TOWN OF CHAPEL HILL

Town Council
Meeting Agenda

Town Hall
405 Martin Luther King Jr.
Boulevard
Chapel Hill, NC 27514

Mayor Pam Hemminger
Mayor pro tem Jessica Anderson
Council Member Donna Bell
Council Member Allen Buansi
Council Member Hongbin Gu
Council Member Nancy Oates
Council Member Michael Parker
Council Member Rachel Schaevitz
Council Member Karen Stegman

Wednesday, March 7, 2018 7:00 PM RM 110 | Council Chamber

OPENING

PETITIONS FROM THE PUBLIC AND COUNCIL MEMBERS

Petitions and other similar requests submitted by the public, whether written or oral, are heard at the beginning of each regular meeting. Except in the case of urgency and unanimous vote of the Council members present, petitions will not be acted upon at the time presented. After receiving a petition, the Council shall, by simple motion, dispose of it as follows: consideration at a future regular Council meeting; referral to another board or committee for study and report; referral to the Town Manager for investigation and report; receive for information. See the Status of Petitions to Council webpage to track the petition. Receiving or referring of a petition does not constitute approval, agreement, or consent.

1. Petitions from the Public and Council Members. **[18-0184]**
a. Kidzu Children's Museum Request for Town Assistance to Explore the Southern Village Site for New Museum.

PUBLIC COMMENT - ITEMS NOT ON PRINTED AGENDA

ANNOUNCEMENTS BY COUNCIL MEMBERS

CONSENT

Items of a routine nature will be placed on the Consent Agenda to be voted on in a block. Any item may be removed from the Consent Agenda by request of the Mayor or any Council Member.

2. Approve all Consent Agenda Items. **[18-0185]**

By adopting the resolution, the Council can approve various resolutions and ordinances all at once without voting on each resolution or ordinance separately.

3. Approve a Contract Extension for Audit Services Contract for Fiscal Year 2017-18. **[18-0186]**

By adopting the resolution, the Council accepts the proposal for the Town's FY2017-18 audit from Martin Starnes & Associates CPAs P.A. in the amount of $51,500, exercising the first of four one-year contract renewal options and authorizes a contract to be signed by the Mayor on behalf of the Town.

4. Amend the Town's Planning and Development Services Fee Schedule to Add a Fee for Wireless Facilities Applications. **[18-0187]**

By adopting the resolution, the Council amends the Fiscal Year 2017-18 fee schedule to add a $500 fee for Wireless Facilities Applications.

5. Call a Public Hearing on April 18, 2018 to Consider Adopting the Blue Hill Design Guidelines and Associated Amendments to Form District Regulations. **[18-0188]**

By adopting the resolution, the Council calls a public hearing on Wednesday, April 18, 2018 at 7:00 p.m. to consider Form District Regulations pertaining to adoption and implementation of the Blue Hill Design Guidelines.

INFORMATION

6. Receive Upcoming Public Hearing Items and Petition Status List. **[18-0189]**

By accepting the report, the Council acknowledges receipt of the Scheduled Public Hearings and Status of Petitions to Council lists.

7. Receive 2017 University of North Carolina Annual Development Plan Report on Transportation. **[18-0190]**

By receiving the report, the Council acknowledges receipt of the 2017 University of North Carolina Annual Development Plan Report on Transportation.

DISCUSSION

8. Review of Draft Advertisement for Town Manager Process. **[18-0191]**

PRESENTER: Heather A. Lee, Ph.D., SPHR, Developmental Associates, LLC

The purpose of this discussion is to review the draft advertisement and receive

additional public comment regarding the Town Manager search.

9. Presentation: University of North Carolina at Chapel Hill Semi-Annual Campus Development Report. **[18-0192]**

PRESENTER: Ben Hitchings, Planning and Development Services Director
Anna Wu, Associate Vice Chancellor for Facilities Services & University Architect, UNC-Chapel Hill

RECOMMENDATION: That the Council receive the report.

APPOINTMENTS

10. Appointment to the Community Policing Advisory Committee. **[18-0193]**

REQUEST FOR CLOSED SESSION TO DISCUSS ECONOMIC DEVELOPMENT, PROPERTY ACQUISITION, PERSONNEL, AND/OR LITIGATION MATTERS

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 1., **File #:** [18-0184], **Version:** 1 **Meeting Date:** 3/7/2018

Petitions from the Public and Council Members.

a. Kidzu Children's Museum Request for Town Assistance to Explore the Southern Village Site for New Museum.

Staff:
Sabrina M. Oliver, Director and Town Clerk
Amy T. Harvey, Deputy Town Clerk

Department:
Communications and Public Affairs

Overview: Petitions and other similar requests submitted by the public, whether written or oral, are heard at the beginning of each regular meeting. Except in the case of urgency and unanimous vote of the Council members present, petitions will not be acted upon at the time presented. After receiving a petition, the Council shall, by simple motion, dispose of it as follows: consideration at a future regular Council meeting; referral to another board or committee for study and report; referral to the Town Manager for investigation and report; receive for information. See the Status of Petitions to Council <http://www.townofchapelhill.org/town-hall/mayor-and-council/council-minutes-and-videos/petition-status> webpage to track the petition. Receiving or referring of a petition does not constitute approval, agreement, or consent.

Recommendation(s):

That the Council consider the following petition(s):

- Kidzu Children's Museum Request for Town Assistance to Explore the Southern Village Site for New Museum.

Attachments:

- Kidzu Children's Museum Request

KIDZU CHILDREN'S MUSEUM

February 20, 2018

To: Mayor Hemminger, Chapel Hill Town Council Members

CC: Roger Stancil, Town Manager

From: Kidzu Children's Museum

RE: PETITION for Town Assistance to explore Southern Village site for new museum

Dear Mayor Pam and Town Council Members,

As all of you know, Kidzu has been working diligently with elected officials and Town staff over the past 18 months to identify and secure an appropriate site to create a right-sized children's museum that is emblematic of Chapel Hill's reputation for educational excellence and can adequately meet the diverse geographic and demographic needs of our community. We respectfully submit this petition to request Town assistance with exploring the Southern Village site as a potential location for a new Chapel Hill Children's Museum.

Children's Museums are far and away the fastest growing segment of the museum industry, and children's museums have become fundamental destinations for learning and play throughout cities and towns across America. Many of them were created as part of downtown expansion or revitalization projects. University communities seem to produce the most innovative of museums, as they reflect a melting pot of particular intellectual, creative and entrepreneurial rigor. While Kidzu has been serving Chapel Hill children for 12 years in multiple, small locations, it's time for our Town to benefit from a children's museum that is sufficiently reflective of our community's commitment to the healthy development of its youngest residents. In 2017, Kidzu served 90,000 children – from infants to tweens -- with developmentally appropriate exhibits, programs and activities addressing four broad themes: arts education, STEM, health and wellness and emerging literacy. The new museum is projected to serve upwards of 200,000 visitors annually, and bring thousands to Chapel Hill from across our region, state and points beyond. A children's museum of this caliber will significantly enrich our local economy and become a destination for generations to come.

Please accept this petition on behalf of Kidzu Children's Museum. Kidzu requests:

- Town staff time and expertise to assess and discuss the potential location of the new Kidzu (The Chapel Hill Children's Museum) on the Town-owned land fronting Southern Village.

Any immediate questions or concerns can be addressed with Lisa Van Deman, Kidzu Executive Director (vandeman@kidzuchildrensmuseum.org).

Respectfully submitted,

Melissa Cain, Board Chair

Lisa Van Deman, Ex Officio
Executive Director

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 2., **File #:** [18-0185], **Version:** 1 **Meeting Date:** 3/7/2018

Approve all Consent Agenda Items.

Staff:
Sabrina M. Oliver, Director and Town Clerk
Amy T. Harvey, Deputy Town Clerk

Department:
Communications and Public Affairs

Overview: Items of a routine nature to be voted on in a block. Any item may be removed from the Consent Agenda by the request of the Mayor or any Council Member.

Recommendation(s):

That the Council adopt the various resolutions and ordinances.

Fiscal Impact/Resources: Please refer to each agenda item for specific fiscal notes.

Council Goals: Please refer to each agenda item for specific Council Goals.

Attachments:

- Resolution

A RESOLUTION ADOPTING VARIOUS RESOLUTIONS AND ENACTING VARIOUS ORDINANCES (2018-03-07/R-1)

BE IT RESOLVED by the Council of the Town of Chapel Hill that the Council hereby adopts the following resolutions and ordinances as submitted by the Town Manager in regard to the following:

2. Approve a Contract Extension for Audit Services Contract for Fiscal Year 2017-18 (R-2).

3. Amend the Town's Planning and Development Services Fee Schedule to Add a Fee for Wireless Facilities Applications (R-3).

4. Call a Public Hearing on April 18, 2018 to Consider Adopting the Blue Hill Design Guidelines and Associated Amendments to Form District Regulations (R-4).

This the 7th day of March, 2018.

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By adopting the resolution, the Council can approve various resolutions and ordinances all at once without voting on each resolution or ordinance separately.

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TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 3., **File #:** [18-0186], **Version:** 1 **Meeting Date:** 3/7/2018

Approve a Contract Extension for Audit Services Contract for Fiscal Year 2017-18.

Staff:
Kenneth C. Pennoyer, Director
Amy Oland, Assistant Director

Department:
Business Management

Overview: The attached resolution would authorize the Mayor to execute a contract with the Certified Public Accounting firm of Martin Starnes & Associates, P.A. to conduct the annual audit for the 2017-18 fiscal year. In June of 2017, Council awarded the Audit Services Contract for FY2016-17 to Martin Starnes based on the results of a Request for Proposals (RFP) process. The Contract includes a provision for four one-year contract extensions. Adoption of the attached resolution would authorize the first 1-year extension of the existing Audit Services Contract.

Recommendation(s):

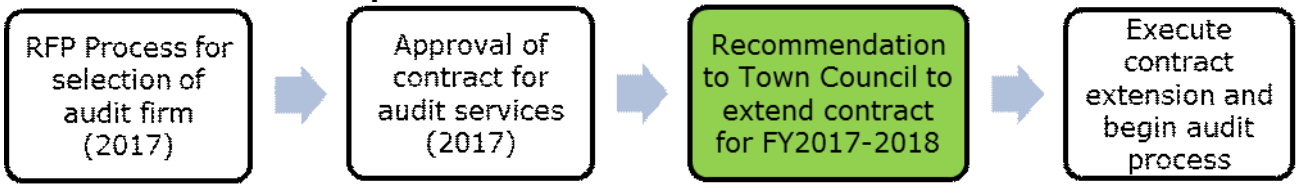
That the Council adopt the attached resolution authorizing the execution of the audit services contract to Martin Starnes & Associates, CPA, P.A. in the amount of $51,500 for fiscal year 2017-18, extending the existing contract for one year.

Key Issues:

- The Town conducted an RFP for audit services in 2017 that resulted in the selection of Martin Starnes & Associates.
- Martin Starnes has been the Town's external auditor since FY2007-08 and have provided consistent and responsive services and competitive pricing throughout their tenure.
- The contract with Martin Starnes & Associates includes a provision for four one-year extensions. FY2017-18 would be the first extension of the FY2016-17 contract.

Fiscal Impact/Resources: The audit fee for FY2017-18 is $51,500. The cost of the audit will be included in the FY2018-19 Manager's Recommended Budget in the Business Management Department.

Where is this item in its process?



Item #: 3., **File #:** [18-0186], **Version:** 1 **Meeting Date:** 3/7/2018

Council Goals:

☐		Create a Place for Everyone	☐		Develop Good Places, New Spaces
☒		Support Community Prosperity	☐		Nurture Our Community
☐		Facilitate Getting Around	☐		Grow Town and Gown Collaboration

Attachments:

- Resolution

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A RESOLUTION AUTHORIZING THE EXTENSION OF THE CONTRACT WITH OF MARTIN STARNES & ASSOCIATES, CPAS, P.A. TO PERFORM THE TOWN OF CHAPEL HILL'S FY2017-18 AUDIT (2018 -03-07/R-2)

WHEREAS, the Town of Chapel Hill is required by the Local Government Budget and Fiscal Control Act to have its accounts audited by a certified public accounting firm after the close of the fiscal year; and

WHEREAS, the Town of Chapel Hill issued a request for proposals in 2017 and selected Martin Starnes & Associates, CPAs P.A. to conduct the FY2016-17 audit with an option to renew their contract for 4 one-year extensions.

NOW, THEREFORE, BE IT RESOLVED by the Council of the Town of Chapel Hill that the Council hereby approves the renewal of that contract for one year and authorizes the Mayor to execute a contract with Martin Starnes & Associates CPAs P.A. in the amount of $51,500 for the Town's FY 2017-18 audit.

This the 7th day of March, 2018.

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By adopting the resolution, the Council accepts the proposal for the Town's FY2017-18 audit from Martin Starnes & Associates CPAs P.A. in the amount of $51,500, exercising the first of four one-year contract renewal options and authorizes a contract to be signed by the Mayor on behalf of the Town.

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TOWN OF CHAPEL HILL

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Item Overview

Item #: 4., **File #:** [18-0187], **Version:** 1 **Meeting Date:** 3/7/2018

Amend the Town's Planning and Development Services Fee Schedule to Add a Fee for Wireless Facilities Applications.

Staff:
Phil Mason, Planning Manager
Michael Sudol, Planner

Department:
Planning and Development Services

Overview: Legislation passed by the North Carolina General Assembly (HB310) on July 21, 2017 requires that local governments limit the payment for consultant review of small cell wireless facilities in public rights-of-way to $500. The Town's existing fee for wireless consultant technical review is $1,000. The proposed change would correct this fee discrepancy. The fee schedule amendment is necessary for the Town to collect the statutorily allowable fee and be able to pay the consultant to provide technical review of wireless applications.

Recommendation(s):

That the Council amend the fee schedule to add a fee for Wireless Facilities Applications.

Fiscal Impact/Resources: No fiscal impact, as fees collected are transferred to consultant. Technical review by wireless consultant provides important resource support to staff for this type of review which we expect to be increasing in the future.

Attachments:

- Resolution

Item #: 4., **File #:** [18-0187], **Version:** 1 **Meeting Date:** 3/7/2018

A RESOLUTION TO AMEND THE PLANNING AND DEVELOPMENT SERVICES FEE SCHEDULE ADOPTED FOR FISCAL YEAR 2017-18. (2018-03-07/R-3)

BE IT RESOLVED by the Council of the Town of Chapel Hill that the Council hereby adopts the following addition as an amendment to the Planning and Development Services user fee policies and schedules as adopted on June 12, 2017, as follows:

Wireless Communications Facility:
Facility in Right-Of-Way, Consultant review $500

This the 7th day of March, 2018.

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By adopting the resolution, the Council amends the Fiscal Year 2017-18 fee schedule to add a $500 fee for Wireless Facilities Applications.

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TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 5., **File #:** [18-0188], **Version:** 1 **Meeting Date:** 3/7/2018

Call a Public Hearing on April 18, 2018 to Consider Adopting the Blue Hill Design Guidelines and Associated Amendments to Form District Regulations.

See Staff Report on next page.

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By adopting the resolution, the Council calls a public hearing on Wednesday, April 18, 2018 at 7:00 p.m. to consider Form District Regulations pertaining to adoption and implementation of the Blue Hill Design Guidelines.

CALL A PUBLIC HEARING ON APRIL 18, 2018 TO CONSIDER ADOPTING THE BLUE HILL DESIGN GUIDELINES AND ASSOCIATED AMENDMENTS TO FORM DISTRICT REGULATIONS.

STAFF REPORT

TOWN OF CHAPEL HILL PLANNING AND DEVELOPMENT SERVICES
Ben Hitchings, Director
John Richardson, Community Resilience Officer
Corey Liles, Interim Principal Planner

PROPERTY ADDRESS	BUSINESS MEETING DATE	APPLICANT
Blue Hill District (see attached map)	March 7, 2018	Town of Chapel Hill

STAFF'S RECOMMENDATION

That the Council call a public hearing on April 18, 2018 to consider text amendments to the Form District Regulations pertaining to adoption and implementation of the Blue Hill Design Guidelines.

ITEM OVERVIEW

The Blue Hill Design Guidelines are part of the program of Special Planning Initiatives currently underway. Town Council previously received an update on development of the Design Guidelines on January 24, 2018[1]. A final draft of the Design Guidelines is currently available to the public, along with an overview of proposed changes to the Form District Regulations of the Land Use Management Ordinance that would facilitate implementation. The Community Design Commission and Planning Commission are expected to provide recommendations at their upcoming meetings.

ADDITIONAL BACKGROUND

- The adoption of Design Guidelines is referenced in the current Form District Regulations (LUMO 3.11.1.2.G) as a tool that applicants for development should use in preparing projects for the Community Design Commission's review.
- As part of the Special Planning Initiatives program, work began on the Design Guidelines in Q4 FY17 with a target completion in Q1 FY19. Based on progress to date, the project is on track for completion in Q4 FY18. The full program includes 12 Special Planning Initiatives for the FY16 – FY19 timeframe, with the Design Guidelines falling 8th on the project list.
- The Town has worked with Winter & Company, a planning and urban design firm, to develop and refine the Design Guidelines with a goal of establishing a common understanding of design principles that promote a walkable and 'green' character in the Blue Hill District.
- The associated text amendments are intended to facilitate implementation of the Design Guidelines and improve the predictability of outcomes for the community. In some cases, this includes revising dimensional requirements in the Form District Regulations to support usage of a design technique.

PROCESS

1. Identify Community Design Interests
2. Develop and Review the Draft Guidelines
3. Call Public Hearing
4. Open Public Hearing
5. Close Public Hearing and Consider Action

FISCAL IMPACT/RESOURCES

There are no fiscal impacts with calling the public hearing.

ATTACHMENTS

- Resolution
- Blue Hill District Map

[1] https://chapelhill.legistar.com/LegislationDetail.aspx?ID=3316760&GUID=799CE33D-F30C-406F-ABC1-34298E5791CF&Options=&Search=

RESOLUTION

A RESOLUTION CALLING A PUBLIC HEARING FOR APRIL 18, 2018 TO CONSIDER TEXT AMENDMENTS TO THE FORM DISTRICT REGULATIONS OF THE LAND USE MANAGEMENT ORDINANCE PERTAINING TO THE BLUE HILL DESIGN GUIDELINES (2018-03-07/R-4)

WHEREAS, on May 12, 2014, the Council amended the Land Use Management Ordinance to establish Form District Regulations; and

WHEREAS, these Form District Regulations cite the need for Design Guidelines as a tool development applicants should use in preparing projects for the Community Design Commission's review; and

WHEREAS, the Town has engaged a professional planning and urban design firm to develop and refine a Design Guidelines document with input from the community; and

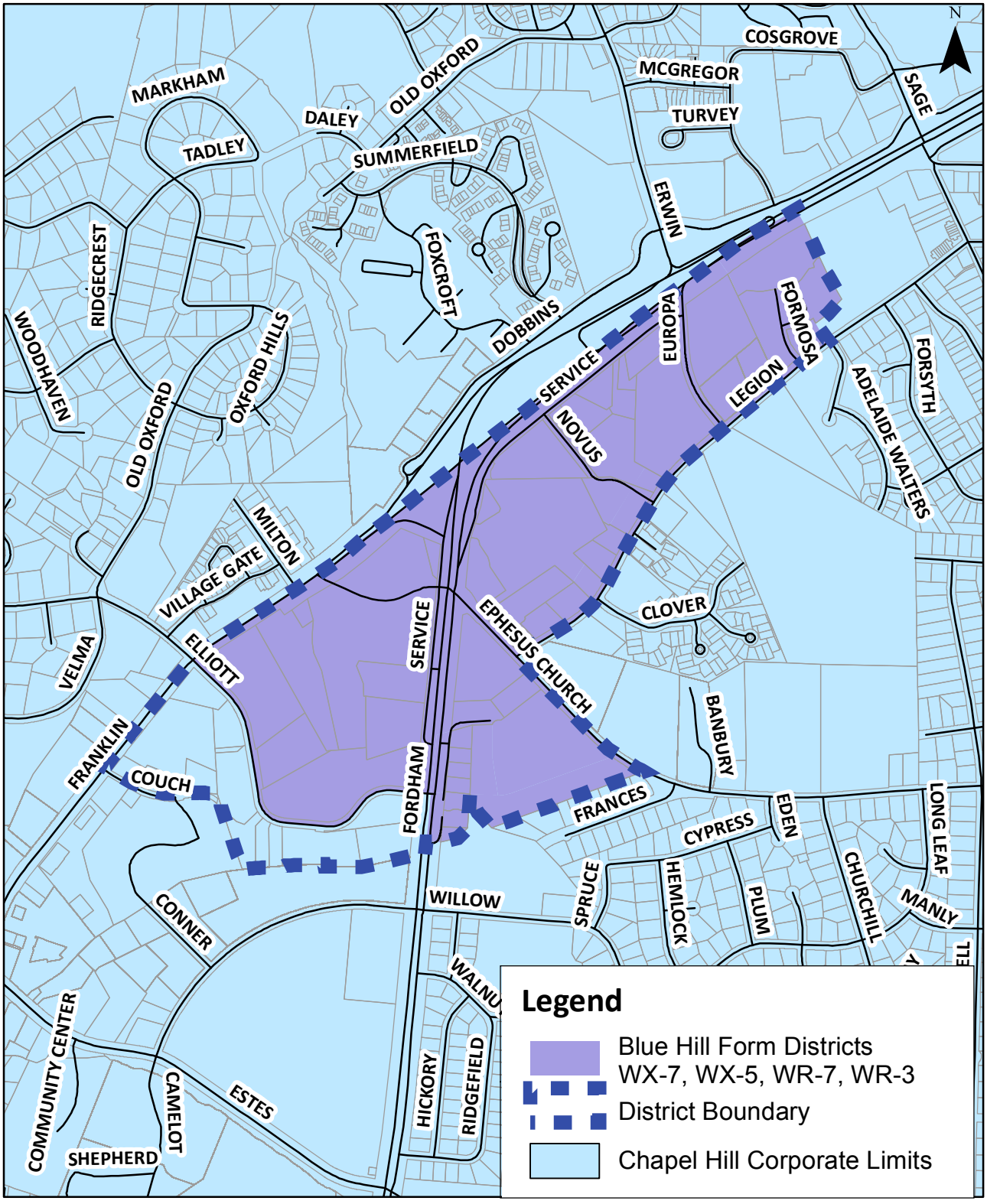
WHEREAS, the Town has further identified a series of new and revised standards that would facilitate implementation of the Design Guidelines and improve the predictability of outcomes for the community.

NOW, THEREFORE, BE IT RESOLVED by the Council of the Town of Chapel Hill that the Council calls a public hearing for Wednesday, April 18, 2018 at 7:00pm in the Council Chamber of Chapel Hill Town Hall, 405 Martin Luther King Jr. Blvd., to consider text amendments to the Form District Regulations pertaining to adoption and implementation of the Blue Hill Design Guidelines.

This the 7th day of March, 2018.

Blue Hill Context Map for Proposed Text Amendments

Design Guidelines and other Text Amendments applicable in each of the Form Districts



Map Created: 2-16-2018
Dept of Planning and Development Services

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 6., **File #:** [18-0189], **Version:** 1 **Meeting Date:** 3/7/2018

Receive Upcoming Public Hearing Items and Petition Status List.

Staff:
Sabrina Oliver, Director and Town Clerk
Amy Harvey, Deputy Town Clerk

Department:
Communications and Public Affairs

Recommendation(s):

That the Council accept the reports as presented.

Background:
Two pages on our website have been created to track:

- public hearings scheduled for upcoming Council meetings; and
- petitions received, including their status and who you can call for information.

The goal is to provide, in easily available spaces, information that allows people to know when Council will be seeking their comments on a particular topic of development and to know the status of a petition submitted at Council meetings.

In addition to being on the website, these pages will be included in each agenda for Council information,

Fiscal Impact/Resources: Staff time was allocated to create the semi-automated web pages, and additional staff time will be needed for maintenance.

Council Goals: Foundational Program: Govern with quality and steward public assets

Attachments:

- Scheduled Public Hearings <http://www.townofchapelhill.org/town-hall/mayor-and-council/council-minutes-and-videos/scheduled-agenda-items>
- Status of Petitions to Council <http://www.townofchapelhill.org/town-hall/mayor-and-council/council-minutes-and-videos/petition-status>

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By accepting the report, the Council acknowledges receipt of the Scheduled Public Hearings and Status of Petitions to Council lists.

SCHEDULED PUBLIC HEARINGS

This webpage lists public hearings that are scheduled for a *specific Council meeting date*, although periodically, some may be continued to a future date. Public hearings may relate to the Land Use Management Ordinance (LUMO), Residential or Commercial Development, Budget, Transportation, or Housing issues. Meeting materials are posted at Council Meeting Agendas, Minutes and Videos.

Interested in a development project not yet scheduled for Council review? See the Development Activity Report for the project's current status.

Date	Title
03-21-2018	Consider a Land Use Management Ordinance Text Amendment - Proposed Revisions to Articles 3 and 4 Related to Conditional Zoning.

Last updated on 03/02/2018 03:00:02.

STATUS OF PETITIONS TO COUNCIL

Petitions submitted during the Town Council meetings are added to the list below, typically within five business days of the meeting date.

To contact the department responsible, click on the department name. Meeting materials are posted at Council Meetings, Agendas, Minutes and Videos.

Meeting Date	Petitioner	Petition Request	Departments Responsible	Petition Status
Filter...	Filter...	Filter...	Filter...	Filter...
02/21/2018	Kimberly Brewer	Request to Make Tiny Homes a Legal and Affordable Housing Option.	Housing & Community Planning & Sustainability	Staff is preparing information to respond to this request.
01/31/2018	Environmental Stewardship Advisory Board	Request for Council Support of a Resolution Endorsing a Federal Revenue-Neutral Carbon Free and Dividend Program.	Planning & Sustainability Public Works	
11/29/2017	Council Members Anderson and Parker	Regarding East Rosemary Street Design Guidelines.	Planning & Sustainability Town Manager	Staff is preparing information to respond to this request.
11/15/2017	Whit Rummel	Request to Reconsider Land Use of Certain Properties along Estes Drive.	Planning & Sustainability	Staff is preparing information to respond to this request.
10/25/2017	Kidzu	Regarding Co-locating a Parking Deck/Children's Museum on the Pritchard Park Property.	Town Manager	The petitioner withdrew this request.

Meeting Date	Petitioner	Petition Request	Departments Responsible	Petition Status
Filter...	Filter...	Filter...	Filter...	Filter...
09/06/2017	Tom Henkel from the Environmental Stewardship Advisory Board	Request for Modification to the Ephesus-Fordham Form-Based Code for the Purposes of Energy Efficiency.	Planning & Sustainability	Where feasible, modifications will be considered as part of the development process for the Blue Hill Design Guidelines.
06/26/2017	Council Members Parker and Greene	Request Regarding Payments in Lieu for Rental Housing Projects	Housing & Community	Staff will provide information to Council at a work session in early 2018.
02/13/2017	Transportation and Connectivity Advisory Board	Request for Increased Staff Time to the Town Staff Bicycle and Pedestrian Committee; and Request for a Process to Update and Modify Bicycle and Pedestrian Projects Reviewed by the Board.	Town Manager Planning & Sustainability	Regular updates on bicycle and pedestrian projects are now being provided at board meetings. Staff will propose a way to consider future staffing resources at an upcoming board meeting.
01/23/2017	Transportation and Connectivity Advisory Board	Request to Support Low/No Vision Guidelines to be Included in the Town's Engineering Manual as Stated in the April 11, 2016 Petition to Council	Public Works Planning & Sustainability	Request incorporated into process to update Public Works Engineering Design Manual.

Meeting Date	Petitioner	Petition Request	Departments Responsible	Petition Status
Filter...	Filter...	Filter...	Filter...	Filter...
11/07/2016	Heather Payne	Regarding Development Proposed at 111 Purefoy Road.	Planning & Sustainability Town Attorney	A revised application was submitted to the Town on 05/26/2017. Public information meetings were held 06/29/2017 and 07/13/2017.
11/07/2016	Mayor Hemminger	Regarding Parking and Transit Needs in Downtown Area.	Planning & Sustainability Police Public Works	Staff shared information about different strategies and best practices and will return with recommendations in Spring 2018.
06/27/2016	Alan Rimer	Regarding Town Action Center	Technology Solutions	A potential service request software solution is being piloted internally. Results of the pilot will guide future expansion to additional departments and the public. A public rollout will be announced through regular communication channels.

Meeting Date	Petitioner	Petition Request	Departments Responsible	Petition Status
Filter...	Filter...	Filter...	Filter...	Filter...
05/09/2016	Stormwater Management Utility Advisory Board	Request for Orange County Commissioners to Increase Staffing in Soil and Erosion Control Division and Improve Efficiency of Temporary Soil Erosion and Sediment Controls During Construction.	Public Works	Petition forwarded to Orange County. Consider changes to soil erosion and sediment control as part of Public Works Engineering Design Manual updates.
04/11/2016	Transportation and Connectivity Advisory Board	Request for Senior Citizen Pedestrian Mobility and Complete Street Implementation	Public Works	Request incorporated into process to update Public Works Engineering Design Manual.
04/11/2016	Transportation and Connectivity Advisory Board	Request to Incorporate Proposed No-Vision and Low-Vision Pedestrian Facilities Guidelines into Design Manual and Development Code as Required	Public Works	Request incorporated into process to update Public Works Engineering Design Manual.
02/22/2016	Ken Larsen	Regarding Town Formulas for Development Parking Space	Planning & Sustainability	Referred to the Future Land Use and Land Use Management Ordinance rewrite process, which began in Fall 2017.

Last modified on 3/2/2018 3:15:07 AM

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 7., **File #:** [18-0190], **Version:** 1 **Meeting Date:** 3/7/2018

Receive 2017 University of North Carolina Annual Development Plan Report on Transportation.

Staff:	**Department:**
Lance Norris, Director	Public Works
Ben Hitchings, Director	Planning and Development Services
Kumar Neppalli, Traffic Engineering Manager	Public Works

Overview: The purpose of this agenda item is to transmit the "2017 Annual Development Plan Report on Transportation" and "2017 Transportation Impact Analysis Update" prepared by the University of North Carolina at Chapel Hill. The University is required by its Development Plan permit to provide this annual update. These reports discuss a variety of transportation issues associated with development activity in the Office/Institutional-4 (OI-4) Zoning District on the University main campus.

Recommendation(s):

That the Council receive the report.

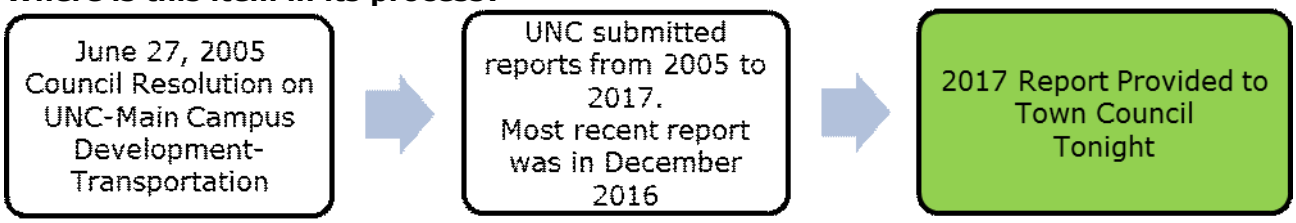
Key Issues:

- On June 27, 2005, the Council approved a resolution requesting that the University submit an Annual Development Plan Report on Transportation associated with development in the Office/Institutional-4 (OI-4) Zoning District on the University campus. The Council also approved the guidelines for the development of the Report. A copy of the resolution and the guidelines are attached.
- The Council resolution requests that:
    a. The University provide the Town with an annual report titled "Annual Development Plan Report on Transportation;"
    b. The annual transportation report be provided in addition to a biennial "Transportation Impact Analysis Report;"
    c. The annual transportation report be submitted in December of each year beginning in December 2005 and thereafter until the end of the current Development Plan cycle; and
    d. The annual report be a condensed, stand-alone document prepared and organized as follows:
        - Overview of the Development Plan;
        - Discussion of changes in transportation issues associated with the Development Plan; and
        - Discussion of mitigation measures and recommendations including the existing and the proposed traffic calming measures on campus and in adjacent neighborhoods.
- This overview transmits the 2017 report and update on the Transportation Impact Analysis. The Council previously received the reports from 2005 to 2016.
- Town staff reviewed the report and finds that the report, in general, is prepared in accordance with the approved guidelines. Traffic volume generally remained stable, or in some cases decreased from 2005.

Fiscal Impact/Resources: No fiscal impact identified at this time.

Item #: 7., **File #:** [18-0190], **Version:** 1 **Meeting Date:** 3/7/2018

Where is this item in its process?



Council Goals:

☐		Create a Place for Everyone	☐		Develop Good Places, New Spaces
☐		Support Community Prosperity	☐		Nurture Our Community
☒		Facilitate Getting Around	☐		Grow Town and Gown Collaboration

Attachments:

- June 27, 2005 Council Resolution and Guidelines for Annual Development Plan Report on Transportation
- 2017 UNC-Annual Development Plan Report on Transportation
- 2017 UNC-Transportation Impact Analysis Update on Development Plan

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

By receiving the report, the Council acknowledges receipt of the 2017 University of North Carolina Annual Development Plan Report on Transportation.

A RESOLUTION REQUESTING A STAND ALONE ANNUAL DEVELOPMENT PLAN REPORT ON TRANSPORTATION FOR DEVELOPMENT IN THE OFFICE/INSTITUTIONAL-4 ZONING (2005-06-27/R-23)

WHEREAS, the Office/Institutional-4 (OI-4) regulations of the Chapel Hill Land Use Management Ordinance currently require a Transportation Impact Analysis for development in the OI-4 Zoning District; and

WHEREAS, on July 2, 2001, guidelines for the Transportation Impact Analysis were endorsed by the Chapel Hill Town Council including identification of transportation impacts and mitigation measures associated with development, along with an implementation and monitoring plan for identified mitigation measures, as well as identifying the extent of the University's contribution to and responsibility for mitigating transportation impacts; and

WHEREAS, the stated purpose and intent of the OI-4 District was "to allow for growth and development while protecting the larger community, nearby neighborhoods and the environment from impacts accompanying major new development";

NOW, THEREFORE BE IT FURTHER RESOLVED by the Council of the Town of Chapel Hill that the Council hereby request submittal of a stand alone "Annual Development Plan Report on Transportation" beginning in December 2005 and thereafter in December of each year until the end of the current Development Plan cycle. The report shall be prepared in accordance to the guidelines provided in Attachment 1 of June 27, 2005 Manager's Report.

This the 27th day of June, 2005.

GUIDELINES FOR
ANNUAL DEVELOPMENT PLAN REPORT ON TRANSPORTATION
OFFICE/INSTITUTIONAL-4 (OI-4) ZONING DISTRICT

The University shall provide the Town an annual report titled "Annual Development Plan Report on Transportation". This report shall be in addition to the two-year traffic impact analysis reports required per July 2, 2001 Transportation Impact Analysis (TIA) guidelines. The annual report shall be submitted beginning in December 2005 and thereafter in December of each year until the end of the current Development Plan cycle. It shall be a condensed and standalone document and shall be prepared based on the following guidelines:

1. Development Plan Overview

- A brief overview of the status of the Development Plan projects.
- A map and table showing projects by location in the Development Plan. On the map, the site of each proposed project shall be numbered so that it can be associated with its specifications described in the table. The University shall provide a map equivalent to Figure 2-1 and a summary of Table 2-1 of the January 2004 TIA report of the Development Plan or its successor.
- A brief overview, a map, and a table identifying the parking space impacts of the Development Plan. Map and table shall be equivalent to Figure 2-3 and Table 2-4 of the January 2004 TIA Report of the Development Plan.

2. Development Plan Transportation Changes

- A Brief overview of changes in average daily traffic volumes, a map, and a table of existing and proposed average daily traffic volumes from the most recent TIA. Map and table shall be equivalent to Figure 4-9 and Table 4-9 of January 2004 TIA Report of the Development Plan.
- A brief overview of Level of Service (LOS) information for the existing, no-build, and build conditions at intersections analyzed in the Development Plan with count data from the most recent TIA. LOS information shall be provided in a table equivalent to Table 4-11 of January 2004 TIA Report of the Development Plan.

3. Development Plan Transportation Mitigation Measures and Recommendations

- A brief status overview of mitigation strategies and measures, their impacts to date, and target mode splits from the most recent TIA.
- A brief description of estimated air quality impacts from the most recent TIA.
- A brief status overview and a map of existing and proposed traffic calming measures on campus, including pedestrian and bicycle improvements, from the most recent TIA.
- A brief overview of existing and proposed traffic calming measures in adjacent neighborhoods based on the most recent TIA and any new traffic calming measures as determined by the Town Manager and the University.

University of North Carolina at Chapel Hill

Annual Development Plan Report on Transportation

December 2017

Introduction

This is the annual brief summary report of the transportation impacts of the University's Development Plan. It has been prepared in accordance with the June 27, 2005 guidelines issued by the Town of Chapel Hill. It is based on the results of the most recent Transportation Impact Analysis (TIA), which was the TIA submitted to the Town of Chapel Hill in December 2017. Because the Development Plan TIA has not been updated or modified since December 2012, this edition of the Annual Development Plan Report on Transportation is substantially similar to the December 2012 edition. Minor revisions and additions have been made to clarify certain issues and to provide an update on the status of transportation improvement projects on campus.

1: Development Plan Overview

Overview of Development Plan Projects

The Development Plan projects continue to be implemented, with some now completed, some under construction and some in design. The main projects completed so far include:

- Rams Head Center
- Student Family Housing buildings
- Addition to Carrington Hall
- Addition to Cobb Residence Hall
- Additions to Memorial Hall
- Additions to Alexander, Connor, and Winston Residence Halls
- Jackson Circle Parking Deck
- North East Chiller and Parking Deck
- Science Complex Phase 1 (Caudill Laboratories and Chapman Hall)
- Residence Halls Phase II (Ram Village)
- Addition to the Medical Science Research Building (Bondurant Hall)
- Tomkins Chiller Plant and Thermal Storage Facility
- Student Academic Services Building
- Arts Common Phase 1
- FedEx Global Education Building
- ITS-Manning
- Renovation to Morrison Hall
- Williamson Building
- Genetic Medicine Building
- Physicians Office Building

- Manning Steam Plant
- Science Complex Phase II – Addition to Sitterson Hall (Frederick Brooks Hall)
- Addition to Boshamer Stadium
- North Carolina Cancer Hospital
- Addition to Carmichael Auditorium
- Bell Tower Parking Deck
- Sports Medicine Building
- Science Complex Phase II – New Venable/Murray Hall
- Genome Science Building
- Dental Science Building
- Marsico Hall

Construction continues at a number of locations throughout the campus, including:

- Porthole Alley pedestrian improvements
- Fetzer/Navy Field closure & Indoor Practice facility
- Mary Ellen Jones renovation
- Odum Village demolition
- Other infrastructure projects

In total, the Development Plan projects involve about 8.0 million gross square feet of new buildings. This includes about 1.95 million square feet for parking decks and 312,382 square feet for infrastructure projects. About 235,000 gross square feet of existing buildings will be demolished. This means the net increase in occupiable floor area is about 5.6 million square feet.

Projects by Location

Table 1.1 lists the projects in detail, and Figure 1.1 shows their locations. The projects can be summarized as follows:

Type of building	Square Footage
Academic	1,818,486
Cultural	140,629
Housing	923,163
Infrastructure	312,382
Office	460,200
Parking	1,950,700
Research	800,923
Student Life	339,699
Athletics	375,079
UNC Health Care	1,035,619
Total	8,059,732

Parking Space Impacts

Existing Parking

In 2000-2001, there were about 14,200 parking spaces on the main campus. Then, like now, this was not enough for all the employees or students wanting to park on campus. There were about 8,000 spaces for about 13,000 Main Campus employees, or 0.61 spaces per Main Campus employee. The rate for students was much lower - less than 10 percent for both resident students and commuting students. Freshmen are not eligible for a parking permit.

Parking Changes

The Development Plan involves extensive changes to the parking supply. Around 4,061 existing spaces will be permanently closed, and around 5,640 new spaces will be provided, mostly in new structures. Some other spaces will be temporarily used for construction staging at various times.

The net effect is an approved increase of 1,579 spaces on campus when all the projects are completed. Table 1.2 and Figure 1.2 show these net changes. In some cases, the number of parking spaces by lot and user are estimates, as the final design of buildings and landscaping will determine how many surface spaces, if any, could be retained (particularly for service and disability spaces).

Visitor parking accounts for most of the net increase, reflecting the importance of accommodating visitors. However, there is expected to be a net increase of about 380 commuter spaces and a decrease of about 287 resident student spaces.

Impacts

The increase in commuter spaces is very low compared with expected population growth over the period of the plan. Employee numbers are forecast to grow by 69%, and student numbers by 24%. If resident and commuter parking were to continue to be provided at the existing (2000-2001) level, the overall increase would have been much greater than the approved 1,579.

The ‘shortfall’ (i.e. the difference between the amount of parking that would be required if parking continued to be provided at existing rates, and the amount that will actually be provided) is estimated to be 4,572 employee spaces, 423 commuting student spaces, 451 resident student spaces, and 2,107 University and Hospitals visitors. The shortfall in commuter parking will be met by alternative modes, and the Development Plan includes a range of transportation initiatives to accommodate this. The shortfall in resident student parking will be met in storage lots off-campus.

The amount of traffic that will be generated by the Development Plan is a function of the amount of parking that will be provided. The limited increase in parking will therefore limit the traffic impact. The increased parking (net increase of 1,579 spaces) is estimated to generate 11,487 vehicle trips daily. A typical campus development of similar size, with unlimited parking and little or no transportation alternatives, would generate almost 35,000 trips daily. This means that the Development Plan projects will only generate about one-third of the trips that would be expected from a typical campus development of this size.

Table 1.1: Development Plan Projects

Building	Building Type	Gross Square Footage	Anticipated Construction Start Date	Anticipated Construction Completion
A-1	**Academic**	**31,800**	**07/20**	**07/22**
A-2	**Academic**	**73,100**	**07/20**	**07/22**
A-3	Academic	25,600	03/05	02/07
A-4	Academic	20,000	03/05	02/07
A-5	**Academic**	**55,200**	**07/20**	**07/22**
A-6	Academic	90,000	07/03	06/05
A-7	Academic	41,000	02/06	08/08
A-8	**Academic**	**154,500**	**07/19**	**07/21**
A-9	**Academic**	**396,700**	**07/20**	**07/22**
A-10	Academic	112,500	07/03	06/05
A-11	Academic	82,000	03/04	02/06
A-12	Academic	69,500	11/01	10/03
A-13	Academic	10,200	08/02	07/04
A-14 Mod	Academic	259,990	06/08	05/12
A-15	Deleted			
A-16	Deleted			
A-17	**Academic**	**53,200**	**07/19**	**07/21**
A-18	Academic	936	08/04	03/04
A-19	Academic	1,600	03/05	03/06
A-20 *	**Academic**	**125,000**	**07/20**	**07/22**
A-21	**Academic**	**80,000**	**07/20**	**07/22**
A-22	**Academic**	**75,000**	**07/20**	**07/22**
A-23 *	**Academic**	**50,000**	**07/20**	**07/22**
A-24	Academic	5,580	06/08	02/10
A-25	Academic	3,308	10/08	01/10
A-26	Academic	1,772	01/09	02/10
	Total Academic	**1,818,486**		
C-1	**Cultural**	**36,000**	**07/20**	**07/22**
C-2	**Cultural**	**26,400**	**07/20**	**07/22**
C-3	Cultural	37,325	12/01	01/03
C-4	**Cultural**	**3,000**	**07/20**	**07/22**
C-5 Mod	**Cultural**	**22,904**	**07/20**	**07/22**
C-6	**Cultural**	**15,000**	**07/20**	**07/22**
	Total Cultural	**140,629**		
H-1	Housing	Deleted		
H-2	Housing	Deleted		
H-3	Housing	6,656	05/02	07/03
H-4	Housing	6,656	05/02	07/03
H-5	Housing	68,400	01/04	08/05
H-6	Housing	60,000	01/04	08/05
H-7	Housing	74,800	01/04	08/05
H-8	**Housing**	Deleted		
H-9	**Housing**	Deleted		
H-10	Housing	Deleted		
H-11	Housing	Deleted		
H-12	Housing	Deleted		
H-13	Housing	60,500	08/03	08/04
H-14	Housing	60,500	08/03	08/04
H-15	Housing	58,200	08/03	08/04
H-16	Housing	59,400	08/03	08/04
H-17	Housing	59,400	08/03	08/04
H-18	Housing	44,400	08/03	08/04
H-19	Housing	44,400	08/03	08/04
H-20	Housing	37,600	08/03	08/04
H-21	Housing	30,050	08/03	08/04
H-22	Housing	79,601	01/04	08/05
H-23	Housing	79,600	01/04	08/05
H-24	Housing	7,800	01/04	08/05
SH PHII	**Housing**	**125,000**	**07/20**	**07/22**
H	**Housing**	**(136,948)**	**05/17**	**05/19**
	Total Housing	**826,015**		

Table 1.1: Development Plan Projects (cont.)

Building	Building Type	Gross Square Footage	Anticipated Construction Start Date	Anticipated Construction Completion
I-1	Infrastructure	20,000	07/03	12/04
I-2	Infrastructure	115,600	08/03	07/05
I-3	Infrastructure	21,600	03/04	03/06
I-4	Infrastructure	**6,382**	06/04	12/05
I-5 Mod	Infrastructure	100,800	01/08	07/10
I-6	**Infrastructure**	**48,000**	**07/20**	**07/22**
I-7	**Infrastructure**	**N/A**	**07/20**	**07/22**
	Total Infrastructure	**312,382**		
O-1	**Office**	**133,200**	**07/19**	**07/21**
O-2	Office	30,000	11/02	05/06
O-3	Office	105,000	07/04	03/06
O-4	**Office**	**180,000**	**07/20**	**07/22**
O-5	**Office**	**12,000**	**01/20**	**01/22**
	Total Office	**460,200**		
P-1	**Parking**	**115,500**	**07/20**	**07/22**
P-2	Parking	Deleted		
P-3	Parking	252,600	05/02	10/04
P-4 Mod	Parking	225,000	03/07	08/10
P-5	**Parking**	**255,500**	**07/20**	**07/22**
P-6	**Parking**	**134,400**	**01/20**	**01/22**
P-7	*Parking*	*Deleted*		
P-8	Parking	42,000	03/03	07/06
P-9	Parking	191,500	03/03	03/06
P-10	Parking	350,000	04/04	12/05
P-11	Parking	288,000	09/12	06/14
P-12	**Parking**	**96,200**	**07/20**	**07/22**
	Total Parking	**1,950,700**		

*This represents relocation of planned surface parking to spaces beneath the buildings.

