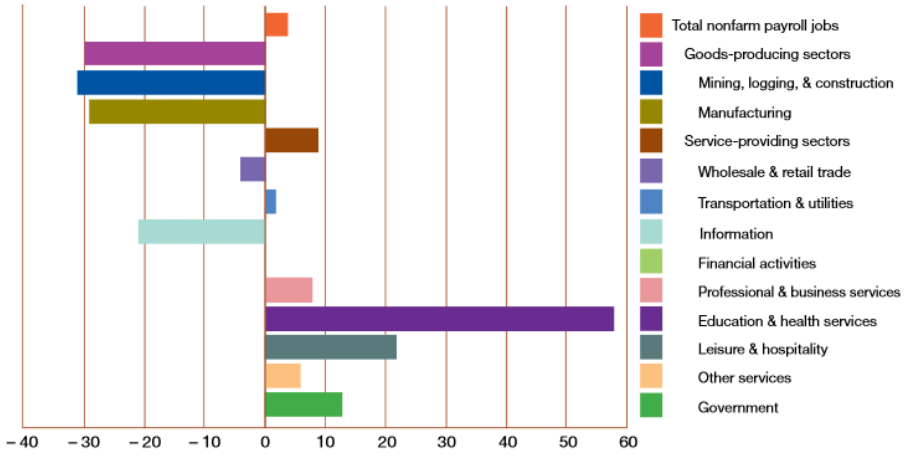
- After 2 years of lagging other major metropolitan areas, the economy of the 28-county Atlanta CBSA (Core Based Statistical Area) began to strengthen in 2012.
- Having added approximately 145,000 jobs in 2014, the region has returned to pre-recession employment levels. The Great Recession is in the rear view mirror.
  - The region is forecast to add nearly 100,000 jobs in 2015 & 90,000+ in 2016 & 2017.
  - Statewide, Georgia's economy is projected to grow 3.2% in 2015, up from 2.3% in 2014.
  - The strongest employment sectors in terms of sector growth will be education and health services, leisure & hospitality, and government.

Employment Growth, USA & Atlanta CBSA



Source: U.S. Bureau of Labor Statistics

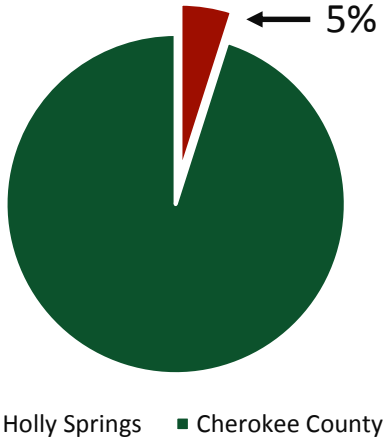
Sector Growth, Atlanta CBSA
Percentage Change, 2000 to 2013



Sources: U.S. Bureau of Labor Statistics, HUD, Georgia State Forecasting Center

LOCAL EMPLOYMENT

- There are 2,184 jobs in Holly Springs, with Retail, Wholesale Trade, Construction, and Professional, Scientific, & Technical Services employing the largest proportions of the population.
- Employees in Holly Springs account for 5% of Cherokee County's total.



Nonfarm Payroll Jobs, Holly Springs & Cherokee County by Sector

Employment Sector	Holly Springs Employees	Holly Springs % of Total	Cherokee County Employees	Cherokee County % of Total
Agriculture/Mining	19	0.9%	106	0.2%
Transportation & Utilities	72	3.3%	407	0.9%
Construction	222	10.2%	3,119	7.0%
Manufacturing	190	8.7%	3,849	8.7%
Wholesale Trade	309	14.1%	2,181	4.9%
Retail, Accommodation, & Food Service	529	24.2%	12,638	28.5%
Information	1	0.0%	585	1.3%
Finance, Insurance & Real Estate	71	3.3%	1,961	4.4%
Professional, Scientific, and Technical Svcs	224	10.3%	2,439	5.5%
Management & Administration	169	7.7%	2,976	6.7%
Educational Services	190	8.7%	5,382	12.1%
Health Care and Social Assistance	62	2.8%	4,134	9.3%
Arts, Entertainment, and Recreation	28	1.3%	806	1.8%
Other Services (excluding Public Admin.)	52	2.4%	1,858	4.2%
Public Administration	46	2.1%	1,950	4.4%
Total	**2,184**		**44,391**	

Source: U.S. Census Longitudinal Employer-Household Dynamics, 2011

LOCAL EMPLOYMENT

- Compared to Cherokee County overall, employees in Holly Springs tend to be somewhat younger, earn slightly higher incomes, and have similar educational attainment levels.
  - 32% of Holly Springs employees earn over $40,000/year, compared to 30% countywide.
  - 25% of Holly Springs employees are under 30 years old (Millennials) and 59% are 30-54 years (Gen X). These are key demand drivers for Holly Springs

Work Area Profile Comparison

	Holly Springs		Cherokee County	
	Employees	% of Total	Employees	% of Total
Jobs by Worker Age				
Age 29 or younger	555	25.4%	11,381	25.6%
Age 30 to 54	1,297	59.4%	25,386	57.2%
Age 55 or older	332	15.2%	7,624	17.2%
Jobs by Earnings				
$1,250 per month or less	668	30.6%	13,378	30.1%
$1,251 to $3,333 per month	812	37.2%	17,656	39.8%
More than $3,333 per month	704	32.2%	13,357	30.1%
Jobs by Worker Educational Attainment				
Less than high school	193	8.8%	3,728	8.4%
High school or equivalent, no college	473	21.7%	9,297	20.9%
Some college or Associate degree	492	22.5%	10,647	24.0%
Bachelor's degree or advanced degree	471	21.6%	9,338	21.0%
Educational attainment not available	555	25.4%	11,381	25.6%

Source: U.S. Census Longitudinal Employer-Household Dynamics, 2011

COMMUTING PATTERNS

- Holly Springs is a "bedroom community" with low job/resident ratio – 0.2:1
- Only 102 of the 2,184 employees who work in the City of Holly Springs also live in the city (5%).
  - The largest portion of Holly Springs residents commute to Atlanta, followed closely by Canton.
  - The largest portion of Holly Springs employees commute from Canton, followed by Woodstock.
- Opportunity for Downtown Woodstock to provide housing options to attract Millennials and Gen Xers who commute to Holly Springs for work to live there.

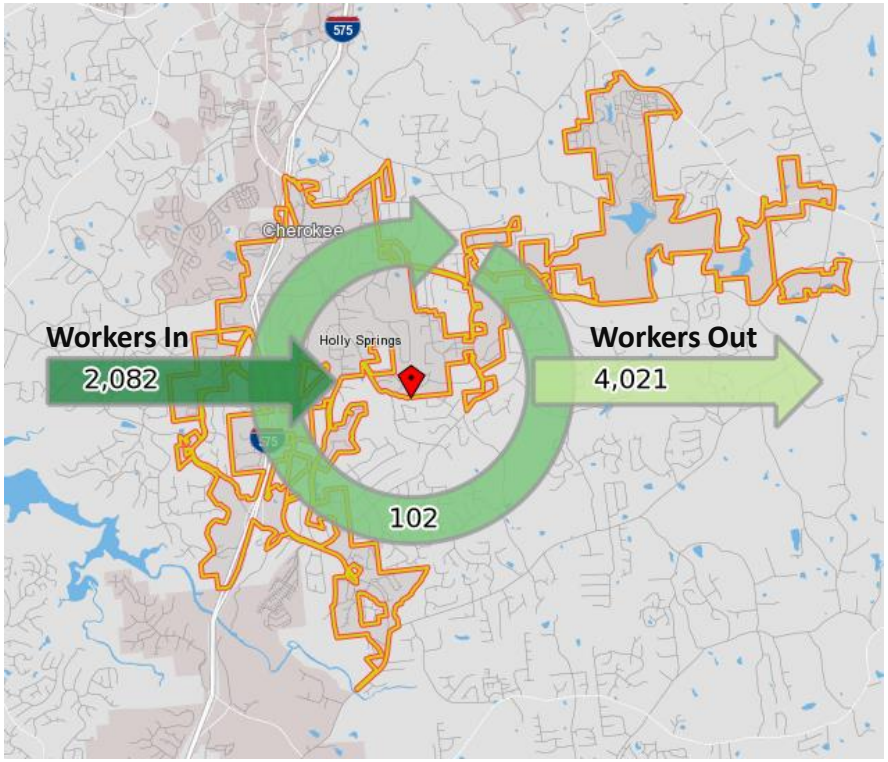
Where Workers Commute To

	Employees	% of Total
Atlanta, GA	364	8.8%
Canton, GA	354	8.6%
Alpharetta, GA	259	6.3%
Marietta, GA	187	4.5%
Sandy Springs, GA	183	4.4%
Roswell, GA	179	4.3%
Woodstock, GA	135	3.3%

Where Workers Commute From

	Employees	% of Total
Canton, GA	105	4.8%
Woodstock, GA	62	2.8%
Roswell, GA	34	1.6%
Marietta, GA	22	1.0%
Atlanta, GA	21	1.0%

Employee Inflow/Outflow



Source: U.S. Census Longitudinal Employer-Household Dynamics, 2011

KEY FINDINGS: BUSINESS & EMPLOYMENT

Key Findings

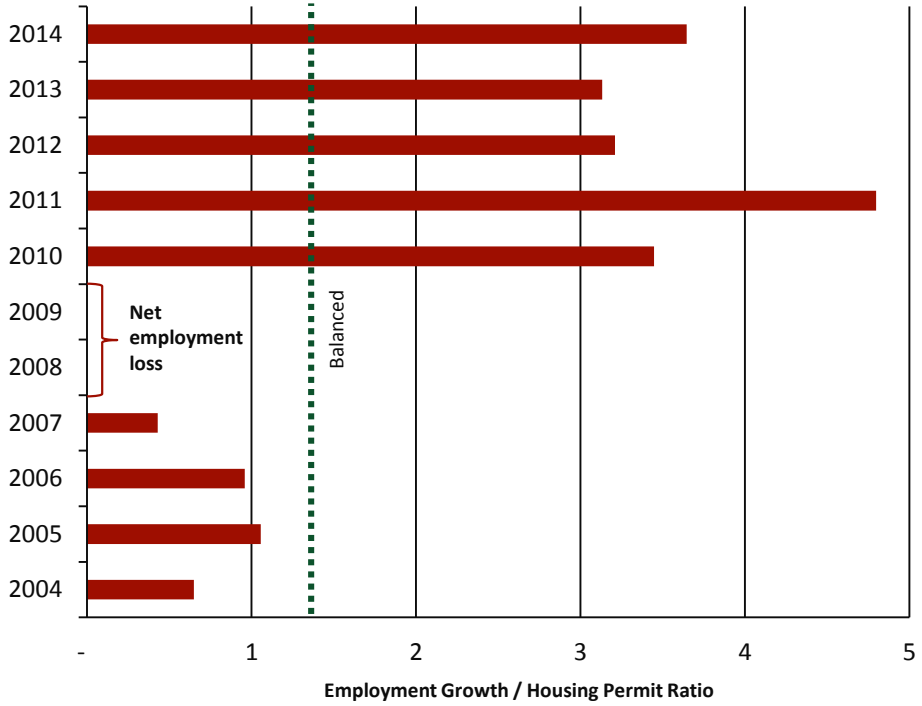
- Holly Springs is home to an equal share of Cherokee County's population and jobs, 5%.
- The largest employment sectors in Holly Springs are:
  - Retail, Accommodation, & Food Service (24.2%)
  - Wholesale Trade and Construction (24.3%)
  - Professional, Scientific, & Technical Services (10.3%)
- Holly Springs employee characteristics are similar to employees countywide, however Holly Springs employees tend to be somewhat younger and earn slightly higher incomes.
- Over 4,000 Holly Springs residents leave daily for jobs outside the city, while just over 2,000 workers living elsewhere commute into Holly Springs to work.
- **Key Demand Segment for Downtown Holly Springs: Millennial and Gen X employees that work in Holly Springs area but commute from elsewhere who desire to live in a compact walkable environment.**

Supply:
Housing

REGIONAL HOUSING DEMAND

- In the Atlanta Region, demand for housing (derived from employment growth) has outpaced the supply of housing (based on building permits) since 2010.
  - A balanced jobs-to-housing ratio is typically 1.2 jobs to 1 permit.
  - The ratio in the Atlanta Metro region has ranged from 3:1 to 5:1 jobs to permits over the past 5 years.
  - This suggests a pent-up demand for new housing.

Atlanta Regional Historical Housing Supply / Demand



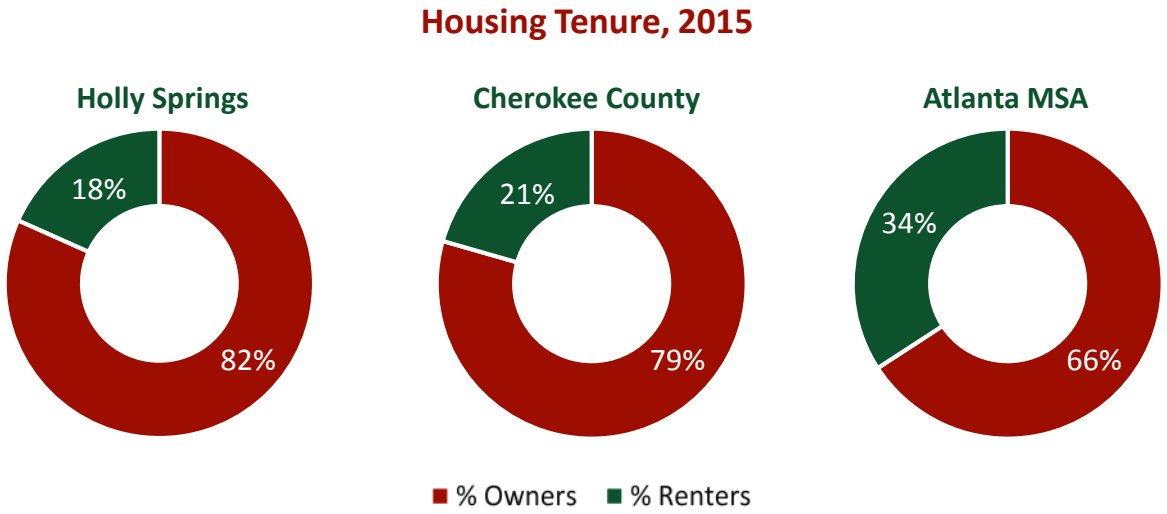
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Job Growth	(26,300)	(3,500)	48,300	76,300	65,400	19,200	(86,000)	(116,200)	26,300	41,700	46,100	76,100	97,300
Permits	67,078	66,386	74,466	72,223	68,240	44,686	19,034	6,509	7,627	8,692	14,356	24,297	26,683
Jobs/ Permits	(Net Loss)	(Net Loss)	0.65	1.06	0.96	0.43	(Net Loss)	(Net Loss)	3.45	4.80	3.21	3.13	3.65

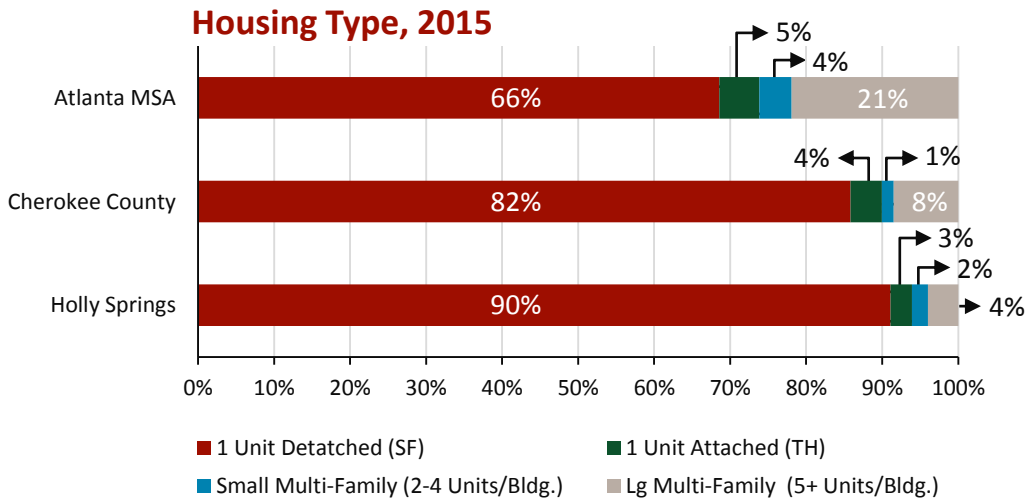
Source: US Census & Bureau of Labor Statistics

EXISTING HOUSING CHARACTERISTICS

- The vast majority of housing in Holly Springs (82%) is owner-occupied, compared to 79% in Cherokee County and 66% in Metro Atlanta.

- Holly Springs housing stock is dominated by single-family detached homes:
  - Holly Springs: 90%
  - Cherokee Co.: 82%
  - Atlanta MSA: 66%
- Townhomes are just 3% of the inventory
- Multifamily 7% of the inventory.



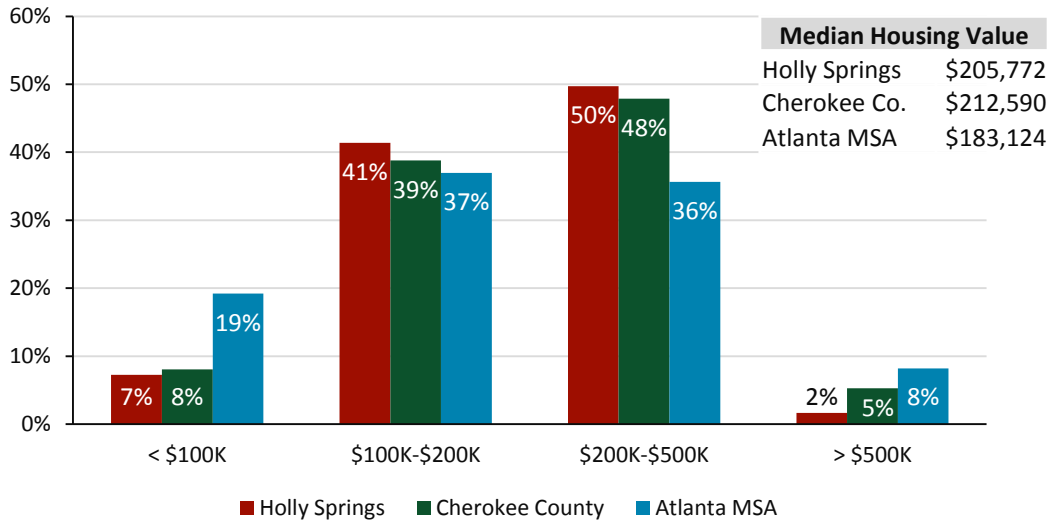


Source: Nielsen, Inc.

HOUSING CHARACTERISTICS

- Housing values in Holly Springs tend to be concentrated in the mid-range.
  - 91% of Holly Springs housing is valued between $100K and $500K compared to 87% and 73% in Cherokee County and Metro Atlanta respectively.
  - Only 2% of homes in Holly Springs (53) are valued over $500K.

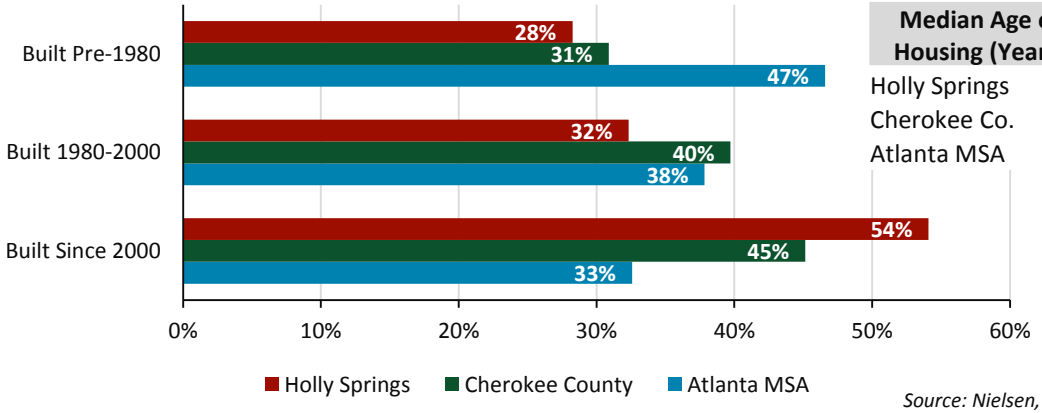
Owner-Occupied Housing Value, 2015



Median Housing Value	
Holly Springs	$205,772
Cherokee Co.	$212,590
Atlanta MSA	$183,124

- As a result of past rapid growth, Holly Springs housing is significantly newer than the county and region overall.
  - Over half of Holly Springs housing stock was built in the last 15 years.

Age of Housing, 2015

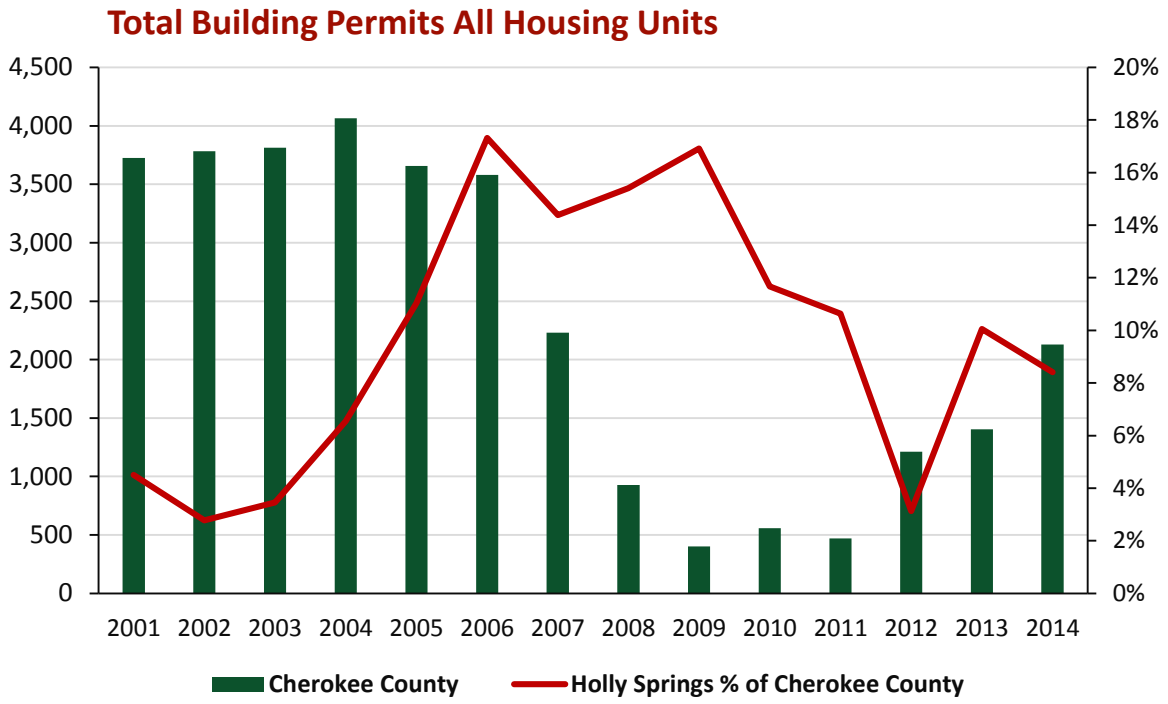


Median Age of Housing (Years)	
Holly Springs	14
Cherokee Co.	17
Atlanta MSA	23

Source: Nielsen, Inc.

BUILDING PERMIT ISSUANCE

- Housing permit issuances in Holly Springs, Cherokee County and Metro Atlanta have begun to climb again after new housing effectively ground to a halt during the Great Recession and its immediate aftermath.
- 179 permits in Holly Springs in 2014 were only 29% of 2006 peak but more than 4x the low point of 2012.

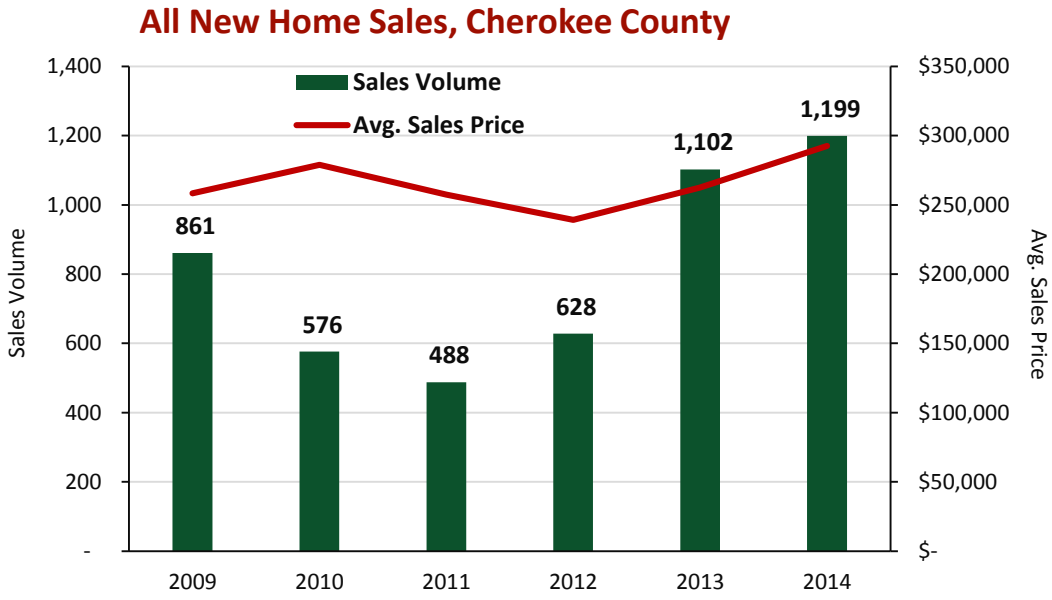


	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Holly Springs	168	105	132	266	404	620	321	143	68	65	50	38	141	179
Cherokee County	3,726	3,783	3,813	4,065	3,658	3,580	2,231	928	402	557	470	1,213	1,403	2,128
Metro Atlanta	66,837	67,251	66,618	74,715	72,506	68,469	44,859	19,102	6,543	7,660	8,723	14,372	24,337	26,432
Holly Springs % of County	5%	3%	3%	7%	11%	17%	14%	15%	17%	12%	11%	3%	10%	8%

Source: SOCDS Building Permits Database

NEW HOME SALES

- Since 2009 the vast majority of new home sales (91%) were single-family homes, 8% townhomes, and 1% condos.
- New homes sales overall have more than doubled in Cherokee County in the past four years, from a low of 488 sales in 2011 to 1,199 sales in 2014.