R-1	Research	109,000	07/07	03/12
R-2	Research	49,000	07/07	03/12
R-3	Research	74,400	07/07	03/12
R-4	Research	225,000	08/02	12/04
R-4 MM	Research	523	09/11	12/11
R-5	Research	343,000	06/09	01/14
	Total Research	**800,923**		
SL-1	Student Life	54,400	06/02	07/04
SL-2	Student Life	126,900	06/02	07/04
SL-3	Student Life	126,000	06/04	08/05
SL-4	**Student Life**	**28,000**	**07/20**	**07/22**
MM	Student Life	4,399	06/05	03/06
	Total Student Life	**339,699**		
UNCH-1	**UNC Health Care**	**196,280**	**07/20**	**07/22**
UNCH-2	**UNC Health Care**	**343,180**	**07/18**	**07/20**
UNCH-3	UNC Health Care	291,890	03/05	02/08
UNCH-4	UNC Health Care	130,000	03/06	07/07
UNCH-5	UNC Health Care	(53,546)	12/11	06/12
UNCH-6	UNC Health Care	1,066	01/12	03/12
UNCH	**UNC Health Care**	**126,749**	**07/20**	**07/22**
	Total UNC Health Care	**1,035,619**		
ATH-1	Athletics	41,181	05/07	01/08
ATH-2	**Athletics**	**170,189**	**07/20**	**12/22**
ATH-3	Athletics	15,059	05/08	02/10
ATH-4	Athletics	19,194	01/08	08/09
ATH-4 MM	Athletics	1,000	06/10	08/10
ATH-5	Athletics	6,467	03/10	01/11
ATH-6	Athletics	4,069	01/10	10/10
ATH	**Athletics**	**123,000**	**05/16**	**08/18**
ATH	**Athletics**	**10,000**	**05/16**	**08/18**
ATH	Athletics	(13,417)	05/17	05/19
ATH	Athletics	(1,663)	05/17	05/19
	Total UNC Athletics	**375,079**		
	Campus Total	**8,059,732**		

Figure 1.1: Development Plan Projects Map

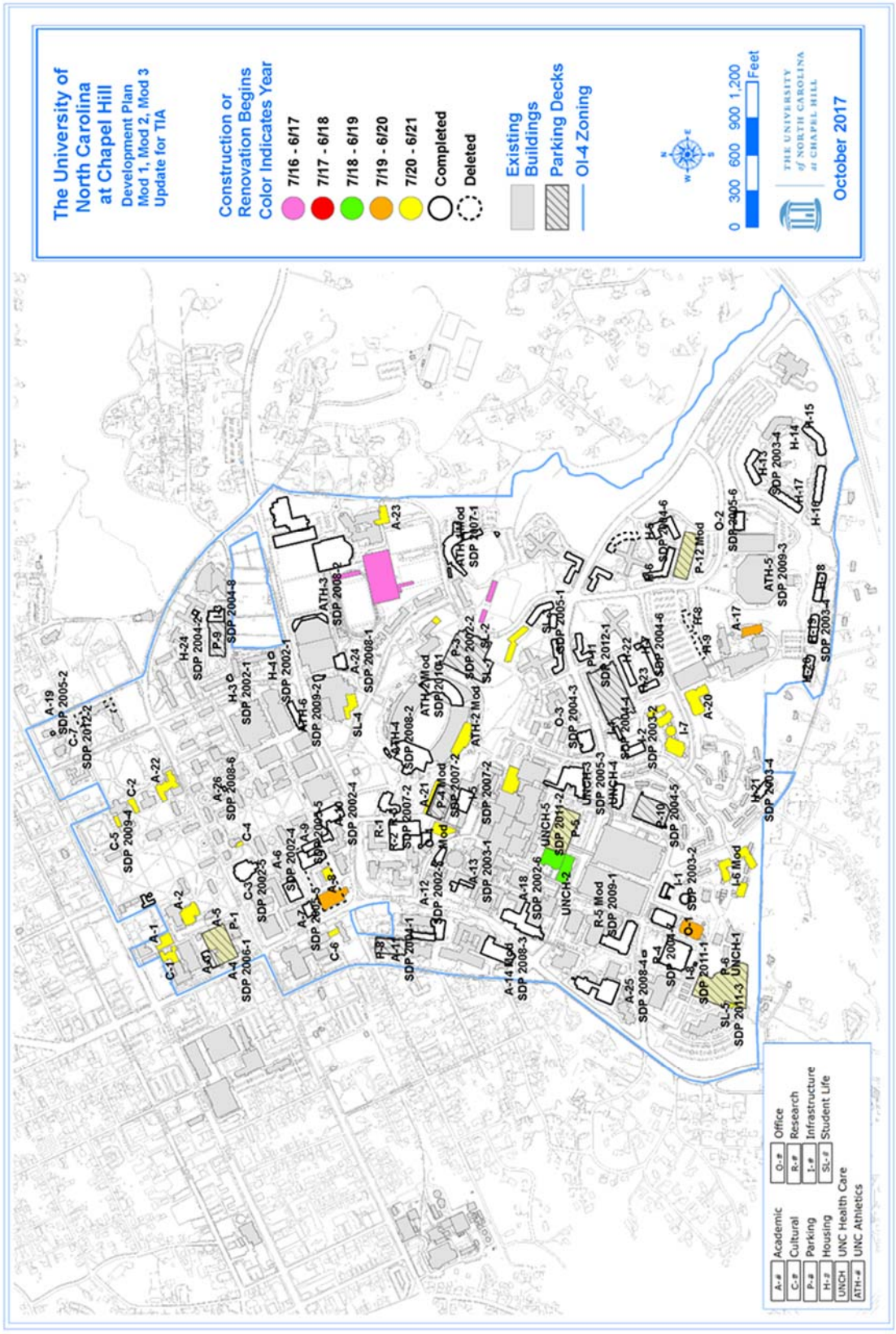


Table 1.2: Parking Space Impacts

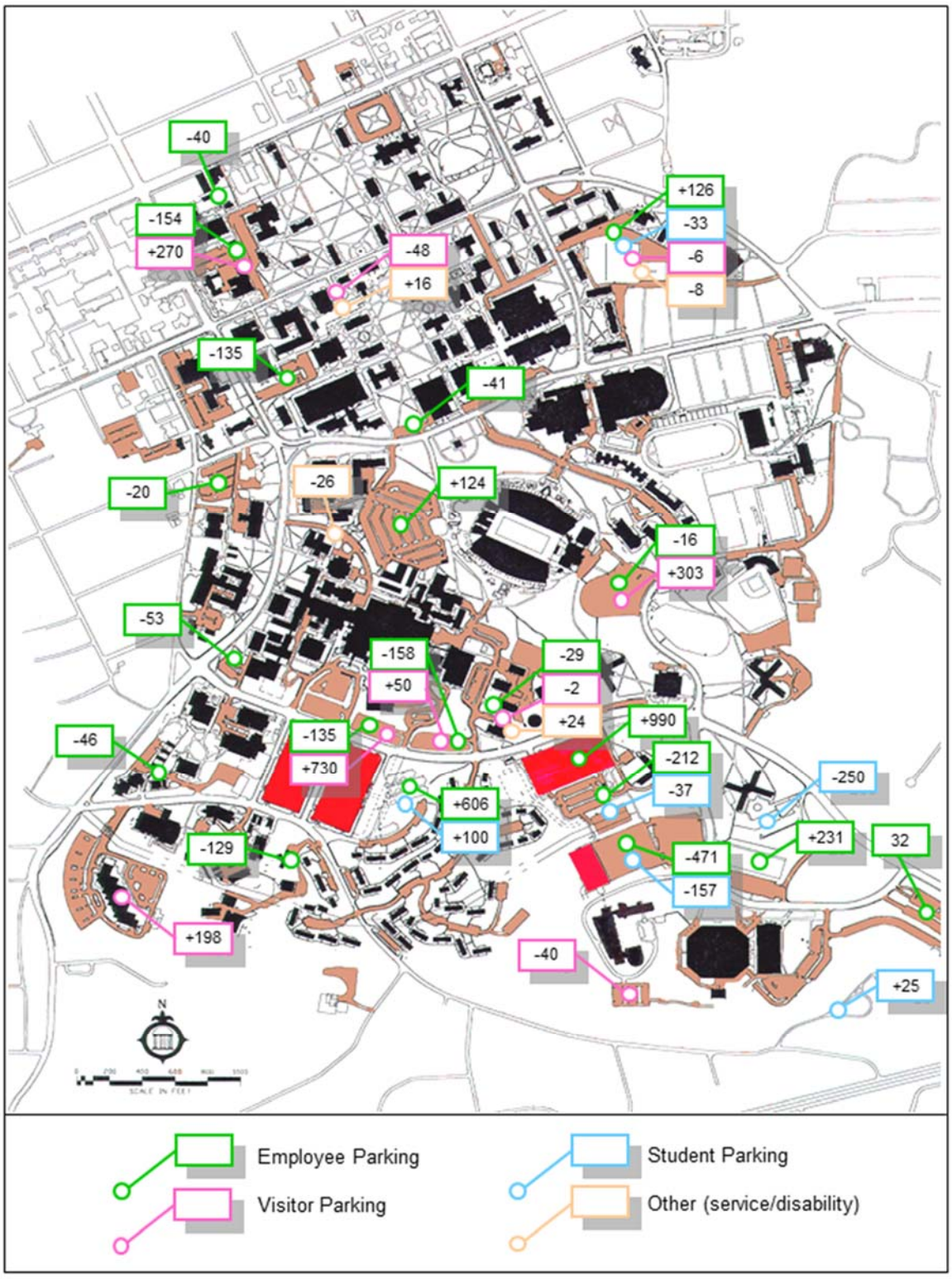
	Number of Spaces[1,2]							
Lot / Project Name	**Parking Zone**	**Employee**	**Commuting Student**	**Resident Student**	**Student in Family Housing**	**Visitor**	**Other**	**Net Change**
ACC (new structure)						198		198
Bell Tower (new structure)	BG	124						124
Bowles	S11	-471	-157					-628
Cameron/Swain (Arts Common Deck - new structure)	ND1/NG1	-154				270		116
Cobb/Joyner (new structure and surface parking)		126	-33			-6	-8	79
Craige Surface	CD	-212		-37				-249
Craige Deck Expansion	CD	990						990
Dental School	S6	-53						-53
Glaxo / Housing Support / MFM / MRI	S6	-46						-46
Gravely (NC H&C) (new structure)	CG	-135				730		595
Hanes						-48	16	-32
Hinton James	M			-250				-250
ITS		-29				-2	24	-7
Jackson Deck (new structure)		606	100		-54			652
Kenan/McColl Visitor Parking						-40		-40
McCauley Street (Global Education Deck - new structure)	W	-20						-20
Neurosciences	CG	-158				50		-108
North Medical Drive							-26	-26
Porthole	N2	-40						-40
Rams Head (new structure)	S5	-16				303		287
Stadium Drive	S4							0
Sitterson	NG2	-135						-135
South Chiller	S6	-129						-129
Student Family Housing	MR/MR2				79			79
Tennis Court Deck (new structure)		231						231
Wilson Library	N8	-41						-41
Subtotal		**438**	**-90**	**-287**	**25**	**1,455**	**6**	**1,547**
Unassigned spaces[3]		32						32
Total								**1,579**

Notes:

1. Numbers are subject to change, depending on the final footprint of each project.
2. These numbers represent net changes only. For example, the Rams Head structure has 700 spaces, but 413 were displaced as a result of its construction. The net impact, which is shown in this table, is 287 spaces.
3. Spaces not assigned to a specific location on the campus and whose location(s) will be determined in future development plan modification reques The total net change in parking is 32 spaces less than the approved 1,579 space increase, but the traffic assessment accounts for the entire 1,579 space net increase.

Source: Table 2-4 of Development Plan TIA, December 2017

Figure 1.2: Parking Impacts Map



2: Development Plan Transportation Changes

Overview of Traffic Analysis

The Development Plan's impact on roads on or near the campus, including 55 intersections, was analyzed using standard techniques for Traffic Impact Analysis. Three scenarios are considered:

- Existing conditions (the traffic levels in 2017);
- No-Build conditions (the forecast conditions in 2024 if the Development Plan projects did not exist); and
- Build conditions (the forecast conditions in 2024 including the effects of the Development Plan projects).

The existing conditions were measured using traffic counts collected in fall 2017 on days when the University was in session. Because similar analyses were undertaken in 2001, 2003, 2005, 2007, 2009, 2011, 2013, and 2015, changes in traffic levels can be tracked.

The No-Build conditions are forecast by applying annual growth rates to the existing traffic levels. The Build conditions are forecast by taking the No-Build traffic levels and adding the trips due to Development Plan projects. These trips are estimated from the forecast parking changes (described above), using known trip rates per parking space.

Changes in Traffic Volumes

Table 2-1 shows the average daily traffic volumes (ADTs) in 2001, 2003, 2005, 2006, 2007, 2009, 2011, 2013, 2015, and 2017 along with the No-Build and Build forecasts for 2024. Figure 2.1 illustrates the two forecasts for 2024.

Traffic volumes have generally remained stable, or, in some cases, decreased, since the 2007 counts. Possible reasons include the ongoing development and implementation of the University's Transportation Demand Management (TDM) program, including full subsidy of regional transit ridership on GoTriangle, PART and Chatham Transit, and improvements to the bicycling infrastructure in the Town and on campus.

In the No-Build scenario, background traffic growth is expected to produce increased volumes. This is normal for growing areas such as Chapel Hill.

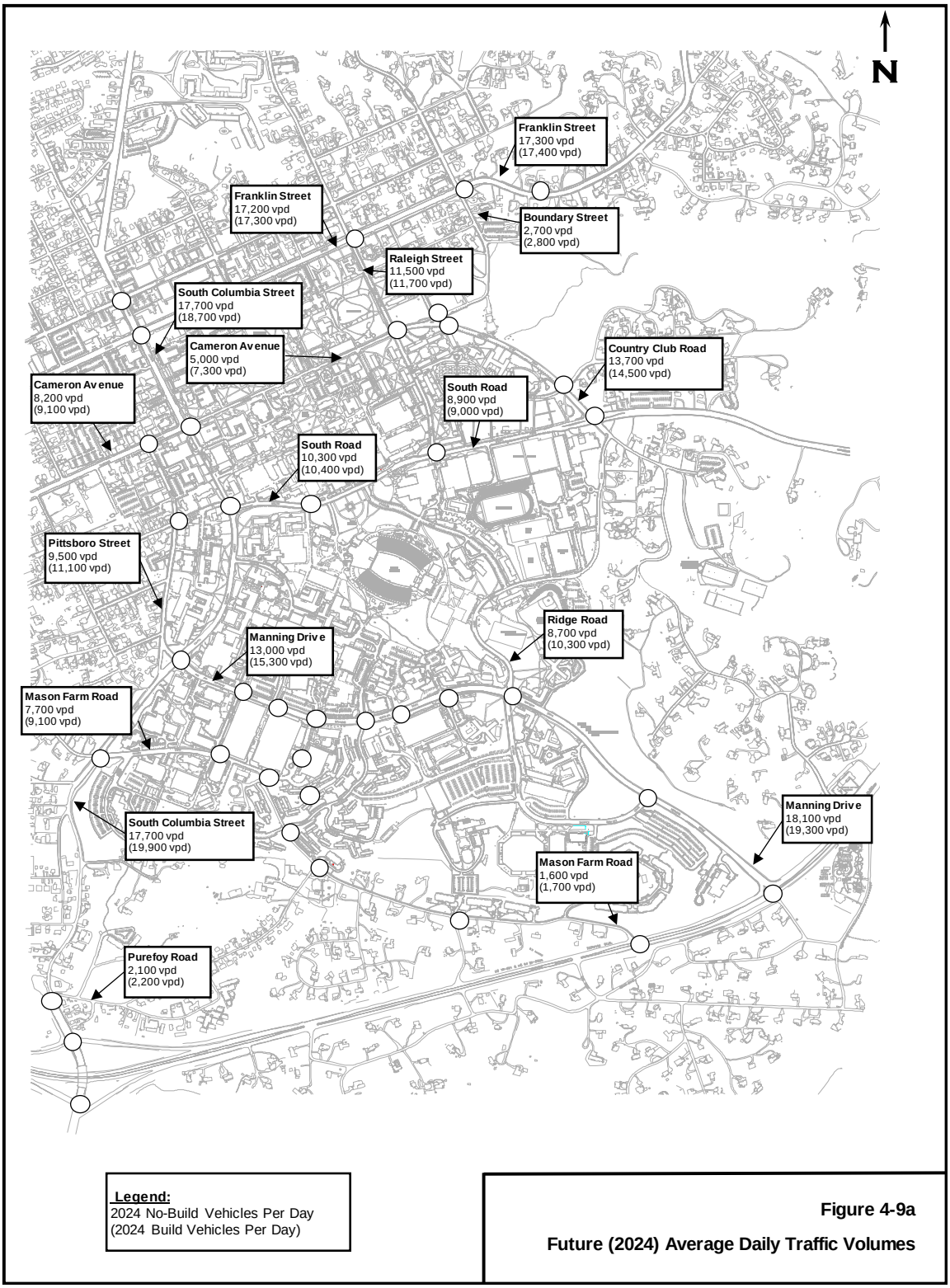
In the Build scenario, the further increase in traffic along most campus roads is expected to be minimal, although some intersections near proposed parking facilities will see specific turning movements increase noticeably. In some areas where parking is being eliminated, some turning movements will decrease compared to the No-Build scenario. The largest increase in traffic volumes will be on Manning Drive.

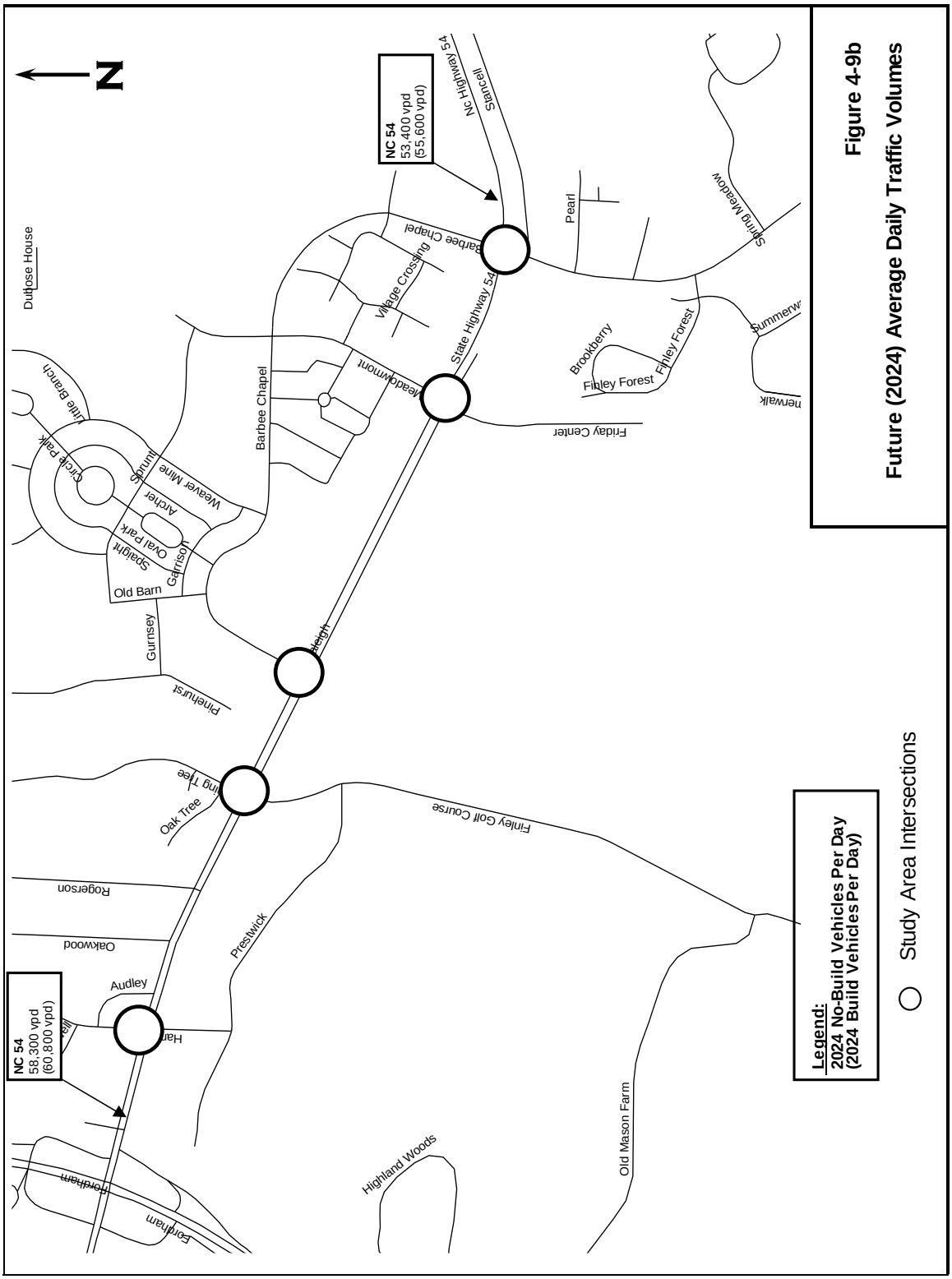
Table 2.1: Existing and Future (2024) Traffic Volumes

Link #	Roadway	2001 ADT	2003 ADT	2005 ADT	2006 ADT	2007 ADT	2009 ADT	2011 ADT	2013 ADT	2015 ADT	2017 ADT	2017-2024 Annual Growth Rate	Projected 2024 No-Build ADT	Projected 2024 Build ADT
1	S. Columbia St. (south of Franklin St.)	20,720	19,060	17,530	-	17,530	15,410	14,380	14,663	16,329	15,783	1.7%	17,700	18,700
2	Raleigh St. (south of Franklin St.)	14,470	10,710	13,080	13,080	11,020	11,710	9,910	10,514	10,450	11,031	0.6%	11,500	11,700
3	Cameron Ave. (west of Pittsboro St.)	9,820	8,300	8,510	-	7,630	9,260	7,220	6,693	7,558	7,710	0.9%	8,200	9,100
4	Cameron Ave. (east of S. Columbia St.)	9,070	8,330	6,430	6,430	5,270	5,540	5,910	4,679	4,881	4,616	1.2%	5,000	7,300
5	Country Club Rd. (north of South Rd.)	13,470	14,080	12,200	12,200	12,990	11,960	11,260	10,726	12,534	13,060	0.7%	13,700	14,500
6	South Rd. (east of Columbia St.)	10,460	8,840	11,400	-	8,400	7,430	8,370	8,593	9,649	9,209	1.7%	10,300	10,400
7	South Rd. (east of Raleigh St.)	9,840	10,000	12,890	12,890	7,500	7,510	7,730	7,944	7,744	7,802	2.0%	8,900	9,000
8	Pittsboro St. (south of McCauley St.)	10,960	10,070	10,920	-	9,550	9,750	8,810	8,061	8,487	8,632	1.4%	9,500	11,100
9	Manning Dr. (east of Columbia St.)	14,100	13,220	12,480	12,480	11,070	11,060	10,020	10,713	11,298	11,828	1.4%	13,000	15,300
10	Ridge Rd. (north of Manning Dr.)	8,320	7,870	7,300	7,300	7,910	8,730	8,110	7,819	7,216	7,594	2.0%	8,700	10,300
11	S. Columbia St. (south of Mason Farm Rd.)	18,470	18,250	16,190	-	16,090	15,430	14,760	13,982	15,480	16,285	1.3%	17,700	19,900
12	Manning Dr. (east of Ridge Rd.)	17,260	14,680	17,880	17,880	15,680	16,150	14,660	15,734	15,879	17,023	0.9%	18,100	19,300
13	Franklin St. (west of Raleigh St.)	17,000	19,260	18,850	-	19,320	16,250	14,370	14,605	14,895	16,228	0.9%	17,200	17,300
14	Franklin St. (east of Boundary St.)	-	23,560	20,190	20,190	24,730	17,390	16,770	16,614	16,620	16,327	0.9%	17,300	17,400
15	Boundary St. (south of Franklin St.)	-	3,230	2,320	2,320	2,140	2,230	2,400	2,225	2,008	2,581	0.6%	2,700	2,800
16	Mason Farm Rd.(east of S. Columbia St.)	7,700	8,230	3,400	3,400	8,390	7,330	6,910	6,314	6,755	6,746	2.0%	7,700	9,100
17	Mason Farm Rd. (north of Fordham Blvd.)	1,360	770	1,830	-	1,820	1,770	1,730	1,720	1,546	1,596	0.4%	1,600	1,700
18	Purefoy Rd. (east of Columbia St.)*	970	970	1,130	-	1,360	1,450	2,070	1,705	1,747	2,044	0.4%	2,100	2,200
19	US 15-501 (west of Main St.)	-	-	-	-	17,840	17,080	16,770	19,993	20,801	22,587	2.0%	25,800	26,400
20	US 15-501 (east of Culbreth Rd.)	30,480	-	30,000	-	30,310	30,570	28,390	31,867	35,429	38,238	2.0%	43,600	44,800
21	NC 54 (west of Hamilton Rd.)	45,400	-	44,000	-	47,940	43,470	41,230	41,388	48,286	51,099	2.0%	58,300	60,800
22	NC 54 (east of East Barbee Chapel Hill Rd.)	-	-	-	-	32,100	37,390	36,320	39,967	44,174	46,875	2.0%	53,400	55,600

Source: Table 4-9 of Development Plan TIA, December 2017

Figure 2.1: Future (2024) Average Daily Traffic Volumes




N
NC 54
53,400 vpd
(55,600 vpd)
NC 54
58,300 vpd
(60,800 vpd)
Nc Highway 42
Starcell
Pearl
Spring Meadow
Barbee Chapel
Village Crossing
State Highway 54
Brookberry
Finley Forest
Finley Forest
Friday Center
Dutose House
Little Branch
Circle Park
Barbee Chapel
Weaver Mine
Archer
Spaight
Oval Park
Garrison
Old Barn
Gurnsey
Pinehurst
Oak Tree
Finley Golf Course
Rogerson
Oakwood
Audley
Prestwick
Highland Woods
Old Mason Farm
Fordham
Legend:
2024 No-Build Vehicles Per Day
(2024 Build Vehicles Per Day)
Study Area Intersections
Figure 4-9b
Future (2024) Average Daily Traffic Volumes

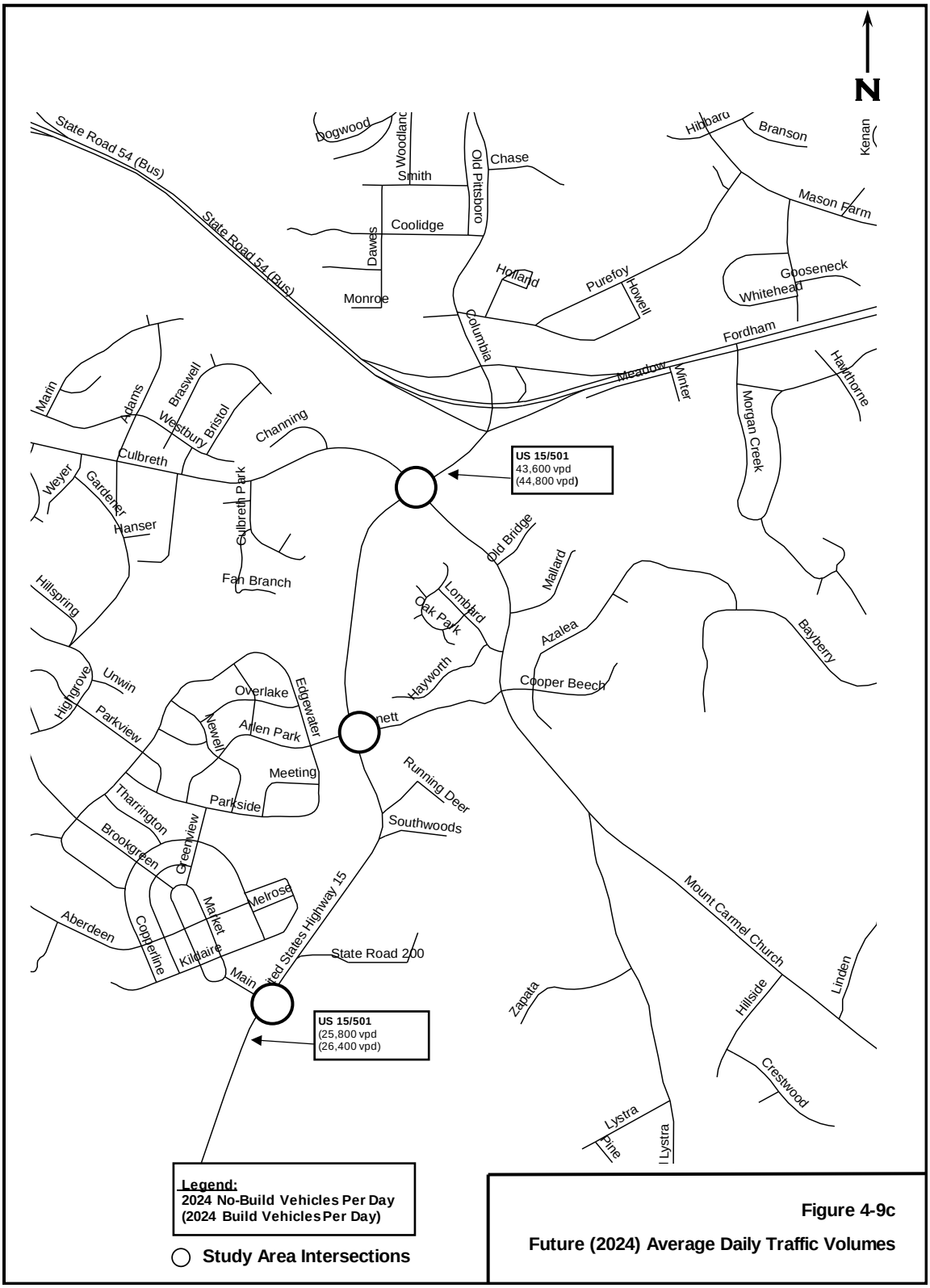


Figure 4-9c

Future (2024) Average Daily Traffic Volumes

Intersection Level of Service Analysis

Delays at intersections are measured in terms of the Level of Service (LOS) in the peak hour. LOS ranges from A through F, based on the average control delay (the delay due to signals, stop signs, etc.). Table 2-2 explains the LOS categories. In urban areas, level D or above is generally regarded as acceptable for signalized intersections. At unsignalized intersections, level E or above on the side street is generally regarded as acceptable, although it is recognized that side streets typically function at level F because the traffic volumes often do not warrant a traffic signal to assist the side street traffic.

Table 2-2: Level of Service Descriptions for Intersections

Level of Service	Description	Delay at a Signalized Intersection	Delay at an Unsignalized Intersection
A	Little or no delay	10 seconds or less	10 seconds or less
B	Short traffic delay	10-20 seconds	10-15 seconds
C	Average traffic delay	20-35 seconds	15-25 seconds
D	Long traffic delay	35-55 seconds	25-35 seconds
E	Very long traffic delay	55-80 seconds	35-50 seconds
F	Unacceptable delay	More than 80 seconds	More than 50 seconds

Table 2.3 summarizes the LOS at each intersection for each scenario. Each cell includes the overall LOS at the intersection and the LOS for the worst-performing approach.

Existing conditions

The levels of service at most intersections have remained the same or even improved since 2015. At most intersections, the overall level of service is acceptable, although some minor street approaches are suffering some longer delays.

The following sections discuss some of the intersections that are shown to be experiencing long peak period delays or that have been identified by the Town of Chapel Hill and/or the North Carolina Department of Transportation for pedestrian safety concerns.

Manning Drive at Fordham Boulevard
The University has provided new traffic signal timings for this intersection, yet this intersection continues to experience the worst delays and peak period queues of the intersections immediately adjacent to the campus. The University prepared traffic signal plans in coordination with staff of the Town of Chapel Hill and NCDOT to upgrades at this intersection as well as at the adjacent intersection of Old Mason Farm Road at Fordham Boulevard. The proposed upgrades included crosswalk markings, wheelchair ramps, countdown pedestrian signals, pedestrian push-buttons, a new, larger pedestrian refuge island, and warning signs with flashing beacons for approaching drivers on Fordham Boulevard. The intent of these improvements is to provide a safer environment for pedestrians crossing the streets at each intersection. The improvements have been completed.

US 15-501 at Europa Drive/Erwin Road
At the time of data collection for the 2007 TIA Update, the intersection of US 15-501 at Europa Drive / Erwin Road was still operating as a conventional intersection. However, during January 2008, this intersection was converted to a synchronized street (formerly referred to as a superstreet), which, according to the staff of NCDOT, has improved traffic flow on 15-501. The synchronized street section of US 15-501 at Europa Drive and Erwin Road was fully operational when traffic data was collected in the fall of 2013 and is still operating as a synchronized street in 2017.

All of the individual intersections that make up the synchronized street section are operating at LOS C or better.

Although the synchronized street at this location has improved traffic flow in this section of the corridor, a Major Investment Study (MIS) concluded that the size of the problem along 15-501 requires a large-scale integrated multimodal solution.

South Columbia Street at Cameron Avenue
This intersection marks the north end of the South Columbia Street-Pittsboro Street one-way pair. It experiences a high volume of pedestrian and bicycle traffic and results in traffic queues along Cameron Avenue to Raleigh Street and South Columbia Street. The Town and NCDOT coordinated on a project to implement special traffic signal phasing at this intersection which includes a pedestrians-only phase. The intent of the new traffic signal phasing is to provide a safer environment for pedestrians crossing the streets at this intersection. The new phasing for this intersection was in operation during the collection of traffic data for the 2017 update of the development plan traffic impact analysis study.

Some unsignalized intersections are experiencing long delays on the minor approaches. These intersections are discussed below:

Country Club Road at Battle Lane/Boundary Street
This intersection was the subject of a special study during the analysis for Modification No. 1 of the UNC Development Plan. An outcome of that study was the implementation of measures to control the movement of pedestrians in the vicinity of this unsignalized intersection. Town staff has indicated that Town may wish to coordinate with the University to revisit the study of this intersection to determine the need for further upgrades. During discussions prior to the 2011 TIA update, staff of the Town expressed a desire to assess if peak period conditions merit additional improvements. Although some movements have experienced increased volume since 2007, no additional improvements are recommended at this time. The University will continue to monitor conditions at this intersection. In the past, staff of the Town of Chapel Hill has suggested the addition of an exclusive westbound left turn lane at the intersection of Country Club Road at Raleigh Street. Due to the complexity and constraints of this improvement (impacts on existing stone walls, adjacent property, and trees) it was determined that the assessment of these options be postponed.

<u>No-Build (2024) Conditions</u>

In the No-Build (2024) scenario (that is, without the Development Plan projects), the intersections with poor LOS performance in 2017 will continue to perform poorly in 2024. In addition, the background traffic growth will make some other intersections perform

poorly. In particular, the following intersections are currently operating at LOS D or better but show a LOS E or F in the No-Build (2024) scenario:

- The intersection of Columbia Street at Manning Drive is to operate at LOS F during the PM peak hour in the No-Build (2024) scenario.

- The intersection of Columbia Street at Fordham Boulevard (northern ramp) is projected to operate at LOS E during the PM peak hour in the No-Build (2024) scenario.

- The intersection of Manning Drive at Fordham Boulevard is projected to operate at LOS F during the PM peak hour in the No-Build (2024) scenario.

Build (2024) Conditions

Under the Build conditions (that is, with the Development Plan projects), the same intersections that are projected to operate at LOS E or F during the No-Build (2024) scenario are expected to continue to operate at LOS E or F during the Build (2024) conditions.

The intersection of South Columbia Street at Cameron Avenue currently operates at acceptable level of service during both peak hours and is projected to operate at acceptable level of service during the No-Build (2024) scenario; however, this intersection but is expected to operate at LOS E during the AM peak hour and at LOS F during the PM peak hour in the Build (2024) scenario. The degradation to unacceptable levels of service is a result of the combination of the background traffic growth between 2017 and 2024 and the trips that are added due to the parking facilities that are included in the development plan but are not yet built.

The intersection of Columbia Street at Purefoy Road currently operates at acceptable level of service during both peak hours and is projected to operate at acceptable level of service during the No-Build (2024) scenario; however, this intersection is expected to operate at LOS E during the PM peak hour in the Build (2024) scenario. The degradation to unacceptable level of service is a result of the combination of the background traffic growth between 2017 and 2024 and the trips that are added due to the parking facilities that are included in the development plan but are not yet built.

The intersection of NC 54 at Barbee Chapel Road (East) currently operates at acceptable level of service during both peak hours and is projected to operate at acceptable level of service during the No-Build (2024) scenario; however, this intersection is expected to operate at LOS E during the AM peak hour in the Build (2024) scenario. The degradation to unacceptable level of service is a result of the combination of the background traffic growth between 2017 and 2024 and the trips that are added due to the parking facilities that are included in the development plan but are not yet built.

Table 2.3: Existing and Forecast Intersection Levels of Service

ID #	Intersection	Control	Existing (2017)		No-Build (2024)		Build (2024)	
			AM	PM	AM	PM	AM	PM
1	Columbia Street/Rosemary Street	Signalized	C (WB-D)	E (NB-F)	C (WB-D)	C (WB-E)	C (WB-D)	C (WB-E)
2	Columbia Street/Franklin Street	Signalized	C (SB-D)	E (EB-E)	C (SB-D)	D (NB-E)	C (EB-D)	D (NB-E)
3	Franklin Street/Raleigh Street	Signalized	B (NB-D)	B (NB-C)	C (NB-F)	C (NB-D)	C (NB-F)	C (NB-C)
4	Merritt Mill Road/Cameron Avenue	Signalized	B (WB-D)	C (WB-C)	B (WB-D)	B (NB-C)	B (WB-D)	B (NB-C)
5	Cameron Avenue/Pittsboro Street	Signalized	B (EB-C)	B (EB-E)	B (EB-D)	C (EB-E)	B (EB-D)	C (EB-E)
6	Cameron Avenue/Columbia Street	Signalized	D (WB-E)	E (EB-F)	D (WB-E)	E (WB-F)	E (NB-F)	F (WB-F)
7	Cameron Avenue/Raleigh Street	Signalized	C (NB-E)	D (NB-E)	C (NB-D)	D (NB-E)	C (NB-D)	D (NB-F)
8	Pittsboro Street/McCauley Street	Signalized	B (WB-C)	B (WB-C)	B (WB-E)	D (WB-E)	B (WB-E)	D (WB-E)
9	Columbia Street/South Road	Signalized	B (EB-C)	C (EB-D)	C (EB-D)	D (EB-E)	C (EB-D)	D (EB-E)
10	Raleigh Street/South Road	Signalized	A (SB-C)	A (SB-B)	A (SB-C)	A (SB-D)	A (SB-C)	A (SB-C)
11	Country Club Road/South Road	Signalized	C (SB-D)	C (EB-D)	C (SB-D)	C (SB-D)	C (SB-D)	D (SB-D)
12	Columbia Street/Manning Drive	Signalized	C (EB-E)	C (EB-E)	C (EB-D)	F (WB-F)	C (EB-D)	F (WB-F)
13	Manning Drive/West Drive	Signalized	A (SB-D)	A (SB-B)	A (SB-D)	A (SB-C)	A (SB-D)	A (SB-C)
14	Manning Drive/East Drive	Signalized	B (NB-C)	C (NB-E)	B (NB-D)	C (NB-D)	B (NB-D)	C (NB-D)
15	Ridge Road/Manning Drive	Signalized	C (NB-D)	C (NB-D)	C (NB-D)	C (NB-D)	C (NB-D)	C (NB-D)
16	Mason Farm Road/Columbia Street	Signalized	B (EB-D)	C (EB-D)	B (EB-D)	C (WB-D)	C (EB-D)	C (WB-D)
17	Mason Farm Road/West Drive	Signalized	A (SB-C)	A (SB-C)	A (SB-D)	A (SB-C)	A (SB-C)	A (SB-C)
18	Mason Farm Road/East Drive	Signalized	B (NB-B)	A (EB-A)	C (NB-D)	A (NB-C)	C (NB-E)	A (NB-C)
19	Mason Farm Road/Purefoy Road	Unsignalized	A (EB-A)	A (SB-A)	A (EB-A)	B (SB-B)	A (EB-A)	B (SB-B)
20	Manning Drive/Skipper Bowles Drive	Unsignalized	A (NB-B)	A (NB-C)	A (NB-B)	A (NB-C)	A (NB-B)	A (NB-D)
21	Columbia Street/Purefoy Road	Unsignalized	A (WB-E)	B (WB-F)	A (WB-E)	C (WB-F)	A (WB-F)	E (WB-F)
22	Columbia Street/Fordham Boulevard (northern ramp)	Signalized	C (WB-E)	D (WB-E)	C (WB-E)	E (WB-E)	C (WB-E)	E (WB-E)
23	Columbia Street/Fordham Boulevard (southern ramp)	Signalized	C (EB-E)	B (EB-E)	C (EB-D)	B (EB-E)	C (EB-D)	B (EB-E)
24	Mason Farm Road/Fordham Boulevard	Unsignalized	A (SB-C)	C (SB-F)	A (SB-C)	C (SB-F)	A (SB-C)	D (SB-F)
25	Manning Drive/Fordham Boulevard	Signalized	C (SB-E)	E (SB-F)	D (SB-E)	F (WB-F)	D (SB-E)	F (WB-F)
26	Mason Farm Road/Oteys Road	Unsignalized	A (NB-A)	A (EB-A)	A (NB-A)	A (EB-A)	A (NB-A)	A (EB-A)
27	Franklin Street/Boundary Street	Signalized	A (SB-C)	A (SB-C)	A (SB-E)	C (SB-F)	A (SB-E)	C (SB-F)
28	Franklin Street/Park Place	Unsignalized	A (NB-A)	A (NB-B)	A (NB-A)	A (NB-B)	A (NB-B)	A (NB-B)
29	Battle Lane/Boundary Street	Unsignalized	A (WB-A)	A (NB-B)	A (WB-A)	B (NB-B)	A (WB-A)	B (NB-B)
30	Country Club Road/Battle Lane	Unsignalized	A (SB-C)	A (SB-E)	A (SB-D)	A (SB-F)	A (SB-D)	C (SB-F)
307	Country Club Road & Boundary Street	Unsignalized	A (SB-B)	A (SB-B)	A (SB-B)	A (SB-B)	A (SB-B)	A (SB-C)
31	Country Club Road/Gimghoul Road	Signalized	A (WB-C)	A (EB-B)	A (WB-D)	A (EB-D)	A (WB-D)	A (EB-D)
32	Manning Drive/Hibbard Drive	Signalized	A (SB-D)	B (SB-E)	A (SB-D)	A (SB-D)	A (SB-D)	A (SB-D)
33	Manning Drive/Craige Drive	Signalized	A (SB-D)	B (SB-F)	A (SB-D)	B (SB-E)	A (SB-D)	B (SB-D)
34	East Drive/Jackson Circle/Dogwood Deck Entrance	Unsignalized	A (WB-B)	A (WB-B)	A (WB-B)	A (WB-B)	A (WB-B)	A (WB-C)
35	East Drive/Dogwood Deck Exit	Unsignalized	A (EB-B)	A (EB-B)	A (EB-B)	A (EB-B)	A (EB-B)	A (EB-B)
36	Mason Farm Road/Hibbard Drive	Unsignalized	A (EB-B)	A (WB-C)	A (EB-B)	A (WB-C)	A (EB-C)	A (WB-C)
37	South Road/Bell Tower Drive	Signalized	A (NB-C)	C (NB-C)	A (NB-D)	C (NB-D)	A (NB-D)	C (NB-D)
38	Manning Drive/Old East Drive	Signalized	B (SB-D)	A (SB-C)	B (SB-D)	A (SB-D)	B (SB-D)	B (SB-D)
39	Manning Drive/Craige Deck	Unsignalized	A (NB-C)	A (NB-D)	A (NB-D)	A (NB-E)	A (NB-D)	B (NB-F)
101	US 15-501/Estes Drive	Signalized	C (WB-D)	C (WB-E)	C (WB-D)	C (WB-E)	C (WB-D)	D (WB-E)
102	US 15-501/Willow Drive	Signalized	B (WB-E)	C (EB-E)	B (WB-E)	C (EB-E)	B (WB-E)	C (EB-F)
103	US 15-501/Elliottt Road	Signalized	A (EB-E)	C (EB-E)	A (EB-D)	B (EB-E)	A (EB-E)	B (EB-E)
104	US 15-501/Ephesus Church Road	Signalized	C (WB-F)	D (EB-F)	C (WB-F)	D (EB-F)	C (WB-F)	D (EB-F)
105	US 15-501/Erwin Road	Signalized	A (WB-A)	A (WB-A)	A (WB-A)	A (WB-A)	A (WB-A)	A (WB-A)
106	US 15-501/Europa Drive	Signalized	A (NB-E)	A (NB-E)	A (NB-F)	A (NB-F)	A (NB-F)	A (NB-F)
107	US 15-501/Superstreet NB U-Turn	Signalized	C (NB-E)	C (NB-E)	B (NB-E)	B (NB-E)	B (NB-E)	B (NB-E)
108	US 15-501/Superstreet SB U-Turn	Signalized	A (SB-E)	B (SB-E)	A (SB-C)	B (SB-E)	A (SB-D)	C (SB-E)
109	US 15-501/Sage Road	Signalized	E (NB-F)	D (NB-F)	E (NB-E)	D (NB-F)	E (WB-F)	D (NB-F)
110	US 15-501/Eastowne Drive/BCBS	Signalized	C (SB-E)	B (SB-E)	B (SB-E)	B (SB-D)	B (SB-E)	B (SB-D)
111	US 15-501/Eastowne Drive/Lakeview Drive	Signalized	C (SB-F)	C (SB-F)	C (SB-F)	D (SB-F)	C (SB-F)	D (SB-F)
201	NC 54/Hamilton Street	Signalized	B (NB-E)	B (NB-E)	B (NB-E)	B (SB-E)	B (NB-E)	B (NB-E)
202	NC 54/Burning Tree Lane	Signalized	B (SB-E)	B (NB-E)	A (SB-E)	B (NB-D)	A (SB-E)	B (NB-D)
203	NC 54/Barbee Chapel Road Ext	Signalized	A (NB-E)	B (NB-F)	A (NB-E)	B (NB-F)	A (NB-E)	B (NB-F)
204	NC 54/Meadowmont Lane	Signalized	C (NB-D)	C (NB-D)	C (NB-D)	C (NB-E)	C (NB-D)	C (NB-E)
205	NC 54/Barbee Chapel Road (East)	Signalized	D (NB-F)	C (SB-F)	D (NB-F)	C (SB-F)	E (NB-F)	C (SB-F)
301	US 15-501/Culbreth Road/Mt Carmel Church Road	Signalized	C (EB-E)	C (EB-D)	D (EB-E)	C (EB-E)	D (EB-E)	D (NB-E)
302	US 15-501/Bennett Road/Arlen Park Drive	Signalized	B (EB-E)	B (EB-E)	B (EB-E)	B (EB-E)	B (EB-E)	B (EB-E)
303	US 15-501/Market Street	Signalized	B (EB-C)	B (EB-C)	B (EB-D)	C (EB-E)	B (EB-D)	C (EB-E)
305	Park Place & Boundary Street	Unsignalized	A (WB-A)	A (WB-B)	A (WB-A)	A (WB-B)	A (WB-B)	A (WB-B)

Legend: X = overall intersection level of service (X) = worst movement level of service

Source: Table 4-11 of Development Plan TIA, December 2017

3: Development Plan Transportation Mitigation Measures and Recommendations

Overview of Mitigation Strategies and Measures

As the No-Build scenario showed, geometric improvements could be considered at several intersections even without the Development Plan. The list below describes the intersection improvements that have been approved and/or stipulated by the Town of Chapel Hill. Some of these have already been implemented.

- Columbia Street / South Road / McCauley Street: Improvements at this intersection are complete. The improvements included remodeling to improve pedestrian safety, as well as an exclusive left-turn lane on the McCauley Street approach that was accomplished through pavement marking changes without widening the road.
- South Road / Country Club Road: Improvements have already been made here without widening the road. A northbound right-turn lane has been added, and the southbound shared through-right lane has been converted to a shared left-through-right lane. In addition, realignment of the Ridge Road / County Club Road intersection, to give priority to Ridge Road, has been recommended as a long term option.
- Cameron Avenue / Raleigh Street: Signal phasing changes have been implemented to improve traffic flow. As discussed earlier, the Town has indicated the possibility of revisiting this intersection and considering the implementation of an exclusive westbound right-turn lane on Country Club Road.
- Country Club Road / Battle Lane / Boundary Street: Bollards and chains have been strategically provided to control pedestrians in and around this intersection, and a stamped asphalt pedestrian crossing was installed. If the Town and University determine that other improvements are necessary, the University will coordinate with the Town to design and implement the agreed upon improvements.
- Country Club Road / Gimghoul Road / Paul Green Theater Drive: A traffic signal including pedestrian countdown heads has been provided.
- Manning Drive / Skipper Bowles Drive: Based on peak period counts and the accident history at this location, turn restrictions have been implemented to prevent eastbound left-turns from Skipper Bowles Drive onto northbound Manning Drive during special events. Recent changes in the parking allocation of the Development Plan indicated the potential for an increase in the number of parking spaces accessible via Skipper Bowles Drive. It was noted in past Annual Reports that the University would collect additional traffic volume data at this intersection to perform a more thorough analysis to determine if applicable warrants for the installation of a traffic signal are met. The proposed changes to the parking allocation, while still included in the Development Plan, have not been constructed. Signal warrants were performed for this intersection in the TIA update and the intersection does not meet the warrants for installation of a traffic signal.
- South Columbia Street, between Manning Drive and South Road: The cross-section of this portion of South Columbia Street has been altered as stipulated to remove a vehicular travel lane and to add an exclusive bike lane and an exclusive bus lane. Construction of the accompanying streetscape features are

complete as well. A new pedestrian activated traffic signal at the intersection of South Columbia Street and Medical Drive was also constructed as part of the streetscaping project.

- Manning Drive / Fordham Boulevard: Stipulated improvements for this intersection have been completed. The University provided funding for the stipulated street lighting. The University also prepared traffic signal upgrade plans in coordination with the Town and NCDOT for the stipulated traffic signal upgrades at this intersection to improve pedestrian safety. The Town of Chapel Hill utilized contractor services to complete the intersection upgrades.
- Fordham Boulevard / Old Mason Farm Road: Stipulated improvements for this intersection have been completed. The University has provided funding for the stipulated street lighting. The University also prepared traffic signal upgrade plans in coordination with the Town and NCDOT for the stipulated traffic signal upgrades at this intersection to improve pedestrian safety. The improvements to the traffic signal have been completed.
- Mason Farm Road / East Drive: A stipulated traffic signal for this intersection has been constructed. The University prepared the necessary traffic signal plans and provided those plans to the Town of Chapel Hill. The Town utilized contractor services to construct the new traffic signal.
- Mason Farm Road / West Drive: A new traffic signal was stipulated at this intersection. The University designed and implemented a temporary traffic signal to operate at this intersection until construction of Marsico Hall was completed. The construction of Marsico Hall is completed and the final signal featuring metal poles with mast arms is to be constructed in early 2016.
- Ridge Road: Resurfacing has been stipulated along the length of the road. Other safety improvements have already been made near the Rams Head Center and other pedestrian safety enhancements have been constructed adjacent to Boshamer Stadium and were completed in 2010. The University is performing a study of potential improvements to pedestrian and bicycle facilities on Ridge Road.
- Manning Drive / Ridge Road: Although traffic delays are not an egregious problem here, there are speed and appearance issues. Measures to reduce and calm traffic and to enhance pedestrian safety should be studied. Measures to encourage pedestrians to cross at the intersection have been implemented.

Impacts to Date and Target Mode Splits

Table 3.1 shows the proportions of employees and students traveling to campus by each mode of transportation ('mode splits') in 2001, 2004, 2007, 2009, 2011, 2013, 2015 and 2017 plus the current targets for 2024. The latest commuter survey was carried out in spring 2017. In 2001, the University was already performing well, with 28% of employees and 67% of students using alternative modes to reach the campus. The 2004, 2007, 2009, 2011, 2013, 2015 and 2017 commuter surveys provided a snapshot of progress part-way into the Development Plan, and the 2024 targets have been updated in light of this experience.

As expected, the proportion of both employees and students driving alone has fallen further since 2001, with a reverse trend since 2015. Similarly, the park-and-ride use has increased since 2001, however has been dropping since 2013 (likely due to pricing changes for using park-and-ride lots). This general decrease in employees and students driving alone is because (a) construction to date has resulted in a net loss of over 1,000 employee spaces, (b) the employee and student populations have increased, and (c) the University has invested heavily in improvements to alternative modes. Chapel Hill Transit (CHT) and GoTriangle have been particularly popular. This is a successful result of investment in fare-free transit, subsidized GoPasses and other service enhancements.

It appears that some employees living in Chapel Hill and Carrboro are choosing to drive to a park-and-ride lot rather than walk to a local CHT stop, in order to take advantage of the more frequent transit service. This may not be as big a problem as in the past because of the new park-and-ride fees which have reduced use at park-and-ride lots. Also, geocoding data suggest that University employees are living further away from campus than in previous years, increasing the value of park-and-ride compared to CHT.

Table 3.1: Baseline, Current and Target Mode Splits

	Employees								
Mode	2001 Ratio	2004 Ratio	2007 Ratio	2009 Ratio	2011 Ratio	2013 Ratio	2015 Ratio	2017 Ratio	New Projections
Drive alone	0.72	0.61	0.56	0.49	0.57	0.51	0.61	0.64	0.45
Carpool/vanpool	0.06	0.05	0.06	0.07	0.05	0.05	0.05	0.05	0.08
Bus	0.06	0.08	0.10	0.13	0.10	0.15	0.16	0.15	0.26
Bicycle	0.03	0.02	0.03	0.04	0.02	0.04	0.05	0.04	0.03
Walk	0.02	0.02	0.03	0.03	0.02	0.03	0.01	0.02	0.02
Park-and-ride	0.07	0.15	0.16	0.17	0.18	0.16	0.07	0.05	0.11
Other	0.04	0.06	0.07	0.07	0.05	0.07	0.05	0.04	0.04

	Commuting Students								
Mode	2001 Ratio	2004 Ratio	2007 Ratio	2009 Ratio	2011 Ratio	2013 Ratio	2015 Ratio	2017 Ratio	New Projections
Drive alone	0.33	0.19	0.18	0.17	0.14	0.16	0.18	0.25	0.16
Carpool/vanpool	0.08	0.07	0.08	0.03	0.04	0.04	0.03	0.02	0.08
Bus	0.21	0.34	0.35	0.39	0.42	0.37	0.51	0.39	0.41
Bicycle	0.09	0.05	0.06	0.11	0.10	0.08	0.13	0.13	0.08
Walk	0.12	0.14	0.14	0.12	0.11	0.15	0.05	0.09	0.11
Park-and-ride	0.12	0.16	0.10	0.14	0.15	0.12	0.06	0.06	0.10
Other	0.06	0.06	0.09	0.05	0.05	0.08	0.04	0.06	0.06

Notes
1. "Carpool/vanpool" includes drivers and passengers.
2. "Bus" includes Chapel Hill Transit and Regional Transit.
3. "Other" includes motorcycles, dropped off, work from home, etc.
4. Existing ratios are based on Tuesday data from the Commuter Survey

Estimated Air Quality Impacts

The strong use of alternative modes, compared to a typical development of this size, also has a benefit for air quality. The emission reductions, compared to a typical development, are estimated to be:

- NOx: 18 kg/day (5,259 kg/year)

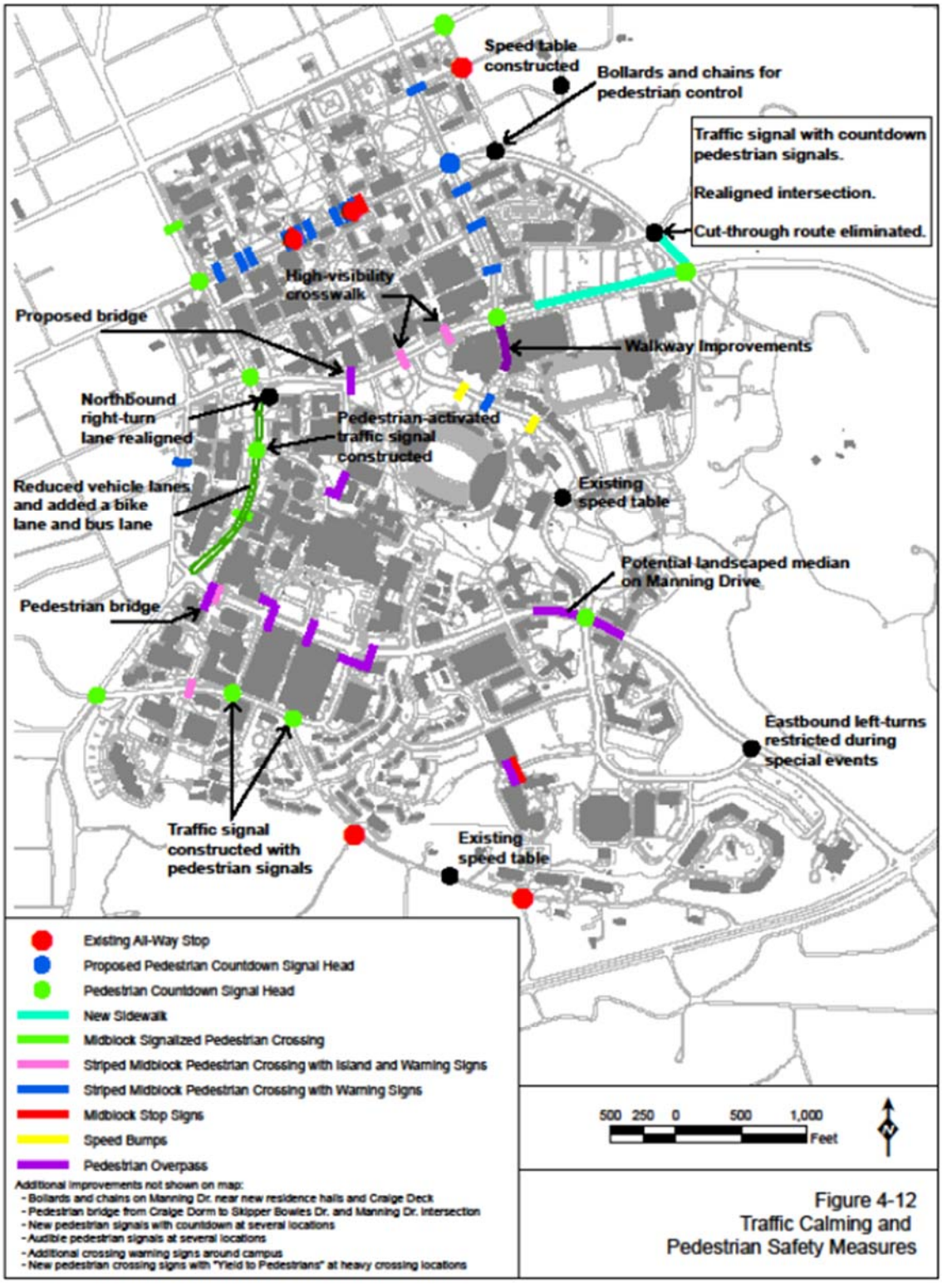
- VOC: 32 kg/day (7,785 kg/year)
- CO: 583 kg/day (151,653 kg/year)

Methodology and data analyzed for estimating air quality impacts are explained in more detail in Section 3.5 of the December 2017 Development Plan TIA report.

Existing and Proposed Traffic Calming Measures On Campus

Figure 3.1 shows the recent traffic calming measures implemented on campus, as well as some potential long term projects. Some of the potential long term measures may include pedestrian and bicycle improvements. Recent improvements include new pedestrian countdown signal heads at several intersections, new sidewalks, and new mid-block pedestrian crossings using a variety of engineering treatments.

Figure 3.1: Traffic Calming and Pedestrian Improvements On Campus



Existing and Proposed Traffic Calming Measures in Adjacent Neighborhoods

The Transportation Impact Analysis (TIA) guidelines agreed to by the Town of Chapel Hill and the University in 2001 do not require the TIA to analyze traffic calming in adjacent neighborhoods. However, the University maintains an ongoing dialog with the Town about possible impacts and potential mitigation measures. Not only has the University agreed to provide traffic calming measures on campus, but the University has also agreed to provide traffic calming measures on streets in neighborhoods immediately adjacent to the campus. As part of this process, the University worked with the Town's traffic engineering staff and with neighborhood residents.

Table 3.2 shows the streets that were considered for possible impacts and potential mitigation measures. The measures that were agreed upon have all been implemented as indicated in Table 3.2. The measures were designed and implemented at no cost to the Town. The Town will maintain the traffic calming devices on Town streets.

In 2011 Town staff indicated some neighborhood residents had applied to the Town to consider additional traffic calming to be implemented. The University gathered daily traffic volume and vehicle speed data at three locations on streets where traffic calming measures had been constructed. The data was provided to the Town staff for use in their assessment of the resident's application. To date, the Town of Chapel Hill has not taken action to modify the traffic calming measures that were designed and constructed by the University.

Table 3.2: Neighborhood Streets Considered for Traffic Calming Measures

Street	Identified for Implementation?	Traffic Calming Measures	
		Status	
Westwood Drive, Ransom Street, McCauley Street, and Vance Street	No. Traffic calming measures have already been implemented.	Complete	Westwood Drive, Ransom Street, McCauley Street, and Vance Street
Oteys Road	No. Traffic calming measures have already been implemented.	Complete	Oteys Road
Purefoy Road	No. Traffic calming measures have already been implemented.	Complete	Purefoy Road
Mason Farm Road	No. Traffic calming measures have already been implemented.	N/A	Mason Farm Road
Ridge Road	No. Traffic calming measures have already been implemented.	N/A	Ridge Road
Laurel Hill Road	No. Alignment and cross-section of road is already a calming measure prohibiting high travel speeds and creating longer travel times than competing routes.	N/A	Laurel Hill Road
Gimghoul Road	No. Church property was sold and will be redeveloped as residential units. As a result, the cut-through route connecting to South Road (NC 54) was eliminated. The intersection of Gimghoul Road and Country Club Road has been signalized. Paul Green Theater Drive was relocated to align with Gimghoul Road.	Complete	Gimghoul Road
Raleigh Street	No. Traffic calming measures have already been implemented.	N/A	Raleigh Street
Cameron Avenue	No. Traffic calming measures have already been implemented.	N/A	Cameron Avenue
Battle Lane	No. Traffic calming measures have already been implemented.	N/A	Battle Lane
Boundary Street	Yes. Plans were completed and submitted to Town for implementation.	Complete	Boundary Street
Park Place	No. Traffic calming devices were deemed not feasible on this street.	N/A	Park Place

The University of North Carolina at Chapel Hill

Development Plan

Transportation Impact Analysis Update

December 2017

The University of North Carolina at Chapel Hill

Development Plan

Transportation Impact Analysis
Update

December 2017

Prepared by

VHB Engineering NC, PC

EXECUTIVE SUMMARY

This is the ninth update of the initial Transportation Impact Analysis submitted in July 2001 for the University of North Carolina at Chapel Hill Development Plan. The updates are being submitted to the Town in accordance with the requirements of the Town of Chapel Hill's Office/Institutional-4 (OI-4) Zoning District regulations. The purpose of this updated analysis is to provide an assessment of the transportation implications of the Development Plan and revise mitigation measures, if needed based on the updated analysis, to address impacts. Transportation elements addressed include automobile traffic, transit, parking, bicycle and pedestrian traffic, and associated air quality issues.

Some new data has now been collected for this update to identify trends and refine recommendations where necessary. New projections of future mode splits (i.e., how commuters may be traveling to Campus in 2022) are included in this update based on results of the commuter survey completed in spring 2017.

The Development Plan projects will add approximately 7.9 million gross square feet (GSF) of new development to Campus, including parking decks and infrastructure. The net increase in new occupied floor area for the Development Plan is approximately 5.6 million square feet, or an estimated 49 percent increase over pre-2001 occupied floor area. The growth projections used to estimate employee and student growth have been extended through 2022. Employee growth is anticipated to be 69 percent (9,871 additional employees) and student growth is anticipated to be 24 percent (5,903 additional students) over the life of the Development Plan.

The increase in Main Campus employee and student parking accompanying the Development Plan is significantly less than current ratios. Therefore, an increase in the use of alternative modes is an essential component of the Development Plan.

The Development Plan will permanently displace 4,061 existing surface spaces, and add 5,640 new spaces to Main Campus. The net parking impact of the proposed Development Plan remains at an increase of 1,579 spaces. Of these, 1,455 are for patients/visitors, 348 are for employees/commuting students, 6 for other users (e.g., service), and there is a net loss of 287 for resident students.

When the growth in employees and students is taken into account, the following Main Campus parking "shortfalls" are projected (approximate numbers) to occur with implementation of the Development Plan (shortfall is defined as the difference between the amount of Main Campus parking that would be required if parking continued to be provided at pre-Development Plan rates, and the amount that actually will be provided):

- 4,572 employee spaces
- 423 commuting student spaces
- 451 resident student spaces
- 2,100 visitors

The amount of traffic that will be generated by the Development Plan is a function of the amount of parking that will be provided, with the improved alternative modes described in the report serving the other employees and students. An integral element of the adopted Main Campus Master Plan is to minimize the increase in Main Campus parking as Campus

grows by promoting and increasing the use of alternative forms of transportation. The parking and transportation initiatives that are inherent in the Development Plan are consistent with the transportation strategy for the Master Plan.

The net increase in parking will generate 11,487 daily vehicular trips. This can be contrasted to the amount of traffic that would be generated by a typical hypothetical development of similar size where no, or very limited, trip reduction strategies apply. Using trip rates from the Institute of Transportation Engineers (ITE) Trip Generation Manual (9th Edition) yields an estimated 34,821 vehicular trips on a typical day. Therefore, the trips associated with the Development Plan are significantly lower compared to a typical development.

An increased proportion of commuters will use alternative means of traveling to Campus. The following alternatives will be improved and/or promoted as part of the University's trip reduction program:

- Chapel Hill Transit (CHT)
- Regional transit
- Park-and-ride
- Ridesharing
- Teleworking
- Cycling
- Walking

Potential future actions include identifying more park-and-ride spaces in the US 15-501 N corridor as needed to serve the Main Campus, continued improvements to CHT, and improvements to regional transit.

Park-and-ride continues to be a popular choice for employees and students, although counts are down as compared to previous years. The Friday Center lot continues to fill, and as in the past, most likely accommodates commuters from the US 15-501 north corridor, which has no park-and-ride options, in addition to commuters from the east. The decrease in park-and-ride as compared to previous years can likely be explained by the introduction of fees for park-and-ride spaces in fall 2013. The currently-estimated net park-and-ride need for the Development Plan (1,338 spaces), has been met with construction of the 871-space Friday Center lot, the 443-space Jones Ferry Road lot, the 278-space Hedrick lot, and the 550-space Chatham lot.

It is important to note that the University has a full-time Transportation Demand Management (TDM) manager. The role of this person is to promote and assist employees in learning about and using alternative modes, as well as managing the Commuter Alternative Program (CAP) which is an incentive program designed to encourage University and Hospital employees and commuter students to use alternative transportation modes.

If it is assumed that the trip reduction measures that are implicit in the Development Plan and needed to address the reduced parking are applied only to new commuters (in reality they will apply to all commuters), then it is projected that new commuters would travel by the following means:

- Drive alone: 117 (1%)
- Chapel Hill Transit: 5,186 (43%)
- Regional transit: 2,317 (19%)
- Ridesharing: 1,226 (passengers and drivers, 11%)
- Bicycle: 588 (5%)
- Walk: 381 (3%)
- Park-and-ride: 1,672 (14%)
- Other: 577 (5%)

Total (adjusted): 12,065 (100%)

The following should be noted:

- The new ratios hypothetically assume that only new commuters would be subjected to the limited parking and trip reduction strategies. In reality, all parking is pooled and there will be no distinction between new and existing commuters. The aggregate mode split for the entire future employee and commuter student populations is shown in Table 3-2.

- The use of alternative modes includes the proportion of commuters who would use those modes based on current mode split (e.g., if the number of employees increases by 31%, then use of CHT by employees can be expected to increase by 31% without expanded trip reduction strategies).

In addition to addressing the commuting needs of employees and students, these strategies will also help reduce traffic congestion on Main Campus and reduce exhaust emissions.

An analysis of roadway intersections on or near Main Campus that may be affected by the Development Plan was also undertaken for existing conditions, and year 2024 with and without the Development Plan (No-Build and Build conditions respectively), per the *Transportation Impact Analysis Guidelines*.

The updated traffic analysis has resulted in changes in the projections for intersection levels of service in comparison to the 2015 update. Most intersections in the study area are operating at acceptable LOS and most will be expected to continue to operate at acceptable LOS in the No-Build (2024) scenario and in the Build (2024) scenario.

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1.0 INTRODUCTION

This is the ninth update of the initial Transportation Impact Analysis submitted in July 2001 for the University of North Carolina at Chapel Hill Development Plan. The updates are being submitted to the Town in accordance with the requirements of the Town of Chapel Hill's Office/Institutional-4 (OI-4) Zoning District regulations. The purpose of this updated analysis is to provide an assessment of the transportation implications of the Development Plan and revise mitigation measures, if needed based on the updated analysis, to address impacts. Transportation elements addressed include automobile traffic, transit, parking, bicycle and pedestrian traffic, and associated air quality issues.

The report is divided into three sections. The first discusses population growth and associated increases in Main Campus parking demand, and details the impact of the plan and population growth on Main Campus parking. This section provides an estimate of the shortfall in Main Campus parking as a result of employee growth, enrollment expansion, and Development Plan construction. This section also describes modifications to the Development Plan, including the elimination of projects and the addition of new projects. These modifications were approved by the Town in June and August 2003, March 2004, and October 2006. In addition, actual parking changes that have occurred as a result of Development Plan projects are shown.

The next section discusses trip generation and trip reduction strategies. As required by the *Transportation Impact Analysis Guidelines*, vehicular trip generation was first calculated assuming the Development Plan was a hypothetical, suburban development where no or very limited trip reduction strategies applied. The impacts of the proposed trip reduction strategies that are integral to the Development Plan are then calculated for comparison purposes. This section also describes the various strategies that are proposed to address the limited employee and student parking increases in the Development Plan. Two crucial components necessary for updating this section are the University's Commuter Survey (undertaken in spring 2017) and the Transportation Management Plan (undertaken in fall 2017).

The final section provides analyses for key intersections in the Development Plan area, and discusses mitigation options where they are warranted.

Extensive data were collected for the first four updates to provide a baseline set of data for monitoring purposes, and to allow conclusions and recommendations to be made. Some new data have now been collected for the ninth update to identify trends and refine recommendations where necessary.

2.0 DEVELOPMENT PLAN

Figure 2-1 and Table 2-1 show and detail University projects planned for construction between 2001 and 2022. The list only includes projects involving new square footage (rehabilitations that add no additional square footage are not included). Changes to the project list were approved by the Town in June and August 2003 (Development Plan Modification No.1), in March 2004 (Development Plan Modification No.2), and in October 2006 (Development Plan Modification No.3).

Development Plan projects (including the modifications) will add approximately 8.0 million gross square feet of new development to the campus, a 58 percent increase over the campus' existing 13.7 million square feet. Some of the new area is required to address current space deficits (i.e., will not result in an increase in employees or students). During this same period, existing buildings totaling approximately 235,000 gross square feet will be demolished. Parking decks account for about 1.95 million square feet of the Plan. Infrastructure projects make up about 300,000 square feet. Therefore, the net increase in new occupiable floor area for the Development Plan is approximately 5.6 million square feet, or an estimated 49 percent increase over the pre-Development Plan occupiable floor area. Projects in the Plan can be separated into the categories listed below. The chart also indicates changes in square footage since the December 2015 update and includes projects approved as part of Modification No.3.

Classification	Square Footage	Change from 2015 Update
Academic	1,818,486	-
Cultural	140,629	-
Housing	826,015	-97,148
Infrastructure	312,382	-
Office	460,200	-
Parking	1,950,700	-
Research	800,923	-
Student Life	339,699	-
Athletics	375,079	+117,920
UNC Health Care	1,035,619	+74,269
Total	8,059,732	+95,041

Figure 2-1: University of North Carolina at Chapel Hill Development Plan

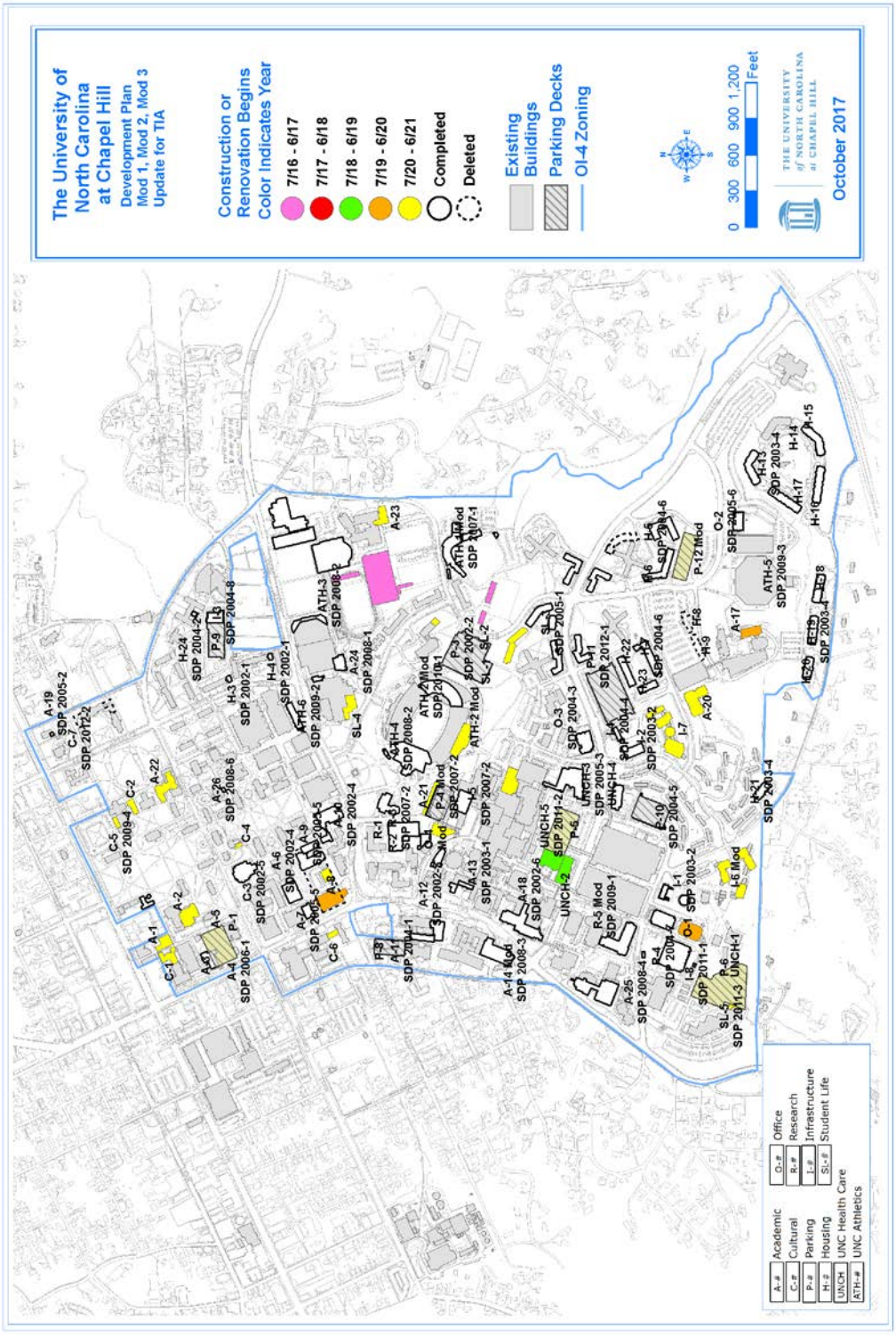


Table 2-1: University of North Carolina at Chapel Hill Development Plan

Building	Building Type	Gross Square Footage	Anticipated Construction Start Date	Anticipated Construction Completion
A-1	**Academic**	**31,800**	**07/20**	**07/22**
A-2	**Academic**	**73,100**	**07/20**	**07/22**
A-3	Academic	25,600	03/05	02/07
A-4	Academic	20,000	03/05	02/07
A-5	**Academic**	**55,200**	**07/20**	**07/22**
A-6	Academic	90,000	07/03	06/05
A-7	Academic	41,000	02/06	08/08
A-8	**Academic**	**154,500**	**07/19**	**07/21**
A-9	**Academic**	**396,700**	**07/20**	**07/22**
A-10	Academic	112,500	07/03	06/05
A-11	Academic	82,000	03/04	02/06
A-12	Academic	69,500	11/01	10/03
A-13	Academic	10,200	08/02	07/04
A-14 Mod	Academic	259,990	06/08	05/12
A-15	Deleted			
A-16	Deleted			
A-17	**Academic**	**53,200**	**07/19**	**07/21**
A-18	Academic	936	08/04	03/04
A-19	Academic	1,600	03/05	03/06
A-20 *	**Academic**	**125,000**	**07/20**	**07/22**
A-21	**Academic**	**80,000**	**07/20**	**07/22**
A-22	**Academic**	**75,000**	**07/20**	**07/22**
A-23 *	**Academic**	**50,000**	**07/20**	**07/22**
A-24	Academic	5,580	06/08	02/10
A-25	Academic	3,308	10/08	01/10
A-26	Academic	1,772	01/09	02/10
	Total Academic	**1,818,486**		
C-1	**Cultural**	**36,000**	**07/20**	**07/22**
C-2	**Cultural**	**26,400**	**07/20**	**07/22**
C-3	Cultural	37,325	12/01	01/03
C-4	**Cultural**	**3,000**	**07/20**	**07/22**
C-5 Mod	**Cultural**	**22,904**	**07/20**	**07/22**
C-6	**Cultural**	**15,000**	**07/20**	**07/22**
	Total Cultural	**140,629**		
H-1	Housing	Deleted		
H-2	Housing	Deleted		
H-3	Housing	6,656	05/02	07/03
H-4	Housing	6,656	05/02	07/03
H-5	Housing	68,400	01/04	08/05
H-6	Housing	60,000	01/04	08/05
H-7	Housing	74,800	01/04	08/05
H-8	**Housing**	Deleted		
H-9	**Housing**	Deleted		
H-10	Housing	Deleted		
H-11	Housing	Deleted		
H-12	Housing	Deleted		
H-13	Housing	60,500	08/03	08/04
H-14	Housing	60,500	08/03	08/04
H-15	Housing	58,200	08/03	08/04
H-16	Housing	59,400	08/03	08/04
H-17	Housing	59,400	08/03	08/04
H-18	Housing	44,400	08/03	08/04
H-19	Housing	44,400	08/03	08/04
H-20	Housing	37,600	08/03	08/04
H-21	Housing	30,050	08/03	08/04
H-22	Housing	79,601	01/04	08/05
H-23	Housing	79,600	01/04	08/05
H-24	Housing	7,800	01/04	08/05
SH PHIII	**Housing**	**125,000**	**07/20**	**07/22**
H	**Housing**	**(136,948)**	**05/17**	**05/19**
	Total Housing	**826,015**		

Building	Building Type	Gross Square Footage	Anticipated Construction Start Date	Anticipated Construction Completion
I-1	Infrastructure	20,000	07/03	12/04
I-2	Infrastructure	115,600	08/03	07/05
I-3	Infrastructure	21,600	03/04	03/06
I-4	Infrastructure	**6,382**	06/04	12/05
I-5 Mod	Infrastructure	100,800	01/08	07/10
I-6	**Infrastructure**	**48,000**	**07/20**	**07/22**
I-7	**Infrastructure**	**N/A**	**07/20**	**07/22**
	Total Infrastructure	**312,382**		
O-1	**Office**	**133,200**	**07/19**	**07/21**
O-2	Office	30,000	11/02	05/06
O-3	Office	105,000	07/04	03/06
O-4	**Office**	**180,000**	**07/20**	**07/22**
O-5	**Office**	**12,000**	**01/20**	**01/22**
	Total Office	**460,200**		
P-1	**Parking**	**115,500**	**07/20**	**07/22**
P-2	Parking	Deleted		
P-3	Parking	252,600	05/02	10/04
P-4 Mod	Parking	225,000	03/07	08/10
P-5	**Parking**	**255,500**	**07/20**	**07/22**
P-6	**Parking**	**134,400**	**01/20**	**01/22**
P-7	*Parking*	*Deleted*		
P-8	Parking	42,000	03/03	07/06
P-9	Parking	191,500	03/03	03/06
P-10	Parking	350,000	04/04	12/05
P-11	Parking	288,000	09/12	06/14
P-12	**Parking**	**96,200**	**07/20**	**07/22**
	Total Parking	**1,950,700**		

*****This represents relocation of planned surface parking to spaces beneath the buildings.

R-1	Research	109,000	07/07	03/12
R-2	Research	49,000	07/07	03/12
R-3	Research	74,400	07/07	03/12
R-4	Research	225,000	08/02	12/04
R-4 MM	Research	523	09/11	12/11
R-5	Research	343,000	06/09	01/14
	Total Research	**800,923**		
SL-1	Student Life	54,400	06/02	07/04
SL-2	Student Life	126,900	06/02	07/04
SL-3	Student Life	126,000	06/04	08/05
SL-4	**Student Life**	**28,000**	**07/20**	**07/22**
MM	Student Life	4,399	06/05	03/06
	Total Student Life	**339,699**		
UNCH-1	**UNC Health Care**	**196,280**	**07/20**	**07/22**
UNCH-2	**UNC Health Care**	**343,180**	**07/18**	**07/20**
UNCH-3	UNC Health Care	291,890	03/05	02/08
UNCH-4	UNC Health Care	130,000	03/06	07/07
UNCH-5	UNC Health Care	(53,546)	12/11	06/12
UNCH-6	UNC Health Care	1,066	01/12	03/12
UNCH	**UNC Health Care**	**126,749**	**07/20**	**07/22**
	Total UNC Health Care	**1,035,619**		
ATH-1	Athletics	41,181	05/07	01/08
ATH-2	**Athletics**	**170,189**	**07/20**	**12/22**
ATH-3	Athletics	15,059	05/08	02/10
ATH-4	Athletics	19,194	01/08	08/09
ATH-4 MM	Athletics	1,000	06/10	08/10
ATH-5	Athletics	6,467	03/10	01/11
ATH-6	Athletics	4,069	01/10	10/10
ATH	**Athletics**	**123,000**	**05/16**	**08/18**
ATH	**Athletics**	**10,000**	**05/16**	**08/18**
ATH	Athletics	(13,417)	05/17	05/19
ATH	Athletics	(1,663)	05/17	05/19
	Total UNC Athletics	**375,079**		
	Campus Total	**8,059,732**		

2.1 POPULATION GROWTH

Anticipated growth in employees and student enrollment during the course of the Development Plan is shown in Table 2-2 and Table 2-3 below. These growth projections build on those in the previous TIA update by projecting growth out to 2022 instead of 2015 as included in previous updates. These projections reflect the most recent data available, and the University no longer projects enrollment more than two years in to the future. The tables show an anticipated increase in employees of 69 percent and student growth of 18 percent overall from 2000 to 2022. The 2022 growth projections were developed to identify a build year for the traffic analysis and may not necessarily reflect a construction schedule for Development Plan projects.

Parking impacts for each of these groups are discussed in the following section.

Table 2-2: Anticipated Employee Growth (2000-2022)

	2000	2022	2000-2022	Growth Rate
Number of Employees	14,303	24,174	9,871	69%
On Main Campus	13,016	21,219	8,203	63%
Off Main Campus	1,287	2,955	1,668	130%

Notes:

1. Permit data were used to estimate the percentage of year 2000 employees who worked (and parked) off-campus, which was approximately 9 percent. It is assumed that the same percentage of employees will work off-campus in 2022.

2. The University no longer estimates population more than two years into the future, therefore the 2022 estimates are unchanged from the 2015 TIA Update.

Table 2-3: Anticipated Student Growth (2000-2022)

	2000	2022	2000-2022	Growth Rate
Number of Students	24,872	30,775	5,903	24%
Resident Students	7,244	9,285	2,041	28%
Commuting Students	17,628	21,490	3,862	22%

Notes:

1. The year 2000 breakout of resident and commuting students was based on the existing number of beds. For year 2022 the breakout was adjusted to account for a forecast increase in resident students of 2,041.

2. All students not accommodated by residence halls or family housing are assumed to be commuting students.

3. In the original Development Plan and subsequent updates, the 2000 Number of Students was erroneously listed as 25,872 instead of 24,872. This also affected the 2000 Commuting Students (18,628 instead of 17,628) and the forecast growth rates. This table shows the corrected data. The data for resident students are unaffected.

4. The University no longer estimates population more than two years into the future, therefore the 2022 estimates are unchanged from the 2015 TIA Update.

2.2 PARKING IMPACTS

2.2.1 Existing Parking

The total number of parking spaces owned by the University in the 2000/2001 academic year was 17,620, of which approximately 14,200 were on Main Campus (excluding motorcycle parking). Of these, approximately 5,450 were in four parking decks on South Campus. Main Campus parking facilities are shown in Figure 2-2. In 2001, and currently, there is not enough parking on Main Campus for all employees wanting to park there. In 2001 there were approximately 8,000 spaces for approximately 13,000 Main Campus employees, or 0.61 spaces per Main Campus employee (because of the oversell ratio which accounts for some people not being on Main Campus on any particular day because of vacation, illness, etc., the number of parking permits issued is higher, 0.77 per employee in 2001).

The rate for students is much lower (less than 10 percent for both resident students and commuting students). Freshmen are not eligible for a parking permit.

2.2.2 Displaced Parking

The Development Plan will permanently displace 4,061 existing surface spaces (excluded from this number are temporary losses due to construction staging and 428 student family spaces which are added back with the construction of new student family units). These anticipated losses are shown by location and user in Table 2-4 and Figure 2-3. It should be cautioned that these are estimates only, and that several factors could affect the actual losses:

- Included are spaces lost to future parking deck construction. The final size and configuration of the deck will determine how many surface spaces, if any, could be retained.

- It has been assumed that some service and disability spaces, as well as some permit spaces at some sites, may be retained. The actual number will depend on the configuration of future buildings, landscaping, etc.

2.2.3 Additional Main Campus Parking

The Development Plan will permanently add 5,640 new spaces to Main Campus (this includes a net increase of 25 spaces for student family housing and 32 employee spaces that have yet to be assigned to a location). Of the remaining 5,583 spaces, 5,425 are being provided in nine new structures (either free-standing decks or on the lower level of buildings) and one expansion (the Craige Deck), and 158 are surface spaces added back where building projects have already been completed. In July of 2013, the Craige Parking Deck Expansion project began. This vertical expansion provided four additional levels and 990 spaces by the project's completion in August of 2015. These Development Plan spaces are shown in Table 2-4 and Figure 2-3. The breakdown of new deck spaces is shown in Table 2-5. As with the losses, these are estimates only.

Figure 2-2: Existing Main Campus Parking Facilities

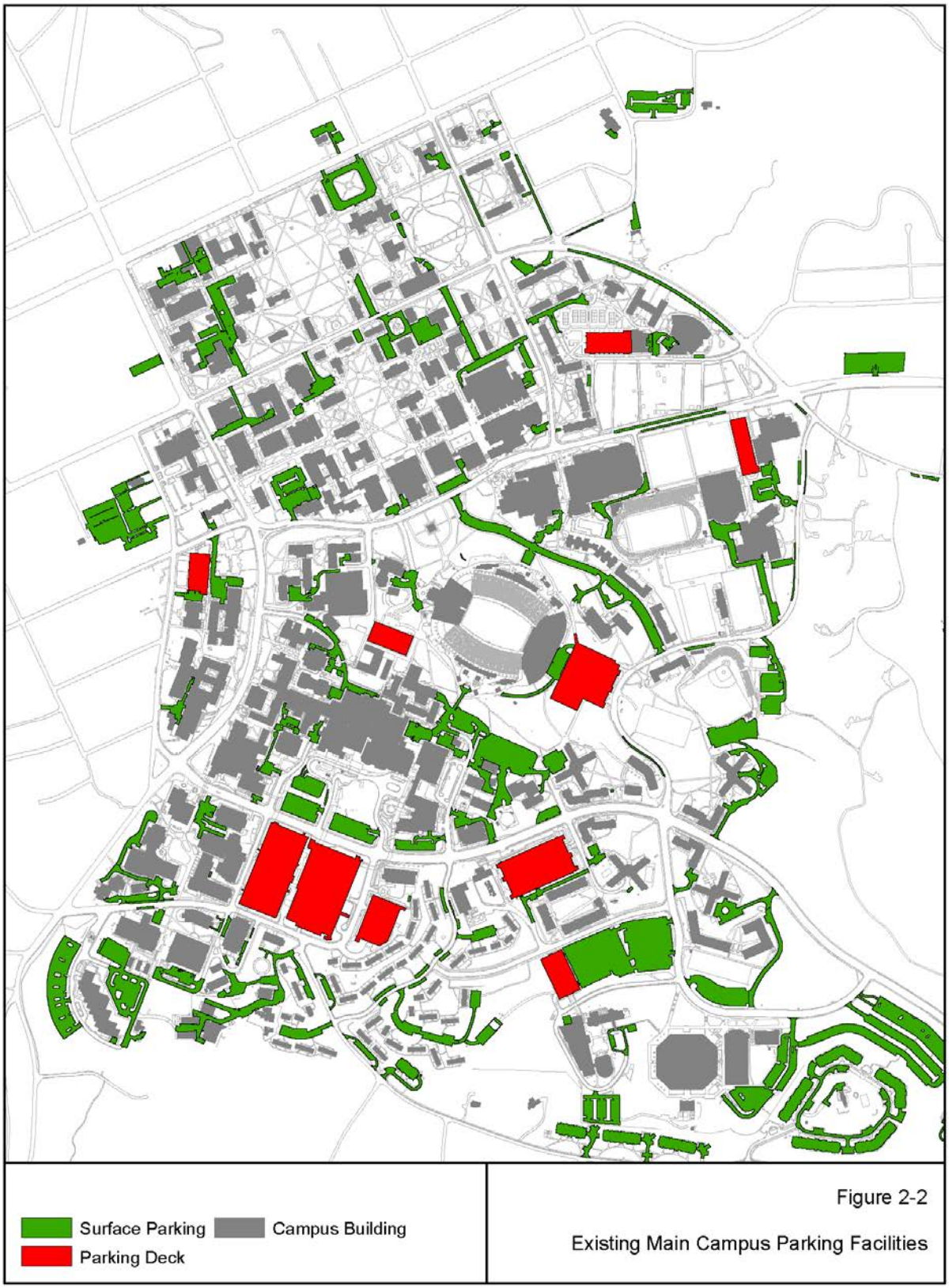


Table 2-4: Parking Impacts of Development Plan

	Number of Spaces[1,2]							
Lot / Project Name	Parking Zone	Employee	Commuting Student	Resident Student	Student in Family Housing	Visitor	Other	Net Change
ACC (new structure)						198		198
Bell Tower (new structure)	BG	124						124
Bowles	S11	-471	-157					-628
Cameron/Swain (Arts Common Deck - new structure)	ND1/NG1	-154				270		116
Cobb/Joyner (new structure and surface parking)		126	-33			-6	-8	79
Craige Surface	CD	-212		-37				-249
Craige Deck Expansion	CD	990						990
Dental School	S6	-53						-53
Glaxo / Housing Support / MFM / MRI	S6	-46						-46
Gravely (NC H&C) (new structure)	CG	-135				730		595
Hanes						-48	16	-32
Hinton James	M			-250				-250
ITS		-29				-2	24	-7
Jackson Deck (new structure)		606	100		-54			652
Kenan/McColl Visitor Parking						-40		-40
McCauley Street (Global Education Deck - new structure)	W	-20						-20
Neurosciences	CG	-158				50		-108
North Medical Drive							-26	-26
Porthole	N2	-40						-40
Rams Head (new structure)	S5	-16				303		287
Stadium Drive	S4							0
Sitterson	NG2	-135						-135
South Chiller	S6	-129						-129
Student Family Housing	MR/MR2				79			79
Tennis Court Deck (new structure)		231						231
Wilson Library	N8	-41						-41
Subtotal		**438**	**-90**	**-287**	**25**	**1,455**	**6**	**1,547**
Unassigned spaces[3]		32						32
Total								**1,579**

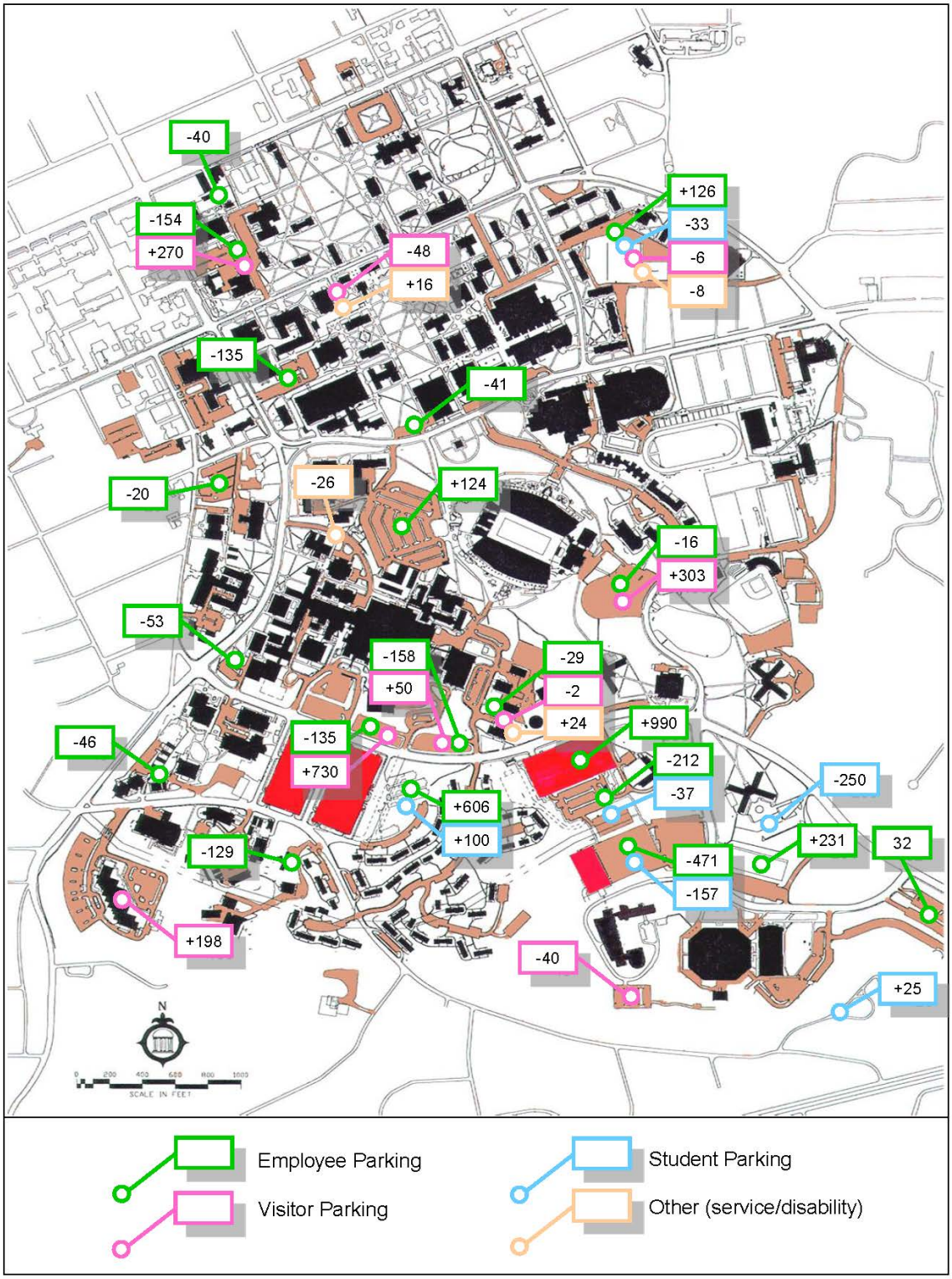
Notes:

1. Numbers are subject to change, depending on the final footprint of each project.
2. These numbers represent net changes only. For example, the Rams Head structure has 700 spaces, but 413 were displaced as a result of its construction. The net impact, which is shown in this table, is 287 spaces.
3. Spaces not assigned to a specific location on the campus and whose location(s) will be determined in future development plan modification reques The total net change in parking is 32 spaces less than the approved 1,579 space increase, but the traffic assessment accounts for the entire 1,579 space net increase.