Cherokee County		2009	2010	2011	2012	2013	2014	6-year Average
	# of Units	861	576	488	628	1,102	1,199	**809**
All New Homes	Avg. Sales Price	$ 258,319	$ 278,945	$ 257,443	$ 239,257	$ 262,443	$ 292,627	**$ 267,623**
	# of Units	724	521	442	574	1,040	1,106	**735**
New SF Homes	Avg. Sales Price	$ 279,407	$ 290,861	$ 266,381	$ 246,426	$ 265,863	$ 297,887	**$ 276,601**
New	# of Units	137	45	39	40	54	93	**68**
Townhomes	Avg. Sales Price	$ 146,875	$ 161,018	$ 166,224	$ 154,232	$ 204,213	$ 230,074	**$ 177,559**
	# of Units	0	10	7	14	8	0	**7**
New Condos	Avg. Sales Price	-	$ 188,790	$ 201,304	$ 188,271	$ 210,856	-	**$ 195,376**

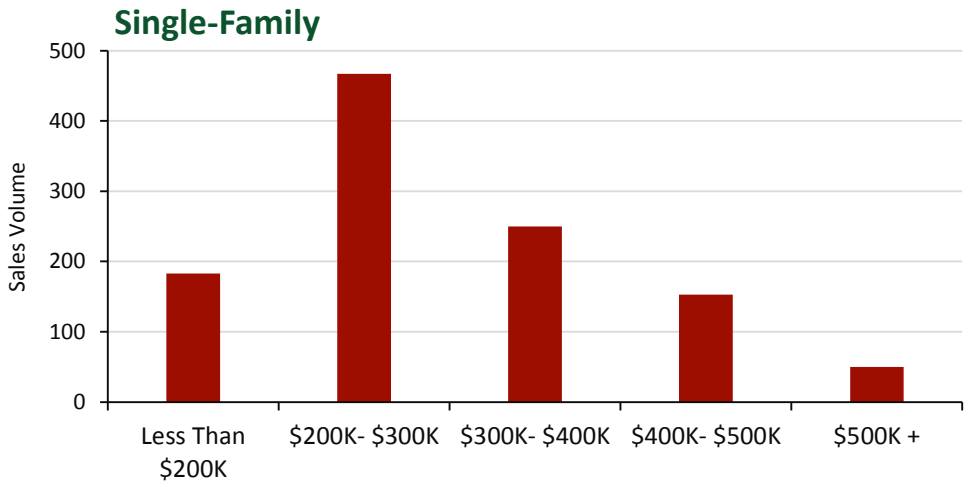
Source: BAG, based on SmartREdata

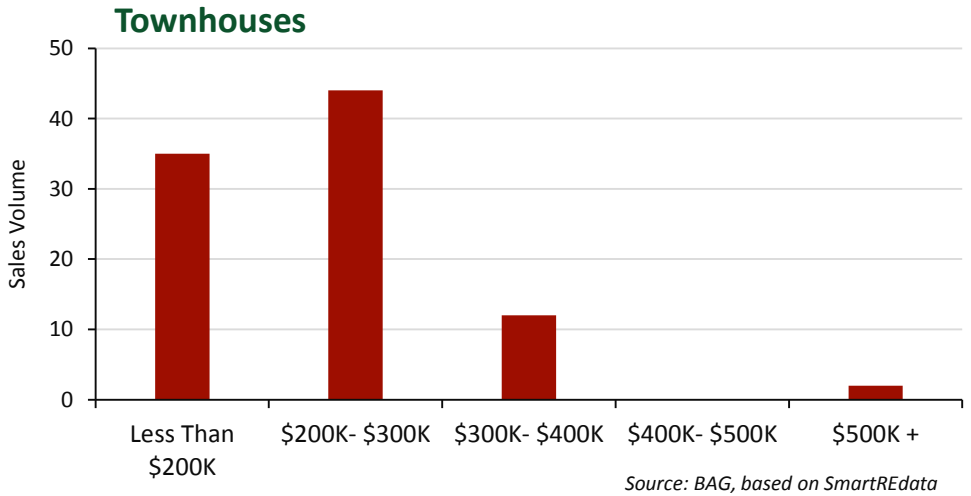
NEW HOME SALES

- The majority of new single-family homes in Cherokee County sell for less than $300K.
  - Nearly 2/3 sell in the $200K-$400K range.
  - Average Price: $298,061
  - Trends 2015?

- 85% of new townhomes sold for less than $300K compared to 59% of new single-family homes.
  - Average Price: $230,073
  - Trends 2015?
- SF Vs. TH Pricing?

Home Sales by Sale Price, Cherokee County, 2014

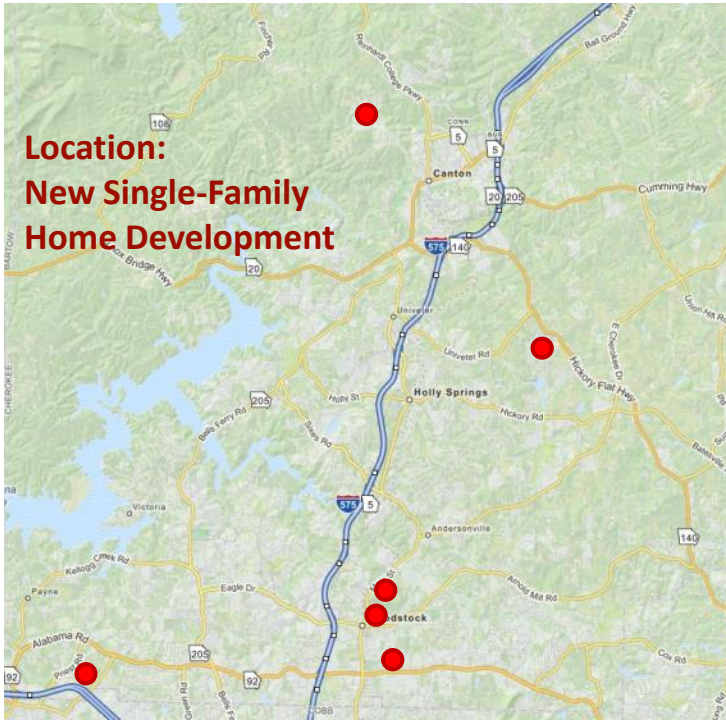




Source: BAG, based on SmartREdata

NEW HOME SALES: SINGLE-FAMILY

- The top five selling new single-family home communities and Woodstock Downtown were analyzed.
  - Woodstock Downtown was chosen as the closest "comp" of a walkable downtown to Holly Springs.
- Woodstock Downtown's small lot homes command the highest average new home price in Cherokee County, $547,331.
- The five Cherokee single-family communities sold 329 units, a 29.8% market share and average prices of $327,316.



Top Cherokee County New Single-Family Home Communities by Units Sold, 2014

Source: SmartREdata

Name	Units Sold	Market Share	Average Sale
Soleil at Laurel Canyon*	85	7.7%	$ 390,841
Woodstock Knoll	67	6.1%	$ 458,055
Centennial Lakes	66	6.0%	$ 271,610
Harmony on the Lakes	65	5.9%	$ 253,642
Woodstock Village	45	4.1%	$ 200,785
Woodstock Downtown	8	0.7%	$ 547,331

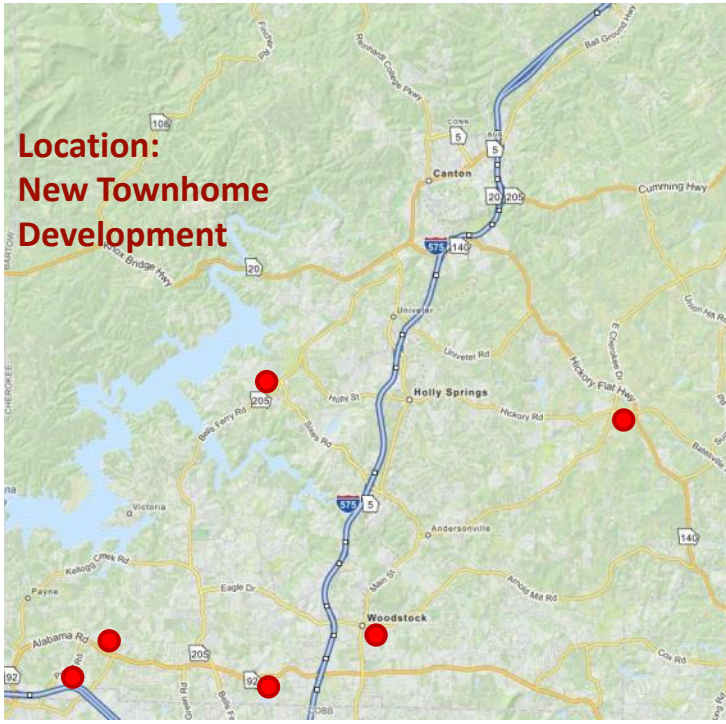
* Active Adult Community (55+)

Soleil at Laurel Canyon

Woodstock Downtown

NEW HOME SALES: TOWNHOUSES

- The top six selling new townhome communities in Cherokee County were identified for further analysis.
- New townhome sales in 2014 were dominated by the top three selling communities accounting for 70% of all sales.
  - Orchards of East Cherokee: 38 units sold (40.9% market share)
  - Ridge Mill: 16 units sold (17.2% market share)
  - Centennial Lakes: 11 units sold (11.8% market share)
- Downtown Woodstock sold six townhomes in 2014 averaging the highest sale price in the county at $437,637.
  - These sales accounted for 6.5% of the units sold countywide but 12.3% of the total dollar value sold.



Top Cherokee County New Townhouse Communities by Units Sold, 2014

Name	Units Sold	Market Share	Average Sale
Orchards of East Cherokee	38	40.9%	$ 246,180
Ridge Mill	16	17.2%	$ 129,378
Centennial Lakes	11	11.8%	$ 153,693
Heritage Springs	7	7.5%	$ 274,349
Overlook at Sixes Road	7	7.5%	$ 362,928
Woodstock Downtown	6	6.5%	$ 437,637

Woodstock Downtown

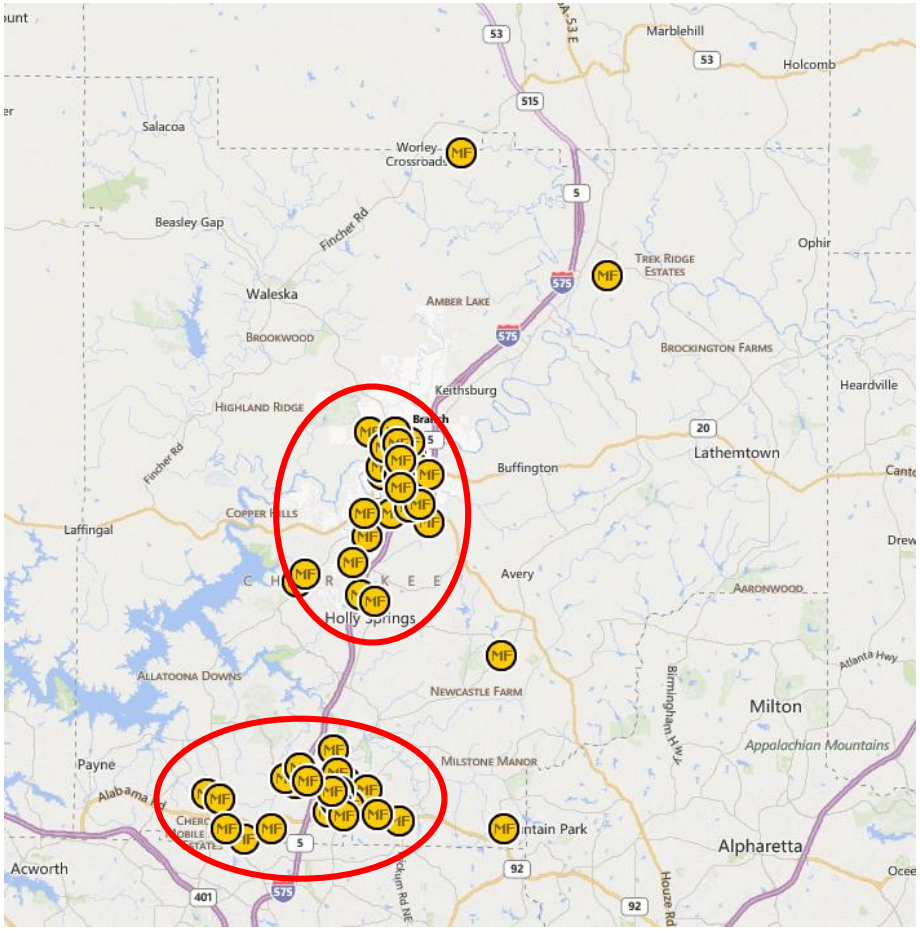
Centennial Lakes

APARTMENT MARKET

- Cherokee County has nearly 7,600 apartment units with an average age of just over 15 years.
  - The vacancy rate of Cherokee County apartments (2.6%) is half that of Metro Atlanta's already low apartment vacancy rate (5.3%), an indication of very strong demand.
  - Average rents in the county tend to be in line with rents achieved throughout the metro area in suburban areas.
- Apartments are clustered in two areas – downtown Woodstock and downtown Canton.