Table 2-5: Summary of New Parking Decks in Development Plan

Facility	Spaces
ACC	350
Bell Tower	710
Cameron (Arts Common)	330
Cobb/Joyner	450
Craige Expansion	990
Jackson Circle	800
McCauley (Global Education Center)	134
NC H&C (Gravely)	730
Rams Head	700
Tennis Court	231
Total	**5,425**

Figure 2-3: Parking Impacts of Development Plan



Unassigned Spaces

The 32 unassigned spaces mentioned in the previous section indicate the difference between the approved net increase of 1,579 parking spaces and the current number of 1,547. In the February 2006 Update, there were 331 unassigned spaces. In Modification No.3, those 331 spaces were assigned to the new Tennis Court deck and to an expansion of the Craige Deck, leaving no spaces unassigned. The current figure of 32 unassigned spaces reflects the actual parking changes from Development Plan projects that have occurred since the 2006 Update. This is consistent with the 2015 update.

The traffic assessment element of this report must account for the entire approved 1,579 space increase in Development Plan traffic, so the 32 unassigned spaces were added to bring the total to 1,579. For this report, these spaces have been assigned to the former Manning Deck site but it is recognized that this deck will not be constructed during the Development Plan period. The actual locations for these spaces will be included in future Development Plan modification requests.

2.2.4 Actual Parking Space Impacts of Development Plan Projects

Table 2-6 shows the actual parking space impacts of Development Plan projects in 2001/2 through 2015/16, plus the planned impacts in 2016/17, and how these compare to the projected changes shown in previous updates. The major differences are due to changes in project schedules, with the timing of the parking impacts changing accordingly. It is important to note that where projected losses exceed actual ones, the losses still will occur, just not as early as was projected in the previous plan update.

Table 2-6: Actual Parking Impacts of Development Plan Projects (2001/2 – 2016/17)

	2001/2		2002/3		2003/4		2004/5		2005/6		2006/7		2007/8		2008/9		2009/10	
User Group	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected
Employee	0	0	-258	-200	-116	-307	-712	-512	198	-232	680	-34	-675	1,605	-40	-40	0	0
Commuting Student	0	0	-90	-298	0	0	57	57	0	-57	100	0	0	0	0	0	0	0
Resident Student	0	0	0	0	0	-56	-287	-11	0	-278	0	0	0	0	0	0	0	0
Student in Family Housing	0	0	0	0	0	-428	436	456	-411	0	0	0	0	0	0	0	0	0
University Visitor	0	-48	-97	-154	-48	-68	392	392	0	-80	0	250	0	0	-60	-60	0	0
Hospitals Visitor	0	0	0	-152	0	0	0	0	0	0	0	0	0	0	0	0	50	50
Other	0	-20	-49	-30	0	0	22	6	0	23	33	27	0	0	0	0	0	0
Total	**0**	**-68**	**-494**	**-834**	**-164**	**-859**	**-92**	**388**	**-213**	**-624**	**813**	**243**	**-675**	**1,605**	**-100**	**-100**	**50**	**50**

	2010/11		2011/12		2012/13		2013/14		2014/15		2015/16		2016/17	
User Group	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Actual	Projected	Planned	Projected
Employee	746	746	0	0	0	0	-400	-400	1,390	1,390	0	0	0	0
Commuting Student	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Resident Student	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Student in Family Housing	0	0	0	0	0	0	0	0	0	0	0	0	0	0
University Visitor	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hospitals Visitor	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**746**	**746**	**0**	**0**	**0**	**0**	**-400**	**-400**	**1,390**	**1,390**	**0**	**0**	**0**	**0**

Notes:
1. Parking changes do not include impacts of non-Development Plan projects.
2. These are net changes, reflecting permanent and temporary space changes.
3. Projected numbers for 2001/2 and 2002/3 are those that were in the 2002 and 2004 updates.
   Projected numbers for 2003/4, 2004/5 and 2005/6 are those that were in the 2004 update.
   Projected numbers for 2006/7 and 2007/8 are those that were in the 2006 update.
   Projected numbers for 2007/8, 2008/9 and 2009/10 are those that were in the 2009 update.
   Projected numbers for 2010/11 are those that were in the 2011 update.

2.2.5 Future Parking Demand

Table 2-7 summarizes the demand for Main Campus parking spaces by user group based on current demand, projected employee growth rates, and parking impacts of the Development Plan. The findings of this table are summarized in this section.

Table 2-7: 2022 Main Campus Parking Impact Summary (Commuter and Patient/Visitor only)

A.	Employee[1]	Student		Total
		Resident	Commuter	
Existing ratio of Main Campus spaces to population[2]	0.61	0.08	0.09	
Future Population Increases (2001 - 2022)	8,203	2,041	3,862	
Future New Main Campus Parking Demand[3]	5,042	164	333	5,539
Net Parking Provided in Development Plan[4]	470	(287)	(90)	93
(Shortage)/Surplus[5]	**(4,572)**	**(451)**	**(423)**	**(5,446)**
compared to (Shortage)/Surplus in 2006 Update [8]	***(2,250)***	***(505)***	***(205)***	***(2,960)***

B.	Patient/Visitor		Total
	Hospitals	University	
Existing Demand[6]	1,755	920	2,675
Future Growth (2001-2022)[7]	1.37	0.49	--
Future New Demand	2,403	448	2,850
Net Parking Provided in Development Plan	978	477	1,455
Existing Empty Spaces[9]	250	0	250
(Shortage)/Surplus	**(1,175)**	**29**	**(1,145)**
compared to (Shortage)/Surplus in 2006 Update	***(44)***	***54***	***10***

[1] Employees working on Main Campus Only. Parking permits for "prime remote" locations were used to estimate the number of employees working off-campus (9 percent). It is assumed that these employees get parking spaces.

[2] Assumes that parking is satisfied according to existing (2001/2002) ratio of spaces to population.

[3] Calculated by multiplying future increase by existing ratio of spaces to population.

[4] See Table 2-4. Excludes the changes in student family housing and "other" spaces. Employee figure includes the "unassigned" spaces.

[5] It is assumed that no additional (net) student parking will be provided on Main Campus. Any unsatisfied demand must be accommodated by use of alternative modes, park-and-ride, or storage lots.

[6] Existing occupied spaces. Based on Year 2000 data. Corrected figures. The original Development Plan and subsequent updates had incorrectly allocated some spaces to University visitors rather than Hospital patients/visitors.

[7] Hospitals patient/visitor growth based on 2010 projections. University visitor growth assumed to equal growth in occupiable square footage (approximately 49 percent).

[8] In the original Development plan and subsequent updates, the employee population increase was listed as the full growth number (5,034) instead of the Main Campus growth (4,581). This also affected the "shortage/surplus" line. This table shows the corrected data in the "compared to (Shortage)/Surplus in 2006 update" line. The current forecast is unaffected.

[9] An estimated 250 patient/visitor spaces were empty in the Dogwood Deck in 2000. These are not included in the existing demand figure. The empty spaces were erroneously omitted from previous updates.

Employees
University and Hospitals employment on Main Campus is projected to increase by 8,203 employees by 2022, over the twenty-two year timeframe of the Development Plan. If parking were provided at the 2001 ratio of 0.61 Main Campus spaces per employee, approximately 5,042 more spaces would be needed on Main Campus to support the Development Plan. Of the net increase of 1,579 spaces, 470 are allocated to employees. Therefore, by 2022, there would be a net shortage of approximately 4,572 Main Campus parking spaces for employees.

Resident Students
Resident student enrollment is projected to increase by 2,041 students over the twenty two-year period. If Main Campus parking for resident students were provided at the 2001 ratio of 0.08 Main Campus spaces per resident student, approximately 164 new spaces would be needed to support the increased resident enrollment. Increased parking for resident students is not provided for in the Development Plan, which actually decreases the amount of resident student parking on Main Campus. The total "shortfall" is approximately 451 spaces. These vehicles have been accommodated in the expanded RR lot.

Of the 2,041 increase in resident students, 92 will be in family housing. The Odum Village housing has been replaced with new housing on Baity Hill and along the north side of Mason Farm Road. The new housing has an additional 25 parking spaces.

Commuting Students
Commuter student enrollment is projected to increase by 3,862 students in the same timeframe. Using the same methodology as described for employees and resident students, Table 2-7 indicates an increased demand for Main Campus parking by commuting students of approximately 333 spaces. The net change in parking spaces for commuting students as a result of the Development Plan projects is a decrease of 90 spaces. Therefore, the "shortfall" is approximately 423 spaces.

Patients/Visitors
To forecast the parking demand for Hospitals and University patients and visitors, the 2001 demand (assumed to be the number of spaces occupied by patients/visitors) was projected to grow by the anticipated growth rate in number of patients and visitors for the Hospitals (137 percent) and by the growth rate in occupiable square footage (excludes parking decks) for University visitors (approximately 49 percent).

> Hospitals Patients/Visitors. New patient/visitor demand is projected to be 2,403 spaces. At the start of the Development Plan, approximately 250 spaces were empty in the Dogwood Deck, and the Development Plan provides a further increase of 978 patient/visitor spaces, resulting in a projected shortfall of about 1,175 patient/visitor spaces.
>
> University Visitors. Assuming a 49 percent increase in University visitors, there would be an increase in visitor demand for Main Campus spaces of 448 spaces. The Development Plan provides a net increase of 477 visitor spaces. Therefore, there is a projected surplus of about 29 spaces for University visitors.

2.2.6 Year-By-Year Impact

Table 2-8 builds on the information above, to show the impact of the Development Plan on parking spaces, Main Campus growth, and parking needs for each year (2001-2022). The first section of the table shows parking space impacts by year and user, based on Development Plan projects; the second section shows projected new demand by year and user, based on projected growth; and the last section of the table shows the net parking impact (spaces gained/lost minus projected new demand) by year and user.

The year-by-year numbers for spaces gained and lost (and therefore the net impacts) in Table 2-8 are different from earlier updates as a result of changes in project schedules and actual impacts from projects built so far.

The total parking "shortfall" for the 22-year plan is approximately 7,546 spaces. However, this includes about 451 spaces for resident students, whose demand will be accommodated in storage parking lots and will therefore not need to be accommodated by TDM strategies. This leaves a shortfall of about 7,095 spaces for which alternatives will need to be provided, as described in the next section.

Table 2-8: Main Campus Parking Space Analysis by Year and User

	2001-2002	2002-2003	2003-2004	2004-2005	2005-2006	2006-2007	2007-2008	2008-2009	2009-2010	2010-2011	2011-2012	2012-2013	2013-2014	2014-2015	2015-2016	2016-2017	2017-2018	2018-2019	2019-2020	2020-2021	2021-2022	Total
Spaces Gained/Lost[1]																						
Employee	0	-258	-116	-712	198	680	-675	-40	0	746	0	0	-400	1,390	0	0	0	0	0	-135	-208	470
Commuting Student	0	-90	0	57	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-157	-90
Resident Student	0	0	0	-287	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-287
Student Family Housing[2]	0	0	0	436	-411	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
University Visitor	0	-97	-48	392	0	0	0	-60	0	0	0	0	0	0	0	0	0	0	0	0	290	477
Hospitals Visitor	0	0	0	0	0	0	0	0	50	0	0	0	0	0	0	0	0	0	0	152	1,080	978
Other[3]	0	-49	0	22	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Total Spaces Gained/Lost	0	-494	-164	-92	-213	813	-675	-100	50	746	0	0	-400	1,390	0	0	0	0	0	287	1,005	1,579
Projected New Demand																						
Employee																						
New employees	453	845	390	504	152	197	294	424	187	147	145	107	95	152	587	587	587	587	587	587	587	8,203
Existing ratio (spaces to empl.)	0.61																					
Projected new demand	278	519	240	310	93	121	181	261	115	90	89	66	58	93	361	361	361	361	361	361	361	5,042
Students																						
Commuting Student																						
New comm. Students[4]	592	334	164	511	380	-162	3	108	146	112	111	94	68	73	190	190	190	190	190	190	190	3,862
Existing ratio	0.09																					
Projected new demand	51	29	14	44	33	-14	0	9	13	10	10	8	6	6	16	16	16	16	16	16	16	333
Resident Student																						
New res. students	0	230	167	8	18	603	416	344	157	98	0	0	0	0	0	0	0	0	0	0	0	2,041
Existing ratio	0.08																					
Projected new demand	0	18	13	1	1	48	33	28	13	8	0	0	0	0	0	0	0	0	0	0	0	164
University Visitor																						
Existing visitor spaces[5]	920																					
Projected annual growth rate	0.02																					0.49
Projected new demand[6]	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	448
Hospitals Patient/Visitor																						
Existing patient/visitor demand[8]	1,755																					
Projected annual growth rate	0.09																					1.37
Projected new demand[6]	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	3,364
Absorbed by existing vacant spaces[8]	156	94	0	0	0	0	0	0	0	0	0	0	0	0								250
Net new demand	4	66	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	160	3,114
Total New Demand	355	654	449	536	309	337	396	479	322	289	280	255	246	281	559	559	559	559	559	559	559	9,100
Net Impact																						
Employee	278	777	356	1,022	105	559	856	301	115	656	89	66	458	1,297	361	361	361	361	361	496	569	4,572
Commuting Student	51	119	14	13	33	114	0	9	13	10	10	8	6	6	16	16	16	16	16	16	173	423
Resident Student	0	18	13	288	1	48	33	28	13	8	0	0	0	0	0	0	0	0	0	0	0	451
University Visitor	21	118	69	371	21	21	21	81	21	21	21	21	21	21	21	21	21	21	21	21	269	29
Hospitals Patient/Visitor	4	66	160	160	160	160	160	160	110	160	160	160	160	160	160	160	160	160	160	312	920	2,136
Other	0	49	0	22	0	33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
All Users (annual impact)[7]	**355**	**1,148**	**613**	**1,064**	**111**	**476**	**1,071**	**579**	**272**	**457**	**280**	**255**	**946**	**1,109**	**559**	**559**	**559**	**559**	**559**	**846**	**446**	**7,546**
All Users (cumulative impact)[7]	**355**	**1,503**	**2,116**	**3,180**	**3,291**	**2,815**	**3,886**	**4,465**	**4,737**	**4,280**	**4,560**	**4,816**	**5,461**	**4,353**	**4,911**	**5,470**	**6,029**	**6,588**	**7,147**	**7,993**	**7,546**	
Annual Impact less res. students	**355**	**1,130**	**599**	**776**	**110**	**524**	**1,037**	**551**	**259**	**464**	**280**	**255**	**946**	**1,109**	**559**	**559**	**559**	**559**	**559**	**846**	**446**	**7,095**

Notes

[1] Allocation of gained permit spaces is subject to policy and can change. Negative number implies loss or shortfall.

[2] The 'loss' actually will be a temporary transfer of spaces to employees when students move from the existing family housing site to a new one.
Demand for students in family housing is assumed to be satisfied through the provision of 453 spaces in the new family housing site plan. Therefore, the student family housing line item does not appear again in this spreadsheet.

[3] Includes disability and service spaces. It is assumed that these spaces will be replaced.

[4] Negative numbers indicate years when it is expected that some commuting students will move onto campus and become residents.

[5] New demand for university visitors was calculated by applying the forecast average annual employee growth rate to the existing number of university visitor spaces.

[6] New demand for Hospitals patients/visitors was calculated by applying the forecast average annual patient growth rate to the existing number of occupied patient/visitor spaces.

[7] Does not include student family housing spaces.

[8] Corrected figures. The original Development Plan and subsequent updates had incorrectly allocated some spaces to University visitors rather than Hospital patients/visitors.
The original Development Plan also reported that 250 existing patient/visitor spaces were vacant and would therefore contribute toward meeting new demand. This was omitted from the 2002 Update (in which this table first appeared) and subsequent updates.

The numbers for section one of the table were derived by calculating the spaces gained or lost, by user group, for each project in the University's Development Plan. The year is the parking permit year or when the effect will actually take place. A negative number means there is a net loss of parking in a particular year and a positive number reflects a net gain of parking. The last cell in this section shows that there is an overall net gain of 1,579 parking spaces over the course of the Development Plan.

For each subcategory under "Projected New Demand": Row 1 shows the change in population by user group for each year of the Development Plan. Row 2 is the existing ratio at which a particular user group currently is assigned parking spaces on Main Campus (e.g., in 2000 there was 0.61 space for each employee, 0.09 space for each commuting student, etc.). Row 3 shows the future parking demand that can be expected annually for each user group, assuming the existing parking ratios.

A negative number means the population for a particular user group is expected to decrease in that year and, therefore, the demand for parking spaces also will decrease. This only occurs with commuting students in years when new on-campus housing becomes available and some commuting students are expected to become resident students. For visitors and patients, the projected growth rate over the 22-year period was annualized.

The result of this analysis is that over the 15-year Development Plan period, it is projected that there will be new demand for 9100 Main Campus parking spaces.

The net impact reflects the projected new demand plus the spaces gained or lost for each user group on an annual basis. For example, in Year 2002/03, there was a net loss of 258 spaces for employees and an estimated new demand of 519 spaces. Therefore, the net impact for employee parking in 2002/03 was a shortage of 777 spaces. In the last line, resident student spaces were removed from the annual totals because this parking will be provided in storage lots and will not need to be accommodated by park-and-ride and other TDM strategies.

The overall total indicates that 7095 parking spaces will need to be addressed through alternative modes.

3.0 TRIP GENERATION AND REDUCTION STRATEGIES

This section updates trip generation and the proposed trip reduction strategies and their estimated impacts. As required by the *Transportation Impact Analysis Guidelines*, vehicular trip generation was first calculated assuming the Development Plan was a hypothetical, suburban development where no or very limited trip reduction strategies applied. The impacts of the proposed trip reduction strategies that are integral to the Development Plan are then calculated for comparison purposes.

The remainder of this section describes the various strategies that are proposed to address the limited employee and student parking increases in the Development Plan, and their impact on alternative modes. The air quality impacts of these strategies also are estimated.

Updates to this section include assessing:

- The effects of Modifications No.1 - No.3 changes to the Development Plan (which also have changed the year-by-year parking shortfalls and associated park-and-ride needs).
- The results of a Commuter Survey undertaken in spring 2017.
- Changes in current use of park-and-ride with the new park-and-ride fees introduced in fall 2013.
- New transit ridership, bicycle, and pedestrian counts.
- Refinements to the projections of future mode splits (i.e., how many commuters may be traveling to the campus in 2022), based on the results of the spring 2017 University Commuter Survey.
- Population and mode estimates to 2022, not 2015 as in previous updates.

3.1 ESTIMATED VEHICULAR TRIP REDUCTIONS

As required by the *Transportation Impact Analysis Guidelines*, an estimate of the impact of the proposed trip reduction strategies on the amount of vehicular trips that will be generated by the Development Plan has been made by comparing it with a similar, hypothetical development where no, or very limited, trip reduction strategies applied.

3.1.1 Trip Generation Based on the Institute of Transportation Engineers Trip Generation Manual

The amount of vehicular traffic that could be generated by the Development Plan if it were a typical suburban development was estimated using trip rates from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (9th Edition). The ITE *Trip Generation Manual* is the standard document used by traffic engineers for estimating the amount of traffic that will be generated by a new development for projects across the U.S, including Chapel Hill.

Trips were estimated for the A.M. and P.M. peak hours, and for a typical weekday (24-hour period) using the following land use categories that are included in the ITE manual:

- University/College (ITE Land Use Code 550) for all academic-related buildings (buildings referred to as Academic, Cultural, Office and Student Life in the Development Plan).

- Research and Development (ITE Land Use Code 760) for all buildings referred to as Research in the Development Plan.

- Hospital (ITE Land Use Code 610) for all buildings referred to as UNC Healthcare in the Development Plan.

- Supermarket (ITE Land Use Code 850) for the convenience store in the Rams Head project (even though almost all customers walk to the store).

- Apartments (ITE Land Use Code 220) for the 398 family housing units and 1,000 beds.

These land uses, the basis for estimating vehicular trips, and the generated trips are shown in Table 3-1. The following should be noted:

- The increase in the number of students is used as the basis for estimating traffic generated by the University/College. (Estimating traffic by taking the difference in traffic generated by the existing enrollment and the future enrollment yields a very similar answer.)

- The store is assumed to be a typical suburban facility for the purpose of determining ITE traffic generation.

- The ITE housing category of apartments is used for all housing by assuming for trip generation purposes that (a) each non-family residential housing unit, which has four beds (for a total of 1,000), is roughly equivalent to two apartments (i.e., a total of 500), and (b) each of the 398 family housing units is equivalent to one apartment.

3.1.2 Reduced Parking

The ITE analysis provides an estimate of the vehicular trips that would be generated in a suburban setting without trip reduction measures. Obviously, the University has for many years been employing trip reduction strategies that would result in the Development Plan generating less traffic than the above analysis. These include limiting parking and supporting the Town's transit and park-and-ride systems. At the inception of the Development Plan, there were only approximately 0.61 spaces on Main Campus for every Main Campus University/Hospitals employee (or a ratio of Main Campus parking spaces to employees of 0.61). In addition, freshmen are not eligible for a permit.

An integral element of the adopted Main Campus Master Plan is to minimize the increase in Main Campus parking as the campus grows, by promoting and increasing the use of alternative forms of transportation. The parking and transportation initiatives that are inherent in the Development Plan are consistent with the transportation strategy for the Master Plan.

Table 3-1: ITE Trip Generation Rates

ITE Land Use Code	USE	Gsf/Units	ITE MANUAL RATES*			
			ADT	AM Enter	AM Exit	AM Total
550	University/College	5,903 students	12,059	823	232	1,055
760	Research & Dev. Center	787,400 sf	5,569	649	133	782
610	Hospital	961,350 sf	9,567	484	284	767
850	Supermarket	10,000 sf	2,061	21	13	34
220	Apartments	898 dwelling units	5,565	89	355	444
	LAND USE TOTALS		**34,821**	**2,065**	**1,017**	**3,082**

ITE Land Use Code	USE	Gsf/Units	ITE MANUAL RATES*			
			ADT	PM Enter	PM Exit	PM Total
550	University/College	5,903 students	12,059	375	797	1,172
760	Research & Dev. Center	787,400 sf	5,569	110	622	731
610	Hospital	961,350 sf	9,567	284	463	747
850	Supermarket	10,000 sf	2,061	72	69	142
220	Apartments	898 dwelling units	5,565	333	179	512
	LAND USE TOTALS		**34,821**	**1,173**	**2,130**	**3,303**

*Trip Generation Manual, 9th Edition, Institute of Transportation Engineers.

The increase in Main Campus employee and student parking accompanying the Development Plan is significantly less than current ratios. Therefore, an increased proportion of employees and students will need to use alternative modes to commute to campus. The increased use of alternatives is commensurate with the reduced amount of parking.

The estimated parking "shortfalls" are described in Section 2.2.5.

It should be noted that trip reduction strategies apply to students and employees only. The needs of visitors, particularly hospital patients and visitors, will continue to be satisfied.

3.1.3 Vehicular Trip Reduction

The vehicular trips that would have been generated by the "shortfall" spaces (approximately 7,550 spaces, of which 7,100 would have been commuter spaces) represent the reduction in campus traffic compared to providing parking at 2001 ratios, while the employees and students that would have used these spaces represent the required increase in use of alternatives modes. As indicated earlier, the Development Plan results in a net increase of 1,579 spaces on Main Campus (an additional 411 employee/commuter student spaces and 1,455 visitor spaces, and a reduction of 287 resident student spaces). The net changes in parking will generate approximately 11,487 daily vehicular trips (calculated in Section 4.0), or approximately 33 percent of the amount determined using the ITE rates in Table 3-1 (34,821 daily trips).

It should also be noted that the reduced parking ratios and corresponding traffic reductions are not limited to new employees and students. Trip reduction strategies to achieve these reductions are now, and will continue to be, implemented across the entire campus population. For example, the use of alternative modes to compensate for the 7,095-space "shortfall" must entail enticing some current employees to switch from driving alone and parking on Main Campus to transit, ridesharing, or using park-and-ride.

3.2 TRIP REDUCTION STRATEGIES AND IMPACTS

As described earlier, on a typical day there will be a parking "shortfall" of approximately 7,100 commuter spaces on Main Campus. This shortfall must be addressed by alternative means or "trip reduction strategies".

This section describes the trip reduction strategies, and particularly planned improvements to alternative modes, that will be employed to accommodate the commuting needs of the Development Plan. The projected impacts and use of each alternative mode also are quantified.

3.2.1 Approach to Estimating Use of Alternatives Modes

The December 2017 TIA has been updated based on new population projections, more recent survey data, and counts to refine what modes the Development Plan commuters and the overall commuting population would use (often referred to as the "mode split"). As noted earlier, the trip reduction measures are aimed at the entire commuting population of the campus (existing and future), and not just the new commuters.

The results of the revised mode split analysis are summarized in Table 3-2. The analysis initially, hypothetically, assumes that the trip reduction measures that are implicit in the Development Plan and needed to address the reduced parking apply only to new commuters. In reality they will apply to all commuters since all parking is pooled and there will be no distinction between new and existing commuters. The final columns show the aggregate mode split for all campus commuters. The assumptions and explanations for the calculations are shown in the footnotes to the table.

This table has appeared in all previous updates, and has been adjusted based on the findings of the 2017 Commuter Survey and population projections to 2022. Table 3-3 shows a comparison of mode splits from the 2001, 2004, 2007, 2009, 2011, 2013, 2015, and 2017 surveys, as well as the projected 2022 mode split. The 2017 survey provides a snapshot of progress part way into the Development Plan, which was used to adjust the projected utilization of some of the modes.

Table 3-2: Estimated Mode Splits for New Main Campus Commuters

	New Employees[1]				New Commuting Students[1]				Total New Commuters[1]				Total All Commuters[1]	
Number	*8,203*				*3,862*				*12,065*				*21,219*	*21,490*
	Existing (2001) Ratios		*New Ratios*		*Existing (2001) Ratios*		*New Ratios*		*Number*[4]				*Ratios*	
	Ratio[2]	*Number*[4]	*Ratio*[3]	*Number*[4]	*Ratio*[2]	*Number*[4]	*Ratio*[3]	*Number*[4]	*Existing Ratios*	*New Ratios*	*Ratio*		*Employees*	*Students*
Drive alone[5]	0.72	5,882	0.01	117	0.19	734	0.00	0	6,615	117	0.01		0.45	0.16
Drive carpool/vanpool[6]	0.02	186	0.04	327	0.03	103	0.03	103	289	430	0.04		0.03	0.03
Rideshare (passengers only - carpool & van)[6]	0.04	330	0.07	613	0.05	183	0.05	183	513	796	0.07		0.05	0.05
CHT[7]	0.05	394	0.32	2,656	0.33	1,274	0.65	2,529	1,668	5,186	0.43		0.15	0.39
Regional Transit[8]	0.01	121	0.26	2,121	0.01	46	0.05	196	167	2,317	0.19		0.11	0.02
Bicycle[9]	0.03	262	0.04	305	0.09	333	0.07	283	595	588	0.05		0.03	0.08
Walk[9]	0.02	150	0.02	150	0.12	481	0.06	231	631	381	0.03		0.02	0.11
Park-and-ride[10]	0.07	541	0.19	1,576	0.12	463	0.02	96	1,005	1,672	0.14		0.11	0.10
Other[11]	0.04	336	0.04	336	0.06	241	0.06	241	577	577	0.05		0.04	0.06
TOTAL	**1.00**	**8,203**	**1.00**	**8,203**	**1.00**	**3,858**	**1.00**	**3,862**	**12,061**	**12,065**	**1.00**		**1.00**	**1.00**

Notes:

1. Ratios for new commuters hypothetically assume all additional diversion to alternatives is by new commuters only. In reality, new commuters will be treated no differently than existing commuters. More existing commuters will also be required to switch to other modes of travel. Last two columns in table show final impact for all commuters. Assuming strategies apply to new commuters only also distorts needs, e.g., almost all diversion must be for employees since (a) the proportional growth in employees is much higher than students (31% versus 14%), and (b) students already use alternative modes more.
2. Existing ratios are for pre-Development Plan and based on a November 2001 commuter survey.
3. New ratios are derived from numbers in next column (i.e., projected users of a particular mode calculated first), and have been adjusted based on 2017 Commuter Survey.
4. Note that numbers are for all new commuters, and not just for number of commuters on a typical day (which is approximately 20% lower).
   Numbers should be divided to calculate users on a particular day by - 1.25
   Numbers for New Ratios include (a) growth in use of alternatives modes based on current mode split, (b) increased use resulting from strategies (adjusted for 2017 Commuter Survey).
   Current (2001) main campus employment = 13,016
   Employee growth in Development Plan = 63%
   Current (2001) commuter students = 17,628
   Commuter student growth in Development Plan = 22%
5. Current drive alone ratio includes permit parking and parking in private and Town lots.
   2001 Commuter Survey drive alone ratio for commuting students (0.33) used in previous updates exceeded permit allocation. Reduced to 0.25 and CHT increased from 0.20 to 0.28 based on 2004 Survey.
   The existing drive alone ratio was further reduced to 0.19 based on the 2011 Survey, and the CHT ratio was increased to 0.33.
   New ratio for commuting students assumes zero parking added for them. In fact, Development Plan results in net loss of 90 spaces for commuting students.
6. Commuters survey indicates average vehicle occupancy for carpools and vanpools = 3.0 Assume additional 2% of employees rideshare = 424 employees. Applying avg. veh. occupancy, this is equivalent to 141 additional rideshare vehicles (or drivers)
   Increase in ridesharing rate assumed for employees only. Therefore total new employees who rideshare are sum of (a) using existing ratios = 186 drivers, 330 passengers and (b) additional 141 drivers and 283 passengers (using avg. vehicle occupancy).
   Additional 438 empl spaces is equivalent to 548 permit holders, used accordingly:
   (Table 2-4) 186 - (existing growth ratio for rideshare drivers)
   141 - (additional rideshare vehicle drivers)
   103 - (additional student rideshare drivers)
   Therefore **117** - permits available for drive alone employees.
7. 3,518 increase in local transit use for new ratio = 2,263 employees and 1,255 students. Employee transit users for new ratio equals users with existing ratio (394) plus 2,263 X 1.25 = 3,222 new persons. Similar calculation for students.
8. Additional regional transit users (2,150) assumed to be employees (2,000) and commuting students (150). Employee users for new ratio equals users with existing ratio (121) plus 2,000 additional daily riders (or 2,000 X 1.25 = 2,621 persons). Similar calculation for students.
9. No change in ratios is assumed in for walking and "other" for employees (worst-case assumption to ensure adequate transit and park-and-ride provided). Bike usage did not change in 2017 survey; no change in target was assumed.
10. Park-and-ride estimates based on what remains after other modes addressed (ie., for employees to total 8,203 and students to total 3,682).
    This is equivalent to 667 users over and above the growth based on existing ratios, or 534 spaces.
    Total park-and-ride requirement is for 1,672 users, or **1,338** spaces, of which **804** represent "natural" growth.
11. Other includes dropped off, motorcycle, etc.
12. Population projections were updated in 2015 to extend to 2022.

Table 3-3: Existing and Target Mode Splits

	Employees								
Mode	2001 Ratio	2004 Ratio	2007 Ratio	2009 Ratio	2011 Ratio	2013 Ratio	2015 Ratio	2017 Ratio	New Projections
Drive alone	0.72	0.61	0.56	0.49	0.57	0.51	0.61	0.64	0.45
Carpool/vanpool	0.06	0.05	0.06	0.07	0.05	0.05	0.05	0.05	0.08
Bus	0.06	0.08	0.10	0.13	0.10	0.15	0.16	0.15	0.26
Bicycle	0.03	0.02	0.03	0.04	0.02	0.04	0.05	0.04	0.03
Walk	0.02	0.02	0.03	0.03	0.02	0.03	0.01	0.02	0.02
Park-and-ride	0.07	0.15	0.16	0.17	0.18	0.16	0.07	0.05	0.11
Other	0.04	0.06	0.07	0.07	0.05	0.07	0.05	0.04	0.04

	Commuting Students								
Mode	2001 Ratio	2004 Ratio	2007 Ratio	2009 Ratio	2011 Ratio	2013 Ratio	2015 Ratio	2017 Ratio	New Projections
Drive alone	0.33	0.19	0.18	0.17	0.14	0.16	0.18	0.25	0.16
Carpool/vanpool	0.08	0.07	0.08	0.03	0.04	0.04	0.03	0.02	0.08
Bus	0.21	0.34	0.35	0.39	0.42	0.37	0.51	0.39	0.41
Bicycle	0.09	0.05	0.06	0.11	0.10	0.08	0.13	0.13	0.08
Walk	0.12	0.14	0.14	0.12	0.11	0.15	0.05	0.09	0.11
Park-and-ride	0.12	0.16	0.10	0.14	0.15	0.12	0.06	0.06	0.10
Other	0.06	0.06	0.09	0.05	0.05	0.08	0.04	0.06	0.06

Notes
1. "Carpool/vanpool" includes drivers and passengers.
2. "Bus" includes Chapel Hill Transit and Regional Transit.
3. "Other" includes motorcycles, dropped off, work from home, etc.
4. Existing ratios are based on Tuesday data from the Commuter Survey

The following notes apply to updated Table 3-3:

- The use of alternative modes, in most cases, includes the proportion of commuters who would use those modes based on current mode split (e.g., if the number of employees increases by 31%, then use of CHT by employees can be expected to increase by 31% without expanded trip reduction strategies).

- The numbers represent all new commuters (employees and students). Using the parking oversell ratio (1.25 permits sold for every commuter space) as a guide to the number of commuters who are on campus on typical day, on a typical day approximately 20% of commuters do not come to the campus (i.e., 100 parking spaces can accommodate 125 commuters who drive and hold a permit).

Following are highlights and conclusions for the updated table:

- Drive alone continues to be well below 2001 levels for both employees and students. This can be explained by (a) a reduction in permit parking availability on Main Campus, (b) an increase in the employee and student populations in the same period, and (c) improvements to alternative modes of travel (specifically Chapel Hill Transit, fare free programs with GoTriangle and other regional transit providers, and park-and-ride).

- The survey reveals that the proportion of commuting students driving alone to campus (excluding park-and-ride) has dropped from 33% in 2001 to 18% in 2015, with an increase in 2017 to 25%, while the original projected target was 30% (only a small

decrease was anticipated since the amount of commuting student parking on campus, and the projected increase in students, are both relatively low). The amount of parking available for commuting students on Main Campus, as well as the number of commuting students, has not changed significantly since the beginning of the Development Plan to explain this drop. This suggests that the 33% derived from the 2001 survey was an over-estimate (supported by the small number of permits actually available to students in 2001, the limited amount of commuter student parking in 2001, and the 2004 commuter survey), and has been reduced to 0.19 for developing the new projections. Use of CHT was increased from 0.28 to 0.33 to balance the mode split.

- CHT ridership has increased dramatically since 2001 (refer to Section 3.2.3), for both students and employees. Employee use of transit (CHT and regional transit) has risen from approximately six percent to approximately 15 percent. This now exceeds the target of 13 percent. Since the 2013 Survey, student use has increased from 37 percent to 51 percent, and recently dropped back to 39%.

- The higher than expected shift of students to transit suggests a reduced demand for park-and-ride for these users. This is reflected in the table.

- Carpooling and vanpooling has remained relatively constant since 2001, even with reduced parking on Main Campus. Over time, this mode can be expected to become more popular as gasoline prices increase and more employees live outside of Chapel Hill.

- No increase is assumed in walking and "other" split for employees (worst-case assumption to ensure adequate transit and park-and-ride provided). For students, no increase in cycling and walking is assumed based on the fact that there are limited opportunities for additional student housing within close distance of the campus. Again, the purpose of these worst-case assumptions is to ensure that park-and-ride is not undersupplied.

Key changes in travel projections from this updated analysis include:

- With the inclusion of population projections out to 2022, the number of commuters has increased without a corresponding increase in the number of on-campus spaces available. This has led to an increased need for travel by alternative modes, particularly transit.

- The drive alone share for pre and post-Development Plan students is substantially reduced (for reasons explained above).

- The projected use of CHT and regional transit by employees has been changed to ratios of 0.15 and 0.11 respectively.

- Park-and-ride use by employees has been decreased from 0.14 in the 2011 Update to 0.11 to reflect a drop in demand for park-and-ride (possibly due to introduction of a parking fee for park-and-ride permits).

- The total park-and-ride need for the Development Plan has increased slightly from 1,277 to 1,338 spaces (see Note 10 in Table 3-2).

The remainder of this section provides more detail on the alternatives.

3.2.2 Overview of Transportation Strategies

The transportation strategies that are inherent in the Development Plan are consistent with the overall transportation strategy that guided the preparation of the 2001 Main Campus Master Plan. These, in turn, reflect the objectives and recommendations that were developed in 1997/98 by a Parking and Transit Task Force. A clear theme of the Task Force was that the University should promote alternative modes of transportation and other initiatives such as teleworking to reduce the impact of traffic and parking on the campus. Key objectives established by the Task Force included:

- To encourage a campus and Town environment that is supportive of pedestrians and other alternative modes of transportation.

- To offer affordable, flexible, and convenient transportation options that will serve the diverse lifestyles of the campus community.

- To reduce the demand for parking on Main Campus while maintaining an adequate supply for visitors.

- To develop an efficient, comprehensive transportation system to better serve the entire University community.

Key recommendations from the Task Force were to:

- Minimize traffic on Main Campus
- Create a pedestrian-oriented environment
- Minimize new parking
- Focus on alternatives:

    - transit
    - bicycles
    - ridesharing
    - park-and-ride
    - off-campus vehicle storage
    - flexible work hours
    - teleworking

Many of the transportation strategies needed to support the Master Plan and Development Plan are not new to the University. A substantial number of employees and students now use alternative forms of transportation to travel to the campus. The University is a major financial supporter of Chapel Hill Transit (CHT). The Master Plan also allows for fixed guideway transit to ultimately serve the campus. The University has participated in the development of park-and ride lots, and, in conjunction with the Town, cycling is being promoted and improvements are being made (included in the Master Plan).

The University has a fulltime Transportation Demand Management (TDM) manager to assist in implementing the needed strategies. This person is responsible for the Commuter Alternatives Program (CAP), an incentive program designed to encourage

University and Hospital employees and commuter students to use alternative transportation modes. Employees and students registered for CAP receive:

- Access to one-day occasional parker permits (permanent employees; one per month)
- Access to emergency ride home program
- Vanpool subsidies
- Free annual membership for Zipcar, the University's car sharing program
- Eligibility for all contests and item give-away programs
- Entry in drawings for tickets and gift certificate giveaways
- Annual GoTriangle GoPass good for fare free transit on all GoTriangle transit routes (as of 2015, temporary employees paid by the University or Hospitals are eligible to receive a GoPass); alternatively, CAP members can choose a Chatham Transit Express Pass or use the GoPass on PART routes from Guilford and Alamance counties.
- CAP email updates through the Commuter News publication

The University also prepares, on a regular basis, a Transportation Management Plan (TMP). The purpose of this plan is to develop and establish policies, procedures, and operating programs designed to minimize the number of single occupancy vehicle (SOV) trips to and from campus, and the traffic generated by these SOV trips, by increasing the alternative forms of transportation available to University employees and students. An update to the TMP was undertaken in fall 2017.

The following key strategies and, where applicable, their projected impacts, are described below for:

- Chapel Hill Transit
- Regional transit
- Ridesharing
- Teleworking
- Cycling
- Walking
- Park-and-ride

UNC uses the Zipcar car sharing program to provide employees and students with an easy, effective form of transportation when they reach campus. Zipcar is a web-based program. Cars are reserved online and the Zipcar membership card affords entry to the vehicle during the reserved period. Once inside, the member finds the key to the vehicle and a fuel card. Zipcar picks up all fuel costs, insurance fees and 180 complimentary miles per day. These vehicles are used for both hourly and multi-day rentals. Currently, the hourly cost is $7.50 Monday-Thursday and $8.50 per hour Friday-Sunday. There is a $10 annual fee. Zipcar offers both personal and departmental memberships. Many departments that have relatively low mileage on

their departmental vehicles find that Zipcar provides a cost-effective alternative to leasing or purchasing vehicles through the State system.

While not strictly a strategy, one disincentive for parking on Main Campus will be the inevitable increase in parking fees that will be necessary to cover the cost of building, and operating and maintaining new parking decks. These fee increases will discourage drive-alone commuting.

3.2.3 Chapel Hill Transit

In 2001 Chapel Hill Transit (CHT) carried less than 11,000 riders on a typical weekday. Ridership has significantly increased since CHT became entirely fare-free in early 2002. Table 3-4 shows the number of daily boardings (Board) and alightings (Exit) at Main Campus stops in 1998, 2001, 2003, 2005, 2006, 2008, 2009, 2011, 2013, 2015, and 2017. The number of daily passengers (fall) are more than 26,000, a slight decrease from prior years but a large increase over 2001 ridership.

A survey of University commuters undertaken in spring 2017 found that, among respondents, more commuters are using CHT, up from five percent of employees to nine percent, and from 33 to 35 percent for students (refer to the previous section for a revised estimate of 2001 CHT use by students). Survey respondents were allowed to leave some questions unanswered, which have influenced the reported percentages below. For example, 131 students indicated that they live in Chapel Hill or Carrboro out of 177 students that answered this question (74%), however a total of 328 student surveys were submitted, suggesting that 151 students did not answer this question. Percentages reported below are representative of those who responded and not necessarily representative of the entire campus population.

The 2017 commuter survey continues to show potential for increased CHT ridership among University employees and students. Travel statistics from the survey reveal that for University employees:

- 34 percent of respondents live in Chapel Hill/Carrboro, but only 15 percent of all commuting employees use the bus to get to work directly from home
- 36 percent live within five miles of work
- 66 percent drive alone to work everyday
- 46 percent who live less than two miles from campus drive alone at least one day a week

Similar statistics for commuting student respondents show:

- 74 percent of survey respondents live in Chapel Hill/Carrboro (ignores unanswered questions)
- 28 percent of students use the bus to get to campus directly from home
- 75 percent live less than five miles from campus

Geocoding of employee and student home addresses confirmed that there are still many employees, and to lesser degree, students residing within ¼ mile of a bus route still driving to campus, as indicated in Table 3-5. Figure 3-1 and Figure 3-2, respectively, show the location of residences and the population within a quarter mile of a bus route. The conclusion is that with continued improvements and marketing there is potential for many more employees, and to some degree students, to use CHT to travel to the campus.

Table 3-4: Chapel Hill Transit Daily Boardings and Alightings

Stop Location	1998		2001		2003		2005		2006		2009		2011		2013		2015		2017	
	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit	Board	Exit
Bowles Dr @ Craige Dorm	4	35	53	109	2	171	18	44	14	69	19	133	8	84	7	54	19	72	63	208
Bowles Dr @ F Parking Lot driveway			31	43	108	64	220	241	172	74	195	82	111	50	151	98	184	114	153	104
Bowles Dr @ Hinton James Tennis Courts	15	0	312	310	670	36	348	223	608	59	619	118	637	89	677	93	801	128	667	122
Bowles Dr @ Kenan-Flagler Parking Lot			105	219	0	115	9	126	2	96	5	123	3	110	3	93	2	79	3	86
Bowles Dr @ Smith Center	473	493	437	357	292	227	309	103	316	239	384	381	241	292	240	311	156	223	225	246
Cameron Av @ Davie Hall/New East	100	165	117	168			8	66	94	88	59	78	21	5	0	13	2	9	16	14
Cameron Av @ Pittsboro St	5	74	0	61	1	72	0	46	0	46	2	97	3	137	3	88	0	57	0	44
Cameron Av @ Swain Hall	243	247	292	265	182	166	32	71	184	228	252	322	206	304	150	221	183	326	222	326
E Franklin St @ Coffee Shop	718	424	514	338	820	454	756	409	736	581	757	481	655	426	692	413	638	392	381	172
E Franklin St @ Henderson St			9	37	20	166	8	92	8	72	20	149	25	143	14	123	13	112	7	95
E Franklin St @ Planetarium	98	39	169	89	157	210	17	95	131	160	131	217	150	214	162	158	145	142	109	107
E Franklin St @ Raleigh St			21	10	16	4	30	18	19	16	20	9	18	4	18	1	24	2	15	3
E Franklin St @ Varsity Theatre			55	130	150	283	126	274	129	273	120	86	168	390	213	448	182	382	66	188
East Dr @ Jackson Cir			6	30	2	10	79	100	16	19	160	79	53	92	57	101	33	84	24	66
F Parking Lot - Family Practice Bldg	31	80	22	42	21	74	183	32	44	128	48	79	34	76	36	96	54	99	73	87
F Parking Lot - midway back to street			32	72	60	1	172	12	117	6	126	101	107	48	134	56	141	66	159	100
Manning Dr @ Craige Dorm	1	2	130	337	25	139	317	324	49	66	119	148	70	115	44	91	37	119	234	180
Manning Dr @ Hibbard Dr	34	65	171	211	81	106	132	195	92	126	244	273	243	321	203	348	139	271	85	270
Manning Dr @ Hinton James Dorm	354	835	0	2	54	389	60	211	133	350	158	463	128	423	141	437	216	520	137	368
Manning Dr @ Hospital Parking Deck			76	67	31	118	98	159	97	121	136	310	487	416	495	402	408	366	421	340
Manning Dr @ Public Safety									363	277	440	292	625	395	543	352	605	369	585	361
Manning Dr @ West Dr (Hospital)			339	241	702	714	1102	755	1057	1052	1182	647	1298	1067	1325	1069	1082	961	889	813
Mason Farm Rd @ Ambul Care Center	17	36	22	53	67	127	116	143	81	162	72	107	308	412	302	457	334	455	447	555
Mason Farm Rd @ Odum Village			4	9	11	38	32	78	68	59	82	50	72	49	70	77	85	57	45	68
N Columbia St @ W Franklin St			55	172	107	480	160	485	123	479	118	483	164	678	162	764	140	614	120	563
Pittsboro St @ Credit Union	450	424	314	494	531	906	451	723	520	770	685	1003	764	1097	578	989	567	1000	412	856
Pittsboro St @ Newman Center	224	137	268	330	239	208	308	266	188	158	239	282	107	91	172	234	220	278	196	273
Pittsboro St @ University Dr	86	71	94	160	87	198	147	270	105	178	126	335	157	210	132	269	174	234	193	217
Raleigh St @ Alderman Dorm	19	2	24	5	6	1	18	22	3	0	3	0	12	6	9	6	13	7	11	6
Raleigh St @ Connor Dorm	71	30	244	607	83	525	57	221	44	113	30	43	24	8	26	7	37	42	73	14
Raleigh St @ Davis Library	125	132	488	146	51	127	65	137	40	69	80	25	15	28	5	1	9	7	3	22
Raleigh St @ Lewis Dorm	125	80	94	111	73	60	65	145	38	45	162	232	147	190	133	172	126	203	153	225
Raleigh St @ Mangum Dorm	99	140	86	67	35	127	46	101	55	90	60	134	60	156	73	180	58	169	58	210
Raleigh St @ Spencer Dorm	34	42	38	54	33	62	67	83	36	57	72	60	35	40	40	63	54	47	44	72
Ridge Rd @ Avery Dorm/Law School	10	1					30	47	13	10	12	64	16	21	20	19	22	31	23	20
Ridge Rd @ Ehringhaus Dorm	1115	26	556	39	559	15	366	182	423	8	618	52	582	43	400	25	508	33	552	57
Ridge Rd @ Rams Head Center									35	69	46	151	33	88	39	79	48	114	38	110
Ridge Rd @ Stadium Dr	24	38	41	53	11	15	49	85	12	12	40	47	47	50	48	46	49	44	69	78
S Columbia St @ Abernethy Hall	275	351	153	273	522	418	441	247	387	330	427	312	531	432	538	437	560	466	547	405
S Columbia St @ Carrington Hall	553	422	452	454	1264	789	882	617	941	597	633	329	712	502	1008	432	817	402	720	335
S Columbia St @ Frat Court	365	392	204	374	369	783	417	580	342	588	393	765	416	1002	378	1009	329	1055	237	959
S Columbia St @ Health Science Library	594	496	587	518	868	688	1132	781	1067	813	1305	992	1393	1429	1083	1157	1408	1195	1259	1116
S Columbia St @ Mason Farm Rd	5	24	13	29	42	190	24	137	33	105	44	189	45	236	39	180	56	199	55	195
S Columbia St @ Sitterson Hall	424	766	424	912	618	1033	673	712	635	823	797	1054	1023	1100	1140	1010	1183	1110	1164	862
S Columbia St @ Westwood Dr	3	0	7	26	74	46	54	53	86	45	144	44	158	141	6	3	11	8	12	11
South Rd @ Coker Hall	82	27	80	76	208	73	235	56	120	55	156	23	144	217	115	161	85	115	93	92
South Rd @ Country Club Rd			104	155	65	56	104	210	185	245	191	264	185	223	170	261	146	241	119	205
South Rd @ Fetzer Gym	336	186	27	204	876	268	502	136	625	232	616	301	588	448	574	385	489	350	393	333
South Rd @ Kenan Labs	2	192	28	150	20	201	13	205	15	203	6	172	30	71	5	37	5	39	9	32
South Rd @ Raleigh St	2	14	41	89	45	305	51	229	48	657	137	737	80	576	69	511	90	606	109	609
South Rd @ Student Stores	945	448	189	124	1250	889	814	599	988	832	1120	991	938	483	1009	628	1166	649	1005	527
South Rd @ Woollen Gym			48	41	31	6	46	19	50	9	8	6	13	41	8	15	6	8	9	14
Stadium Dr @ Carmichael Dorm				5	3		60	13	7	2	4	3	9	13	7	3	4	8	3	3
Stadium Dr @ Ridge Rd	41	98	24	87	53	94	52	100	48	87	26	73	37	64	43	59	44	78	37	72
Stadium Dr @ Stadium Gate 2	43	34	29	34	19	42	41	48	24	43	28	53	34	55	31	48	33	51	23	36
West Dr @ Mason Farm Rd	2	1	15	16	43	27	71	60	53	45	114	272	0	0	0	0	0	0	0	0
Totals	**8,147**	**7,069**	**7,708**	**9,045**	**11,654**	**12,316**	**11,613**	**11,386**	**11,819**	**12,136**	**13,788**	**14,312**	**14,170**	**15,401**	**13,740**	**14,790**	**13,940**	**14,808**	**12,765**	**13,452**

Table 3-5: Potential Commuter Ridership for Chapel Hill Transit

		Residence Within 1/4 Mile of Bus Route, and			Residence Outside 1/4 Mile of Bus Route, and	
	Total Population in Chapel Hill/Carrboro[1]	**Within 0.5 Mile Radius from Bell Tower**	**Within 0.5 - 2.0 Mile Radius from Bell Tower**	**Within 2.0 - 5.0 Mile Radius from Bell Tower**	**Within 0.5 - 2.0 Mile Radius from Bell Tower**	**Within 2.0 - 5.0 Mile Radius from Bell Tower**
STUDENTS						
Population	**3,954**	101	2,219	1,511	82	509
Transit use based on 2017 survey:						
- percent			46.15%	50.00%		
- number of students			1,071	756		
Drive alone based on 2017 survey:						
- percent			5.49%	32.69%		
- number of students			127	494		
Potential New Transit Riders based on Drive Alone (50%)[2]			***0 since not eligible for permit***	***247***		
EMPLOYEES						
Population:						
- Hospitals	**1,048**	5	394	539	24	549
- University	**4,904**	38	1,973	1,941	271	1,970
Total	**5,952**	**43**	**2,367**	**2,480**	**295**	**2,519**
Transit use based on 2017 survey:						
- percent			27.54%	23.08%		
- number of employees			664	572		
Drive alone based on 2017 survey:						
- percent			36.23%	55.68%		
- number of employees			873	1,381		
Potential New Transit Riders based on Drive Alone (40%)[2]			***349***	***552***		

Notes:

1. Population and residence data are for 2017. Address location based on geocoding in GIS. Chapel Hill/Carrboro population represents addresses within the two town limits.
2. Percent transit riders in 0.5 to 2 mile radius includes 0 to 1/2 mile in 2017 University commuter survey. Population in 0 to 0.5 mile are subtracted since these people are unlikely to use transit.
   Potential new riders assumes drive alone commuters drive alone at least 50% of days.
   New ridership assumes 50% of eligible drive-alone students and 40% of drive-alone employees are diverted to transit with fare free and service improvements.
   Ridership would be higher if employee and student growth were considered (assuming similar proportion live in Chapel Hill/Carrboro).
3. Low student sample size and omitted responses in the 2017 commuter survey may negatively affect estimated transit ridership.

Figure 3-1: Distribution of Employee and Commuting Student Home Addresses in Chapel Hill and Carrboro

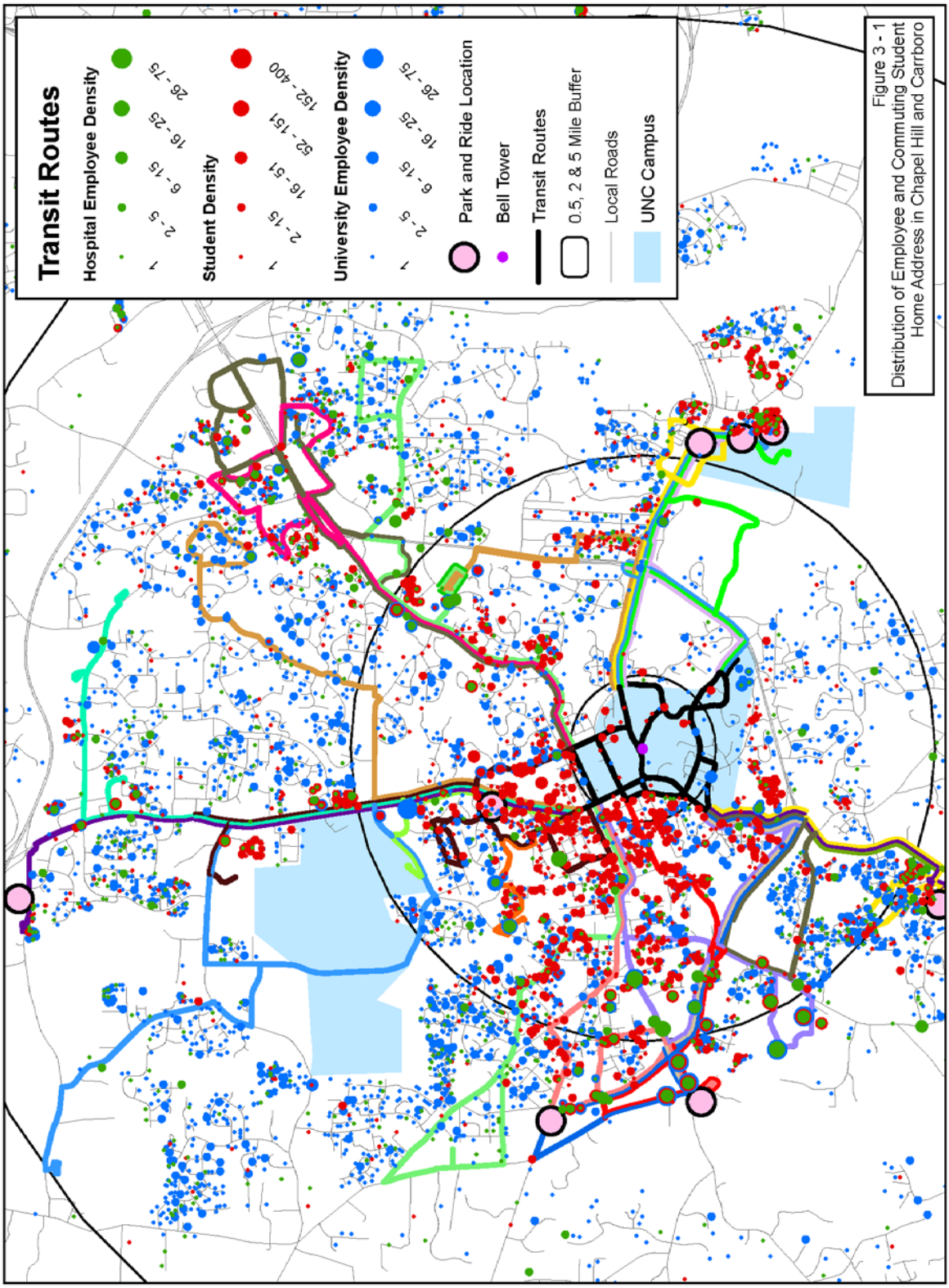
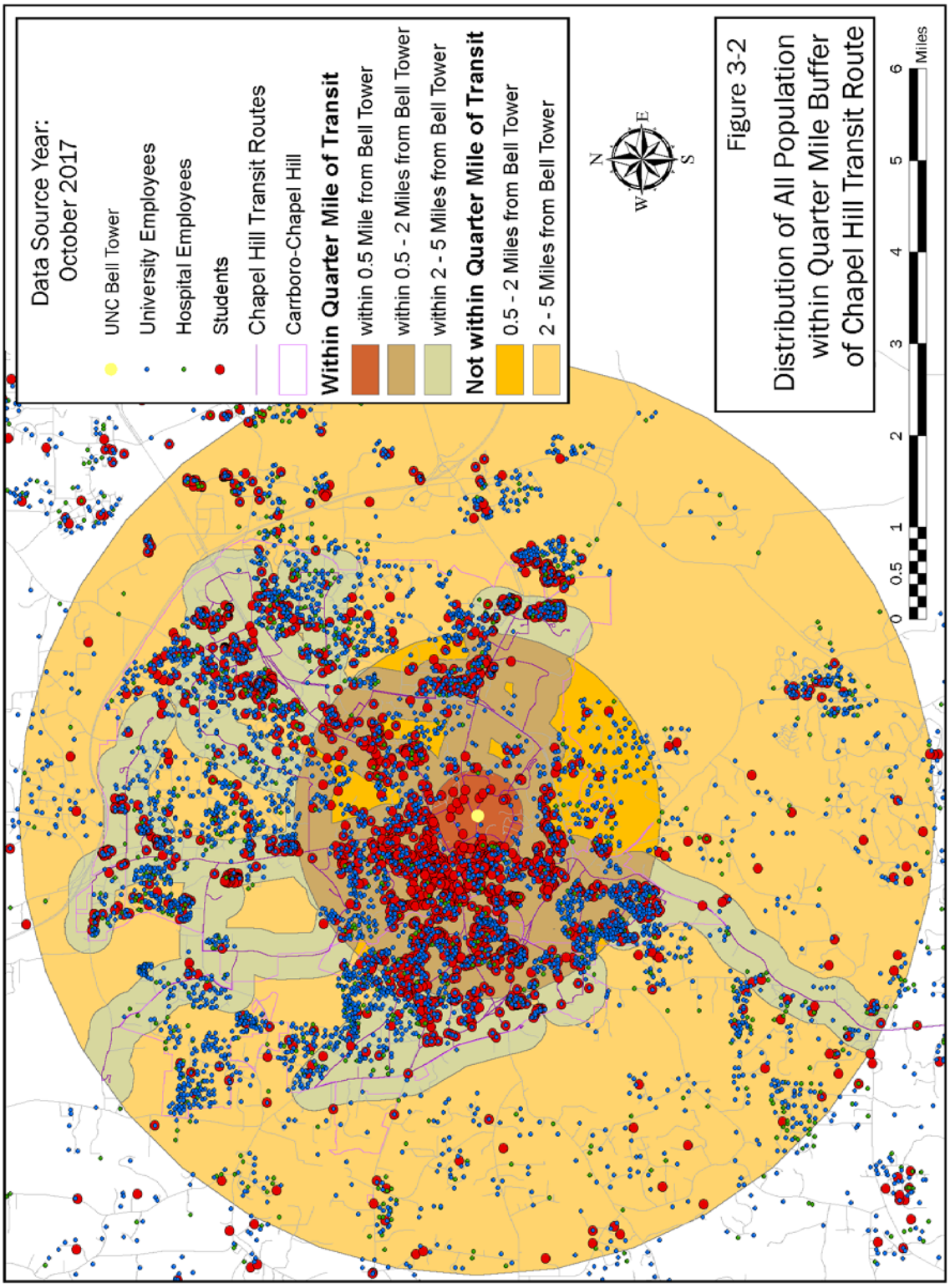


Figure 3-2: Distribution of All Population in Quarter Mile Buffer of CHT Bus Route



Chapel Hill Transit has installed global positioning systems on all vehicles, utilizing the Next Bus company's patented technology. Now riders can look on the internet or at signs installed at several bus stops, to see predicted bus arrival times in real time for the next few vehicles coming to their stop. Future improvements will be implemented as additional campus needs are identified, and in conjunction with the Towns of Chapel Hill and Carrboro. The University is committed to work with the towns in progressively moving forward with additional transit improvements such as extended hours and improved frequency. With the introduction of fare-free transit in 2002, the University has now increased its contribution to CHT to approximately $7.7 million a year.

The University also continues to support Town of Chapel Hill initiatives to improve bus running times. This can include traffic signal priority (where equipment on the bus is used to electronically transmit a message to the signal as the bus approaches to give that direction the next green light), queue jump lanes at congested intersections, and busway lanes or treatments. Also, the University supports the purchase of state-of-the-art technology buses as the CHT fleet is replaced or expanded. New innovations include low floor vehicles and hybrid (electric-diesel) propulsion that allows buses to operate on quiet, pollution-free electric motors in areas where there are a lot of people.

As indicated above, CHT use by University commuters has already increased significantly. However, based on the 2017 commuter survey and geocoding of home addresses, Table 3-5 shows that, as of this most recent survey date, there are more employees and students who could use it. The greatest potential is with employees, as evidenced by the continuing trend of employees driving less and using transit and park and ride more.

3.2.4 Regional Transit

GoTriangle now operates 27 routes (including the RTP shuttles and the newly merged Robertson Scholars Express [RSX]) serving Chapel Hill, Durham, Raleigh, Hillsborough, Cary, Apex, Garner, Wake Forest, Knightdale, Wendell, Zebulon, Research Triangle Park (RTP), and RDU Airport. Saturday routes and shuttle services serve Chapel Hill, Durham, RTP, Raleigh, Cary, and RDU Airport. There is direct service to the campus from Durham, Raleigh (CRX), and Hillsborough (Route 420, operated by CHT). Most buses run every 30 minutes during the peak period in Chapel Hill, Durham, RTP, and Raleigh. Route 800 increased peak frequency in 2013 to roughly every 15 minutes. GoTriangle maintains online trip planners at gotriangle.org/ and through Google Transit at transit.google.com. Other improvements planned by GoTriangle include better timing of routes with local services and continued investigation of regional transit improvements to meet future regional needs.

In fall 2015 the University expanded regional transit opportunities for its commuters. The PX route, formerly operated by Chapel Hill Transit, is now operated by Chatham Transit Network (CTN). As with CHT, the University and Chatham County subsidize fares so commuters ride to UNC at no cost. Transit passes are also available to University employees, faculty, and students for CTN's CT Express route. The University entered into agreement with Piedmont Authority for Regional Transit (PART) to accept GoPasses for UNC commuters traveling from Guilford and Alamance counties to campus.

Counts provided by GoTriangle show that an estimated 250 commuters used GoTriangle in 2001. Over 2,500 University employees, faculty, and students held a GoPass in 2017.

3.2.5 Ridesharing

The 2017 commuter survey showed similar rates of ridesharing for both employees and students (see Table 3-3).

The University introduced a number of measures to encourage ridesharing (car/vanpooling), including preferential parking and emergency rides home or to park-and-ride lots. A major focus of the TDM manager is to increase ridesharing. Ridesharing is included as part of the Commuter Alternative Program (CAP) and so people who register to car or vanpool to work receive all of the incentives included in CAP. Vanpoolers get a reserved space and a $20 subsidy toward the monthly cost of vanpooling. As of 2015, temporary employees paid by the University or Hospitals are also eligible for the $20 monthly vanpool subsidy.

The CAP offers two ridesharing services, SharetheRideNC and Zimride, to allow potential vanpool participants a mechanism to match up with others wishing to commute from the same areas. SharetheRideNC is a free statewide website that was created to help form carpools and vanpools to improve air quality by reducing SOV trips. Zimride is a UNC funded ridesharing service that provides a private UNC-Chapel Hill ridesharing opportunity where students, staff, and faculty may find others within the UNC community to coordinate carpools and vanpools.

The projected ratio for 2017 has been maintained. Over time, this mode can be expected to become more popular as gasoline prices increase and more employees live outside of Chapel Hill. Therefore the projections from previous Updates have been retained, with additional 613 employees and 183 students on a typical day using this mode.

3.2.6 Teleworking

Title 25 of the North Carolina Administrative Code (25 NCAC 1c.0801-.0813) provides guidelines and requirements for State teleworking programs. It was adopted by the State Legislature effective April 1, 2001. The goal is to replace 20 percent of state employees' commuting miles with telework, without reducing hours worked or productivity. In addition to the environmental and traffic congestion benefits, an explicit objective of the program is to assist in recruiting and retaining employees. The state has appointed a full-time teleworking coordinator to manage the program and assist state agencies in establishing programs.

Some University employees already telework. The University supports teleworking as a trip and parking reduction strategy, and it is an element of its Transportation Demand Management (TDM) program. However, for the purpose of this study, no increase in teleworking is assumed.

3.2.7 Cycling

Bicycles are an important means of travel on and to the Main Campus. The climate, topography for parts of the campus and surrounding areas, and relatively short trips make cycling a viable travel option for many students and employees.

The 2017 Commuter Survey shows that cycling as the primary way to commute to campus has remained steady for employees (between 5 and 4 percent) and commuting students (13 percent) since 2015. Both levels are some of the highest observed during the lifetime of the commuter survey.

Bicycle (and pedestrian) counts were undertaken in November 2017 at the same locations and same day of the week as for previous TIAs. The locations are identified in Figure 3-3, and the counts summarized in Table 3-6. Counts were taken between 7:00 A.M. and 7:00 P.M. on a Tuesday, Wednesday or Thursday. The counts included cyclists crossing the street in the general area, or using the sidewalks.

A comparison of the 2001 and 2017 counts is included in the lower portion of Table 3-6. The counts run against the commuter survey results, with decreased counts in many locations, but some locations with significant increases.

There are a number of existing bicycle lanes (or wide outside lanes or shared lane markings) or paths on and around Main Campus, including:

- Cameron Avenue (Pittsboro Street to Merritt Mill Road)
- Pittsboro Street between Cameron Street and Manning Drive (one-way southbound)
- Country Club Road
- Raleigh Road (Bypass to Country Club Road)
- Martin Luther King Jr Boulevard
- South Columbia Street
- Skipper Bowles Drive
- Ridge Road

Chapel Hill, Carrboro, and the University strongly support cycling. Adopted plans for both towns include new bicycle facilities to be implemented as funding becomes available. The purpose is to ultimately develop a network of interconnected bike routes and paths, including improved access to the Main Campus and downtowns. The Town of Chapel Hill also has published a bicycle plan, based on the goal of promoting and encouraging bicycling as an alternative means of transportation to lessen traffic congestion, air pollution, and the demand for expanded parking and roadways. In 2014 UNC developed a Campus Bicycle Master Plan at the same time the Town of Chapel Hill was developing its Bicycle Master Plan. The University was subsequently awarded the Silver designation as a Bicycle Friendly University by the League of American Bicyclists for its work to improve bicycling on campus. In addition, the University launched its Tar Heel Bikes bikeshare program in fall 2017, with 100 bikes and 18 hubs across campus. The program has been extremely successful and opportunities for future growth of the program are being investigated.

As part of the Master Plan development, a bicycle plan advisory group consisting of representatives from the University and the towns was convened to discuss campus needs, and to identify potential bike routes. The group formulated the following Main Campus biking mission:

> *To design efficient bicycle transit routes which are safe for bicyclists and pedestrians; to develop adequate bicycle parking facilities, educational programs, and enforcement; to implement policies and incentives to support transportation by bicycle; and to develop architectural guidelines for buildings which include attention to showers and clothing storage for bicycle commuters.*

The overall goal is to encourage more cycling, to improve safety for cyclists, and in particular, to cater to the inexperienced or uninitiated cyclist.

Figure 3-3: Bicycle and Pedestrian Count Locations

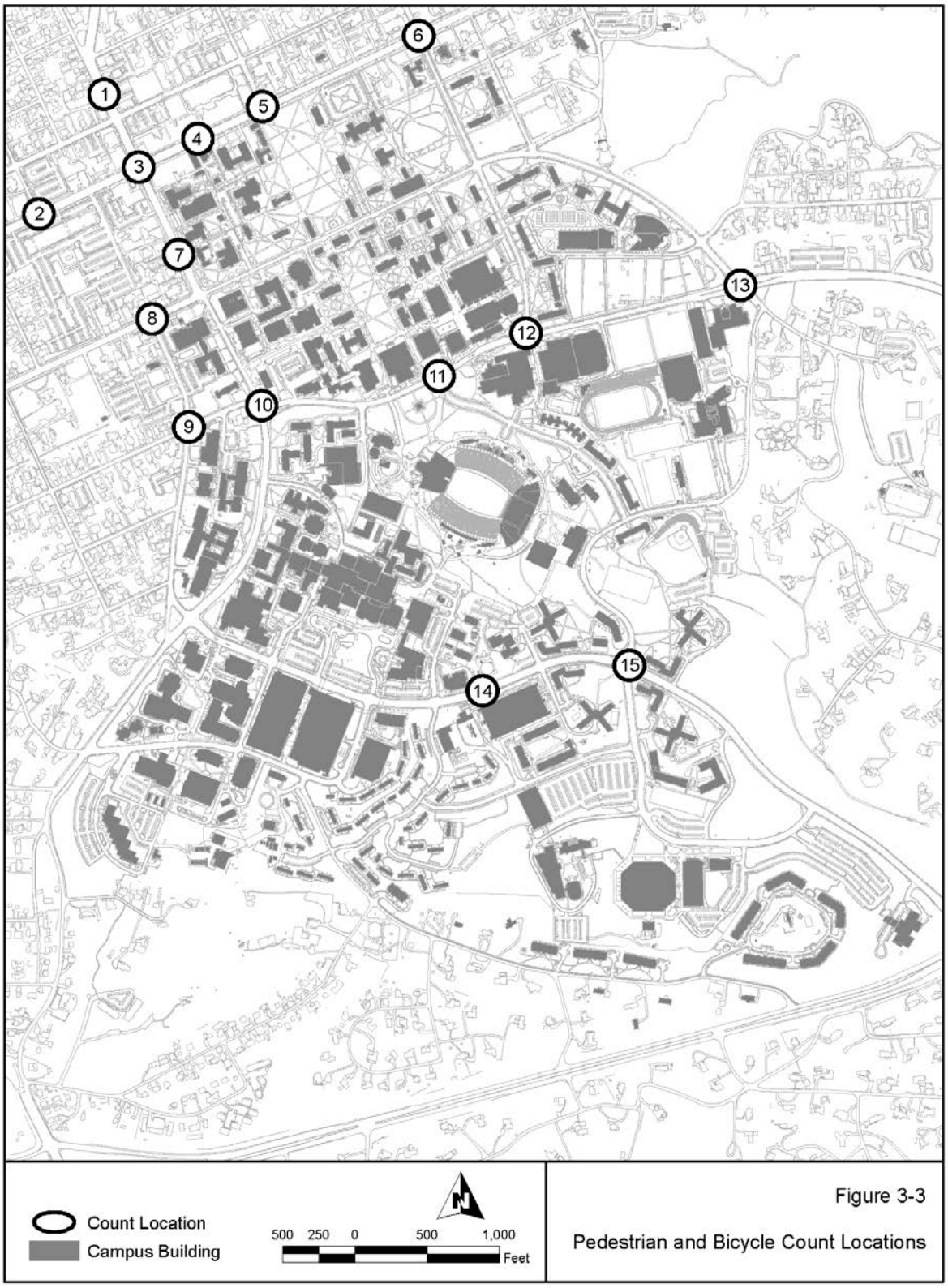


Table 3-6: Bicycle Counts

Location	2001								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	31	25	318	Not applicable			Not applicable		
2. Franklin Street and Church Street	7	13	44	10	23	231	3	5	44
3. Franklin Street and North Columbia Street	40	20	358	16	20	360	11	6	80
4. Franklin Street at Coffee Shop	4	9	66	14	14	181	Not applicable		
5. Franklin Street and Henderson Street	7	11	117	7	11	96	3	2	22
6. Franklin Street and Hillsborough-Raleigh Street	9	9	119	6	8	80	5	5	43
7. Columbia Street at Fraternity Court	25	19	336	6	10	106	Not applicable		
8. Cameron Avenue and Pittsboro Street	2	5	32	69	53	872	9	4	62
9. McCauley Street and Pittsboro Street	18	10	134	30	22	239	9	20	148
10. McCauley Street/South Road and Columbia Street	19	23	272	26	20	251	8	17	179
11. South Road at Bell Tower/Stadium Drive	35	30	502	19	25	360	6	5	42
12. Raleigh Street and South Road	13	11	177	16	14	209	11	11	139
13. Country Club Road and South Road	4	5	56	6	9	67	8	7	102
14. Manning Drive at Craige Deck	9	9	91	6	4	45	2	8	24
15. Manning Drive and Ridge Road	25	28	293	5	9	63	3	4	37

Location	2003								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	24	25	206	Not applicable			Not applicable		
2. Franklin Street and Church Street	2	1	9	18	27	195	5	11	75
3. Franklin Street and North Columbia Street	13	24	169	18	23	181	6	9	67
4. Franklin Street at Coffee Shop	6	9	57	13	21	166	Not applicable		
5. Franklin Street and Henderson Street	8	5	45	9	8	60	5	5	37
6. Franklin Street and Hillsborough-Raleigh Street	14	13	92	7	10	70	5	5	38
7. Columbia Street at Fraternity Court	35	41	303	12	13	113	Not applicable		
8. Cameron Avenue and Pittsboro Street	0	0	0	64	50	539	17	11	116
9. McCauley Street and Pittsboro Street	19	15	54	4	11	83	14	9	80
10. McCauley Street/South Road and Columbia Street	16	18	123	18	19	143	10	22	131
11. South Road at Bell Tower/Stadium Drive	18	16	138	19	22	152	14	16	100
12. Raleigh Street and South Road	10	12	61	29	15	130	12	13	104
13. Country Club Road and South Road	3	9	42	6	7	40	26	5	83
14. Manning Drive at Craige Deck	5	6	29	7	6	33	3	2	12
15. Manning Drive and Ridge Road	14	17	102	4	11	58	2	3	19

Location	2005								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	30	29	218	Not applicable			Not applicable		
2. Franklin Street and Church Street	1	5	16	19	32	196	11	14	82
3. Franklin Street and North Columbia Street	26	30	198	18	26	168	10	14	93
4. Franklin Street at Coffee Shop	5	12	58	12	21	134	Not applicable		
5. Franklin Street and Henderson Street	12	10	63	6	12	57	2	4	14
6. Franklin Street and Hillsborough-Raleigh Street	13	10	63	10	6	38	5	4	18
7. Columbia Street at Fraternity Court	37	43	296	7	5	29	Not applicable		
8. Cameron Avenue and Pittsboro Street	0	0	0	49	95	460	24	17	118
9. McCauley Street and Pittsboro Street	15	13	82	19	16	135	13	12	81
10. McCauley Street/South Road and Columbia Street	10	20	108	23	15	131	15	22	154
11. South Road at Bell Tower/Stadium Drive	0	2	2	14	10	86	1	0	1
12. Raleigh Street and South Road	18	15	114	9	15	65	10	11	62
13. Country Club Road and South Road	5	10	38	11	10	50	10	13	62
14. Manning Drive at Craige Deck	9	9	69	6	6	30	2	8	27
15. Manning Drive and Ridge Road	21	28	182	19	19	145	9	4	36

Location	2007								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	27	33	197	Not applicable			Not applicable		
2. Franklin Street and Church Street	4	9	51	21	26	181	11	13	85
3. Franklin Street and North Columbia Street	40	34	254	22	27	220	15	13	106
4. Franklin Street at Coffee Shop	10	15	96	0	11	45	Not applicable		
5. Franklin Street and Henderson Street	2	3	24	13	32	138	3	3	19
6. Franklin Street and Hillsborough-Raleigh Street	14	9	101	4	19	78	7	7	42
7. Columbia Street at Fraternity Court	27	32	214	1	1	5	Not applicable		
8. Cameron Avenue and Pittsboro Street	0	3	11	105	122	768	27	15	173
9. McCauley Street and Pittsboro Street	21	17	125	32	26	214	29	19	120
10. McCauley Street/South Road and Columbia Street	11	12	75	2	12	51	12	12	92
11. South Road at Bell Tower/Stadium Drive	65	70	605	27	25	301	46	72	562
12. Raleigh Street and South Road	3	27	33	24	5	166	21	25	116
13. Country Club Road and South Road	4	11	45	11	12	48	11	10	63
14. Manning Drive at Craige Deck	22	21	171	3	5	38	9	13	84
15. Manning Drive and Ridge Road	29	29	215	27	31	208	4	4	27

* Represents cyclists who turned the corner and did not cross the street.
Counts were taken in during the Fall of 2011 while the University was in session. The peaks summarized are the bicycle peak periods and do not necessarily coincide with vehicle peak hours.

Table 3-6: Bicycle Counts (cont.)

Location	2009								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	38	40	221	Not applicable			Not applicable		
2. Franklin Street and Church Street	3	0	15	20	37	209	19	10	102
3. Franklin Street and North Columbia Street	42	32	254	23	36	235	27	23	178
4. Franklin Street at Coffee Shop	0	2	4	0	0	0	Not applicable		
5. Franklin Street and Henderson Street	0	0	0	0	0	0	0	0	0
6. Franklin Street and Hillsborough-Raleigh Street	11	21	134	11	9	75	10	2	62
7. Columbia Street at Fraternity Court	44	39	339	0	8	12	Not applicable		
8. Cameron Avenue and Pittsboro Street	2	0	12	152	146	1,048	69	44	419
9. McCauley Street and Pittsboro Street	79	46	368	10	15	77	47	23	269
10. McCauley Street/South Road and Columbia Street	10	34	194	32	21	198	15	24	179
11. South Road at Bell Tower/Stadium Drive	74	93	825	22	32	251	65	17	197
12. Raleigh Street and South Road	4	0	9	17	19	136	29	33	270
13. Country Club Road and South Road	6	12	43	9	6	59	7	19	83
14. Manning Drive at Craige Deck	14	19	159	11	10	60	14	12	89
15. Manning Drive and Ridge Road	31	22	181	23	25	219	1	0	26

Location	2011								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	23	32	192	Not applicable			Not applicable		
2. Franklin Street and Church Street		**			**			**	
3. Franklin Street and North Columbia Street	48	43	236	21	26	210	14	27	150
4. Franklin Street at Coffee Shop	2	9	57	15	17	104	Not applicable		
5. Franklin Street and Henderson Street	7	24	141	15	23	147	3	11	55
6. Franklin Street and Hillsborough-Raleigh Street	12	14	93	1	16	70	6	13	53
7. Columbia Street at Fraternity Court	32	44	309	5	9	77	Not applicable		
8. Cameron Avenue and Pittsboro Street	0	1	2	151	95	851	10	8	111
9. McCauley Street and Pittsboro Street	19	13	134	49	41	251	26	28	189
10. McCauley Street/South Road and Columbia Street	22	26	195	31	22	189	16	14	121
11. South Road at Bell Tower/Stadium Drive	3	50	109	22	14	222	11	0	50
12. Raleigh Street and South Road	31	15	186	13	18	149	31	36	310
13. Country Club Road and South Road	0	5	17	4	6	34	7	5	36
14. Manning Drive at Craige Deck	26	16	137	4	5	20	5	5	43
15. Manning Drive and Ridge Road	26	31	222	36	24	225	0	1	8

Location	2013								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	29	26	186	Not applicable			Not applicable		
2. Franklin Street and Church Street	11	4	45	8	14	134	18	15	92
3. Franklin Street and North Columbia Street	39	23	186	13	15	129	16	12	129
4. Franklin Street at Coffee Shop	10	9	65	7	10	88	Not applicable		
5. Franklin Street and Henderson Street	4	10	49	7	13	64	3	3	24
6. Franklin Street and Hillsborough-Raleigh Street	12	10	91	7	9	56	5	6	42
7. Columbia Street at Fraternity Court	43	63	446	4	8	51	Not applicable		
8. Cameron Avenue and Pittsboro Street	7	7	70	130	28	492	27	90	418
9. McCauley Street and Pittsboro Street	10	6	89	36	38	285	39	29	256
10. McCauley Street/South Road and Columbia Street	13	34	161	34	19	267	36	23	263
11. South Road at Bell Tower/Stadium Drive	59	67	405	31	21	289	33	27	364
12. Raleigh Street and South Road	7	7	49	38	34	279	22	21	177
13. Country Club Road and South Road	4	7	27	5	7	34	7	3	30
14. Manning Drive at Craige Deck	23	17	126	10	3	37	2	3	25
15. Manning Drive and Ridge Road	32	25	221	38	30	256	3	9	39

Location	2015								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	19	20	140	Not applicable			Not applicable		
2. Franklin Street and Church Street	0	1	8	8	18	141	14	8	89
3. Franklin Street and North Columbia Street	19	17	151	18	16	123	17	12	97
4. Franklin Street at Coffee Shop	4	12	63	8	5	36	Not applicable		
5. Franklin Street and Henderson Street	12	8	73	5	9	56	3	2	18
6. Franklin Street and Hillsborough-Raleigh Street	13	9	65	12	6	51	4	0	11
7. Columbia Street at Fraternity Court	34	31	302	6	25	89	Not applicable		
8. Cameron Avenue and Pittsboro Street	0	1	3	111	72	589	25	5	91
9. McCauley Street and Pittsboro Street	15	6	70	41	33	276	37	9	148
10. McCauley Street/South Road and Columbia Street	39	39	299	18	22	168	12	15	101
11. South Road at Bell Tower/Stadium Drive	53	1	265	28	37	253	25	36	298
12. Raleigh Street and South Road	14	12	129	18	16	158	10	3	23
13. Country Club Road and South Road	4	6	26	9	10	52	4	5	44
14. Manning Drive at Craige Deck	18	13	123	9	5	45	4	1	14
15. Manning Drive and Ridge Road	27	26	194	26	24	198	3	3	19

Table 3-6: Bicycle Counts (cont.)

Location	2017								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	15	32	174	Not applicable			Not applicable		
2. Franklin Street and Church Street	2	1	5	2	5	15	2	9	21
3. Franklin Street and North Columbia Street	54	26	181	21	54	288	22	18	174
4. Franklin Street at Coffee Shop	7	15	63	20	20	88	Not applicable		
5. Franklin Street and Henderson Street	6	7	51	5	5	27	2	2	13
6. Franklin Street and Hillsborough-Raleigh Street	13	5	65	4	8	32	2	7	35
7. Columbia Street at Fraternity Court	5	3	15	29	37	226	Not applicable		
8. Cameron Avenue and Pittsboro Street	1	2	8	135	84	605	20	12	107
9. McCauley Street and Pittsboro Street	19	12	110	47	35	267	26	22	197
10. McCauley Street/South Road and Columbia Street	10	14	81	25	32	190	10	13	78
11. South Road at Bell Tower/Stadium Drive	50	53	461	28	30	257	59	63	500
12. Raleigh Street and South Road	12	8	125	14	16	150	8	13	32
13. Country Club Road and South Road	5	5	25	2	3	12	3	4	21
14. Manning Drive at Craige Deck	9	5	37	1	3	13	1	2	7
15. Manning Drive and Ridge Road	14	15	108	23	26	184	1	4	10

Location	2001-2017 Percent Change								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	-52%	28%	-45%	Not applicable			Not applicable		
2. Franklin Street and Church Street	-71%	-92%	-89%	-80%	-78%	-94%	-33%	80%	-52%
3. Franklin Street and North Columbia Street	35%	30%	-49%	31%	170%	-20%	100%	200%	118%
4. Franklin Street at Coffee Shop	75%	67%	-5%	43%	43%	-51%	Not applicable		
5. Franklin Street and Henderson Street	-14%	-36%	-56%	-29%	-55%	-72%	-33%	0%	-41%
6. Franklin Street and Hillsborough-Raleigh Street	44%	-44%	-45%	-33%	0%	-60%	-60%	40%	-19%
7. Columbia Street at Fraternity Court	-80%	-84%	-96%	383%	270%	113%	Not applicable		
8. Cameron Avenue and Pittsboro Street	-50%	-60%	-75%	96%	58%	-31%	122%	200%	73%
9. McCauley Street and Pittsboro Street	6%	20%	-18%	57%	59%	12%	189%	10%	33%
10. McCauley Street/South Road and Columbia Street	-47%	-39%	-70%	-4%	60%	-24%	25%	-24%	-56%
11. South Road at Bell Tower/Stadium Drive	43%	77%	-8%	47%	20%	-29%	883%	1160%	1090%
12. Raleigh Street and South Road	-8%	-27%	-29%	-13%	14%	-28%	-27%	18%	-77%
13. Country Club Road and South Road	25%	0%	-55%	-67%	-67%	-82%	-63%	-43%	-79%
14. Manning Drive at Craige Deck	0%	-44%	-59%	-83%	-25%	-71%	-50%	-75%	-71%
15. Manning Drive and Ridge Road	-44%	-46%	-63%	360%	189%	192%	-67%	0%	-73%

* Represents cyclists who turned the corner and did not cross the street.

** Location not counted in 2011 to due to construction.

Counts were taken in during the Fall while the University was in session. The peaks summarized are the bicycle peak periods and do not necessarily coincide with vehicle peak hours.