Apartment Snapshot	Cherokee County	Metro Atlanta
Existing Units	7,599	481,123
Vacancy Rate	2.6%	5.3%
Avg. Studio Asking Rent	$669	$940
Avg. 1-Bed Asking Rent	$848	$888
Avg. 2-Bed Asking Rent	$967	$975
Avg. 3+ Bed Asking Rent	$1,101	$1,126

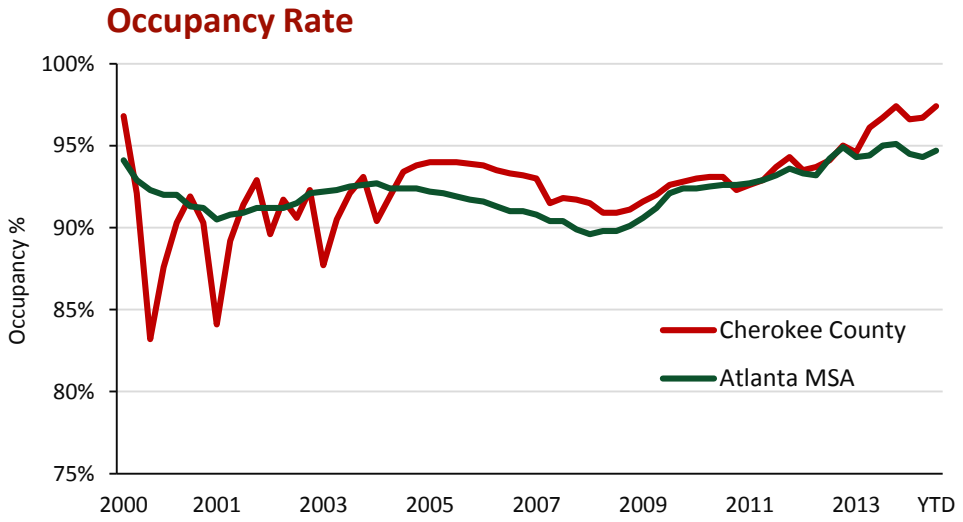
Location:
Apartment Development

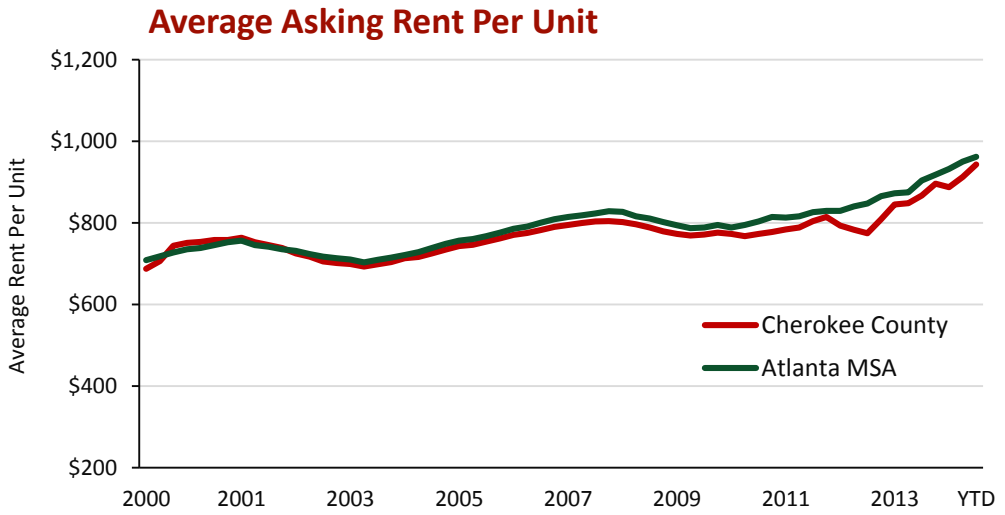


Source: CoStar, Inc.

APARTMENT MARKET

- Occupancy rates and asking rents for Cherokee County apartments have generally mirrored those of the Atlanta Metro area.
  - Both occupancy rates and asking rents have increased steadily since the start of the Great Recession in 2008, now exceeding their pre-recession levels.
- From 2000 to 2003 nearly 3,000 units (39% of current inventory) were delivered to the Cherokee County market causing the inconsistent occupancy rates during this time.
  - 2000 to 2003: 2,969 units delivered
  - 2004 to 2014: 1,258 units delivered

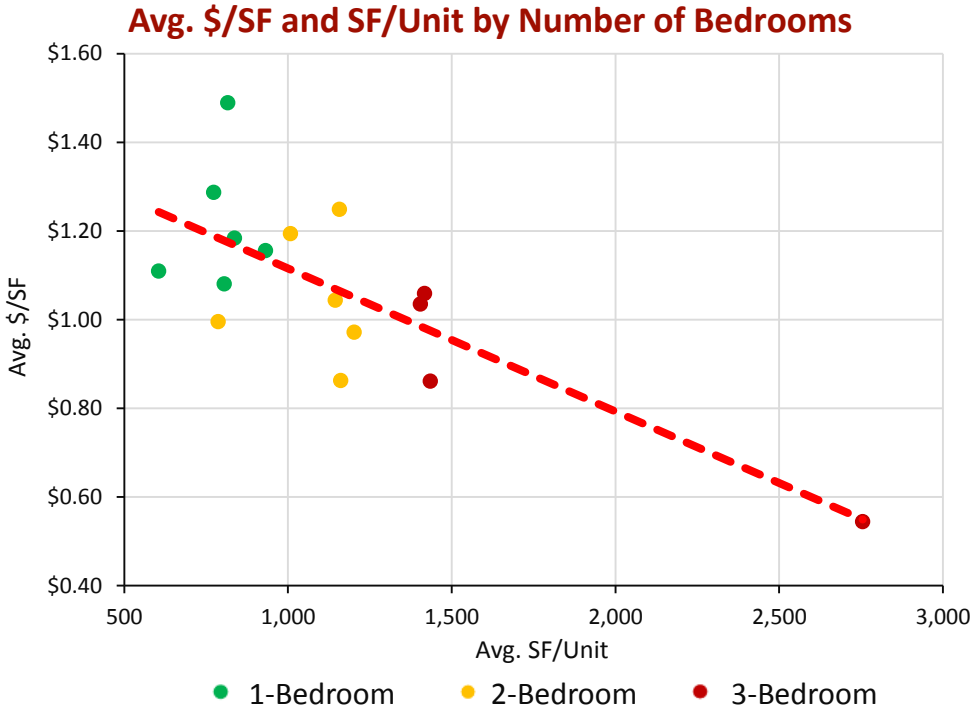




Source: CoStar, Inc.

APARTMENT COMPS

- Six apartment communities that are relatively new and command high rent per square foot were chosen for further analysis.
- Woodstock West by Walton is the newest apartment community in Cherokee County (built in 2013), has very low vacancy rates (1.3%), and gets the highest rent/SF in the county ($1.32/SF), or 16% premium above the competitive set.
- Rents across the six average $1,081 per month and a 3.9% vacancy rate.



		1 BR					2 BR					3 BR					Total	Avg.	Avg.	Avg.	Avg.
Name	Year	Units	Vac.	SF	Rent	$/SF	Units	Vac.	SF	Rent	$/SF	Units	Vac.	SF	Rent	$/SF	Units	Vac.	SF	Rent	$/SF
Woodstock West by Walton	2013	153	0.0%	816	$ 1,215	$1.49	143	2.8%	1,157	$ 1,445	$1.25	12	0.0%	1,424	$ 1,750	$1.23	308	1.3%	998	$ 1,274	$1.32
Hearthside Towne Lake	2011	21	0.0%	773	$ 995	$1.29	79	0.0%	1,008	$ 1,203	$1.19	0					100	0.0%	852	$ 1,053	$1.19
The Heights at Towne Lake	2000	94	2.1%	837	$ 991	$1.18	86	3.5%	1,145	$ 1,195	$1.04	14	0.0%	1,417	$ 1,500	$1.06	194	2.6%	1,003	$ 1,106	$1.11
Bell Woodstock	2000	212	9.4%	932	$ 1,077	$1.16	230	9.6%	1,202	$ 1,168	$0.97	56	10.7%	1,405	$ 1,454	$1.03	498	9.6%	1,076	$ 1,134	$1.07
Riverview	2008	71	0.0%	605	$ 671	$1.11	63	0.0%	787	$ 783	$0.99	4	0.0%	2,755	$ 1,499	$0.54	138	0.0%	773	$ 755	$1.03
Harbor Creek	2003	120	0.8%	806	$ 871	$1.08	148	2.0%	1,161	$ 1,001	$0.86	48	0.0%	1,435	$ 1,235	$0.86	316	1.2%	995	$ 946	$0.97
Total/Average		**671**	**3.4%**	**830**	**$ 1,014**	**$1.22**	**749**	**4.3%**	**1,123**	**$ 1,162**	**$1.04**	**134**	**4.5%**	**1,459**	**$ 1,251**	**$0.87**	**1,554**	**3.9%**	**994**	**$ 1,081**	**$1.11**

Source: CoStar, Inc.

KEY FINDINGS: HOUSING

Key Findings

- The City of Holly Springs housing stock consists primarily of owner-occupied single-family homes.
  - 82% of homes in Holly Springs are owner-occupied (79% in Cherokee County).
  - 90% of homes in Holly Springs are single-family.
- Housing values in Holly Springs are slightly lower than the county but significantly higher than Metro Atlanta.
  - Sales prices for new single-family homes averaged $298,061 while townhomes averaged $230,073
  - 56% of new single-family home sales and 35% of new townhome sales were between $250,000 and $500,000, our key price point.
- The vacancy rate of Cherokee County apartments (2.6%) is less than half that of Metro Atlanta's already low apartment vacancy rate (5.3%).
  - Occupancies have improved from 91% in 2008 to 97% in 2015.
  - Rents have grown from $796 in 2008 to $943 in 2015, a 19% increase.
  - Market average rents are 98% of the metro average.
- **Both for-sale and rental housing in Downtown Woodstock command significant premiums over other similar nearby options. This points to high demand and a lack of supply of new housing in a compact walkable setting in the local area.**

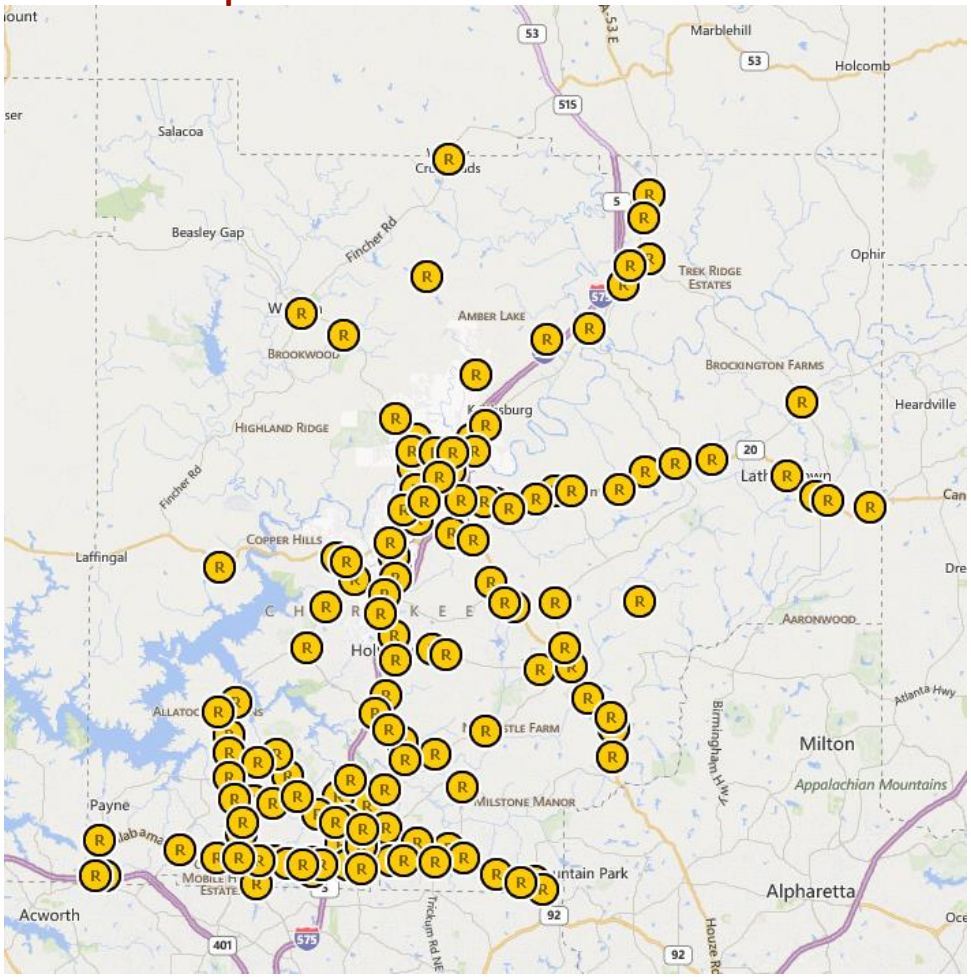
Supply:
Commercial Real Estate

RETAIL MARKET

- Cherokee County's 12 million SF of retail accounts for 3.5% of all Metro Atlanta retail space.
- Retail space is consolidated primarily along the major interstate and highways and their intersections:
  - I-575
  - Hwy 20
  - Hwy 140
  - Hwy 92

Retail Snapshot	Cherokee County	Metro Atlanta
Existing Buildings	804	24,788
Existing SF	12,040,787	341,195,200
Avg. Rent Per SF	$14.11	$12.51
Vacancy Rate	7.1%	7.9%

Location:
Retail Development

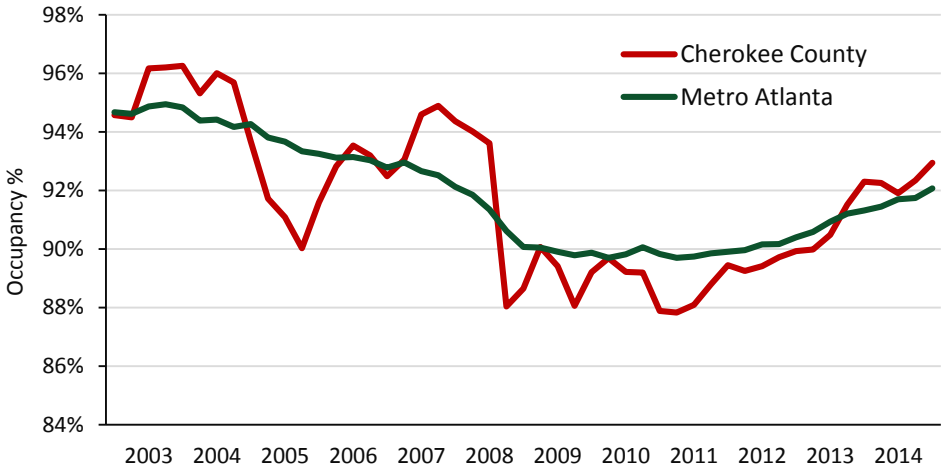


Source: CoStar, Inc.