Table 3-7: Pedestrian Counts

Location	2001								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	95	78	1,139	Not applicable			Not applicable		
2. Franklin Street and Church Street	50	96	647	90	158	2,313	9	10	108
3. Franklin Street and North Columbia Street	217	337	4,101	236	437	5,534	57	70	830
4. Franklin Street at Coffee Shop	247	439	4,422	272	280	4,468	Not applicable		
5. Franklin Street and Henderson Street	244	440	4,389	130	166	2,281	31	49	472
6. Franklin Street and Hillsborough-Raleigh Street	54	87	948	26	28	420	19	31	387
7. Columbia Street at Fraternity Court	131	311	2,914	403	454	4,126	Not applicable		
8. Cameron Avenue and Pittsboro Street	14	29	344	216	274	2,741	23	12	211
9. McCauley Street and Pittsboro Street	37	56	754	90	108	1,524	28	40	450
10. McCauley Street/South Road and Columbia Street	139	242	2,124	47	78	971	71	60	838
11. South Road at Bell Tower/Stadium Drive	784	708	10,064	187	200	2,701	73	50	496
12. Raleigh Street and South Road	334	331	4,197	121	105	1,448	75	41	646
13. Country Club Road and South Road	23	64	537	33	46	495	115	75	1,238
14. Manning Drive at Craige Deck	65	61	964	12	53	332	20	20	191
15. Manning Drive and Ridge Road	293	423	4,963	79	192	2,020	20	18	288

Location	2003								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	115	141	1,083	Not applicable			Not applicable		
2. Franklin Street and Church Street	26	50	313	178	277	2,069	18	51	275
3. Franklin Street and North Columbia Street	329	606	4,088	407	747	5,145	107	107	890
4. Franklin Street at Coffee Shop	336	638	3,818	472	849	5,891	Not applicable		
5. Franklin Street and Henderson Street	386	719	4,263	139	346	2,118	85	93	797
6. Franklin Street and Hillsborough-Raleigh Street	96	131	984	40	66	499	24	55	382
7. Columbia Street at Fraternity Court	343	503	3,369	731	590	4,907	Not applicable		
8. Cameron Avenue and Pittsboro Street	15	27	131	257	313	2,357	45	87	601
9. McCauley Street and Pittsboro Street	86	86	627	79	108	801	53	66	552
10. McCauley Street/South Road and Columbia Street	336	367	2,485	77	97	807	117	143	1,169
11. South Road at Bell Tower/Stadium Drive	1,550	1,872	17,216	220	264	2,417	728	386	4,573
12. Raleigh Street and South Road	157	288	1,761	284	281	2,373	51	68	548
13. Country Club Road and South Road	23	58	330	65	85	563	55	99	591
14. Manning Drive at Craige Deck	318	311	2,473	94	166	1,090	47	62	366
15. Manning Drive and Ridge Road	410	580	4,171	216	311	2,490	35	23	196

Location	2005								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	158	125	1,125	Not applicable			Not applicable		
2. Franklin Street and Church Street	38	51	411	155	257	1,752	24	16	131
3. Franklin Street and North Columbia Street	353	724	4,389	431	769	5,317	128	248	1,226
4. Franklin Street at Coffee Shop	392	708	4,232	526	802	5,471	Not applicable		
5. Franklin Street and Henderson Street	398	718	3,868	98	211	1,089	48	93	485
6. Franklin Street and Hillsborough-Raleigh Street	81	114	866	32	75	359	28	5	95
7. Columbia Street at Fraternity Court	419	812	4,432	666	715	5,214	Not applicable		
8. Cameron Avenue and Pittsboro Street	5	15	61	316	327	2,445	47	86	519
9. McCauley Street and Pittsboro Street	70	107	763	97	115	897	40	50	286
10. McCauley Street/South Road and Columbia Street	276	347	2,173	83	151	1,001	177	267	2,030
11. South Road at Bell Tower/Stadium Drive	1,169	1,679	13,457	248	345	2,318	539	628	3,390
12. Raleigh Street and South Road	420	542	3,602	271	309	1,907	20	21	123
13. Country Club Road and South Road	30	88	316	56	78	447	89	137	873
14. Manning Drive at Craige Deck	327	317	2,696	32	83	469	29	78	396
15. Manning Drive and Ridge Road	407	519	4,094	300	333	2,783	126	47	433

Location	2007								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	139	119	874	Not applicable			Not applicable		
2. Franklin Street and Church Street	48	125	754	132	279	2,073	22	39	188
3. Franklin Street and North Columbia Street	407	606	4,107	376	687	5,190	67	87	1,068
4. Franklin Street at Coffee Shop	291	716	3,876	202	243	1,832	Not applicable		
5. Franklin Street and Henderson Street	372	721	3,919	82	229	1,407	145	140	1,232
6. Franklin Street and Hillsborough-Raleigh Street	128	191	1,089	22	61	413	26	21	235
7. Columbia Street at Fraternity Court	325	271	2,476	869	840	5,285	Not applicable		
8. Cameron Avenue and Pittsboro Street	26	39	258	373	368	2,985	42	82	523
9. McCauley Street and Pittsboro Street	102	162	1,132	138	146	1,156	47	38	475
10. McCauley Street/South Road and Columbia Street	327	296	2,142	293	384	2,294	463	430	3,480
11. South Road at Bell Tower/Stadium Drive	1,586	1,765	15,913	303	531	3,869	778	667	3,670
12. Raleigh Street and South Road	340	331	2,622	425	386	3,549	46	51	533
13. Country Club Road and South Road	33	79	339	60	90	435	56	88	408
14. Manning Drive at Craige Deck	545	759	5,406	86	114	956	55	93	629
15. Manning Drive and Ridge Road	405	374	3,433	361	430	3,435	33	41	339

* Represents pedestrians who remained on the sidewalk and turned the corner rather than cross the street.
Counts were taken in the Fall of 2011 while the University was in session. The peaks summarized are the pedestrian peak periods and do not necessarily coincide with vehicle peak hours.

Table 3-7: Pedestrian Counts (cont.)

Location	2009								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	141	145	1,057	Not applicable			Not applicable		
2. Franklin Street and Church Street	67	99	714	135	332	2,235	11	11	122
3. Franklin Street and North Columbia Street	349	585	3,927	340	684	5,157	44	111	805
4. Franklin Street at Coffee Shop	315	567	3,392	260	618	3,703	Not applicable		
5. Franklin Street and Henderson Street	121	313	1,650	111	201	1,663	320	409	3,427
6. Franklin Street and Hillsborough-Raleigh Street	102	175	1,138	27	47	400	60	45	448
7. Columbia Street at Fraternity Court	678	562	5,014	16	17	112	Not applicable		
8. Cameron Avenue and Pittsboro Street	55	51	330	248	283	2,504	57	93	694
9. McCauley Street and Pittsboro Street	91	188	1,008	78	55	526	124	123	1,167
10. McCauley Street/South Road and Columbia Street	320	539	2,543	486	343	2,880	100	152	1,155
11. South Road at Bell Tower/Stadium Drive	1,774	1,981	17,097	432	436	3,809	106	109	1,251
12. Raleigh Street and South Road	249	281	2,470	389	408	3,578	0	5	139
13. Country Club Road and South Road	18	61	290	47	45	311	21	53	294
14. Manning Drive at Craige Deck	438	559	4,045	38	117	799	38	72	570
15. Manning Drive and Ridge Road	493	673	4,691	351	630	3,855	0	1	19

Location	2011								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	100	158	977	Not applicable			Not applicable		
2. Franklin Street and Church Street		**			**			**	
3. Franklin Street and North Columbia Street	382	690	5,619	586	760	6,640	49	117	870
4. Franklin Street at Coffee Shop	397	578	3,951	247	559	3,649	Not Applicable		
5. Franklin Street and Henderson Street	355	626	4,153	135	250	1,895	126	130	874
6. Franklin Street and Hillsborough-Raleigh Street	110	149	947	33	116	526	19	36	262
7. Columbia Street at Fraternity Court	259	470	3,451	919	705	5,930	Not applicable		
8. Cameron Avenue and Pittsboro Street	49	84	592	418	376	3,003	20	32	273
9. McCauley Street and Pittsboro Street	78	140	953	176	229	1,612	54	50	428
10. McCauley Street/South Road and Columbia Street	387	603	2,884	239	303	1,856	85	61	592
11. South Road at Bell Tower/Stadium Drive	1,359	1,577	11,608	262	286	2,760	56	98	871
12. Raleigh Street and South Road	496	495	3,611	467	536	3,722	101	46	531
13. Country Club Road and South Road	16	36	205	22	26	218	22	39	251
14. Manning Drive at Craige Deck	438	507	4,068	61	95	670	69	89	637
15. Manning Drive and Ridge Road	539	772	4,106	362	518	3,257	9	13	76

Location	2013								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	132	138	1,088	Not applicable			Not applicable		
2. Franklin Street and Church Street	147	208	1,526	152	312	2,476	34	49	395
3. Franklin Street and North Columbia Street	451	622	5,026	413	577	5,785	296	519	3,454
4. Franklin Street at Coffee Shop	515	679	5,350	551	673	5,625	Not Applicable		
5. Franklin Street and Henderson Street	268	552	3,517	81	162	1,329	68	162	921
6. Franklin Street and Hillsborough-Raleigh Street	137	139	1,171	67	73	632	38	80	425
7. Columbia Street at Fraternity Court	769	718	6,025	1,125	646	5,858	Not applicable		
8. Cameron Avenue and Pittsboro Street	45	62	411	376	429	3,179	54	62	516
9. McCauley Street and Pittsboro Street	103	124	1,035	133	172	1,335	138	155	1,201
10. McCauley Street/South Road and Columbia Street	325	381	2,454	444	416	2,525	693	289	2,547
11. South Road at Bell Tower/Stadium Drive	721	746	7,001	226	283	2,324	520	470	4,940
12. Raleigh Street and South Road	409	494	4,004	651	714	5,995	15	63	451
13. Country Club Road and South Road	43	22	191	26	31	244	61	72	593
14. Manning Drive at Craige Deck	453	455	3,954	60	83	749	45	65	449
15. Manning Drive and Ridge Road	525	582	4,458	460	501	4,007	36	70	422

Location	2015								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	108	130	1,019	Not applicable			Not applicable		
2. Franklin Street and Church Street	15	37	265	206	395	2,899	98	34	543
3. Franklin Street and North Columbia Street	172	493	3,560	262	621	4,834	42	62	462
4. Franklin Street at Coffee Shop	271	468	4,033	141	233	2,063	Not Applicable		
5. Franklin Street and Henderson Street	284	391	3,817	67	229	1,351	27	17	159
6. Franklin Street and Hillsborough-Raleigh Street	112	144	1,150	54	66	565	12	21	162
7. Columbia Street at Fraternity Court	274	331	3,916	592	374	4,568	Not applicable		
8. Cameron Avenue and Pittsboro Street	38	53	504	574	482	4,114	38	40	467
9. McCauley Street and Pittsboro Street	136	147	1,356	195	189	1,515	32	31	297
10. McCauley Street/South Road and Columbia Street	315	341	2,941	302	345	2,878	124	139	1,022
11. South Road at Bell Tower/Stadium Drive	374	5	3,258	351	379	4,262	420	327	3,552
12. Raleigh Street and South Road	260	376	3,234	448	385	4,477	96	30	332
13. Country Club Road and South Road	63	53	365	34	36	252	29	31	303
14. Manning Drive at Craige Deck	408	435	3,909	56	110	711	33	66	338
15. Manning Drive and Ridge Road	417	571	4,039	386	516	3,494	5	9	41

Table 3-7: Pedestrian Counts (cont.)

Location	2017								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	110	136	967	Not applicable			Not applicable		
2. Franklin Street and Church Street	102	159	925	45	52	475	12	54	95
3. Franklin Street and North Columbia Street	320	441	4,085	485	712	5,111	30	48	444
4. Franklin Street at Coffee Shop	315	374	2,709	620	833	6,177	Not applicable		
5. Franklin Street and Henderson Street	414	531	3,947	140	179	1,061	43	19	154
6. Franklin Street and Hillsborough-Raleigh Street	106	109	1,005	36	90	521	22	46	308
7. Columbia Street at Fraternity Court	828	987	7,237	583	532	4,196	Not applicable		
8. Cameron Avenue and Pittsboro Street	59	113	648	682	665	5,156	63	66	480
9. McCauley Street and Pittsboro Street	104	159	1,100	194	226	1,523	27	45	131
10. McCauley Street/South Road and Columbia Street	263	304	1,976	278	382	2,178	85	125	811
11. South Road at Bell Tower/Stadium Drive	779	644	6,101	237	294	2,180	608	468	4,696
12. Raleigh Street and South Road	460	553	3,515	386	617	3,547	19	40	303
13. Country Club Road and South Road	15	36	202	26	25	178	42	33	264
14. Manning Drive at Craige Deck	336	388	3,002	22	40	228	12	18	118
15. Manning Drive and Ridge Road	838	402	4,327	524	492	3,867	23	15	118

Location	2001-2017 Percent Change								
	North-South			East-West			North-South/East-West*		
	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total	AM Peak	PM Peak	Daily Total
1. Columbia Street between Rosemary Street and Airport Road	16%	74%	-15%	Not applicable			Not applicable		
2. Franklin Street and Church Street	104%	66%	43%	-50%	-67%	-79%	33%	440%	-12%
3. Franklin Street and North Columbia Street	47%	31%	0%	106%	63%	-8%	-47%	-31%	-47%
4. Franklin Street at Coffee Shop	28%	-15%	-39%	128%	198%	38%	Not applicable		
5. Franklin Street and Henderson Street	70%	21%	-10%	8%	8%	-53%	39%	-61%	-67%
6. Franklin Street and Hillsborough-Raleigh Street	96%	25%	6%	38%	221%	24%	16%	48%	-20%
7. Columbia Street at Fraternity Court	532%	217%	148%	45%	17%	2%	Not applicable		
8. Cameron Avenue and Pittsboro Street	321%	290%	88%	216%	143%	88%	174%	450%	127%
9. McCauley Street and Pittsboro Street	181%	184%	46%	116%	109%	0%	-4%	13%	-71%
10. McCauley Street/South Road and Columbia Street	89%	26%	-7%	491%	390%	124%	20%	108%	-3%
11. South Road at Bell Tower/Stadium Drive	-1%	-9%	-39%	27%	47%	-19%	733%	836%	847%
12. Raleigh Street and South Road	38%	67%	-16%	219%	488%	145%	-75%	-2%	-53%
13. Country Club Road and South Road	-35%	-44%	-62%	-21%	-46%	-64%	-63%	-56%	-79%
14. Manning Drive at Craige Deck	417%	536%	211%	83%	-25%	-31%	-40%	-10%	-38%
15. Manning Drive and Ridge Road	186%	-5%	-13%	563%	156%	91%	15%	-17%	-59%

* Represents pedestrians who remained on the sidewalk and turned the corner rather than cross the street.

** Location not counted in 2011 to due to construction.

Counts were taken in the Fall while the University was in session. The peaks summarized are the pedestrian peak periods and do not necessarily coincide with vehicle peak hours.

A number of improvements were identified and included in the Master Plan. While these do not provide a complete network of bicycle routes on Main Campus, they enhance connectivity and safety at a reasonable cost, and with minimal adverse impacts. Recommended improvements include education, encouragement and enforcement programs that do not involve roadway infrastructure changes. These recommendations are described in Chapter 5 of the Bicycle Master Plan. These improvements are in addition to a commitment to control traffic speeds on campus streets and to improve safety for cyclists and pedestrians, particularly through active construction areas. Specific improvements to encourage cycling include:

- Bicycle Ambassador Program to perform outreach.
- Marketing campaign to promote mutual respect between cyclists and motorists.
- Bicycle education classes through Campus Recreation.
- New student orientation that includes bicycle safety components.
- Improved bicycle registration and safety outreach.
- Employee training on multi-modal travel, including staff who operate UNC-owned vehicles on campus.
- Annual student bike ride event to support the Cyclicious event each fall.
- Pursuit of a Bike Share System in cooperation with the Town of Chapel Hill; the University launched the Tar Heel Bikes bikeshare program in fall 2017.

Other recommendations that emerged from the Master Plan address the importance of supporting facilities and policies, and include:

- Designing all new roads that are included in the Development Plan to safely accommodate cyclists.
- Development of a comprehensive bicycle resources webpage (https://move.unc.edu/bike/).
- Updates to the (digital) campus map to include bicycle facilities, amenities, and wayfinding.
- The planning and design of new buildings and facilities to include showers, along with storage for bicycles and cyclists' equipment.

Improvements on Main Campus and within the towns will be implemented over time. The University has been invited to appoint, and has appointed, an employee to serve on the Town of Chapel Hill's Transportation & Connectivity Board. The University is working in similar ways with the Town of Carrboro in its bike planning efforts. The University believes it is appropriate for the University and Towns to jointly undertake these investigations using data that will be collected by the University and Town, GIS data, and other information that may be relevant.

For the purpose of estimating transportation needs for the Development Plan, no increase in cycling is assumed.

3.2.8 Pedestrians

A priority objective of the Master Plan was to create a more pedestrian-friendly and accessible campus. Numerous pedestrian enhancements, including pedestrian bridges, are included in the plan. While the pedestrian environment will be improved, it is unlikely that this alone will divert a significant number of drive-alone commuters.

The 2017 Commuter Survey indicates increases in walking amongst employees (from 1 to 2 percent) and commuting students (from 5 to 9 percent). Mode share for walking has fluctuated in prior years, and it is generally correlated with transit usage (as one goes up the other goes down). Pedestrian counts were undertaken in November, 2017, at the same locations the same day of the week as for the previous TIAs. The locations are identified in Figure 3-3, and the counts summarized in Table 3-7. Counts were taken between 7:00 A.M. and 7:00 P.M. on a Tuesday, Wednesday or Thursday. The counts include pedestrians crossing the street in the general vicinity of the intersection, as well as those on the sidewalks. Identical surveys will be undertaken for subsequent updates of the TIA to monitor changes in pedestrian activity.

A comparison of the 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, and 2017 counts is included in the lower portion of Table 3-7. This indicates that there has been shifts in pedestrian activity since 2001, with some locations seeing big increases and some locations seeing decreases in pedestrian activity.

3.2.9 Park-and-Ride

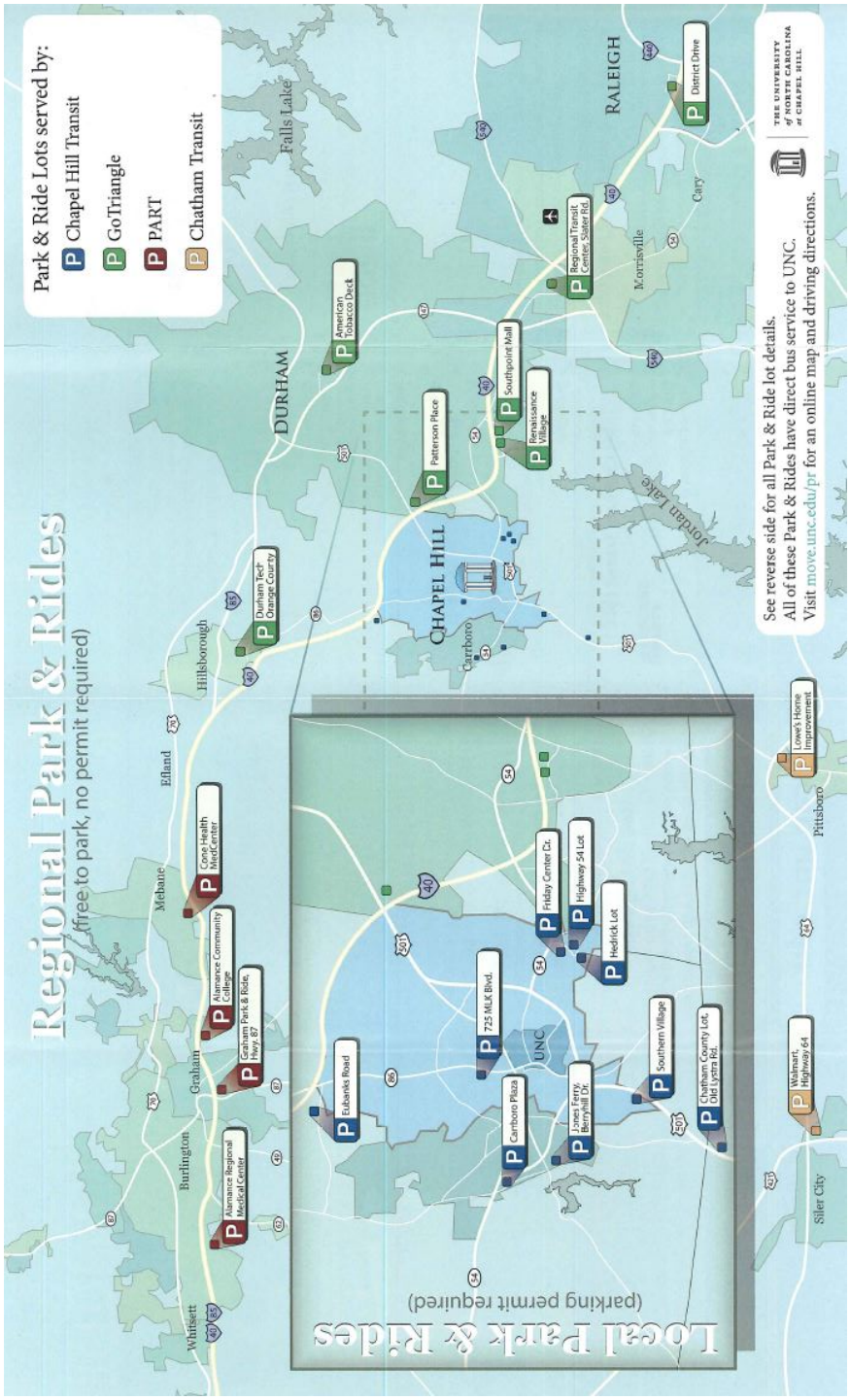
Park-and-ride continues to be one of the key and most successful strategies for reducing Main Campus parking needs. The intent of the University, in cooperation with the Town, is to offer commuters a well-planned and operated park-and-ride system providing a level of convenience approaching that of peripheral parking lots on Main Campus.

Starting in 2013, fees are now implemented for all UNC Park & Ride lot permits. The permit fee for employees is based on salary, and ranges from $229 to $394 per year. The permit fee for students is $171.95 for the academic year or $229 for the full year. Temporary permits are available for $2 per day or $6 per week. The introduction of park-and-ride fees has been associated with a drop in use, with employee use dropping from 16 percent in the 2013 commuter survey to 7 percent in 2015, and student use declining as well (12 percent in 2013 to 6 percent in 2015). Note the 2013 survey was conducted before the pricing changes. This drop in park-and-ride use is also reflected in the counts of park-and-ride lots (Table 3-8); note that 2015, and 2017 counts were taken after the pricing changes took effect.

Existing park-and-ride lots are identified in Figure 3-4 and summarized in Table 3-8. The Friday Center and Jones Ferry Road lots were opened in 2002, the Chatham Lot was opened in 2005, and the Pittsboro Lowes Lot was opened in 2011. These four additions to the park-and-ride system have increased the total park-and-ride count from 1,988 spaces in 2001 to 3,881 today. Five of the lots (the Friday Center lot, the NC 54 East lot, the Chatham County lot, the Franklin Street lot, and the Hedrick lot at the Friday Center) are exclusively for University users.

Table 3-8 also reports the usage of the lots in 2001, 2003, 2005, 2007, 2009, 2011, 2013, 2015, and 2017. The Friday Center lot continues to fill, and as in the past, most likely accommodates commuters from the US 15-501 North corridor, which has little park-and-ride, in addition to commuters from the east.

Figure 3-4: Location of Park and Ride Lots



Source: UNC-Chapel Hill Park & Ride map

Table 3-8: Park-and-Ride Inventory and Utilization

Location	No. of Spaces	Utilization									
		Fall 2001	*Fall 2002*	*Fall 2003*	*Fall 2005*	*Fall 2007*	*Fall 2009*	*Fall 2011*	*Fall 2013*	*Fall 2015*	*Fall 2017*
NC 54 East	512	550	1,285	526	541	508	512	430	204	112	87
Friday Center	871		Incl. in NC 54 count	875	890	882	871	867	842	795	752
Southern Village	400	280	410	355	376	388	385	379	272	260	325
Jones Ferry Road	443		245	205	259	252	230	231	132	102	86
Carrboro Plaza	145	155	Incl. in Jones Ferry Rd. count	115	129	136	111	96	52	30	24
Eubanks Road	400	140	270	119	253	234	268	346	185	188	216
Estes Commuter Lot		220	Incl. in Eubanks Rd. count	138	318	-	-	-	-	-	-
Franklin Street	67	95	95	95	94	67	67	67	32	-	-
Hedrick Lot (Friday Ctr)	278	230	230	230	211	269	-	86	72	60	36
Chatham Lot	550	-	-	-	123	150	214	187	144	146	129
Bible Church Lot	-	-	-	-	-	79	-	-	-	-	-
MLK Jr Blvd Lot	40	-	-	-	-	39	40	40	39	41	40
Pittsboro Lowes	175	-	-	-	-	-	-	33	33	26	22
Totals	**3,881**	**1,670**	**2,535**	**2,658**	**3,194**	**3,004**	**2,698**	**2,762**	**2,007**	**1,760**	**1,717**

Notes:
1. Friday Center and Jones Ferry Road lots opened in 2002, Chatham lot opened fall 2005, Bible Church and MLK Jr Blvd lots opened in 2007.
2. Franklin Street lot is leased lot north of campus.
3. PH/Hedrick lot restricted to Hospitals employees.
4. Lot capacities are current, and some have changed over time.
5. 2003 survey conducted on Tuesday, November 11 between 9:30 and 11:30 A.M.
6. 2005 survey conducted on Tuesday, November 15 between 9:30 and 11:30 A.M.
7. 2007 survey conducted on Tuesday, November 13 between 9:30 and 11:30 A.M.
8. Estes Commuter Lot closed in 2007 for park-and-ride.
9. 2009 survey conducted on Tuesday, November 17 between 9:30 and 11:30 A.M.
10. In 2009, Bible Church Lot and Hedrick Lot no longer used for park and ride.
11. In 2011, Pittsboro Lowes Lot opened.
12. 2011 survey conducted on Tuesday, November 15 between 10:00 A.M. and 1:00 P.M.
13. 2013 survey conducted on Tuesday, November 19 between 10:00 A.M. and 1:00 P.M.
14. 2015 survey conducted on Tuesday, November 17 between 9:30 A.M. and 12:00 P.M.
15. 2017 survey conducted on Tuesday, November 15 between 10:00 A.M. and 1:00 P.M.

New commuters who are not projected to switch to the alternatives described earlier in this section will be accommodated in park-and-ride facilities. The resulting park-and-ride requirement is shown in Table 3-9. The parking "shortfall" at the completion of the Development Plan in 2022 to be addressed by increased park-and-ride has been increased from 1,227 to 1,338 spaces. To date the University, in conjunction with the Town, have added over 2,200 spaces, i.e., more than what is required to satisfy the needs of the Development Plan. Also, note that the increase in the "shortfall" that is to be satisfied by park-and-ride is primarily due to an increase in the population numbers by projecting population growth to 2022, not just 2015.

An analysis was undertaken to determine the amount of additional park-and-ride spaces required in each major approach corridor. This is shown in Table 3-9. Figure 3-5 and Figure 3-6 show the regional distribution of University/Hospitals employees (updated with 2015 addresses) and the proportion of employees by approach corridor for Main Campus. Table 3-10 also summarizes employee addresses by zip code (includes zip codes only in North Carolina that could be geocoded).

Table 3-9 shows that all corridors with the exception of US 15-501 North will have more than enough park-and-ride spaces at the completion of the Development Plan. The University and Town continue to study opportunities to address this need, which in turn will alleviate the current excessive demand for the Friday Center lot.

Table 3-9: Demand for Park-and-Ride by Corridor

Approach Direction	Current		% of Total Commuters in Corridor[3]	Theoretical Current Demand[4]	Adjusted Current Demand[5]	Future Additional Demand[6]	Total Demand	Spaces Needed[7]
	Number of Spaces[2]	Actual Utilization						
US 15-501 from N[1]	67	-	25.1%	432	414	55	470	403
NC 54 from E	1,661	875	39.7%	682	627	84	711	(950)
US 15-501 from S	1,125	476	11.7%	200	224	30	253	(872)
NC 54 from W	588	110	11.4%	196	197	26	223	(365)
I-40 from W/NC 86 from N	440	256	12.1%	207	271	36	308	(132)
Total Park-and-Ride Spaces	**3,881**	**1,717**	100.0%	**1,717**	**1,733**	**231**	**1,964**	**(1,917)**

Notes

1. Actual demand is considered to be much higher given the number of commuters in the corridor, but currently there is a only 67-space lot in the corridor. Commuters most likely using NC 54 and Friday Center lots.
2. Refer to Table 3-8 for lot capacities.
3. Based on geocoding of 2017 UNC commuter addresses.
   NC 54 from east includes Farrington Road from south.
4. Assumes demand is a function of the percentage of commuters in the corridor based on geocoding of employee home addresses.
5. Determined by adjusting theoretical current demand for actual demand numbers while keeping total constant. For example, it is known that some commuters in corridors where there is no park-and-ride park in facilities in adjacent corridors.
6. Total projected need for additional park-and-ride over life of Development Plan (refer to Table 3-2) = 1,338
   Future need accounts for increase in demand to date but subtracts 200 for non-University park-and-ride users (1,107 spaces): 231
7. Numbers assume recently-constructed lots and use of empty spaces in existing park-and-ride lots.

Figure 3-5: Regional Distribution of Employee Home Addresses

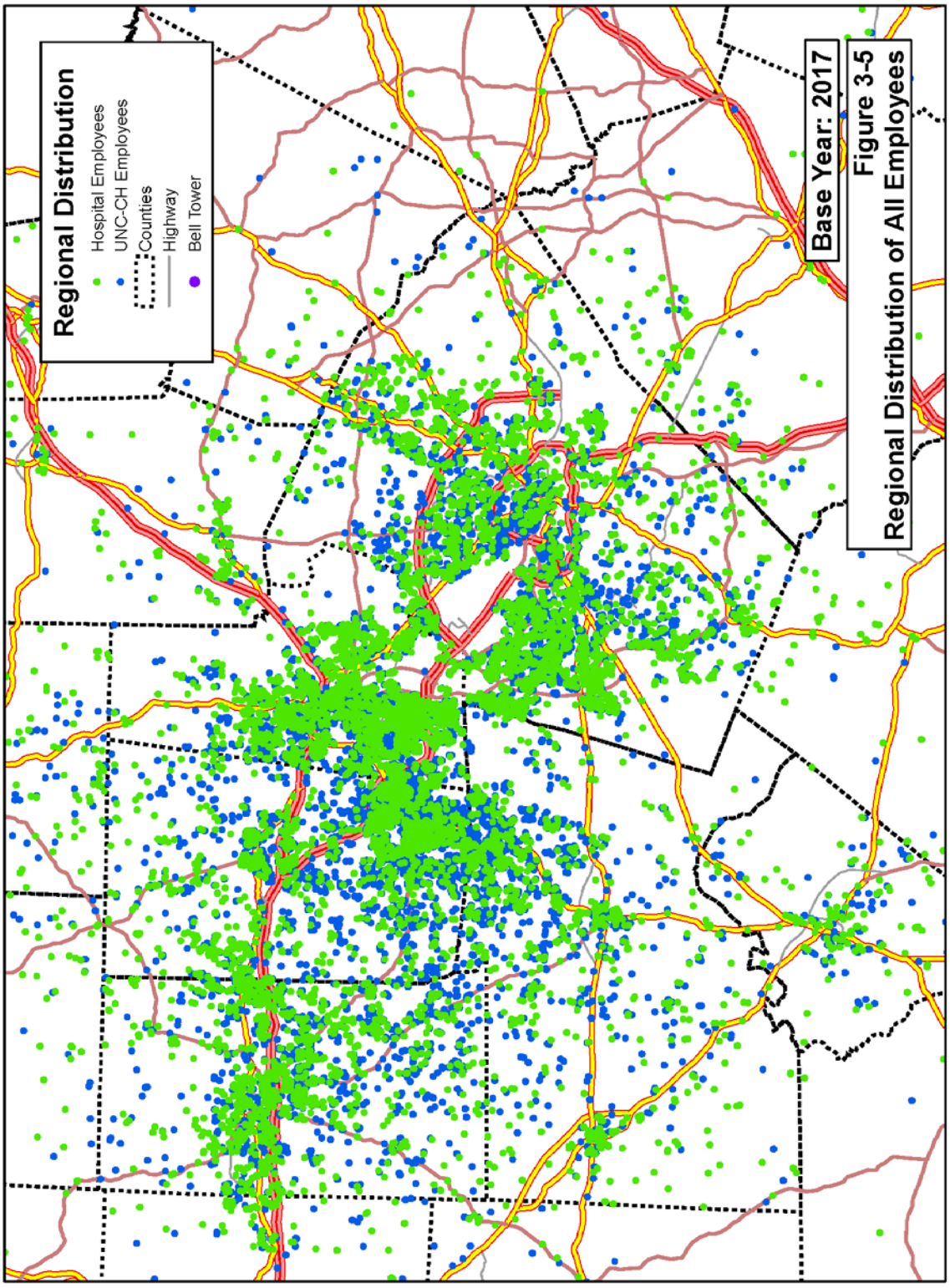


Figure 3-6: Proportion of Employees by Approach Corridor

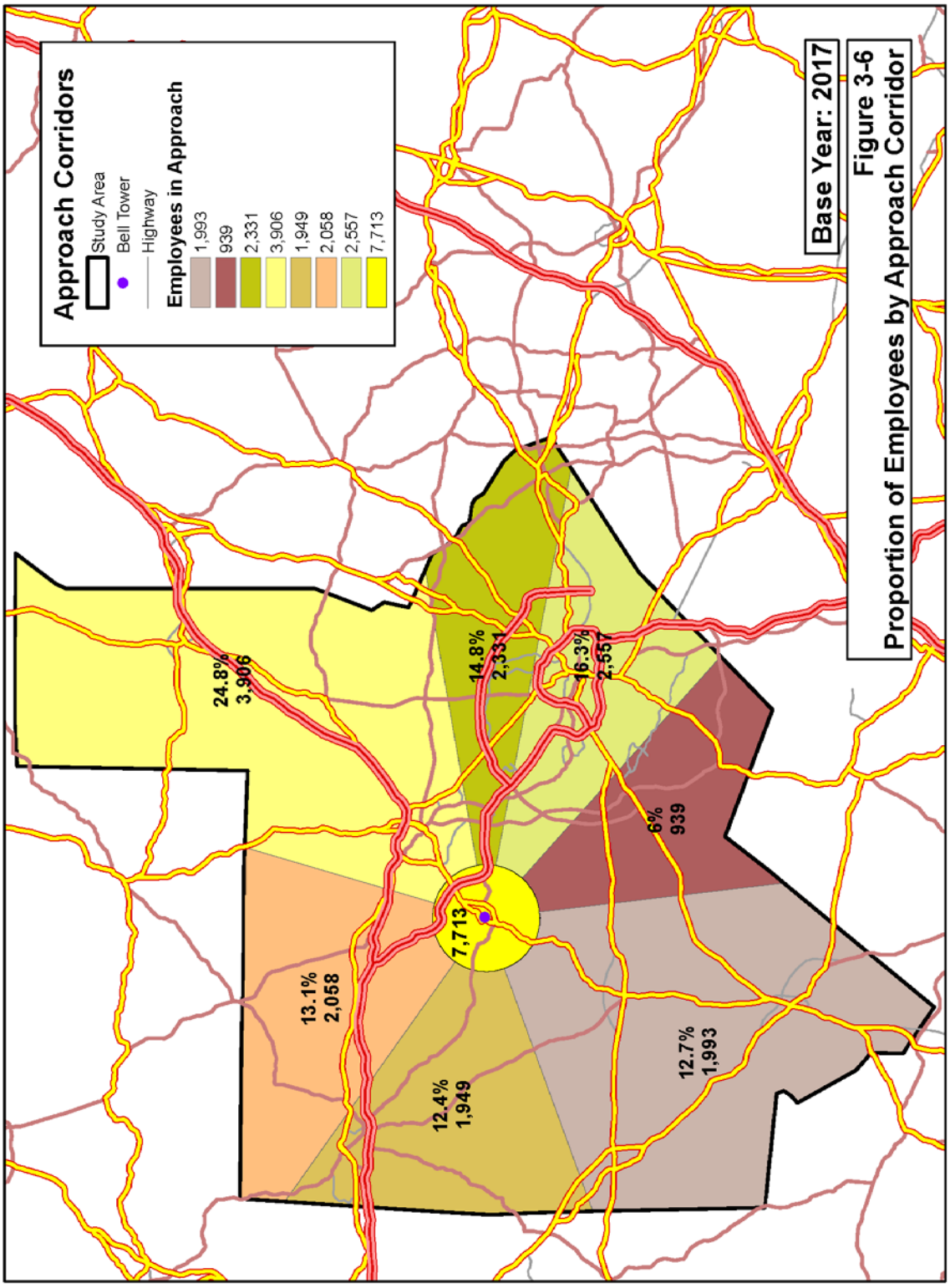


Table 3-10: Summary of Employee Addresses by Zip Code

Zip Code	# Empl.	Zip Code	# Empl.	Zip Code	# Empl.	Zip Code	# Empl.	Zip Code	# Empl.	Zip Code	# Empl.	Zip Code	# Empl.
27516	3,224	27523	112	27601	22	27702	10	28512	6	27505	4	27263	3
27713	1,962	27614	109	27379	21	28311	10	27534	6	28083	4	28659	3
27514	1,860	27603	106	27571	20	27282	10	27804	6	27212	4	28704	3
27517	1,782	27609	98	27252	20	27537	10	28451	6	28215	4	28202	3
27510	1,438	27539	94	27407	19	28645	10	28031	6	28801	4	27896	3
27707	1,107	27518	93	28557	18	27012	9	27577	6	27557	4	28079	3
27312	937	27522	92	28374	18	28601	9	28590	6	28352	4	27542	3
27302	891	27599	91	27408	17	27208	9	27291	6	28075	4	28607	3
27278	845	27607	89	27562	17	27530	9	28173	6	27331	4	28560	3
27253	717	27529	82	27265	17	27834	9	28387	6	27310	4	27544	3
27703	671	27545	64	27596	16	28078	8	27358	6	27103	4	28394	3
27705	618	27332	62	27858	16	28804	8	28405	5	28328	4	27504	3
27519	606	27298	55	27401	16	28314	8	28390	5	28655	4	27248	3
27704	420	27207	55	27314	16	28806	8	28602	5	27213	4	27823	3
27502	352	27583	54	27403	16	27536	8	28270	5	24541	4	27624	3
27560	305	27574	52	27501	16	28805	8	27870	5	24540	4	27576	3
27215	292	27231	51	27717	15	27893	8	27343	5	27317	4	28334	3
27513	286	27541	50	27284	15	27709	8	27283	5	28372	3	27216	3
27712	278	27244	50	27405	15	28327	8	27313	5	27886	3		
27701	277	27572	48	28027	15	27203	8	27569	5	27512	3		
27613	228	27249	48	27549	15	27409	8	28580	5	28207	3		
27217	220	27573	45	27104	14	28570	7	28315	5	28787	3		
27617	216	27608	43	28516	14	28803	7	27357	5	28630	3		
27344	214	27377	42	27581	14	27715	7	28306	5	28144	3		
27349	197	27559	41	27106	13	28403	7	27101	5	27292	3		
27540	180	27520	41	27340	13	28412	7	28216	5	28056	3		
27612	179	27410	37	27205	13	28036	7	28117	5	27023	3		
27330	169	27515	37	27301	13	28227	7	28411	5	27889	3		
27258	166	27406	35	28081	12	27228	7	27376	5	27233	3		
27587	162	27565	34	28409	12	27214	7	27803	5	27627	3		
27616	159	27591	28	28326	12	27360	7	28715	4	27959	3		
27511	158	27503	28	28269	11	28348	6	27863	4	28562	3		
27610	151	27525	27	27355	11	27524	6	28226	4	27127	3		
27606	139	27527	26	28304	11	28210	6	28303	4	27909	3		
27243	133	27592	25	27509	11	27589	6	28211	4	27262	3		
27615	125	27597	24	27320	11	28025	6	28504	4	28472	3		
27526	124	27455	24	27546	11	28732	6	28697	4	28364	3		
27604	122	27605	23	27316	10	27107	6	28739	4	28358	3		

The following ZIP codes have 1 employee living in them:

01832, 02649, 06405, 06525, 08081, 10992, 11226, 11357, 11558, 11580, 12168, 12213, 12553, 14617, 14701, 14760, 15717, 16214, 17253, 17302, 19083, 19382, 19711, 21076, 21211, 22312, 22380, 22707, 22901, 23113, 23114, 23238, 23834, 23919, 23927, 24055, 24148, 24529, 24586, 24597, 24901, 25273, 25710, 25760, 26554, 27006, 27009, 27011, 27018, 27019, 27021, 27030, 27041, 27053, 27105, 27137, 27150, 27154, 27156, 27201, 27235, 27239, 27259, 27288, 27306, 27315, 27323, 27341, 27359, 27370, 27404, 27419, 27428, 27429, 27450, 27521, 27553, 27582, 27619, 27622, 27626, 27629, 27661, 27708, 27714, 27801, 27806, 27807, 27837, 27840, 27856, 27857, 27864, 27874, 27891, 27892, 27921, 27924, 27927, 27949, 27954, 27965, 28001, 28002, 28012, 28021, 28041, 28054, 28110, 28119, 28124, 28133, 28134, 28147, 28150, 28159, 28166, 28167, 28170, 28203, 28262, 28278, 28307, 28312, 28318, 28320, 28323, 28339, 28340, 28341, 28345, 28355, 28359, 28366, 28371, 28383, 28391, 28404, 28431, 28435, 28444, 28457, 28460, 28462, 28465, 28469, 28501, 28502, 28508, 28510, 28517, 28525, 28528, 28540, 28571, 28582, 28585, 28615, 28621, 28624, 28625, 28626, 28631, 28638, 28640, 28643, 28676, 28681, 28692, 28694, 28701, 28712, 28721, 28731, 28735, 28742, 28778, 28791, 28901, 29016, 29516, 29526, 29572, 29650, 29680, 29706, 30032, 30068, 30168, 30313, 30458, 30542, 31093, 31312, 31419, 32312, 32653, 32765, 32836, 33702, 33916, 34698, 34747, 37909, 39202, 39364, 43140, 44087, 45426, 46204, 48085, 49012, 49504, 52246, 52403, 53168, 57216, 59912, 60048, 60134, 60201, 60526, 60614, 61068, 65203, 72514, 76657, 78633, 78759, 80923, 84101, 86305, 89128, 90024, 90404, 94134, 94928, 95991

The following ZIP codes have 2 employees living in them:

27025, 27040, 27048, 27260, 27281, 27295, 27305, 27311, 27325, 27371, 27508, 27563, 27584, 27620, 27722, 27808, 27809, 27816, 27822, 27850, 27882, 27910, 27939, 27948, 28023, 28034, 28043, 28082, 28086, 28092, 28104, 28105, 28115, 28120, 28138, 28139, 28146, 28204, 28205, 28206, 28209, 28212, 28213, 28273, 28277, 28301, 28305, 28333, 28337, 28351, 28357, 28360, 28376, 28377, 28379, 28384, 28401, 28425, 28428, 28443, 28453, 28461, 28532, 28546, 28551, 28584, 28594, 28613, 28677, 28716, 28723, 28734, 28748, 28753, 28756, 28759, 28766, 28779, 33647

3.2.10 Transit Service

In addition to finding appropriate sites for more park-and-ride, the key to a successful park-and ride system is the ability to run an efficient and quick transit shuttle service to Main Campus. Travel times on the roads can be expected to worsen over time. This is an inconvenience to users, and therefore a disadvantage of park-and-ride as well as adding costs to park-and-ride transit service.

Options for improving bus running times that the University and Town can jointly consider include signal pre-emption, queue bypass lanes, and possibly busway lanes or treatments. These improvements are in addition to more frequent service, more express buses, longer hours, and improved security. Examples of potential busways are described under Chapel Hill Transit improvements.

3.3 SUMMARY OF TRIP DIVERSION

Table 3-2 provides an overview of the how commuters traveled pre-and post-Development Plan. If it is assumed that the trip reduction measures that are implicit in the Development Plan and needed to address the reduced parking are applied only to new commuters (in reality they will apply to all commuters), then it is projected that new commuters would travel by the following means:

- Drive alone: 117 (1%)
- Chapel Hill Transit: 5,186 (43%)
- Regional transit: 2,317 (19%)
- Ridesharing: 1,226 (passengers and drivers, 11%)
- Bicycle: 588 (5%)
- Walk: 381 (3%)
- Park-and-ride: 1,672 (14%)
- Other: 577 (5%)

Total (adjusted): 12,065 (100%)

The following pages provide a summary explanation of these calculations.

Summary Explanation of Permanent Park-and-Ride Requirement

This section summarizes the calculation of park-and-ride needs.

A. Parking Demand and Shortfall

Total new commuters (employees and students) from University growth projections:

8,203 employees + 3,862 commuting students = 12,065 total new commuters

The Development Plan provides a net addition of 438 parking spaces on Main Campus for commuters. On any particular day not all employees scheduled to work during permitted hours report to work, nor do all commuting students come to campus. This allows more permits than spaces to be sold. Based on current parking oversell ratio statistics (an average of 1.25 permits sold for every space), the 438 spaces can accommodate 438 X 1.25 = **548** of the new employees/commuting students (those driving alone and driving car/vanpools).

Therefore 11,517 of the new commuters must be accommodated by other means.

(It should be noted that in 2001, 77% of employees and 11% of commuting students got on-campus parking permits. Thus, 5,882 employees + 734 students = 6,616 total commuters should get permits if existing ratios continued to apply. Based on the current combined oversell ratio for parking spaces of 1.25, 6,616 commuters = 5,293 parking spaces would be needed.) Given that the plan provides a net increase of 438 spaces for commuters, the "shortfall" is approximately 4,855 spaces (this excludes the resident student "shortfall".)

B. Use of Alternative Modes

Based on current campus commuting trends and observations of other universities that have implemented aggressive trip reduction strategies, future use of the various alternative travel modes was estimated as follows (from Table 3-2).

Chapel Hill Transit

a. Prior to the Development Plan, 5% of employees and 33% of commuting students were estimated to use CHT. If these rates continued to apply for the new population, 394 new employees and 1,274 new commuting students (for a total of 1,668) would use CHT.

b. It is estimated improvements to CHT (fare free, increased service) will result in an additional 3,518 people switching from driving alone to CHT over the life of the Development Plan (NOTE: many of these are existing employees/students living in Chapel Hill/Carrboro and currently driving to campus, as ascertained by GIS analysis).

c. Therefore a total of **5,186 additional people** (compared to pre Development Plan) will use CHT (or approximately 4,149 **daily** commuters given that a proportion of the population does come to campus on any particular day). Use will increase to 15% for employees and 39% for students.

Regional Transit

a. In 2001, approximately almost 1.5% of employees and commuting students used GoTriangle regional transit. If these rates continued to apply for the new population, 167 new employees/commuting students would use regional transit.

b. Based on service improvements and free GoPasses provided by UNC, it is estimated an additional 2,150 people will use regional transit.

c. Therefore a total of **2,317 additional people** will use regional transit, (or approximately 1,854 **daily** commuters given that a proportion of the population does come to campus on any particular day).

Rideshare

a. In 2001, approximately 4% of employees and commuting students were passengers in a rideshare vehicle. If these rates continued to apply for the new population, 513 new employees/commuting students would be passengers.

b. Based on the University's plan to boost its TDM program, it is estimated an additional 283 people will switch to this mode.

c. Therefore a total of **797 additional people** will become rideshare passengers (or approximately 638 **daily** commuters given that a proportion of the population does come to campus on any particular day). Total new rideshare commuters (drivers and passengers) will be 1,226 persons.

Other Modes

Use of other modes (excluding park-and-ride for now) has been increased in proportion to current use (i.e., no additional diversion beyond trend line growth has been assumed). Based on current ratios (derived from the 2009 survey), use of these other modes by new employees and commuting students is estimated to be:

Bicycle:	588 persons
Walk:	381 persons
Other (dropped off, motorcycle, etc.):	577 persons
Total:	**1,546 additional people** (1,237 **daily** commuters)

C. Park-and-Ride Need

In summary, the above accounts for 9,845 commuters, i.e.,

CHT:	5,186
Regional transit:	2,317
Ridesharing:	796 (passengers only)
Other modes:	1,546

Therefore 11,517 – 9,845 = 1,672 commuters. Based on the 1.25 oversell ratio, this is equivalent to 1,338 commuters (i.e., spaces) on any one day. These people will be accommodated in park-and-ride.