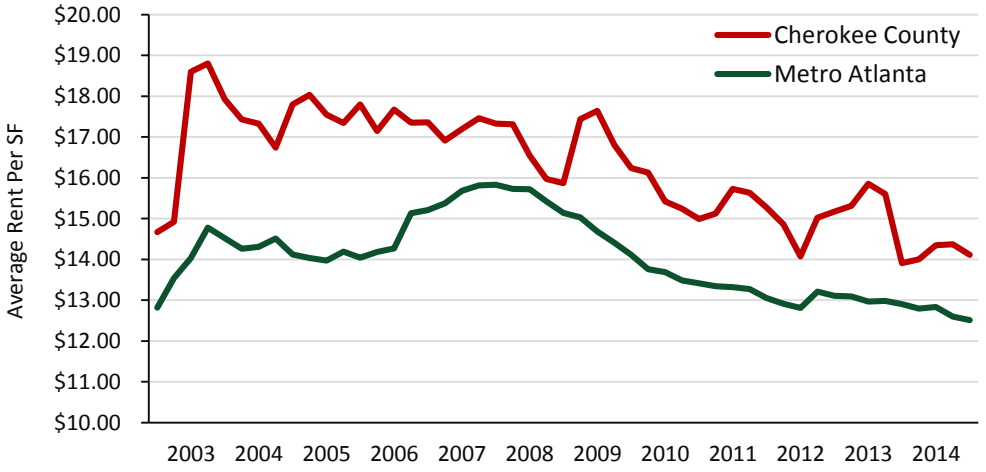
RETAIL MARKET

- Cherokee County's retail market has largely mirrored that of the larger metro area; occupancy rates are increasing while rents are decreasing.
  - Retail occupancy rates decreased leading up to the Great Recession in 2008, but have steadily recovered since.
    - Occupancy has increased from 88% in 2008 to 93% in 2015.
  - Average retail rent per SF in Cherokee County ($14.11) is 13% higher than in Metro Atlanta ($12.51).
    - Average rents have decreased from a peak of $17.46 in 2008 to $14.11 in 2015 and are still declining.

Occupancy Rate



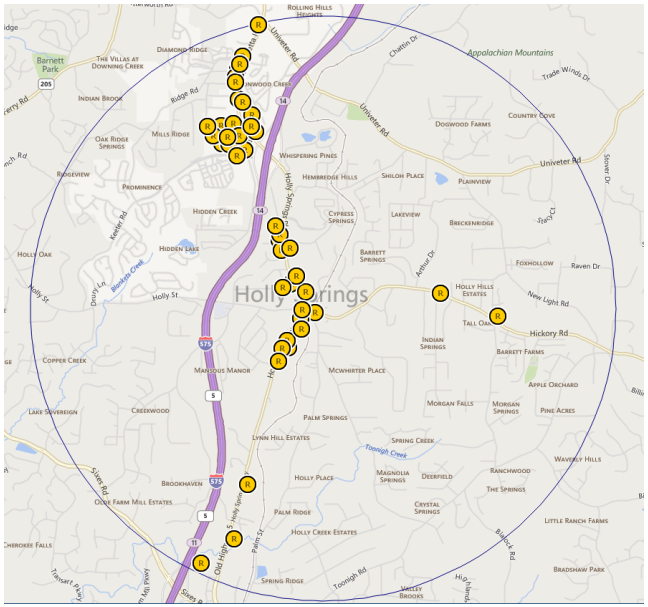
Average Rent Per Square Foot



Source: CoStar, Inc.

HOLLY SPRINGS TRADE AREA RETAIL MARKET

- Retail shopping options in the 2-mile trade area around downtown Holly Springs are dominated by two large grocery anchored centers, a Super-Walmart, and a Home Depot.
  - Paradise Shoppes at Prominence Point: Publix
  - Canton Kroger Shopping Center
  - Holly Springs Station: Home Depot
- Other retail options in the trade area tend to be small strip-centers and stand-alone buildings in varying condition.
- Average rents and vacancy rates in the area are above those county-wide:
  - $16.49/SF compared to $14.11/SF
  - 8.6% compared to 7.1%

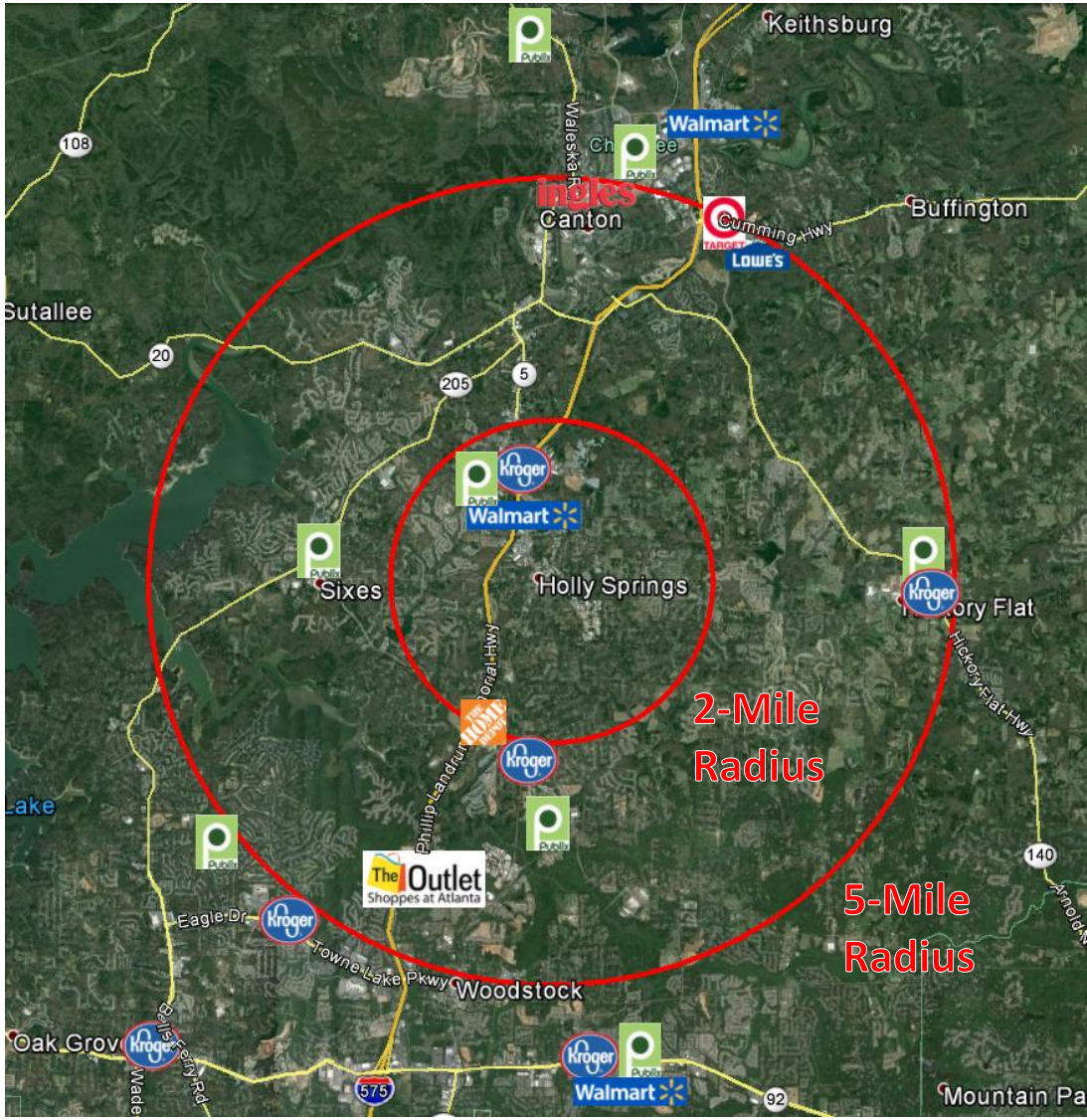


Paradise Shoppes at Prominence Point

Retail Snapshot	2-Mile Trade Area	Cherokee County
Existing Buildings	43	804
Existing SF	524,685	12,040,787
Avg. Rent Per SF	$16.49	$14.11
Vacancy Rate	8.6%	7.1%

LOCAL SHOPPING

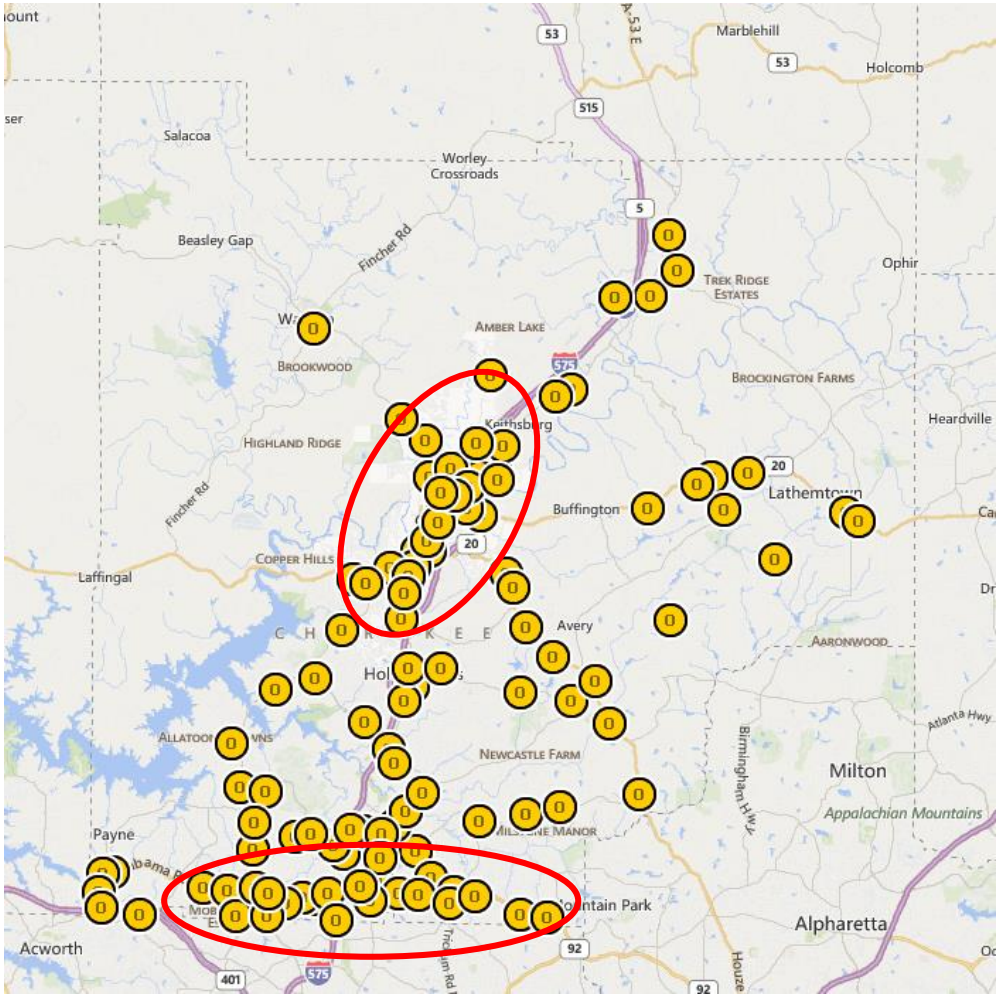
- Holly Springs and the Cherokee County area are home to numerous big box, large scale shopping options.
- Three major supermarkets are located within two miles of Downtown Holly Springs and another five are located within 2-5 miles.
- Potential retail offerings in downtown Holly Springs will need to be smaller scale (likely locally-owned) in order to find niche in the local retail marketplace.



OFFICE MARKET

- Cherokee County has 499 office buildings containing 3,656,358 SF, 1.2% of Metro Atlanta office space.
- Vacancy rates in the county are 24% lower than the Atlanta metro area.
  - Average office rents are also lower in Cherokee County reaching 80% of the metro average.