3.4 INTERIM PARK-AND-RIDE NEEDS

Table 3-11 identifies park-and-ride need by year. It builds on Table 2-8 in Section 2.0 which shows the impact of the Development Plan on parking spaces, and Main Campus growth and parking needs for each year (including temporary needs). The total commuter parking "shortfall" for the Development Plan period is approximately 7,095 spaces (assuming current ratios of spaces to commuters). Based on this and the impact of other trip reduction strategies, Table 3-11 identifies the annual and ultimate park-and-ride needs, originally determined by ensuring the cumulative impact (the final row) remains in the positive range.

The table shows that the park-and-ride built spaces to date will meet the ultimate needs of the Development Plan, but will not meet the interim needs (the interim shortfalls are caused by temporary construction parking space losses and the fact that some of the decks in the Development Plan are not scheduled until towards the end of the Development Plan period). Developing and implementing parking management strategies that will make more efficient use of existing spaces on campus and in park-and-ride lots will minimize the interim need for short term park-and-ride spaces without having to construct new park-and-ride spaces to address short term needs.

Table 3-11: Preliminary Phasing of Trip Reduction Strategies

	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	Total
Main Campus Parking Shortfall[1]	-355	-1,130	-599	-776	-110	524	-1,037	-551	-259	464	-280	-255	-646	1,109	-559	-559	-559	-559	-559	-846	446	**-7,095**
"Natural" Growth in Park-and-Ride Demand[2]	22	38	58	49	52	33	-17	53	50	54	16	17	17	17	49	49	49	50	49	49	51	**804**
Total Parking Shortfall	***-377***	***-1,168***	***-657***	***-825***	***-162***	***491***	***-1,020***	***-604***	***-309***	***410***	***-296***	***-272***	***-663***	***1,092***	***-608***	***-608***	***-608***	***-609***	***-608***	***-895***	***395***	***-7,900***
Strategy[3,4,5]																						
CHT Transit	50	300	275	225	125	50	50	100	50	25	25	25	190	43	183	183	183	183	183	183	183	**2,814**
Fare free (2002)																						
Increased services																						
Regional Transit[5]		15	15	10	50	60	70	70	70	60	45	37	200	60	137	137	137	137	137	137	136	**1,720**
Ridesharing[6]		10	10	20	20	10	10	15	14	10	0	0	0	3	3	2	3	3	3	3	2	**141**
Reduction in student walk, ride & park-and-ride [7]																						
Temporary Parking[8]																						
Franklin Street lot	95						-28															
CG Lot	125						-125															**0**
Odum Village				428										-428								**0**
Park-and-Ride[8]		1,306	278		550	242	-242				175											**2,309**
Parking Management Strategies								300	350											100	100	
Net Impact for Year (negative no. is shortfall)	**-107**	**463**	**-79**	**-142**	**583**	**853**	**-1,285**	**-119**	**175**	**505**	**-51**	**-210**	**-273**	**770**	**-285**	**-286**	**-285**	**-286**	**-285**	**-472**	**816**	
Cumulative Impact[9]	**-107**	**356**	**277**	**135**	**718**	**1,571**	**286**	**166**	**341**	**847**	**796**	**585**	**313**	**1,082**	**798**	**512**	**227**	**-59**	**-344**	**-816**	**1**	

The natural growth in park-and-ride represents growth that can be expected assuming park-and-ride demand increases at the existing ratio of park-and-ride use to University populations (i.e., no diversion or switching to alternative modes). The natural growth is added to the parking shortfall to show the overall parking shortfall that must be satisfied through trip reduction strategies.

Refer to Table 3-2 (Trip Diversion Calculations) for an explanation of these numbers.

Therefore, the park-and-ride built to date, in aggregate, exceeds the ultimate park-and-ride need. However, spaces are needed in the US 15-501 N corridor, and additional temporary spaces may be needed in the later years of the development plan period.

Notes:

1. Negative number implies loss or shortfall. Shortfalls differ from previous updates because of changes to the Development Plan schedule.
2. "Natural" growth in park-and-ride demand refers to proportional growth based on current use (unrelated to increased use resulting from proposed trip reduction strategies). This growth in spaces (refer to Table 3-2) is 804.
3. The reductions are not expected to come from new employees and students only since the strategies apply to everyone (existing and new). Impacts of all strategies refers to typical day (i.e., take into account that approximately 20% of persons may not be on campus on any particular day).
4. Reductions in the table address the parking "shortfalls" only. It is assumed that current use of alternative modes will continue to apply without the proposed trip reduction strategies (e.g., the proportion of commuters using CHT, bicycles, etc. would continue). Therefore, the increased use of alternatives would in fact be higher than indicated above (refer to Table 3-2 for total numbers).
5. Refer to Table 3-2 for calculations of increased use.
6. Ridesharing estimates refers to reduction in Main Campus vehicles resulting from strategies (refer to Table 3-2).
7. Refer to Table 3-2
8. Park-and-ride built to date. Includes temporary park-and-ride to address interim shortfalls. Results in surplus in all future years. 1,306 in 02/03 is Friday Center and Jones Ferry lots, 278 in 03/04 is Hedrick lot, 550 in 05/06 is Chatham lot, 242 in 06/07 is Bible Church lot (abandoned in 07/08), 175 in 11/12 is Pittsboro Lowes lot.
9. Negative number implies shortfall.

3.5 AIR QUALITY IMPACTS

Based on the diversion of driving commuters to other modes compared to ITE trip rates (as described in Section 3-1), an estimate was prepared of the corresponding reduction in emissions of NOx, VOC's, and CO. The emissions reductions were calculated as follows:

- The number of daily trips diverted to Chapel Hill Transit in 2017 is assumed to be 2,184.

- The number of daily trips diverted to regional transit or ridesharing in 2017 is assumed to be 1,861.

Updated assumptions and results are summarized in Table 3-12. A number of assumptions were made in preparing this estimate:

- No emissions benefits were assumed for a switch to park-and-ride, since most of the trip would still be made via automobile, and the first few miles of a car trip account for most of the pollution. However, emissions on Main Campus will be reduced.

- Since the diverted auto trips are assumed to be commuter trips, no off-peak emission reductions are considered, only A.M. and P.M. peak periods.

- An average trip length of 4 miles was assumed for all trips diverted to Chapel Hill Transit (CHT). Multiplying by 2,814 trips yields 11,256 vehicle-miles of travel (VMT) eliminated in each peak period.

- An average trip length of 14 miles was assumed for all trips diverted to regional transit or ridesharing. Multiplying by 1,816 trips yields a VMT reduction of 26,054 in each peak period.

- The two VMT totals obtained above were distributed among six functional classes of urban streets, five classes of rural roads, and freeway ramps. In the case of trips served by CHT, no travel was assumed to occur on rural facilities. A larger share of travel was assumed to occur on local, collector, and arterial streets. For regional (GoTriangle and ridesharing) trips, 20 percent of travel was assumed to occur on the corresponding classes of rural facilities.

- Durham and Orange County 2024 emission factors for NOx and CO from the DCHC MPO 2035 LRTP AQ Conformity Analysis Appendix F were used for analysis. Emission factors for VOC's were obtained from the CMAQ 2012 values for urban areas. Factors vary by the functional classification of the road being traveled (see above), and separate sets of factors were provided for A.M. and P.M. peak periods in the case of NOx and CO rates.
- A total of 250 workdays were assumed in calculating total annual emission reductions.

Using this methodology, the following emission reductions are estimated for 2017:

- NOx: 18 kg/day (4,399 kg/year)
- VOC: 32 kg/day (7,875 kg/year)
- CO: 583 kg/day (147,769 kg/year)

The University has also moved forward with sustainability efforts for the campus. The *2013 Campus Sustainability Report* details achievements and programs in a variety of areas, including transportation, to enhance campus sustainability. For example, the Report notes the benefits of the Commuter Alternative Program (CAP), the fare-free Chapel Hill Transit system, bicycling, walking, car-sharing, and ridesharing. Further participation in the CAP program and similar initiatives will help improve air quality.

Table 3-12: Estimated Air Quality Impacts

EMISSION REDUCTIONS: NOx								EMISSION REDUCTIONS: VOC								EMISSION REDUCTIONS: CO							
	Functional Classification	2024 Emission Rate	VMT (Served by CHT)	VMT (Outside CHT)	NOx Emissions (Kg)			Functional Classification	2024 Emission Rate	VMT (Served by CHT)	VMT (Outside CHT)	VOC Emissions (Kg)			Functional Classification	2024 Emission Rate	VMT (Served by CHT)	VMT (Outside CHT)	CO Emissions (Kg)		
		AM							AM							AM					
URBAN	Interstate	0.311	554	4,496	1.57			Interstate	0.401	554	4,496	2.03			Interstate	8.703	554	4,496	43.95		
	Freeway	0.238	2,440	4,854	1.74			Freeway	0.399	2,440	4,854	2.91			Freeway	8.190	2,440	4,854	59.73		
	Other Princ Art	0.217	2,589	3,960	1.42			Other Princ Art	0.433	2,589	3,960	2.84			Other Princ Art	7.571	2,589	3,960	49.58		
	Minor Arterial	0.209	2,814	4,586	1.55			Minor Arterial	0.433	2,814	4,586	3.20			Minor Arterial	7.524	2,814	4,586	55.67		
	Collector	0.205	1,576	2,084	0.75			Collector	0.446	1,576	2,084	1.63			Collector	7.663	1,576	2,084	28.05		
	Local	0.236	1,238	1,667	0.68			Local	0.443	1,238	1,667	1.29			Local	7.557	1,238	1,667	21.96		
RURAL	Interstate	0.344	-	1,124	0.39			Interstate	0.397	-	1,124	0.45			Interstate	6.932	-	1,124	7.79		
	Minor Arterial	0.245	-	990	0.24			Minor Arterial	0.418	-	990	0.41			Minor Arterial	7.865	-	990	7.79		
	Major Collector	0.235	-	1,146	0.27			Major Collector	0.426	-	1,146	0.49			Major Collector	7.456	-	1,146	8.55		
	Minor Collector	0.220	-	521	0.11			Minor Collector	0.428	-	521	0.22			Minor Collector	7.453	-	521	3.88		
	Local	0.238	-	417	0.10			Local	0.428	-	417	0.18			Local	7.177	-	417	2.99		
	Ramps	0.265	45	208	0.07			Ramps	0.412	45	208	0.10			Ramps	7.786	45	208	1.97		
	AM TOTAL		11,256	26,054	**8.89**			AM TOTAL		11,256	26,054	**15.75**			AM TOTAL		11,256	26,054	**291.92**		
		PM							PM							PM					
URBAN	Interstate	0.287	554	4,496	1.45			Interstate	0.401	554	4,496	2.03			Interstate	8.771	554	4,496	44.30		
	Freeway	0.228	2,440	4,854	1.66			Freeway	0.399	2,440	4,854	2.91			Freeway	8.190	2,440	4,854	59.73		
	Other Princ Art	0.222	2,589	3,960	1.45			Other Princ Art	0.433	2,589	3,960	2.84			Other Princ Art	7.564	2,589	3,960	49.54		
	Minor Arterial	0.211	2,814	4,586	1.56			Minor Arterial	0.433	2,814	4,586	3.20			Minor Arterial	7.473	2,814	4,586	55.30		
	Collector	0.203	1,576	2,084	0.74			Collector	0.446	1,576	2,084	1.63			Collector	7.663	1,576	2,084	28.05		
	Local	0.237	1,238	1,667	0.69			Local	0.443	1,238	1,667	1.29			Local	7.618	1,238	1,667	22.14		
RURAL	Interstate	0.332	-	1,124	0.37			Interstate	0.397	-	1,124	0.45			Interstate	6.605	-	1,124	7.42		
	Minor Arterial	0.240	-	990	0.24			Minor Arterial	0.418	-	990	0.41			Minor Arterial	7.668	-	990	7.59		
	Major Collector	0.232	-	1,146	0.27			Major Collector	0.426	-	1,146	0.49			Major Collector	7.194	-	1,146	8.25		
	Minor Collector	0.219	-	521	0.11			Minor Collector	0.428	-	521	0.22			Minor Collector	7.453	-	521	3.88		
	Local	0.240	-	417	0.10			Local	0.428	-	417	0.18			Local	7.231	-	417	3.01		
	Ramps	0.257	45	208	0.07			Ramps	0.412	45	208	0.10			Ramps	7.665	45	208	1.94		
	PM TOTAL		11,256	26,054	**8.71**			PM TOTAL		11,256	26,054	**15.75**			PM TOTAL		11,256	26,054	**291.15**		
TOTAL DAILY NOx REDUCTION (kg)					**17.60**			TOTAL DAILY VOC REDUCTION (kg)				**31.50**			TOTAL DAILY CO REDUCTION (kg)				**583.07**		
TOTAL ANNUAL NOx REDUCTION (kg)					**4,399**			TOTAL ANNUAL VOC REDUCTION (kg)				**7,875**			TOTAL ANNUAL CO REDUCTION (kg)				**145,769**		

4.0 INTERSECTION IMPACTS AND MITIGATION

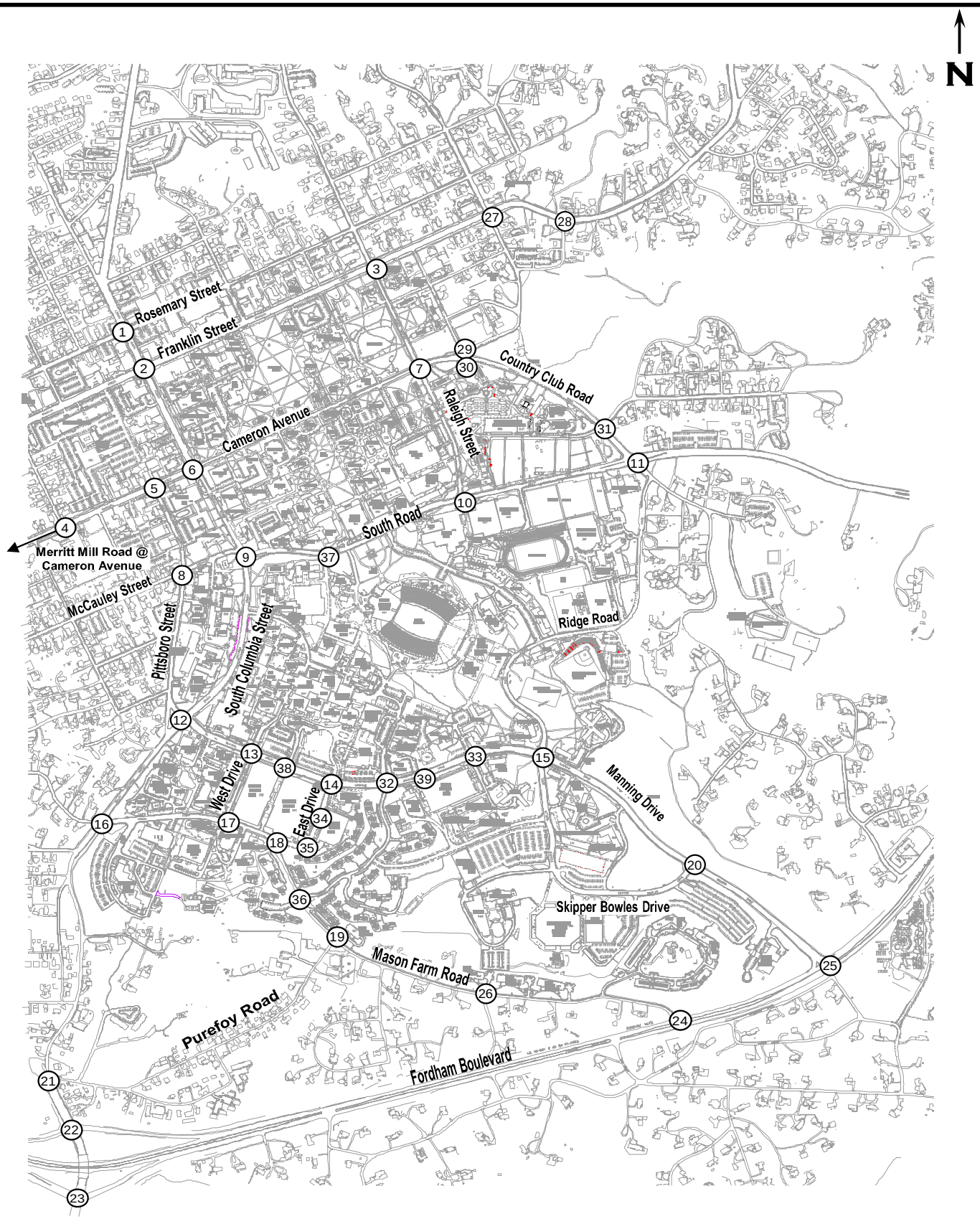
4.1 INTRODUCTION

This section provides an updated analysis of roadway intersections on or near Main Campus that may be impacted by the Development Plan. Intersection level of service analysis was undertaken for existing conditions based on traffic counts collected in the Fall of 2017. Analysis of existing conditions and projections for 2024, with and without the Development Plan (Build and No-Build conditions, respectively), were developed per the *Town of Chapel Hill Guidelines for Transportation Impact Analysis* (adopted on June 11, 2001). The methodology and assumptions are described, including development of background traffic data, trip generation, trip distribution, trip assignment, and level of service analyses. The same techniques, model, and assumptions used in the December 2015 report have been applied.

The basis for determining the impacts is the change in parking supply rather than the building projects contained in the Development Plan, in accordance with the *Transportation Impact Analysis Guidelines*. This is because, unlike a more typical project where the parking needs of the project are satisfied, increases in parking on Main Campus will be limited and will not correspond to growth in occupiable floor area (as discussed in Section 3.0). Furthermore, parking increases on Main Campus are not allocated to specific new buildings, but added to the overall supply for allocation to the entire campus population.

As described in Section 2.0, the approved Development Plan limits the University to a net increase of 1,579 spaces on Main Campus. This comprises 4,061 surface spaces eliminated by projects and 5,640 new spaces, of which 5,425 are in decks. As discussed in Section 2.0, a number of parking changes were proposed as part of Modification No. 3 to the Development Plan. The impact analysis takes into account the location of the losses and gains resulting from those modifications. Since the submission of Modification No. 3, five of the parking facilities identified in the Development Plan have opened for use (Cobb Deck, Jackson Circle Deck, Global Education Deck, Bell Tower Deck, and expansion of the Craige Deck).

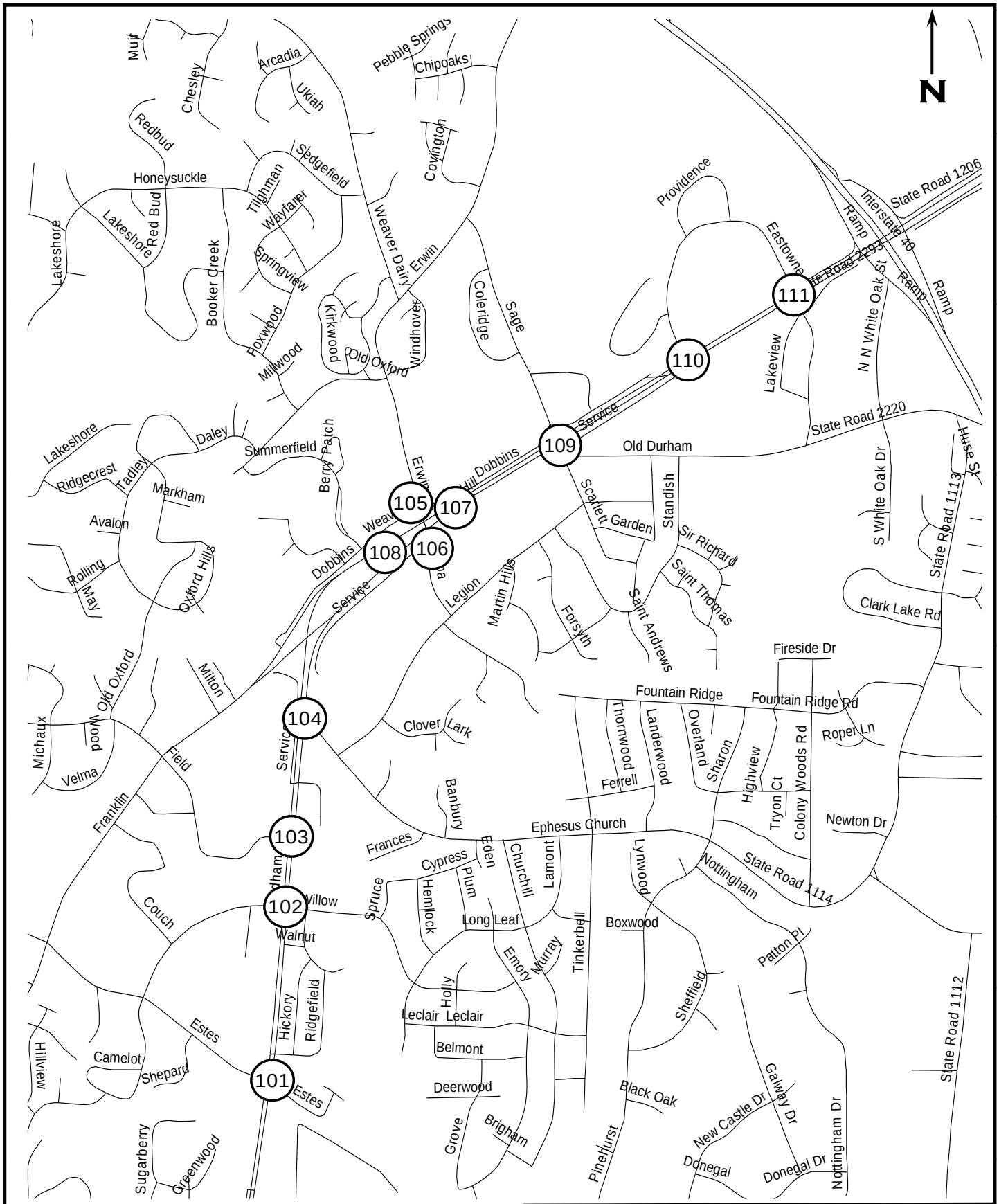
The study area network of streets and intersections is displayed in Figure 4-1. In the February 2006 TIA Update, 47 intersections were identified for the analysis. After assessing intersections on NC 54 east of campus, NC 86 north of campus, and US 15-501 south of campus, the University and Town agreed that eight additional intersections satisfied the criteria for inclusion in the analyses for Modification No. 3 of the University Development Plan Traffic Impact Analysis, published in December 2006. All of those same intersections are included in the analysis of this update of the Development Plan and are listed in Section 4.3.



○ Study Area Intersections

Figure 4-1a

Study Area Roadways and Intersections



○ Study Area Intersections

Figure 4-1b

Study Area Roadways and Intersections

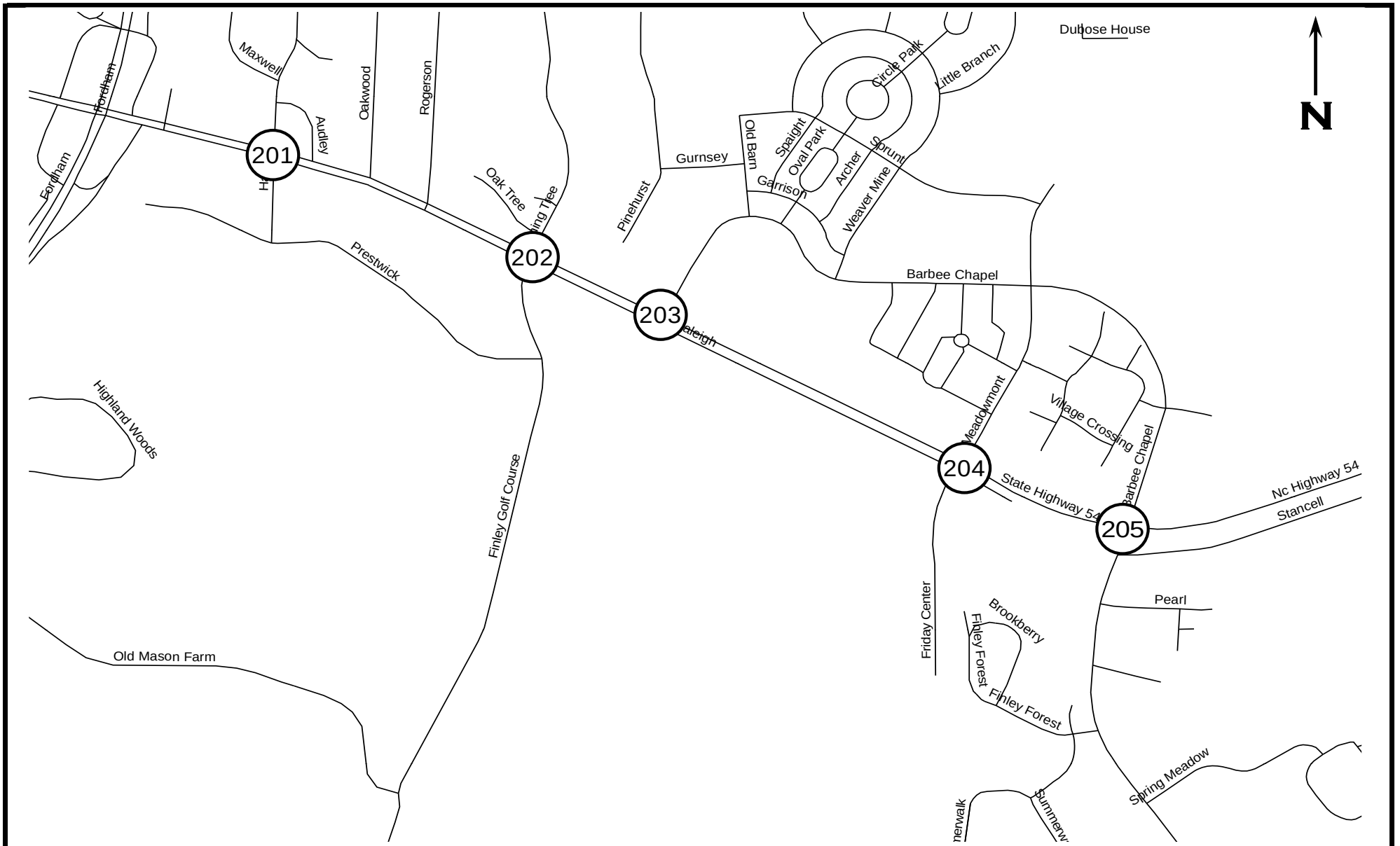
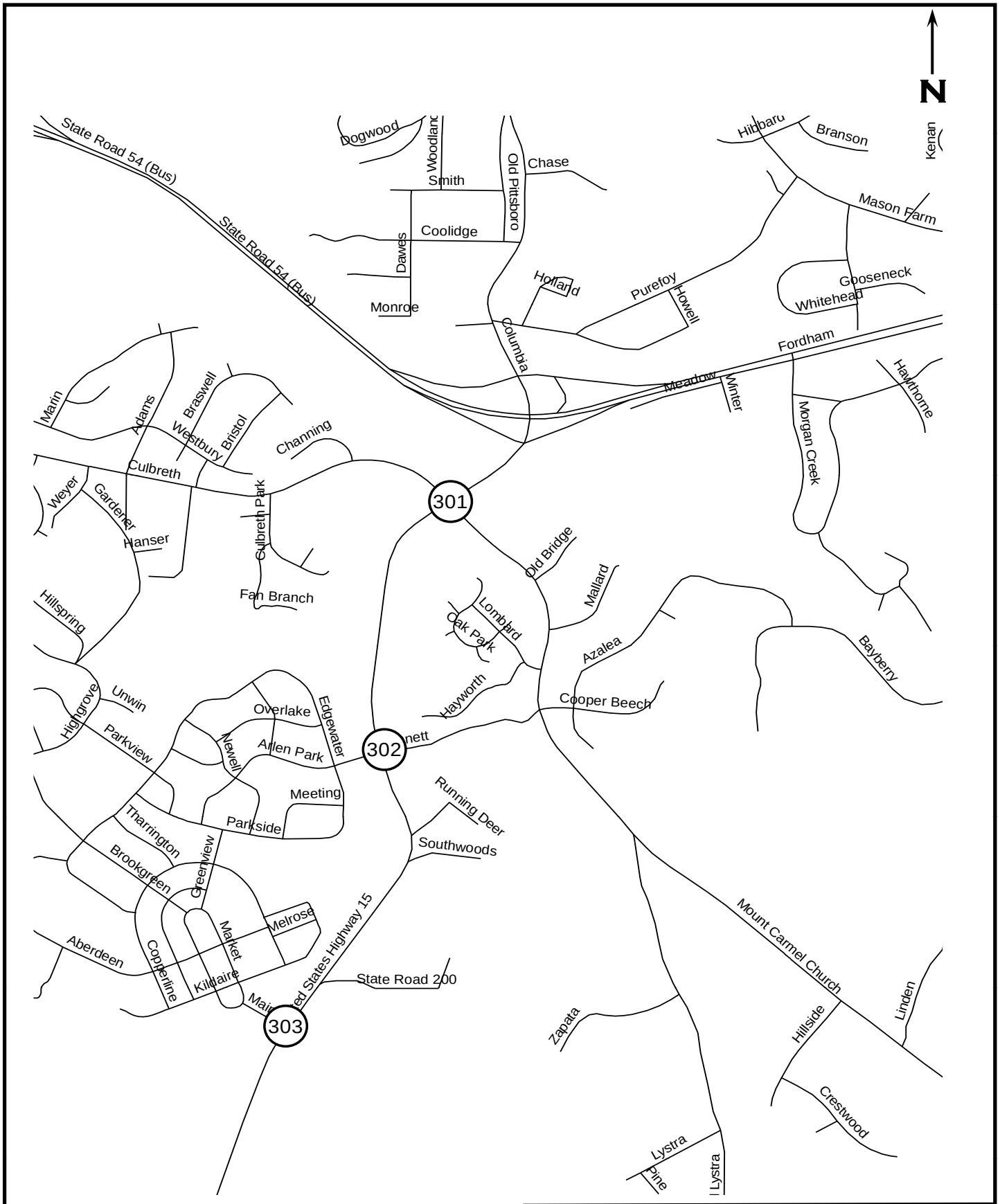


Figure 4-1c

Study Area Roadways and Intersections



○ Study Area Intersections

Figure 4-1d

Study Area Roadways and Intersections

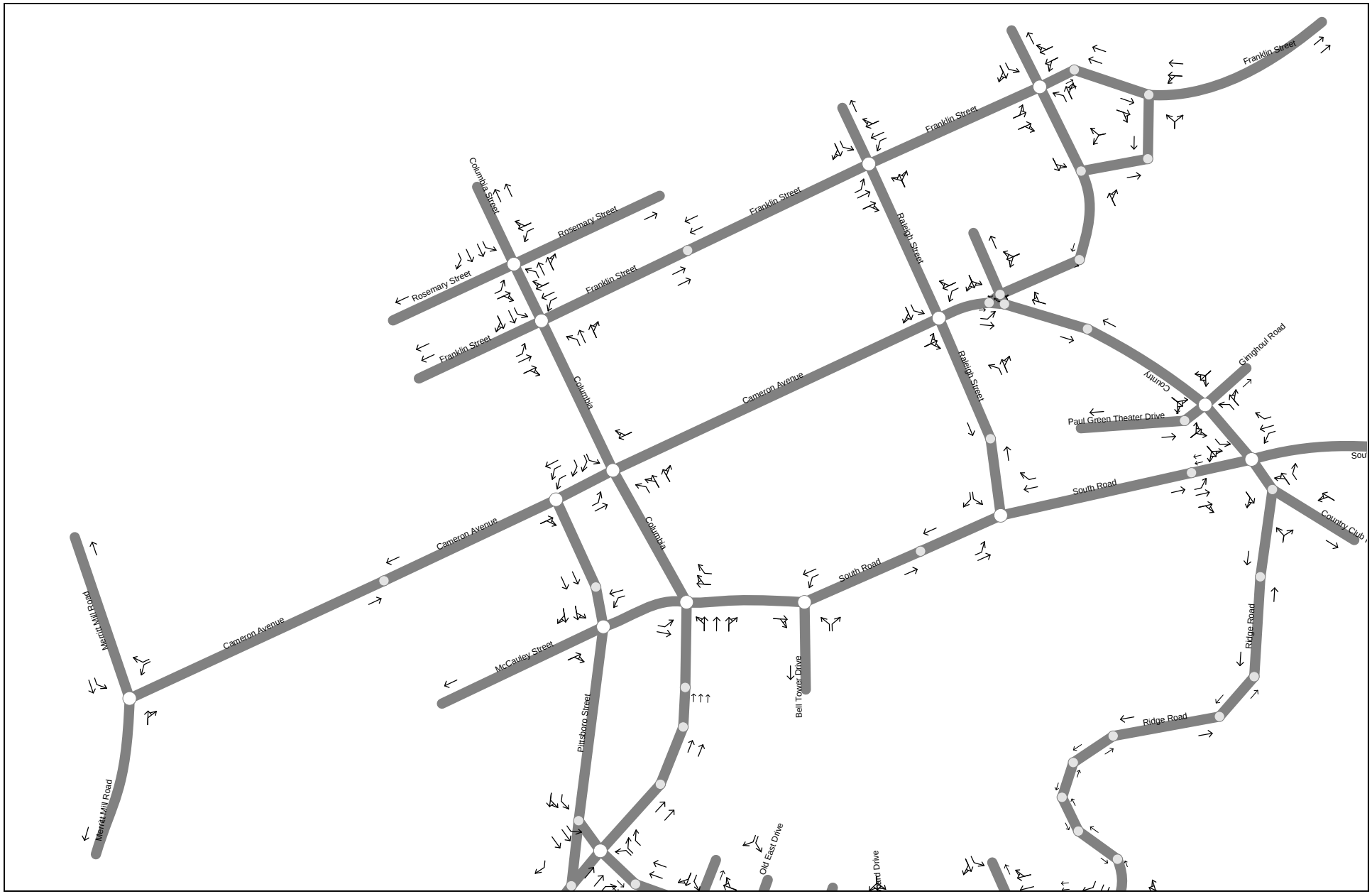


Figure 4-2a
Study Area Intersections and Roadway Graphics

Figure 4-2b
Study Area Intersections and Roadway Graphics

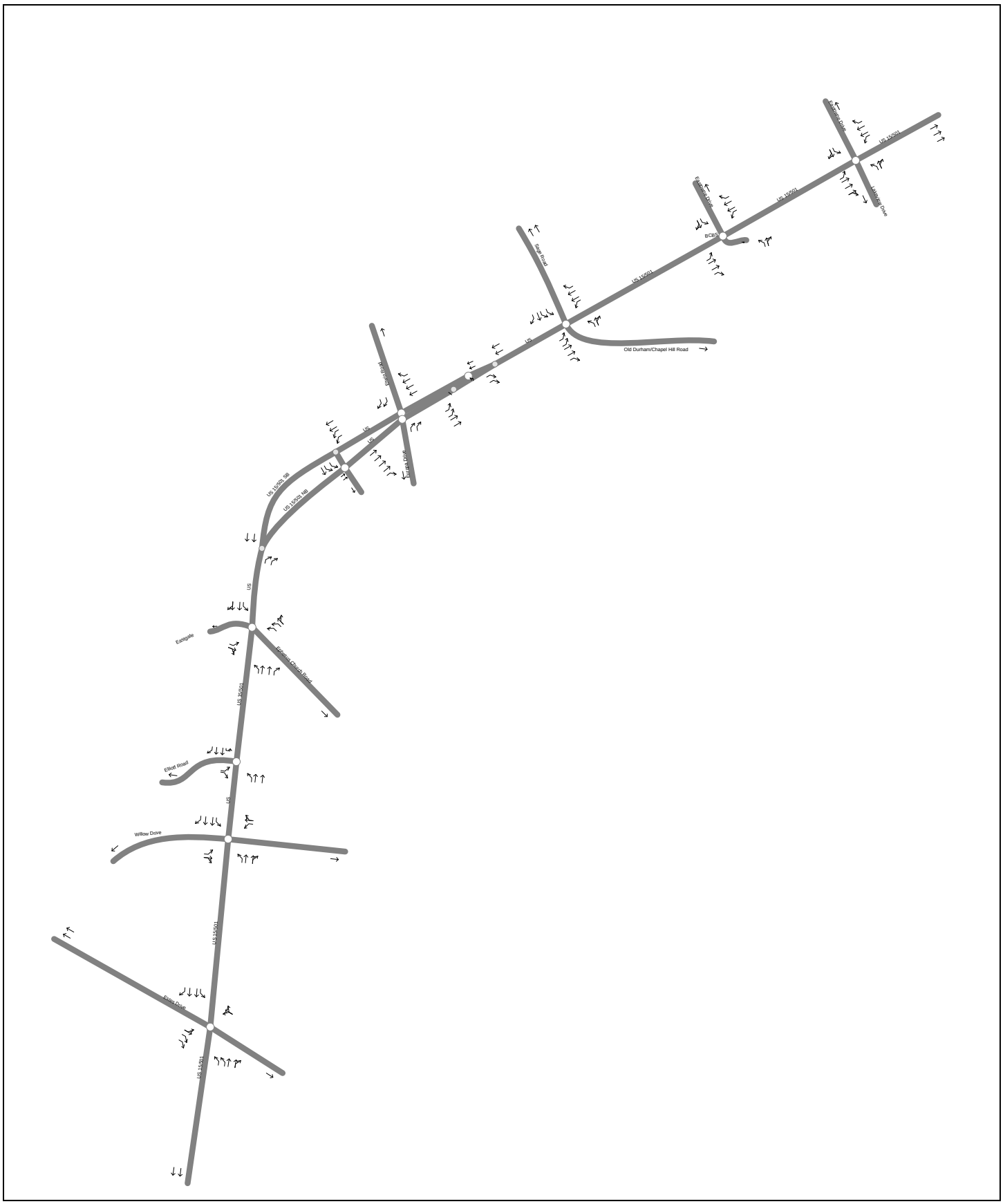


Figure 4-2c
Study Area Intersections and Roadway Graphics

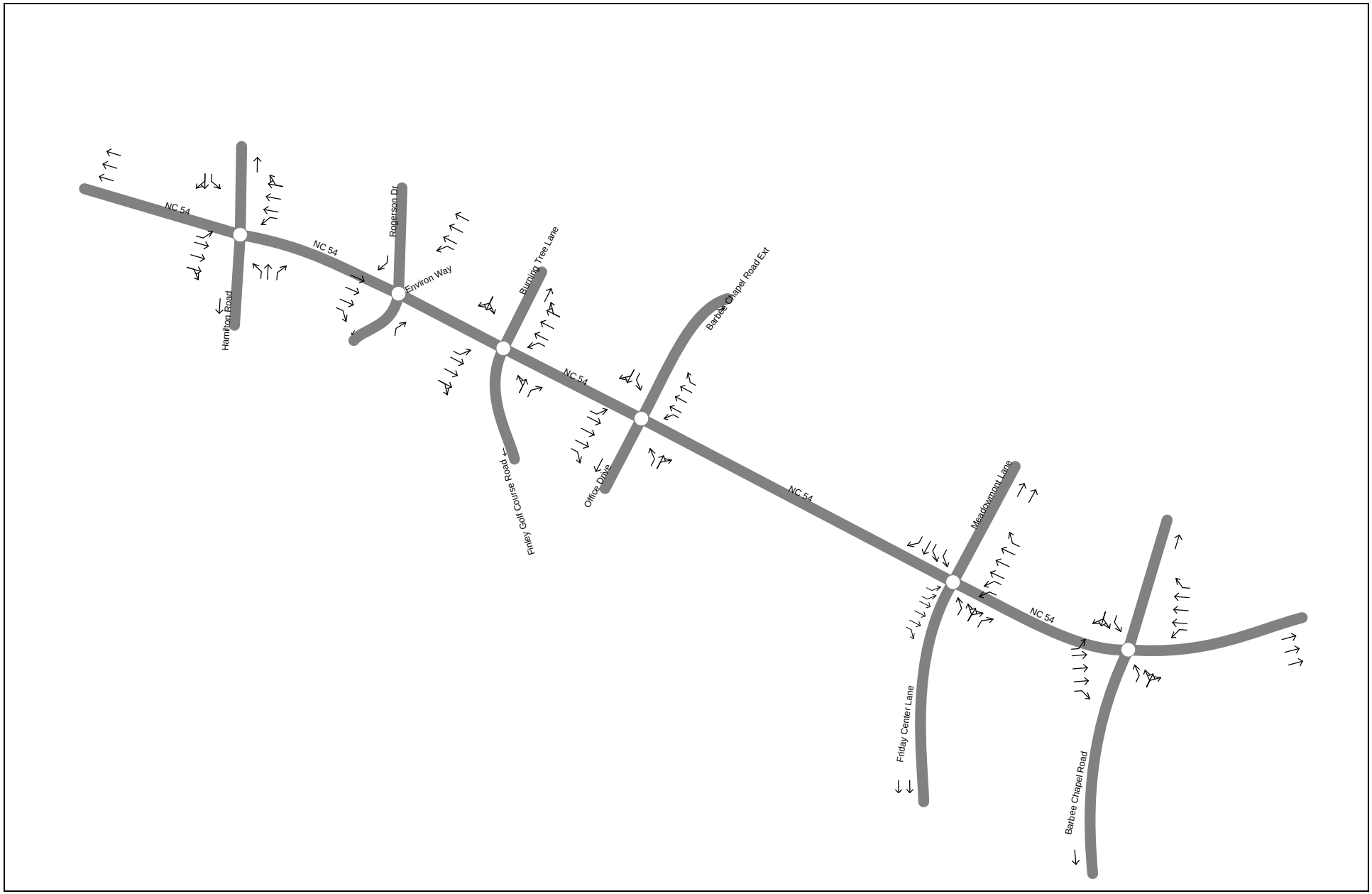


Figure 4-2d
Study Area Intersections and Roadway Graphics

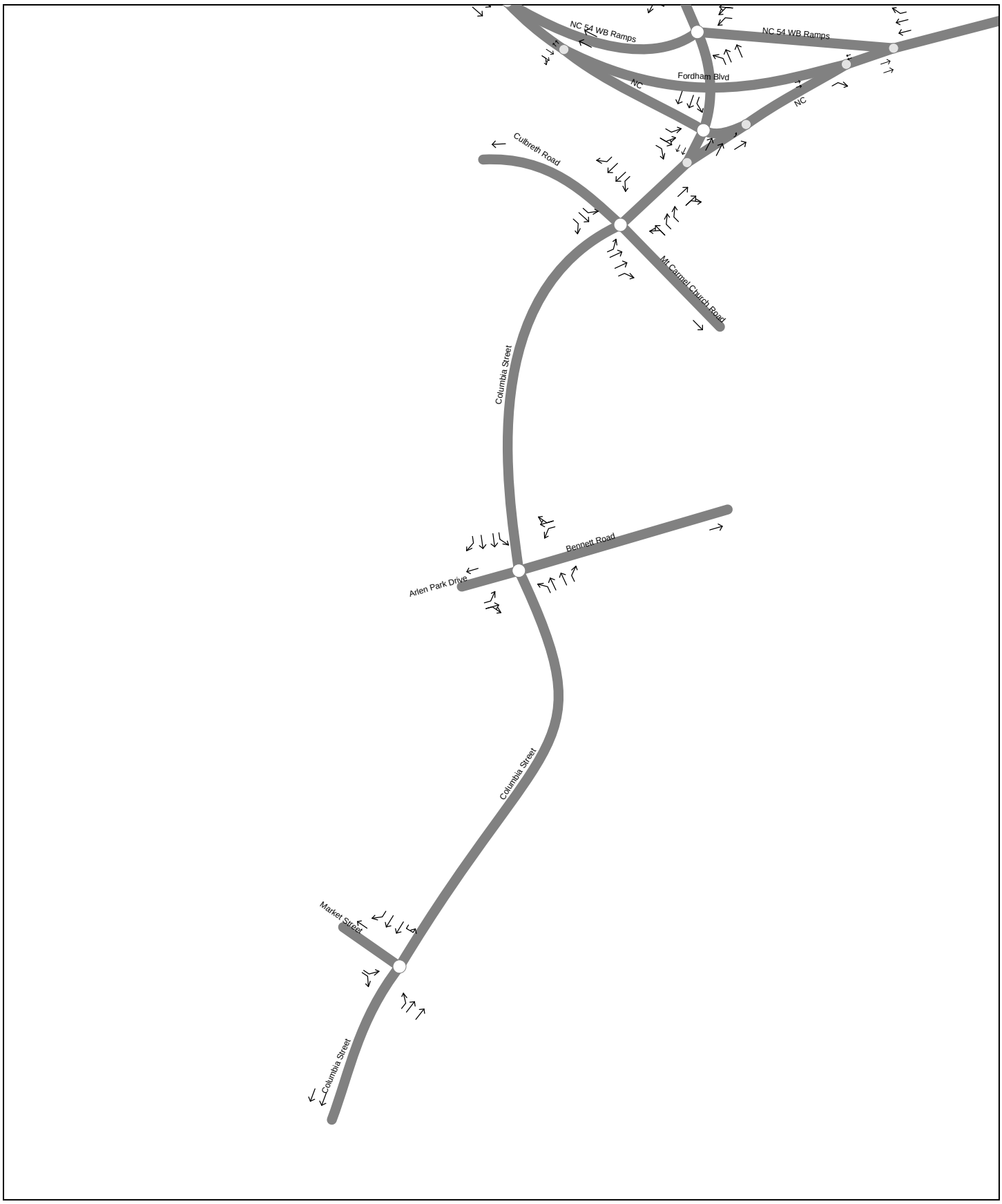


Figure 4-2e
Study Area Intersections and Roadway Graphics

4.2 EXISTING CONDITIONS

4.2.1 Campus Access and Study Area

The study area network of streets and intersections is displayed in Figure 4-1. Roadway and intersection geometric data were collected by field investigations and reviewing traffic signal plans provided by the NCDOT and the Town of Chapel Hill. Figure 4-2 shows the study area and intersection geometrics used in the analysis.

4.2.2 Existing Roads

This section describes the existing streets within the vicinity of Campus. As shown in Figure 4-1, there are several routes into and out of Campus. In addition, there is good interconnectivity of streets within Campus. Regional access to Campus is provided primarily via NC 54 (Raleigh Road from the east and West Franklin Street from the west), US 15-501 (South Columbia Street and Fordham Boulevard from the south and East Franklin Street from the northeast), and NC Route 86 (North Columbia Street/Martin Luther King, Jr. Boulevard from the north).