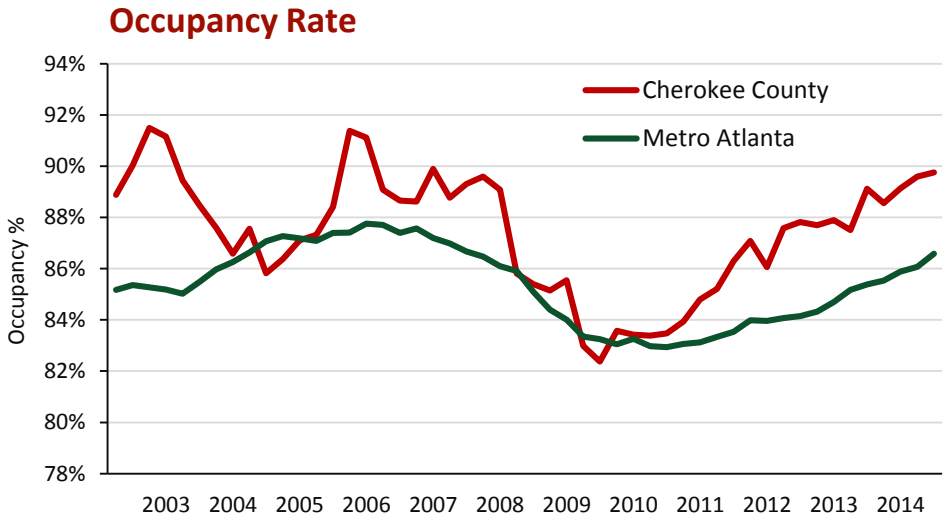
Office Snapshot	Cherokee County	Metro Atlanta
Existing Buildings	499	15,162
Existing SF	3,656,358	298,963,406
Avg. Rent Per SF	$15.35	$19.30
Vacancy Rate	10.2%	13.4%

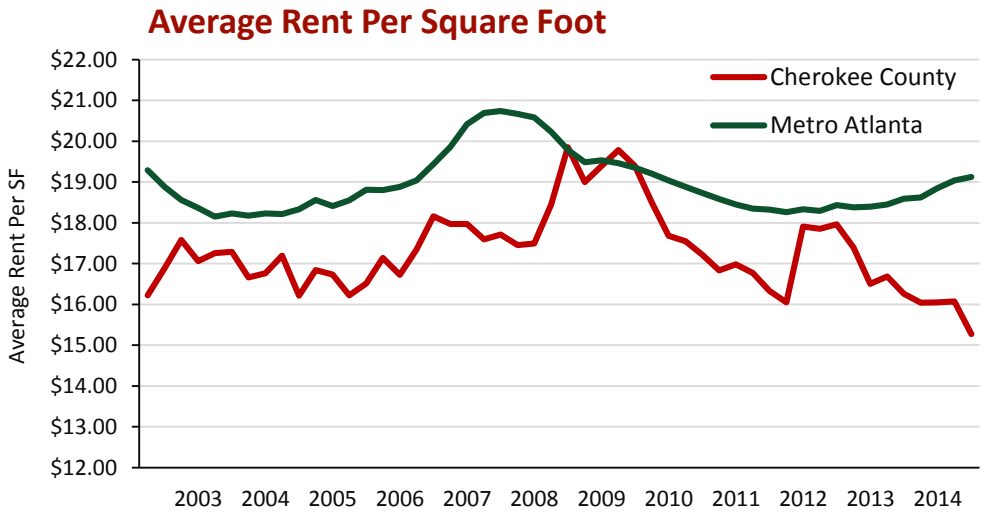


Source: CoStar, Inc.

OFFICE MARKET

- Cherokee County's office market has historically posted higher occupancy rates and lower average rents than Metro Atlanta overall.
- Occupancy rates in the county bottomed out at 82% in 2009 but have recovered since, reaching 90% in 2015.
- While occupancy rates were at their lowest point in 2009 average rents were at an all time high.
  - Average rents have since decreased, from $19.78/SF in 2009 to $15.27/SF in 2015.



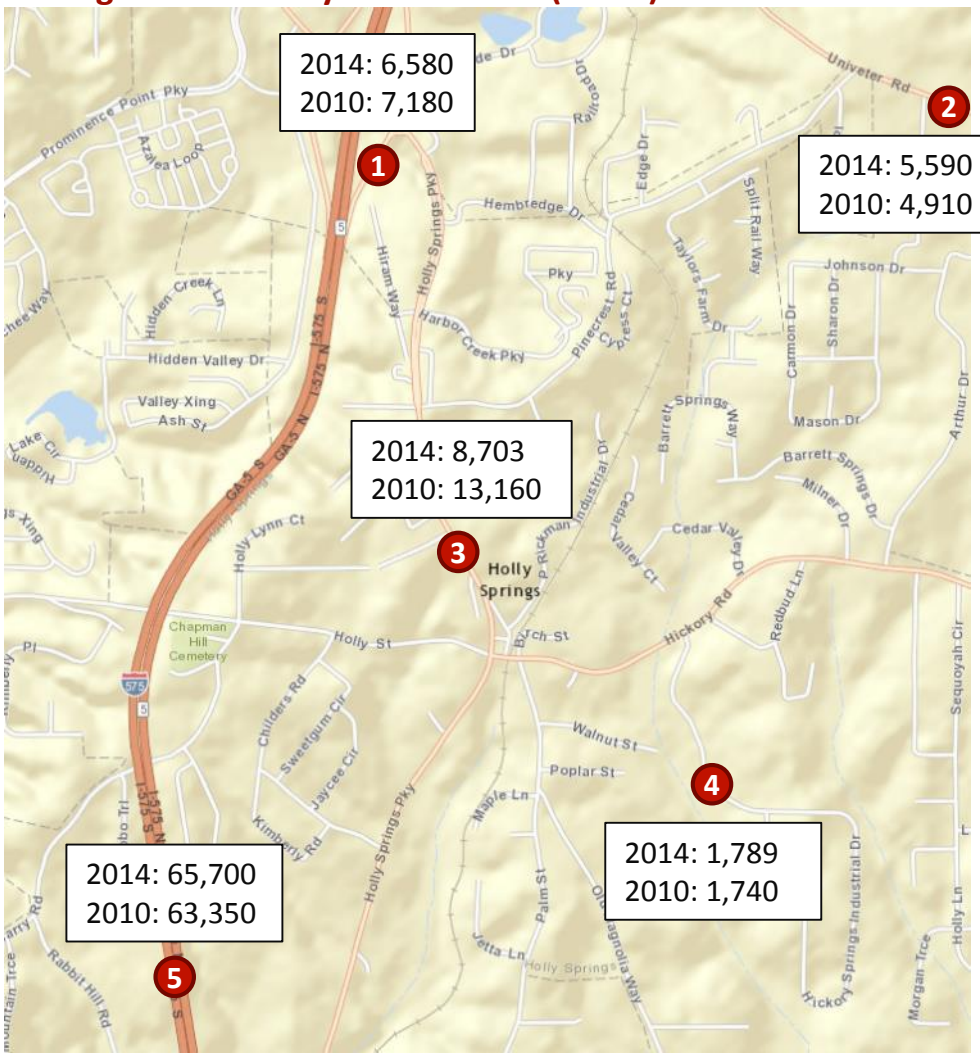


Source: CoStar, Inc.

LOCAL TRAFFIC VOLUME

- Holly Springs Parkway and Holly Street/Hickory Road are both important arterial roads for Downtown Holly Springs with relatively light traffic volumes.
  - Traffic volume has been declining on Holly Springs Parkway, from 13,160 vehicle/day in 2010 to 8,703 vehicles/day in 2014.
- The current light traffic volumes near the subject site will likely prevent large-scale retail development.

Average Annual Daily Traffic Count (AADT)



Source: Georgia DOT

Key Conclusions and Recommendations

KEY FINDINGS: COMMERCIAL REAL ESTATE MARKET

Key Findings

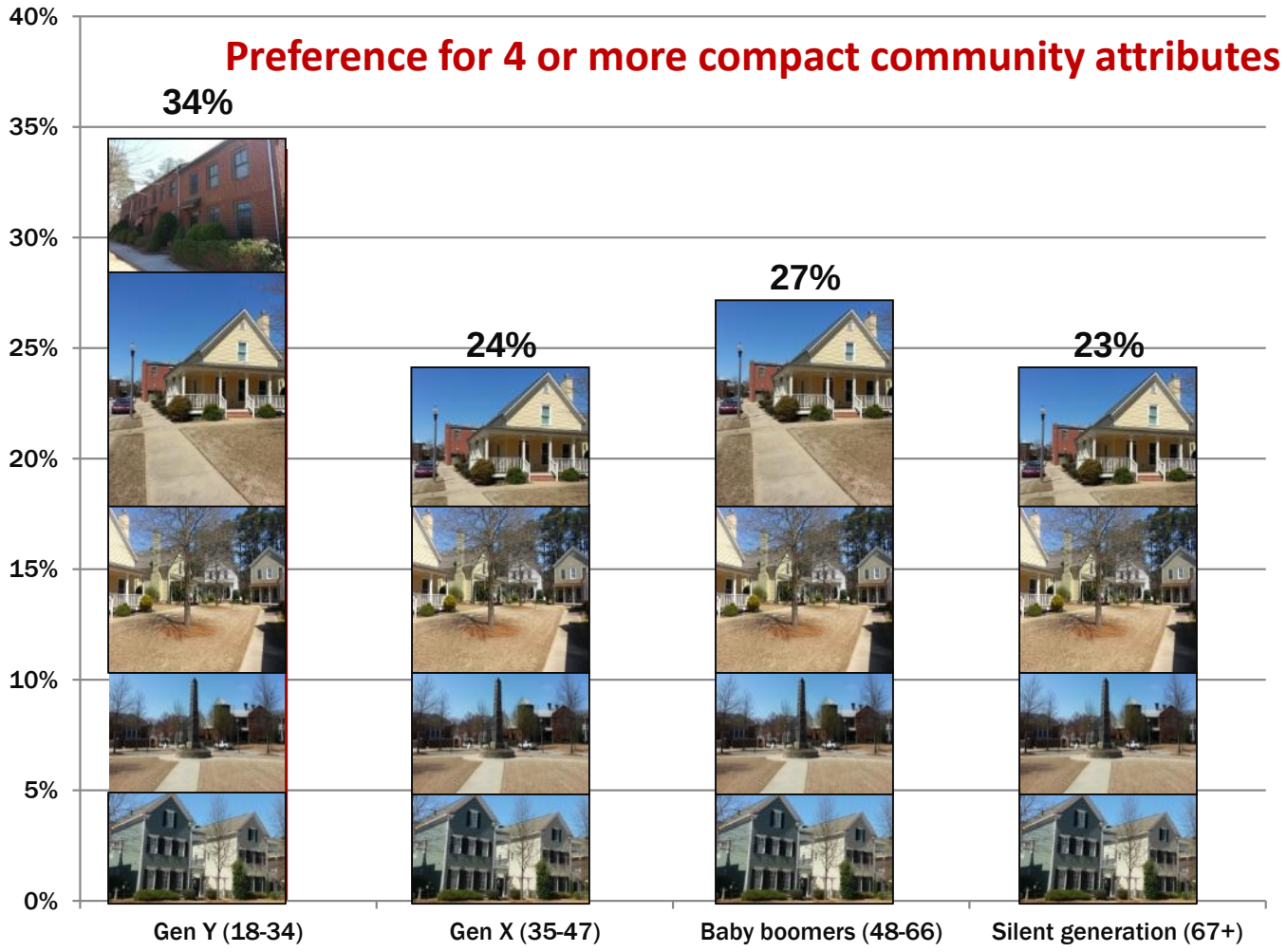
- Cherokee County has over 12 million SF of retail space primarily located along, and at the intersections of, I-575 and the area's major highways.
  - The county's retail market is performing relatively well in terms of occupancies and average rent, outpacing Metro Atlanta by both metrics.
- The office market in Cherokee County consists of 499 buildings containing over 3.6 million SF of office space.
  - Historically, Cherokee County office **occupancy rates have been higher** than those in Metro Atlanta, while **office average rents have been significantly lower** than the metro average.
  - Currently, the county office vacancy rate (10.2%) is 24% lower than Metro Atlanta and county average rents are 20% lower than the metro average.

KEY FINDINGS ON HOUSING, COMMUNITY, TRANSPORTATION AND THE GENERATIONS

- **54%** of Americans **prefer** three or more community attributes associated with **compact development**
- **70%** place a high value on **walkability** when choosing a new community
- **61%** would accept a **smaller home** in exchange for a shorter commute.

GENERATIONAL PREFERENCES FOR COMPACT COMMUNITIES

- Compact Community Attributes:
  - Shorter commute/smaller home
  - Close to mix of shops
  - Mix of incomes
  - Public transportation options
  - Mix of homes

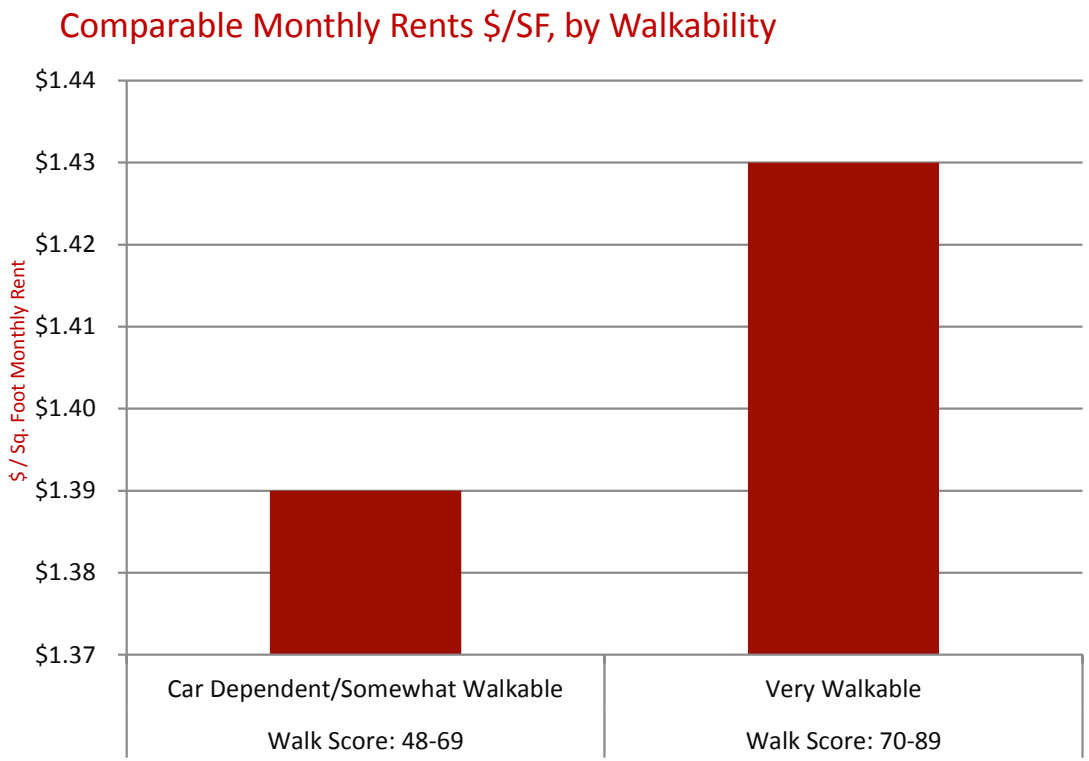


- Gen Y and Baby Boomers state higher preference for living in a compact community.

Source: ULI America in 2013 survey

THE WALKABILITY PREMIUM

- In 2013 Bleakly collected data on 35 newer apartment projects in northern Atlanta and its northern suburban areas.
- "Very walkable" locations, with most errands able to be accomplished on foot, achieve 6% higher rents on $/SF average to those comparable projects in "car dependent" and "somewhat walkable" locations.



Source: Bleakly Advisory Group

REGIONAL TOWN CENTER EXAMPLES

- **Smyrna Market Village**
  - 40,000 square feet of retail
  - 18,000 square feet of office space
  - 16 townhomes above street level retail
- **Woodstock Downtown**
  - 50,000 square feet of retail
  - 10,000 square feet of office space
  - 125 townhouses, 62 single-family homes, and 74 loft units
- **Suwanee Town Center**
  - 100,000 square feet of retail
  - 87,000 square feet of office space
  - 147 townhome/condo units
  - 85 single-family homes

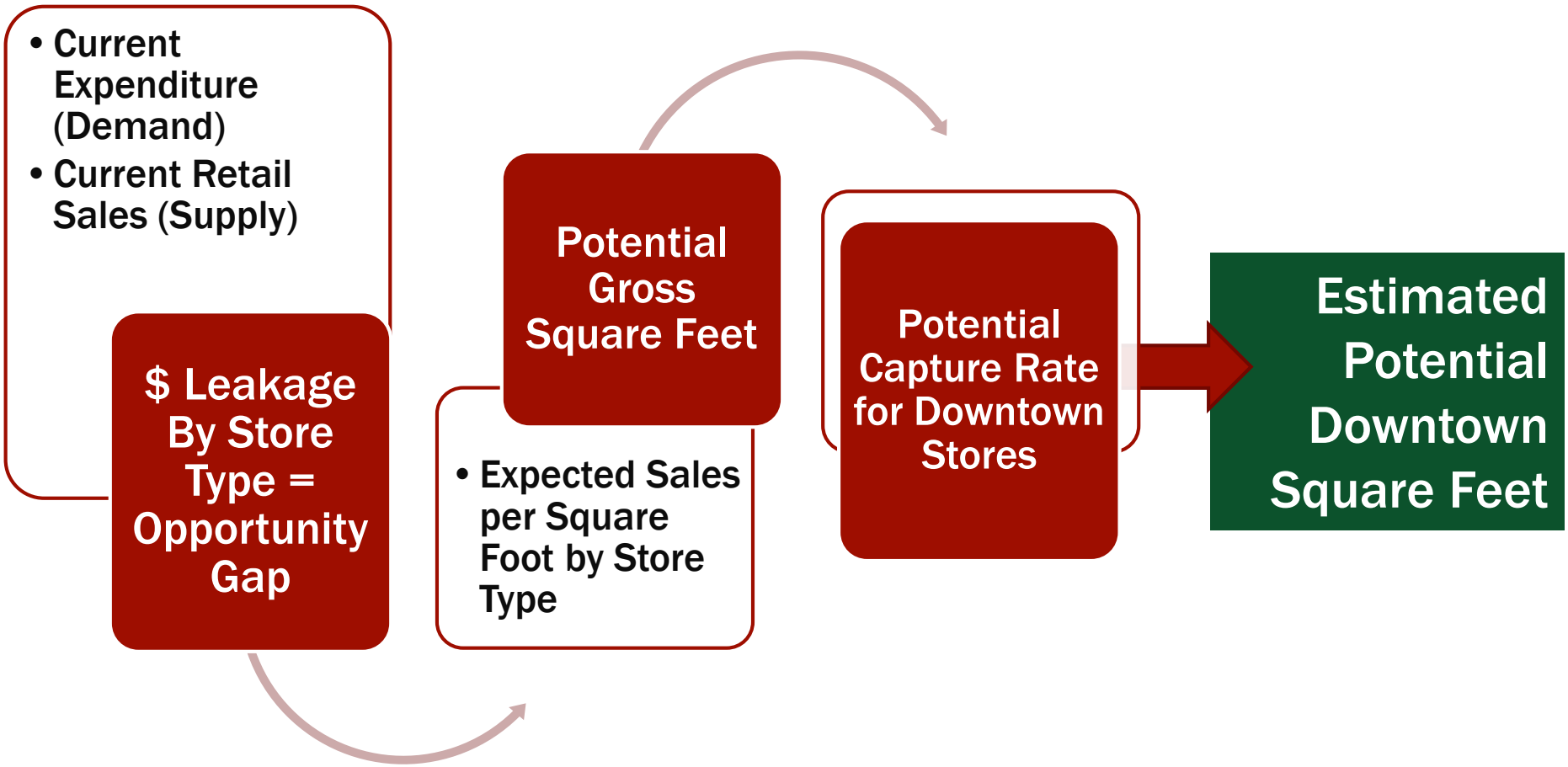
RETAIL POTENTIAL: GAP ANALYSIS

Retail Trade Area: 2-Mile Radius

- A positive value signifies an more current retail demand than current dollars spent in the trade area, while a negative value signifies a surplus of retail space relative to current demand.
- Store types with positive values represent an opportunity gap.

Source: Nielsen, Inc.

COMMERCIAL ANALYSIS
STATISTICAL DEMAND METHODOLOGY



RETAIL POTENTIAL: DEMAND ANALYSIS RESULTS

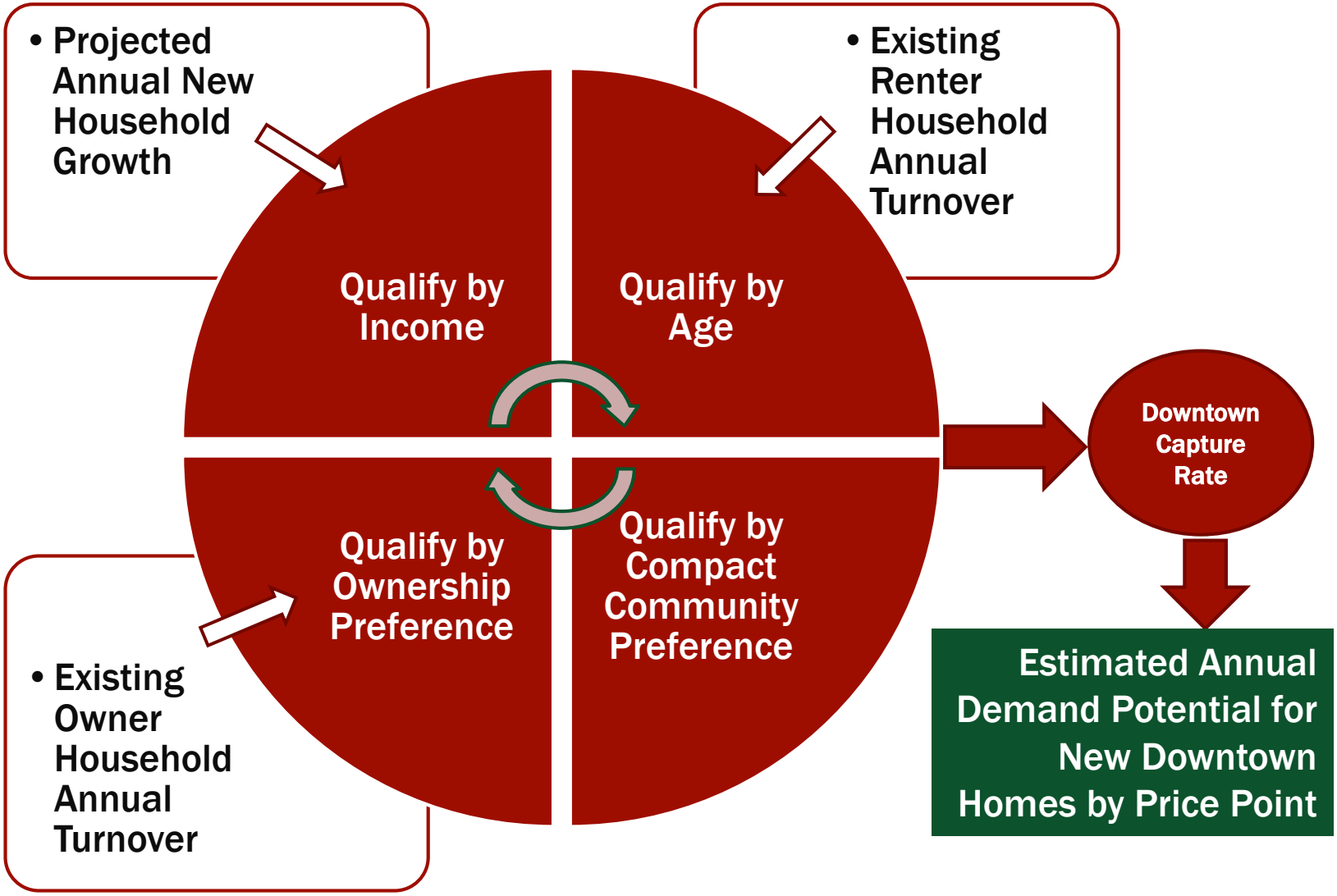
Retail Trade Area: 2-Mile Radius

- Current HH in the area could support 18,000 – 19,000 SF of commercial space.
- Future HH in the area, including the potential buildout of Downtown Holly Springs, could support 6,000 – 7,000 SF of commercial space.
- Total potential for up to 25,000 SF of commercial space.

	Current HH Demand	Future HH Demand	Total
Home Furnishings Stores	2,154	328	**2,482**
Health and Personal Care Stores	1,319	527	**1,846**
Clothing and Clothing Accessories Stores	2,658	372	**3,030**
Other General Merchandise Stores	0	1,054	**1,054**
Miscellaneous Store Retailers	1,539	558	**2,097**
Local Serving Office	7,500	2,500	**10,000**
Food/Beverage & Restaurants	3,531	995	**4,526**
	18,701	**6,334**	**25,036**

Source: BAG

RESIDENTIAL ANALYSIS
STATISTICAL DEMAND METHODOLOGY



HOLLY SPRINGS MARKET POTENTIAL

Development Program										
Residential	DU/A	Acres	Units	Min.		Max.	SF Min.		SF Max.	Avg. $/SF	Annual Absorption	Sales Period (Months)
Small Lot Single-Family	4	6	25	$450,000	-	$ 500,000	2,500	-	3,000	$ 173	15	20
Townhome	10	5	45	$300,000	-	$ 450,000	1,750	-	2,500	$ 176	15	36
For-Sale Flats	35	1	21	$200,000	-	$ 250,000	1,500	-	2,250	$ 122	7	36
For-Sale Total	**8**	**12**	**91**	**$200,000**	**-**	**$ 500,000**	**1,500**	**-**	**3,000**		**37**	
Senior Housing	35	4	150								75	24
Rental Flats	35	4	150								75	24
Total Residential		**16**	**391**									
Commercial			**SF**									
Office (SF)			10,000									
Retail (SF)			15,000									
Total Commercial			**25,000**									

- Downtown Holly Springs can expect to sell 35-40 new homes annually:
  - 15+/- annual single-family sales at one price point: $450,000-$500,000
  - 15+/- annual townhome sales at two price points: $300,000-$350,000 & $400,000-$450,000
  - 7+/- annual condominium sales: $200,000-$250,000
- Potential for up to 150 new apartments and 150 senior units over a two-year lease-up period.
- Potential for up to 25,000 SF of commercial space in Downtown Holly Springs.

EXHIBIT I

Tax Allocation District Number 2 – New Town Center

State of Georgia

Department of Revenue

Lynnette T Riley
Commissioner

Suite 15300
1800 Century Boulevard
Atlanta, Georgia 30345
(404) 417-2100

Ellen Mills
Director
Local Government Services
Division

Karen Norred, City Clerk
City of Holly Springs
P O Box 990
Holly Springs, Georgia 30142

Dear Ms. Norred;

The attached "Attachment D" lists the value of property located within the "City of Holly Springs Tax Allocation District Number 2 - New Town Center" as certified by the Cherokee County Board of Tax Assessors and found on the 2015 Cherokee County ad valorem tax digest.

The total taxable fair market value for the properties included within the district is **$41,065,900** and the forty percent taxable assessed value is **$16,426,360**.

Pursuant to the requirements of O.C.G.A. § 36-44-10, I hereby certify the tax allocation increment base for the district defined as "City of Holly Springs Tax Allocation District Number 2 - New Town Center" to be **$16,426,360**, effective December 31, 2015.

Lynnette T. Riley
Commissioner
Georgia Department of Revenue

Sworn to and subscribed before me

This 1st day of March, 2016

Notary Public

Notary Public, Henry County, Georgia
My Commission Expires Nov. 01, 2019

Attachment D: Cherokee County Board of Assessors Submittal Letter

December 21, 2015

Lynette T. Riley, State Revenue Commissioner
Georgia Department of Revenue
1800 Century Center Boulevard, N.E.
Atlanta, Georgia 30345-3205

Attn: Ellen Mills, Director
Local Government Services Division
Digest Compliance Section
4125 Welcome All Road
Atlanta GA 30349

Re: Certification of City of Holly Springs Tax Allocation District #2 New Town Center - 2015

Dear Commissioner Riley:

Pursuant to OCGA 36-44-10, I hereby certify on behalf of the Cherokee County Tax Assessors that the attached property information is true and correct based on the best information available.

Please free to call Steve Swindell, Chief Appraiser, at 678-493-6140, should you have any questions.

Very truly yours,

Daniel Clifford
Chairman, Board of Assessors

Steve Swindell
Chief Appraiser

12/21/2015
Date

cc: Sonya Little, Cherokee County Tax Commissioner

Karen Norred, City Clerk, City of Holly Springs

	A	B	C	D	E	F	G	H	I
1	TIN	LandLot	Owner	Acres	Land	Buildings	FMV	Assessed	LUC
40	15N14 201	413	Elm Street Properties, Lllp	1.24	$ 74,400	$345,900	$420,300	$168,120	I3/I1
41	15N14 202	413	Elm Street Properties, Lllp	1.25	$ 75,000	$386,200	$461,200	$184,480	I3/I1
42	15N14 203	413	Greene Realty, Llc	1.00	$ 60,000	$417,500	$477,500	$191,000	I3/I1
43	15N14 204	413	Toremac Holdings, Llc	2.10	$ 126,000	$592,400	$718,400	$287,360	I3/I1
44	15N14 205	380	Weaver, Jack E. & Tracy S.	2.00	$ 120,000	$111,800	$231,800	$92,720	I3/I1
45	15N14 206 A	380	Richards, Vanessa L.	1.00	$ 60,000	$100,800	$160,800	$64,320	I3/I1
46	15N14 206 B	380	Richards, Vanessa L.	1.00	$ 60,000	$99,600	$159,600	$63,840	I3/I1
47	15N14 207	380	Fitton, Bernard	3.00	$ 126,000	$577,200	$703,200	$281,280	I4/I1
48	15N14 207 A	380	Washbaugh Family, LLC	2.86	$ 128,700	$975,700	$1,104,400	$441,760	I3/I1
49	15N14 207 B	380	Headturners Autos, Llc	3.10	$ 148,800	$394,100	$542,900	$217,160	I4/I1
50	15N14 208	380	Schroeder, Gary & Howard Mathi	1.20	$ 64,800	$86,000	$150,800	$60,320	I3/I1
51	15N14 208 A	380	Value Leasing Corporation	1.51	$ 90,600	$628,200	$718,800	$287,520	I3/I1
52	15N14 208 B	380	Moody, Jason R.	1.00	$ 90,000	$87,800	$188,000	$75,200	I3/I1
53	15N14 209	380	Sumerford, Harold A., Sr.	3.05	$ 183,000	$0	$183,000	$73,200	I4
54	15N14 210	379	Sumerford, Harold A., Sr.	2.29	$ 137,400	$131,300	$268,700	$107,480	I3/I1
55	15N14 211	342	Sumerford, Harold A., Sr.	1.59	$ 95,400	$210,300	$305,700	$122,280	I3/I1
56	15N14 212	342	American Manufacturing Specialist, Inc.	1.09	$ 65,400	$131,300	$196,700	$78,680	I3/I1
57	15N14 213	342	Ns Realty Investment Llc	1.06	$ 63,600	$203,200	$266,800	$106,720	I3/I1
58	15N14 214	342	Davis Family Realty, Llc	2.00	$ 120,000	$366,300	$486,300	$194,520	I3/I1
59	15N14 215	380	Sam & Art Properties, Llc	1.75	$ 105,000	$251,900	$356,900	$142,760	I3/I1
60	15N14 216	380	Wheeler, James Wayne & Janice E.	1.46	$ 87,600	$306,600	$394,200	$157,680	I3/I1
61	15N14 217	380	Southgate Properties, Llc	1.89	$ 113,400	$236,000	$349,400	$139,760	I3/I1
62	15N14 218	380	Smith, Kenneth W.	1.02	$ 61,200	$0	$61,200	$24,480	I3
63	15N14 219	413	Place Property Management Corp	1.00	$ 60,000	$207,500	$267,500	$107,000	I3/I1
64	15N14 220	413	Kitchens, John A.	1.00	$ 60,000	$103,400	$163,400	$65,360	I3/I1
65	15N14 221	413	LINDE ENGINEERING NORTH AMERICA INC	1.00	$ 60,000	$286,100	$346,100	$138,440	I3/I1
66	15N14 222 A	413	Selas Fluid Processing Corp	1.00	$ 15,000	$0	$15,000	$6,000	I3
67	15N14 224	413	Hepler, Tommy Andrew & Lucindak.	1.00	$ 100,000	$315,400	$415,400	$168,160	I3/I1
68	15N14 225	413	Brennan, Edward J. & Donna M.	1.00	$ 100,000	$159,200	$259,200	$103,680	I3/I1
69	15N14 226	413	Smith, Kenneth W.	1.02	$ 102,000	$262,100	$364,100	$145,640	I3/I1
70	15N14 227	380	Smith, Kenneth W.	1.00	$ 100,000	$268,800	$368,800	$147,520	I3/I1
71	15N14 228	380	Chapman, Randall H.	1.00	$ 100,000	$101,800	$201,800	$80,720	I3/I1
72	15N14 229	380	Ihs Enviromental Services, Inc	1.00	$ 100,000	$440,200	$540,200	$216,080	I3/I1
73	15N14 230	380	Reece, Dennis	1.01	$ 101,000	$153,100	$254,100	$101,640	I3/I1
74	15N14 231	380	Linton, Daniel & Marilyn	1.06	$ 84,800	$20,100	$104,900	$41,960	I3/I1
75	15N14 232	380	Ward, John A. & Mary E.	1.02	$ 102,000	$79,200	$181,200	$72,480	I3/I1
76	15N14 233	380	Strozier, Robert E.	1.02	$ 81,600	$103,700	$185,300	$74,120	I3/I1
77	15N14 234	342	Morris, Carol Ann & Michael Anthony	1.60	$ 160,000	$0	$160,000	$64,000	I3

	A	B	C	D	E	F	G	H	I
1	TIN	LandLot	Owner	Acres	Land	Buildings	FMV	Assessed	LUC
116	93N00 026	343	Harris, Harold L. & Carole	0.38	$ 17,000	$41,900	$58,900	$23,560	R3/R1
117	93N00 027	343	Hudgins, Dale G. & Jane E.	0.43	$ 17,000	$42,100	$59,100	$23,640	R3/R1
118	93N00 028	343	Hughes, Pat G.	0.70	$ 17,000	$65,900	$82,900	$33,160	R3/R1
119	93N00 029	343	Voyles, Lynda	1.50	$ 25,500	$80,200	$105,700	$42,280	R3/R1
120	93N00 029 A	343	Kendall, Ruby P. & V. W.	0.65	$ 20,400	$131,100	$151,500	$60,600	R3/R1
121	93N00 029 B	343	Burnett, Harry Glenn & Judy K.	0.71	$ 20,400	$144,400	$164,800	$65,920	R3/R1
122	93N00 036	343	Hogan, Mary Jo	1.70	$ 25,500	$50,900	$76,400	$30,560	R3/R1
123	93N00 036 A	343	Montgomery, Jessica L. & Joshua R.	0.83	$ 20,400	$80,500	$100,900	$40,360	R3/R1
124	93N00 036 B	343	Crowe, Wesley & Orene	0.71	$ 20,400	$65,300	$85,700	$34,280	R3/R1
125	93N00 038	343	Barrett, Carl Estate C/O Anne Payne, Executrix	1.62	$ 81,000	$66,100	$147,100	$58,840	R3/R1
126	93N00 038 A	343	City Of Holly Springs	0.42	$ 57,700	$0	$57,700	$0	E1
127	93N00 040	305	City Of Holly Springs	0.05	$ 22,000	$0	$22,000	$0	E1
128	93N00 040 A	305	City Of Holly Springs	0.11	$ 81,500	$0	$81,500	$0	E1
129	93N00 040 B	305	City Of Holly Springs	0.34	$ 81,000	$0	$81,000	$0	E1
130	93N00 041	344	City Of Holly Springs	0.17	$ 126,800	$0	$126,800	$0	E1
131	93N00 042	344	City Of Holly Springs	0.06	$ 100,000	$0	$100,000	$0	E1
132	93N00 043	344	City Of Holly Springs	0.09	$ 133,900	$0	$133,900	$0	E1
133	93N00 044	344	Patterson, Patricia	0.24	$ 60,000	$109,500	$169,500	$67,800	C3/C1
134	93N00 045	344	Pfs Group Llc	0.26	$ 100,000	$69,900	$169,900	$67,960	C3/C1
135	93N00 045 A	344	Pfs Group Llc	0.14	$ 10,000	$0	$10,000	$4,000	C3/C1
136	93N00 046	344	Hefner, Eddie R.	0.93	$ 100,000	$27,300	$127,300	$50,920	C3/C1
137	93N00 047	344	Hefner, Eddie R.	3.19	$ 63,800	$66,900	$130,700	$52,280	C4/C1
138	93N00 047 A	344	Hefner, Eddie R.	0.21	$ 75,000	$18,500	$93,500	$37,400	C3/C1
139	93N00 048	344	Bradley, Evelyn & Jones, Lilia	1.00	$ 50,000	$54,900	$104,900	$41,960	C3/C1
140	93N00 049	344	Distefano, Wanda M. & Anthony J. Distefano	1.61	$ 100,000	$88,500	$188,500	$75,400	C3/C1
141	93N00 050	344	Dunn, Ronald & Dunn, Ruby Nell	3.64	$ 37,500	$68,300	$105,800	$42,320	C3/C1
142	93N00 051	344	Wallace, Clydia Joann & Stancil, Patricia Onzell Dunn & D*	2.25	$ 22,200	$0	$22,200	$8,880	R3/R1
143	93N00 052	344	Mullins, J. C. & Martha Ruth Mullins	6.56	$ 42,300	$289,300	$331,600	$132,640	R4/R1
144	93N00 054	344	Storage Consulting Ii, Llc	3.75	$ 300,000	$489,400	$789,400	$315,760	C4/C1
145	93N00 055	344	S & D Industrial, Inc.	0.62	$ 100,000	$326,400	$426,400	$170,560	C3/C1
146	93N00 056	344	S & D Industrial, Inc	0.20	$ 50,000	$35,100	$85,100	$34,040	C3/C1
147	93N00 058	344	Selig Enterprises Inc	0.19	$ 46,700	$41,100	$87,800	$35,120	C3/C1
148	93N00 059 A	305	Everett/Shirley/Poor, Llc	0.90	$ 90,100	$0	$90,100	$36,040	C3/C1
149	93N00 061	305	Holly Springs Baptist Church	3.69	$ 577,500	$674,900	$1,252,400	$0	E2/E1
150	93N00 061 A	305	Everett/Shirley/Poor, Llc	0.31	$ 93,000	$47,400	$140,400	$56,160	C3/C1
151	93N00 062	305	State Of Georgia	1.96	$ 317,800	$0	$317,800	$0	E1
152	93N00 063	344	Mullins, Ashley Brett	0.98	$ 22,100	$102,900	$125,000	$50,000	R3/R1
153	93N00 064	344	Goddard, David & Goddard, Sen Thi	0.66	$ 34,000	$0	$34,000	$13,600	R3/R1

EXHIBIT J
Certification of Consultant – Drug-Free Workplace

CERTIFICATION OF

CONSULTANT DRUG-FREE

WORKPLACE

I hereby certify that I am a principle and duly authorized representative of _____ ("Consultant"), whose address is _____ and I further certify that:

(1) The provisions of Section 50-24-1 through 50-24-6 of the Official Code of Georgia Annotated, relating to the "Drug-Free Workplace Act" have been complied with in full; and

(2) A drug-free workplace will be provided for Consultant's employees during the performance of the Agreement; and

(3) Each subcontractor hired by Consultant shall be required to ensure that the subcontractor's employees are provided a drug-free workplace. Consultant shall secure from that subcontractor the following written certification: "As part of the subcontracting agreement with Consultant, _____ certifies to Consultant that a drug-free workplace will be provided for the subcontractor's employees during the performance of this Agreement pursuant to paragraph (7) of subsection (b) of the Official Code of Georgia Annotated, Section 50-24-3"; and

(4) The undersigned will not engage in unlawful manufacture, sale, distribution, dispensation, possession, or use of a controlled substance or marijuana during the performance of the Agreement.

CONSULTANT:

Date: _____ Signature: _____

Title: _____

EXHIBIT K
Contractor Affidavit and Agreement Under O.C.G.A. §13-10-91 (b)(1)

CONTRACTOR AFFIDAVIT AND AGREEMENT

By executing this affidavit, the undersigned contractor verifies its compliance with O.C.G.A. §§13-10-91(b)(1) (b)(1), stating affirmatively that the individual, firm, or corporation which is contracting with the City of Holly Springs has registered with and is participating in a federal work authorization program* [any of the electronic verification of work authorization programs operated by the United States Department of Homeland Security to verify information of newly hired employees, pursuant to the Immigration Reform and Control Act of 1986 (IRCA) P.L. 99-603), in accordance with the applicability provisions and deadlines established in O.C.G.A. §13-10-91(b)(1).

The undersigned further agrees that, should it employ or contract with any subcontractor(s) in connection with the physical performance of services pursuant to this contract the City of Holly Springs, contractor will secure from such contractor(s) similar verification of compliance with O.C.G.A. §13-10-91(b)(1) on the Subcontractor Affidavit provided in Rule 300-10-01-.08 or a substantially similar form. Contractor further agrees to maintain records of such compliance and provide a copy of each such verification to the City of Holly Springs at the time the subcontractor(s) is retained to provide the service.

_____ _____
E-Verify * User Identification Number Date Registered

_____
Legal Company Name

_____
Company Address

_____ _____
BY: Authorized Officer or Agent Date
(Contractor Signature)

_____
Title of Authorized Officer or Agent of Contractor

_____
Printed Name of Authorized Officer or Agent

SUBSCRIBED AND SWORN BEFORE ME ON THIS
_____ DAY OF _____, 201__

_____ AFFIX SEAL
Notary Public
My Commission Expires:

_____

*As of the effective date of O.C.G.A. §13-10-91(b)(1) , the applicable federal work authorization program is the "EEV/Basic Rule Pilot Program" operated by the U.S. Citizenship and Immigration Services Bureau of the U.S. Department of Homeland Security, in Conjunction with the Social Security Administration (SSA).