The major corridors on Campus include South Columbia Street, Raleigh Street, Cameron Avenue (east and west of South Columbia Street), South Road, and Manning Drive. McCauley Street is an essential link from southbound Pittsboro Street to South Road leading east, and from South Road to southbound Pittsboro Street. Similarly, Battle Lane, Boundary Street, and Park Place provide an alternate route to Franklin Street from the east thereby reducing traffic volumes on sections of Raleigh Street.

Country Club Road and Ridge Road are important inter-connecting roads along the eastern edge of Campus. Several other roads including Stadium Drive, West Drive, East Drive and Skipper Bowles Drive are included in the intra-campus circulation network, all providing access to major parking facilities.

Several of these roads also serve as major routes for traffic passing through Campus (including traffic destined for the Central Business District of the Town). South Columbia Street, South Road, and Country Club Road are, by virtue of their location in the regional network, particularly convenient for through traffic.

The majority of the roads are two- and four-lane undivided roads. South Columbia Street is a four-lane roadway north of Cameron Avenue. Between Manning Drive and Cameron Avenue, South Columbia Street is the northbound component of a one-way road pair, which also includes southbound Pittsboro Street. This section of South Columbia Street comprises two to three lanes. Pittsboro Street is a two-lane road along its entire length.

Other multi-lane roadways include Manning Drive (four lanes) and Franklin Street (four lanes). Although South Road serves as a major campus road, it is only a two-lane facility through Campus.

Average Daily Traffic (ADT) counts were collected during the Fall of 2017 for Campus study area roadways. The count stations used were the same as those used in the 2015 TIA Update. Utilizing historical traffic data for the study area, historical growth rate estimates were determined for the study area roadways between the years of 1989 to 2017 (see Table 4-1). The 2017 daily volumes are also shown in Figure 4-3.

UNC Development Plan TIA Update 2017
Daily Traffic Volumes

Table 4-1: Historical Average Daily Traffic Volumes

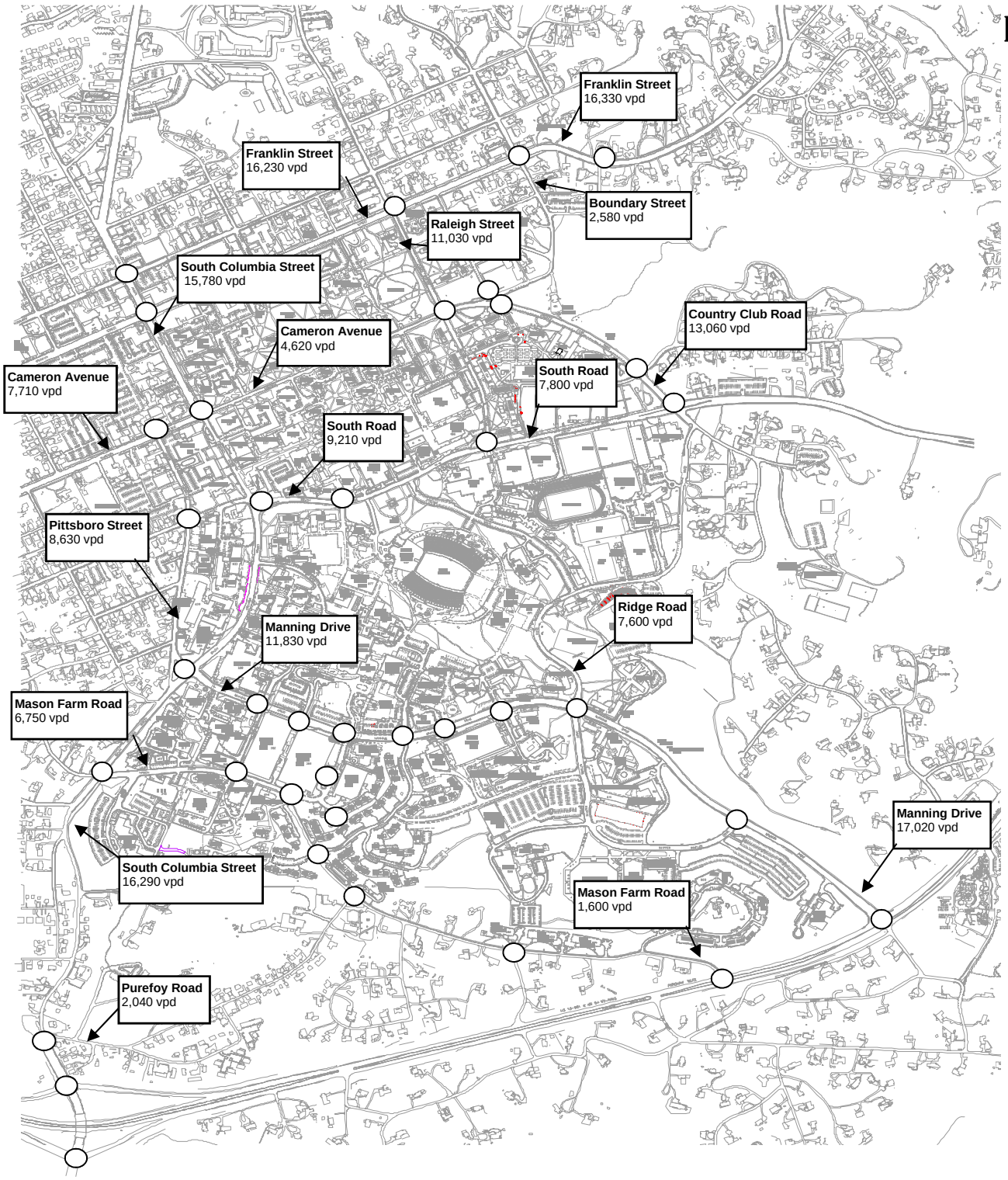
		Average Daily Traffic Volumes (ADT)												
Link #	Roadway	1989	2001	2003	2005	2006	2007	2009	2011	2013	2015	2017	Annual Growth 1989 - 2017	Annual Growth 2001 - 2017
1	S. Columbia St. (south of Franklin St.)	15,300	20,720	19,060	17,530	-	17,530	15,410	14,380	14,660	16,330	15,780	0.1%	-1.5%
2	Raleigh St. (south of Franklin St.)	10,700	14,470	10,710	13,080	13,080	11,020	11,710	9,910	10,510	10,450	11,030	0.1%	-1.5%
3	Cameron Ave. (west of Pittsboro St.)	9,000	9,820	8,300	8,510	-	7,630	9,260	7,220	6,690	7,560	7,710	-0.5%	-1.3%
4	Cameron Ave. (east of S. Columbia St.)	6,100	9,070	8,330	6,430	6,430	5,270	5,540	5,910	4,680	4,880	4,620	-0.9%	-3.1%
5	Country Club Rd. (north of South Rd.)	11,500	13,470	14,080	12,200	12,200	12,990	11,960	11,260	10,730	12,530	13,060	0.5%	-0.2%
6	South Rd. (east of Columbia St.)	11,500	10,460	8,840	11,400	-	8,400	7,430	8,370	8,590	9,650	9,210	-0.7%	-0.7%
7	South Rd. (east of Raleigh St.)	8,300	9,840	10,000	12,890	12,890	7,500	7,510	7,730	7,940	7,740	7,800	-0.2%	-1.3%
8	Pittsboro St. (south of McCauley St.)	8,500	10,960	10,070	10,920	-	9,550	9,750	8,810	8,060	8,490	8,630	0.1%	-1.3%
9	Manning Dr. (east of Columbia St.)	10,900	14,100	13,220	12,480	12,480	11,070	11,060	10,020	10,710	11,300	11,830	0.3%	-1.0%
10	Ridge Rd. (north of Manning Dr.)	7,200	8,320	7,870	7,300	7,300	7,910	8,730	8,110	7,820	7,220	7,590	0.2%	-0.5%
11	S. Columbia St. (south of Mason Farm Rd.)	12,300	18,470	18,250	16,190	-	16,090	15,430	14,760	13,980	15,480	16,290	1.2%	-0.7%
12	Manning Dr. (east of Ridge Rd.)	11,100	17,260	14,680	17,880	17,880	15,680	16,150	14,660	15,730	15,880	17,020	1.9%	-0.1%
13	Franklin St. (west of Raleigh St.)	16,600	17,000	19,260	18,850	-	19,320	16,250	14,370	14,610	14,900	16,230	-0.1%	-0.3%
14	Franklin St. (east of Boundary St.)	22,800	-	23,560	20,190	20,190	24,730	17,390	16,770	16,610	16,620	16,330	-1.0%	N/A
15	Boundary St. (south of Franklin St.)	-	-	3,230	2,320	2,320	2,140	2,230	2,400	2,230	2,010	2,580	N/A	N/A
16	Mason Farm Rd.(east of S. Columbia St.)	5,700	7,700	8,230	3,400	3,400	8,390	7,330	6,910	6,310	6,760	6,750	0.7%	-0.8%
17	Mason Farm Rd. (north of Fordham Blvd.)	-	1,360	770	1,830	-	1,820	1,770	1,730	1,720	1,550	1,600	N/A	1.1%
18	Purefoy Rd. (east of Columbia St.)*	-	970	970	1,130	-	1,360	1,450	2,070	1,710	1,750	2,040	N/A	6.9%
19	US 15-501 (west of Main St.)	-	-	-	-	-	17,840	17,080	16,770	19,990	20,800	22,590	N/A	N/A
20	US 15-501 (east of Culbreth Rd.)	-	30,480	-	30,000	-	30,310	30,570	28,390	31,870	35,430	38,240	N/A	1.6%
21	NC 54 (west of Hamilton Rd.)	-	45,400	-	44,000	-	47,940	43,470	41,230	41,390	48,290	51,100	N/A	0.8%
22	NC 54 (east of East Barbee Chapel Hill Rd.)	-	-	-	-	-	32,100	37,390	36,320	39,970	44,170	46,880	N/A	N/A

NOTES:

1. All volumes are typical weekday (24-hour). Existing volumes (2003) are based on fall 2003 collected counts.

2. All yearly volumes 1990-1999 from NCDOT. For Links 16-18, year 2001 ADT estimated using calculated 2003 peak to daily ratio (K-factor). Year 1989 volumes taken from June 1990 Parking Decks Study for The University of North Carolina at Chapel Hill.

Recounted January 2008



Legend:
2017 Vehicles Per Day (vpd)

Figure 4-3a

Average Daily Traffic Volumes

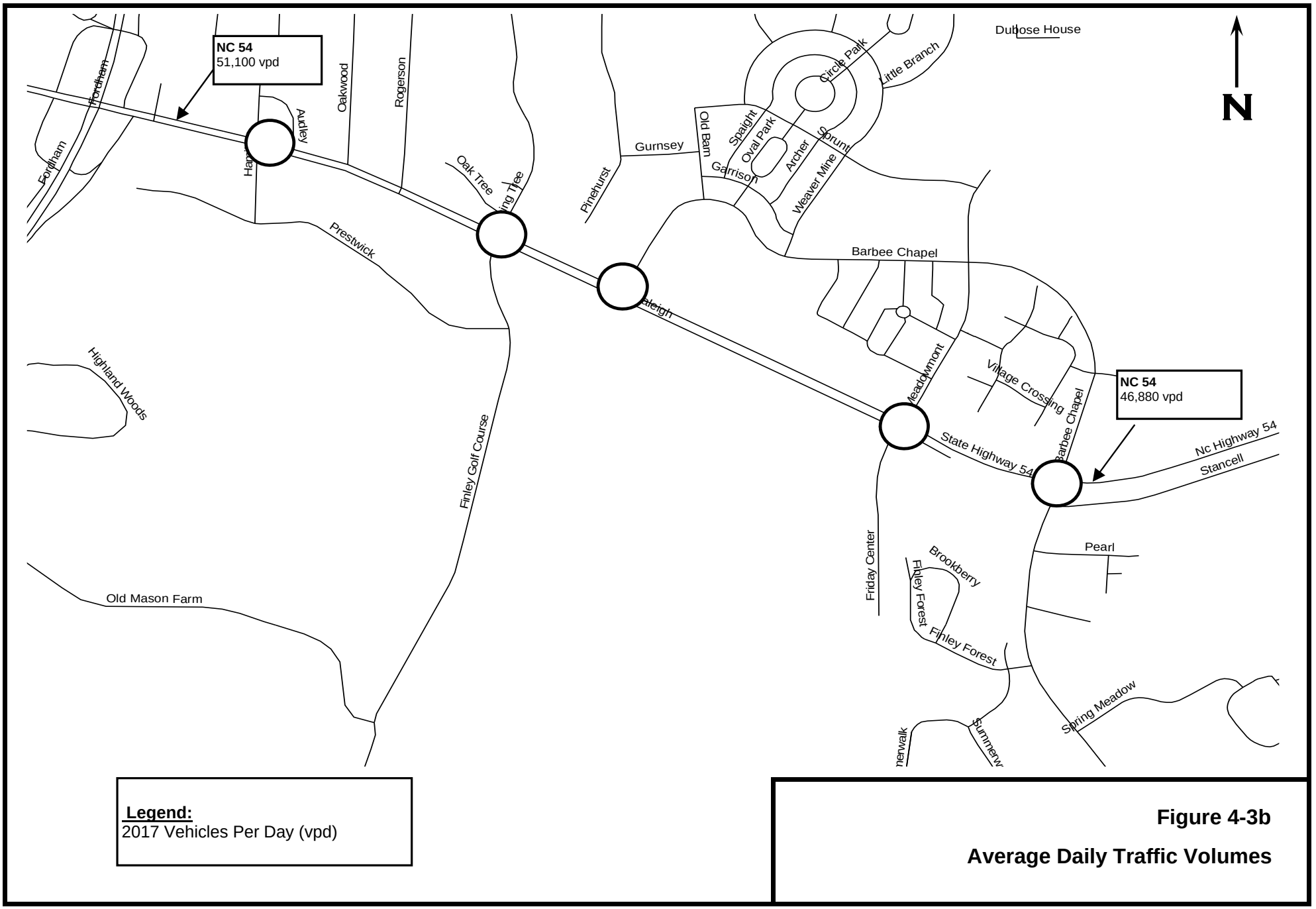
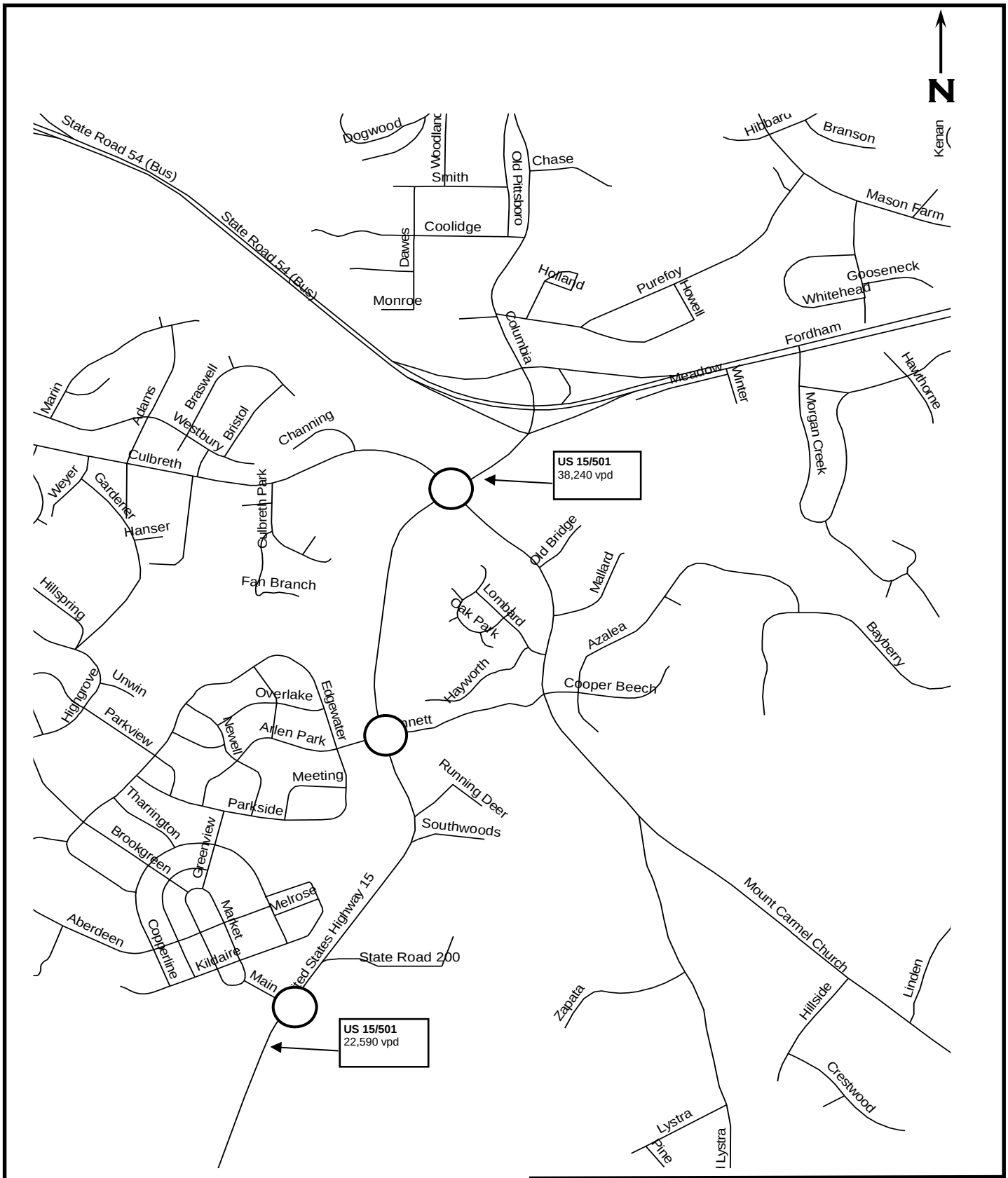


Figure 4-3b

Average Daily Traffic Volumes



Legend:
2017 Vehicles Per Day (vpd)

Figure 4-3c

Average Daily Traffic Volumes

4.3 EXISTING INTERSECTION LEVEL OF SERVICE ANALYSIS

Per the *Transportation Impact Analysis Guidelines*, the following intersections were identified for traffic impact and analyzed for the Existing, No-Build (year 2024 conditions without the development), and Build (with the Development Plan implemented) conditions. Since Modification No. 3, the number of intersections included in these analyses was expanded to the 59 intersections listed below:

1. South Columbia Street & Rosemary Street (signalized)
2. South Columbia Street & Franklin Street (signalized)
3. Franklin Street & Raleigh Street (signalized)
4. Merritt Mill Road & Cameron Avenue (signalized)
5. Cameron Avenue & Pittsboro Street (signalized)
6. Cameron Avenue & South Columbia Street (signalized)
7. Cameron Avenue & Raleigh Street (signalized)
8. Pittsboro Street & McCauley Street (signalized)
9. South Columbia Street & South Road (signalized)
10. Raleigh Street & South Road (signalized)
11. Country Club Road & South Road (signalized)
12. South Columbia Street & Manning Drive (signalized)
13. Manning Drive & West Dive (signalized)
14. Manning Drive & East Drive (signalized)
15. Ridge Road & Manning Drive (signalized)
16. Mason Farm Road & South Columbia Street (signalized)
17. Mason Farm Road & West Drive (signalized)
18. Mason Farm Road & New East Drive (signalized)
19. Mason Farm Road & Purefoy Road (unsignalized)
20. Manning Drive & Skipper Bowles Drive (unsignalized)
21. South Columbia Street & Purefoy Road (unsignalized)
22. South Columbia Street & Fordham Boulevard WB Ramps (signalized)
23. South Columbia Street & Fordham Boulevard EB Ramps (signalized)
24. Mason Farm Road & Fordham Boulevard (unsignalized)
25. Manning Drive & Fordham Boulevard (signalized)
26. Mason Farm Road & Oteys Road (unsignalized)
27. Franklin Street & Boundary Street (signalized)
28. Franklin Street & Park Place (unsignalized)
29. Boundary Street & Battle Lane (unsignalized)
30. Country Club Road & Battle Lane (unsignalized)
31. Paul Green Theater Drive & Country Club Road (signalized)
32. Manning Drive & Hibbard Drive (signalized)
33. Manning Drive & Craig Drive (signalized)
34. Dogwood Deck Entrance & New East Drive (unsignalized)
35. Dogwood Deck Exit & New East Drive (unsignalized)
36. Hibbard Drive & Mason Farm Road (unsignalized)
37. South Road & Bell Tower Drive (signalized)
38. Manning Drive & Old East Drive (signalized)
39. Manning Drive & Craige Deck (unsignalized)
101. US 15-501 & Estes Drive (signalized)
102. US 15-501 & Willow Drive (signalized)
103. US 15-501 & Elliott Road (signalized)
104. US 15-501 & Eastgate/Ephesus Church Road (signalized)

105. US 15-501 & Erwin Road (signalized)
106. US 15-501 & Europa Drive (signalized)
107. US 15-501 & Northbound U-turn (signalized)
108. US 15-501 & Southbound U-turn (signalized)
109. US 15-501 & Sage Road (signalized)
110. US 15-501 & Eastowne Drive/BCBS (signalized)
111. US 15-501 & Eastowne Drive/Lakeview Drive (signalized)
201. Raleigh Road (NC 54) & Hamilton Street (signalized)
202. Raleigh Road (NC 54) & Burning Tree Lane (signalized)
203. Raleigh Road (NC 54) & West Barbee Chapel Road (signalized)
204. Raleigh Road (NC 54) & Meadowmont Lane (signalized)
205. Raleigh Road (NC 54) & East Barbee Chapel Road (signalized)
301. US 15-501 & Culbreth Road (signalized)
302. US 15-501 & Bennett Road (signalized)
303. US 15-501 & Main Street (Southern Village) (signalized)
307. Country Club Road & Boundary Street (unsignalized)

Existing roadway geometry for all of the above intersections can be found in Figure 4-2.

4.3.1 Count Data

For the analyses included in this update, peak hour turning movement volume counts were collected for Campus study area intersections during the Fall of 2017 on typical weekdays (Tuesday, Wednesday, Thursday) while the University was in session. A summary of the schedule used to obtain the turning movement data is provided in Table 4-2. The AM and PM peak hour turning movement volumes are summarized in Table 4-3 and displayed in Figure 4-4 and Figure 4-5, respectively.

Table 4-2: Weekday Peak Period Turning Movement Schedule

ID #	Intersection	Day of Week	Date
1	Columbia Street/Rosemary Street	Tuesday	10/3/17
2	Columbia Street/Franklin Street	Tuesday	10/3/17
3	Franklin Street/Raleigh Street	Tuesday	10/3/17
4	Merritt Mill Road/Cameron Avenue	Tuesday	10/3/17
5	Cameron Avenue/Pittsboro Street	Thursday	10/5/17
6	Cameron Avenue/Columbia Street	Wednesday	10/4/17
7	Cameron Avenue/Raleigh Street	Wednesday	10/4/17
8	Pittsboro Street/McCauley Street	Wednesday	10/4/17
9	Columbia Street/South Road	Wednesday	10/4/17
10	Raleigh Street/South Road	Wednesday	10/4/17
11	Country Club Road/South Road	Wednesday	10/4/17
12	Columbia Street/Manning Drive	Thursday	10/5/17
13	Manning Drive/West Drive	Thursday	10/5/17
14	Manning Drive/East Drive	Thursday	10/5/17
15	Ridge Road/Manning Drive	Thursday	10/5/17
16	Mason Farm Road/Columbia Street	Tuesday	10/3/17
17	Mason Farm Road/West Drive	Tuesday	10/3/17
18	Mason Farm Road/East Drive	Tuesday	10/3/17
19	Mason Farm Road/Purefoy Road	Tuesday	10/10/17
20	Manning Drive/Skipper Bowles Drive	Tuesday	10/10/17
21	Columbia Street/Purefoy Road	Wednesday	9/27/17
22	Columbia Street/Fordham Boulevard WB Ramps	Wednesday	9/27/17
23	Columbia Street/Fordham Boulevard EB Ramps	Wednesday	9/27/17
24	Mason Farm Road/Fordham Boulevard	Wednesday	9/27/17
25	Manning Drive/Fordham Boulevard	Thursday	9/28/17
26	Mason Farm Road/Oteys Road	Thursday	10/5/17
27	Franklin Street/Boundary Street	Wednesday	10/4/17
28	Franklin Street/Park Place	Wednesday	10/4/17
29	Battle Lane/Boundary Street	Thursday	10/5/17
30	Country Club Road/Battle Lane	Thursday	10/5/17
31	Country Club Road/Gimghoul Road	Wednesday	10/4/17
32	Manning Drive/Hibbard Drive	Tuesday	10/3/17
33	Manning Drive/Craige Drive	Tuesday	10/3/17
34	East Drive/Jackson Circle/Dogwood Deck Entrance	Tuesday	10/3/17
35	East Drive/Dogwood Deck Exit	Tuesday	10/3/17
36	Mason Farm Road/Hibbard Drive	Tuesday	10/3/17
37	South Road/Bell Tower Drive	Wednesday	10/4/17
38	Manning Drive/New East Drive	Thursday	10/5/17
39	Manning Drive/Craige Deck	Thursday	10/5/17
101	US 15-501/Estes Drive	Wednesday	10/4/17
102	US 15-501/Willow Drive	Tuesday	10/10/17
103	US 15-501/Elliot Road	Tuesday	10/10/17
104	US 15-501/Ephesus Church Road	Wednesday	10/4/17
105	US 15-501/Erwin Road	Thursday	10/5/17
106	US 15-501/Europa Drive	Thursday	10/5/17
107	US 15-501/Superstreet NB U-Turn	Thursday	10/5/17
108	US 15-501/Superstreet SB U-Turn	Thursday	10/5/17
109	US 15-501/Sage Road	Wednesday	10/4/17
110	US 15-501/Eastowne Drive/BCBS	Tuesday	10/10/17
111	US 15-501/Eastowne Drive/Lakeview Drive	Tuesday	10/10/17
201	NC 54/Hamilton Road	Tuesday	10/3/17
202	NC 54/Burning Tree Lane	Tuesday	10/3/17
203	NC 54/Barbee Chapel Road Ext	Thursday	9/28/17
204	NC 54/Meadowmont Lane	Tuesday	9/19/17
205	NC 54/Barbee Chapel Road (East)	Thursday	9/28/17
206	NC 54/US 15-501 NB Ramps	Tuesday	10/3/17
207	NC 54/US 15-501 SB Ramps	Tuesday	10/3/17
208	NC 54/Shopping Center/Rogerson Drive	Tuesday	10/3/17
301	US 15-501/Culbreth Road/Mt Carmel Church Road	Tuesday	9/26/17
302	US 15-501/Bennett Road/Arlen Park Drive	Tuesday	9/26/17
303	US 15-501/Market Street	Tuesday	9/26/17

Table 4-3: Year 2017 Turning Movement Volumes

AM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	118	173	22	11	116	57	33	325	33	0	114	546	152
2	Columbia Street/Franklin Street	61	286	47	86	316	71	36	278	81	0	46	506	42
3	Franklin Street/Raleigh Street	10	274	120	51	443	76	106	153	29	0	48	269	17
4	Merritt Mill Road/Cameron Avenue	0	0	0	62	0	32	0	169	439	0	116	92	0
5	Cameron Avenue/Pittsboro Street	0	118	172	615	131	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	16	91	0	0	113	38	82	339	43	0	70	0	527
7	Cameron Avenue/Raleigh Street	18	86	26	26	174	198	23	46	14	0	318	153	52
8	Pittsboro Street/McCauley Street	0	109	31	141	36	0	0	0	0	0	157	557	9
9	Columbia Street/South Road	15	224	0	0	145	93	53	359	210	0	0	0	0
10	Raleigh Street/South Road	44	200	0	0	323	34	0	0	0	0	36	0	121
11	Country Club Road/South Road	5	153	46	496	392	510	28	35	74	0	294	169	17
12	Columbia Street/Manning Drive	65	400	0	59	0	175	0	394	345	0	0	0	0
13	Manning Drive/West Drive	68	390	311	210	225	37	0	0	0	0	17	6	16
14	Manning Drive/East Drive	82	339	120	253	326	92	91	30	270	0	0	0	0
15	Ridge Road/Manning Drive	120	333	71	11	634	50	22	39	6	0	42	113	352
16	Mason Farm Road/Columbia Street	7	6	1	142	0	70	6	633	240	0	115	203	5
17	Mason Farm Road/West Drive	0	252	23	10	226	0	0	0	0	0	32	7	30
18	Mason Farm Road/East Drive	58	203	64	14	129	6	57	18	164	0	0	0	0
19	Mason Farm Road/Purefoy Road	196	0	13	0	0	0	13	77	0	0	0	16	15
20	Manning Drive/Skipper Bowles Drive	0	339	23	273	611	0	1	0	42	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	24	0	4	0	967	353	0	13	392	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	515	0	63	243	1252	0	0	0	281	133
23	Columbia Street/Fordham Boulevard (southern ramp)	438	2	394	0	0	0	0	1040	0	0	56	763	0
24	Mason Farm Road/Fordham Boulevard	0	2251	0	0	1140	102	0	0	0	0	0	0	36
25	Manning Drive/Fordham Boulevard	212	2192	4	7	1174	784	18	7	27	0	225	3	32
26	Mason Farm Road/Oteys Road	1	25	11	5	67	1	14	0	0	0	1	0	1
27	Franklin Street/Boundary Street	6	314	8	55	538	70	5	25	26	0	74	18	6
28	Franklin Street/Park Place	0	408	1	65	676	0	0	0	13	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	78	47	2	0	122	73	0	0	45	59
30	Country Club Road/Battle Lane	4	319	0	0	370	118	0	0	0	0	123	0	0
307	Country Club Road & Boundary Street	0	323	0	0	370	0	0	0	0	0	0	0	106
31	Country Club Road/Gimghoul Road	5	1	17	11	1	6	85	520	12	0	5	433	28
32	Manning Drive/Hibbard Drive	45	534	16	10	597	38	17	10	51	0	26	4	39
33	Manning Drive/Craige Drive	41	435	20	157	789	36	4	4	14	0	17	3	9
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	0	0	3	19	381	2	0	78	102	210
35	East Drive/Dogwood Deck Exit	208	0	118	0	0	0	0	198	0	0	0	54	0
36	Mason Farm Road/Hibbard Drive	4	2	1	5	5	18	7	240	178	0	41	38	12
37	South Road/Bell Tower Drive	0	249	150	141	220	0	28	0	53	0	0	0	0
38	Manning Drive/Old East Drive	0	410	0	0	417	0	0	0	0	0	136	0	76
39	Manning Drive/Craige Deck	0	524	127	172	656	0	7	0	13	0	0	0	0
101	US 15-501/Estes Drive	66	2	258	1	9	14	353	1367	4	0	8	1245	68
102	US 15-501/Willow Drive	113	27	7	55	57	18	62	1374	11	0	16	1287	269
103	US 15-501/Elliot Road	37	0	107	0	0	0	118	1378	0	5	0	1476	116
104	US 15-501/Ephesus Church Road	26	29	30	222	90	79	52	1161	210	0	61	1231	7
105	US 15-501/Erwin Road	0	0	0	0	1890	277	0	0	0	0	0	0	436
106	US 15-501/Europa Drive	0	1872	131	0	0	0	0	0	163	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	0	0	0	0	1858	0	257	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	1948	0	0	0	0	0	0	0	0	65	16	0
109	US 15-501/Sage Road	308	1429	138	159	1624	152	145	99	20	0	277	145	131
110	US 15-501/Eastowne Drive/BCBS	78	1519	8	28	1913	64	1	6	24	0	47	3	43
111	US 15-501/Eastowne Drive/Lakeview Drive	13	1533	3	63	1985	304	12	29	134	0	82	7	2
201	NC 54/Hamilton Street	25	1662	143	76	2092	28	125	40	117	0	68	47	26
202	NC 54/Burning Tree Lane	29	1679	49	150	2206	21	36	3	139	0	41	12	45
203	NC 54/Barbee Chapel Road Ext	152	1689	91	82	2224	31	14	1	2	0	7	4	103
204	NC 54/Meadowmont Lane	174	1403	111	412	2255	118	66	3	43	0	65	18	131
205	NC 54/Barbee Chapel Road (East)	11	1329	173	21	2099	183	560	93	69	0	122	36	22
301	US 15-501/Culbreth Road/Mt Carmel Church Road	220	86	66	10	126	535	58	1306	3	0	281	754	128
302	US 15-501/Bennett Road/Arlen Park Drive	102	21	9	104	14	23	6	1234	86	0	30	709	91
303	US 15-501/Market Street	251	0	40	0	0	0	164	1092	0	23	0	456	321

PM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	188	254	62	34	195	65	40	610	66	0	73	475	236
2	Columbia Street/Franklin Street	111	375	84	120	450	88	82	535	125	0	77	418	95
3	Franklin Street/Raleigh Street	42	439	215	47	542	170	111	304	25	0	94	317	19
4	Merritt Mill Road/Cameron Avenue	0	0	0	366	0	122	0	108	182	0	68	287	0
5	Cameron Avenue/Pittsboro Street	0	129	126	465	407	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	26	94	0	0	153	45	231	641	48	0	92	0	466
7	Cameron Avenue/Raleigh Street	35	164	49	24	149	274	66	118	57	0	332	172	75
8	Pittsboro Street/McCauley Street	0	92	18	200	219	0	0	0	0	0	227	428	36
9	Columbia Street/South Road	67	246	0	0	276	216	125	612	171	0	0	0	0
10	Raleigh Street/South Road	108	381	0	0	251	55	0	0	0	0	74	0	147
11	Country Club Road/South Road	40	399	30	182	264	465	29	158	383	0	520	73	23
12	Columbia Street/Manning Drive	59	193	0	213	0	477	0	421	56	0	0	0	0
13	Manning Drive/West Drive	25	202	26	29	629	17	0	0	0	0	9	5	28
14	Manning Drive/East Drive	32	227	43	73	432	52	168	25	461	0	0	0	0
15	Ridge Road/Manning Drive	218	752	69	19	209	77	101	161	56	0	68	76	113
16	Mason Farm Road/Columbia Street	1	2	2	391	0	117	7	338	88	0	55	530	6
17	Mason Farm Road/West Drive	0	132	16	7	421	0	0	0	0	0	20	3	34
18	Mason Farm Road/East Drive	26	252	150	107	203	3	32	0	27	0	0	0	0
19	Mason Farm Road/Purefoy Road	15	0	22	0	0	0	13	38	0	0	0	259	58
20	Manning Drive/Skipper Bowles Drive	0	773	11	84	237	0	18	0	243	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	101	0	23	0	421	28	0	9	952	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	1190	0	45	309	407	0	0	0	741	287
23	Columbia Street/Fordham Boulevard (southern ramp)	136	2	306	0	0	0	0	557	0	0	87	1788	0
24	Mason Farm Road/Fordham Boulevard	0	1495	0	0	2166	37	0	0	0	0	0	0	231
25	Manning Drive/Fordham Boulevard	63	1483	4	9	1943	201	10	2	20	0	878	6	276
26	Mason Farm Road/Oteys Road	4	115	183	3	39	2	4	1	0	0	3	2	3
27	Franklin Street/Boundary Street	7	606	4	22	582	67	13	63	122	0	108	23	8
28	Franklin Street/Park Place	0	829	2	24	677	0	1	0	60	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	50	37	3	0	157	236	0	2	79	81
30	Country Club Road/Battle Lane	15	412	0	0	406	142	0	0	0	0	129	0	0
307	Country Club Road & Boundary Street	0	427	0	0	406	0	0	0	0	0	0	0	118
31	Country Club Road/Gimghoul Road	41	0	87	11	0	11	17	625	12	0	9	528	8
32	Manning Drive/Hibbard Drive	35	660	8	30	460	20	24	4	22	0	44	18	65
33	Manning Drive/Craige Drive	28	898	4	19	349	25	31	1	174	0	35	0	15
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	2	0	20	3	655	0	0	1	48	72
35	East Drive/Dogwood Deck Exit	247	0	136	0	0	0	0	274	0	0	0	50	0
36	Mason Farm Road/Hibbard Drive	4	3	6	158	0	11	0	49	19	0	7	262	1
37	South Road/Bell Tower Drive	0	341	35	38	331	0	161	0	147	0	0	0	0
38	Manning Drive/Old East Drive	0	212	0	0	594	0	0	0	0	0	86	0	93
39	Manning Drive/Craige Deck	0	697	5	5	445	0	96	0	187	0	0	0	0
101	US 15-501/Estes Drive	95	10	296	7	15	12	454	1491	3	0	15	1341	104
102	US 15-501/Willow Drive	274	112	21	27	34	23	34	1561	38	0	39	1313	223
103	US 15-501/Elliot Road	135	0	259	0	0	0	211	1627	0	7	0	1296	186
104	US 15-501/Ephesus Church Road	90	88	68	325	128	55	147	1139	292	0	87	1125	12
105	US 15-501/Erwin Road	0	0	0	0	1793	377	0	0	0	0	0	0	404
106	US 15-501/Europa Drive	0	2486	84	0	0	0	0	0	218	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	0	0	0	0	1811	0	369	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	2460	0	0	0	0	0	0	0	0	57	37	0
109	US 15-501/Sage Road	329	1691	198	50	1495	249	128	87	25	0	233	156	161
110	US 15-501/Eastowne Drive/BCBS	43	1938	5	31	1725	58	10	7	46	0	72	1	67
111	US 15-501/Eastowne Drive/Lakeview Drive	2	2022	4	70	1836	177	20	16	115	0	243	29	19
201	NC 54/Hamilton Street	37	2006	42	107	2013	58	107	22	125	0	74	19	40
202	NC 54/Burning Tree Lane	70	2110	36	146	2032	32	69	15	144	0	26	11	47
203	NC 54/Barbee Chapel Road Ext	139	2062	42	9	1830	13	82	15	60	0	15	0	190
204	NC 54/Meadowmont Lane	125	2013	89	102	1660	98	113	24	426	0	161	11	176
205	NC 54/Barbee Chapel Road (East)	9	1840	713	110	1515	182	224	55	45	0	123	88	16
301	US 15-501/Culbreth Road/Mt Carmel Church Road	120	62	66	13	82	311	56	812	17	0	576	1289	179
302	US 15-501/Bennett Road/Arlen Park Drive	113	14	6	75	22	1	5	782	107	0	23	1246	113
303	US 15-501/Market Street	325	0	117	0	0	0	117	563	0	8	0	1110	231

Figure 4-4a
Year 2017 A.M. Peak Hour Turning Movement Volumes

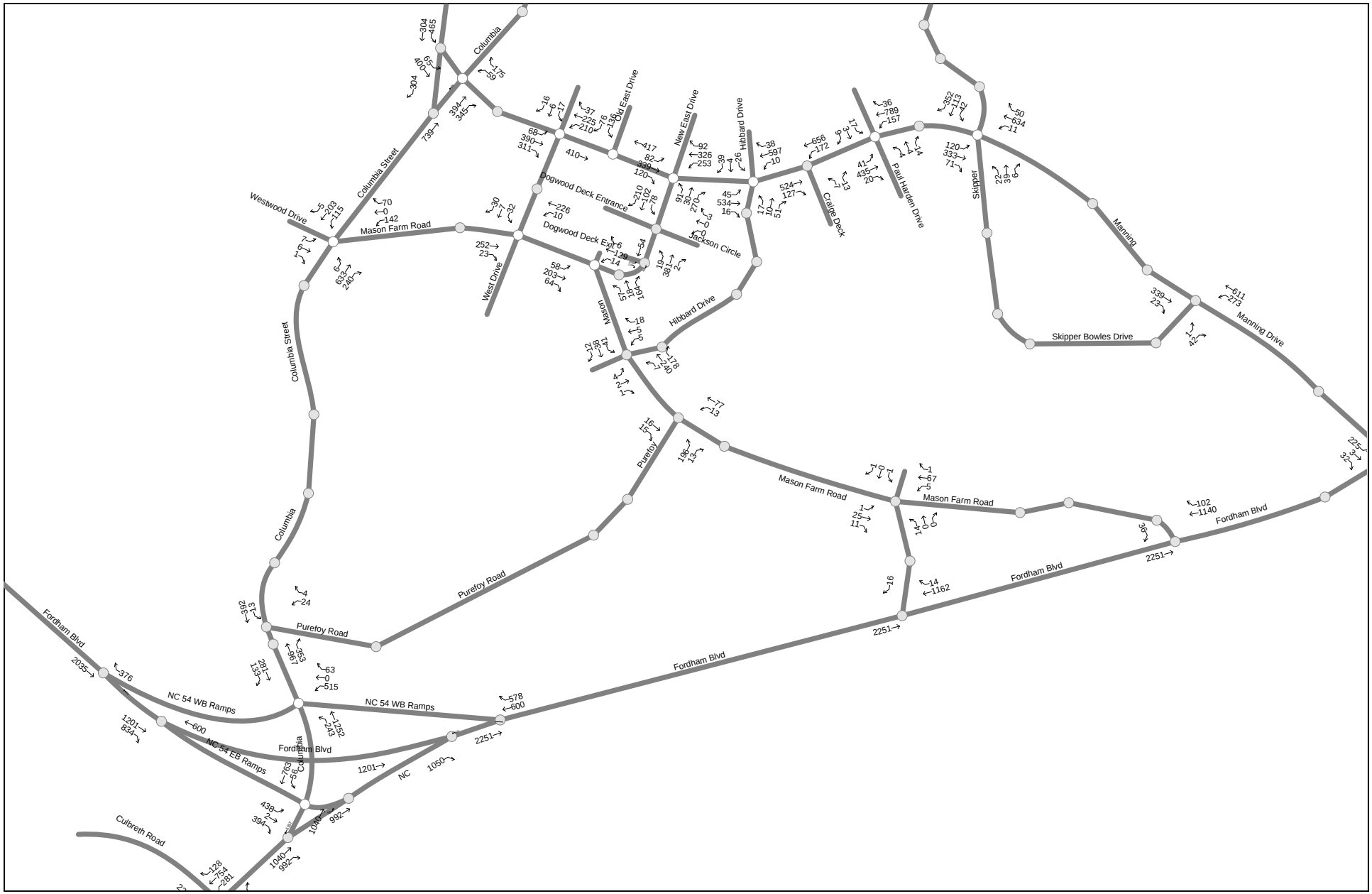


Figure 4-4b
Year 2017 A.M. Peak Hour Turning Movement Volumes

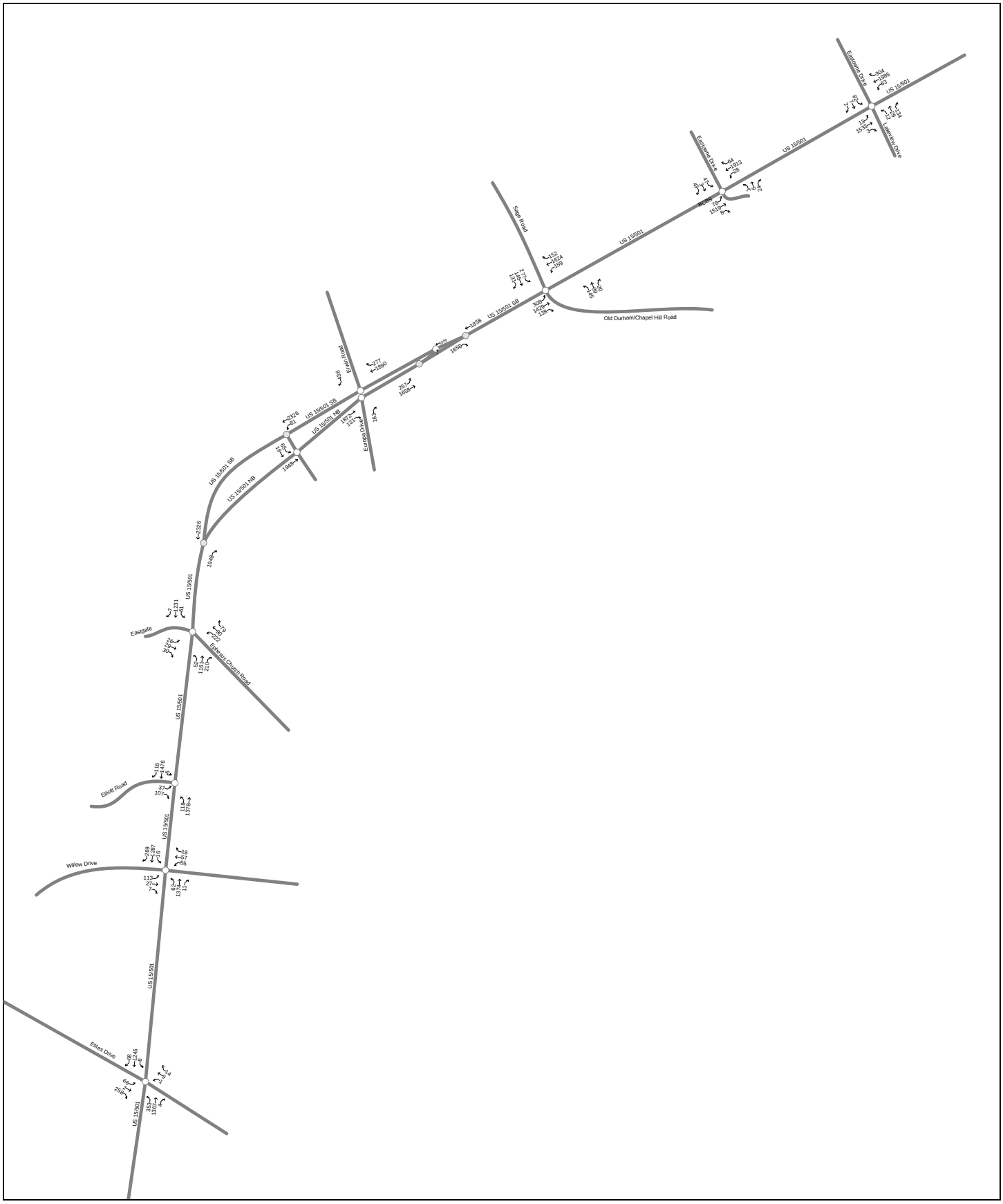


Figure 4-4c
Year 2017 A.M. Peak Hour Turning Movement Volumes

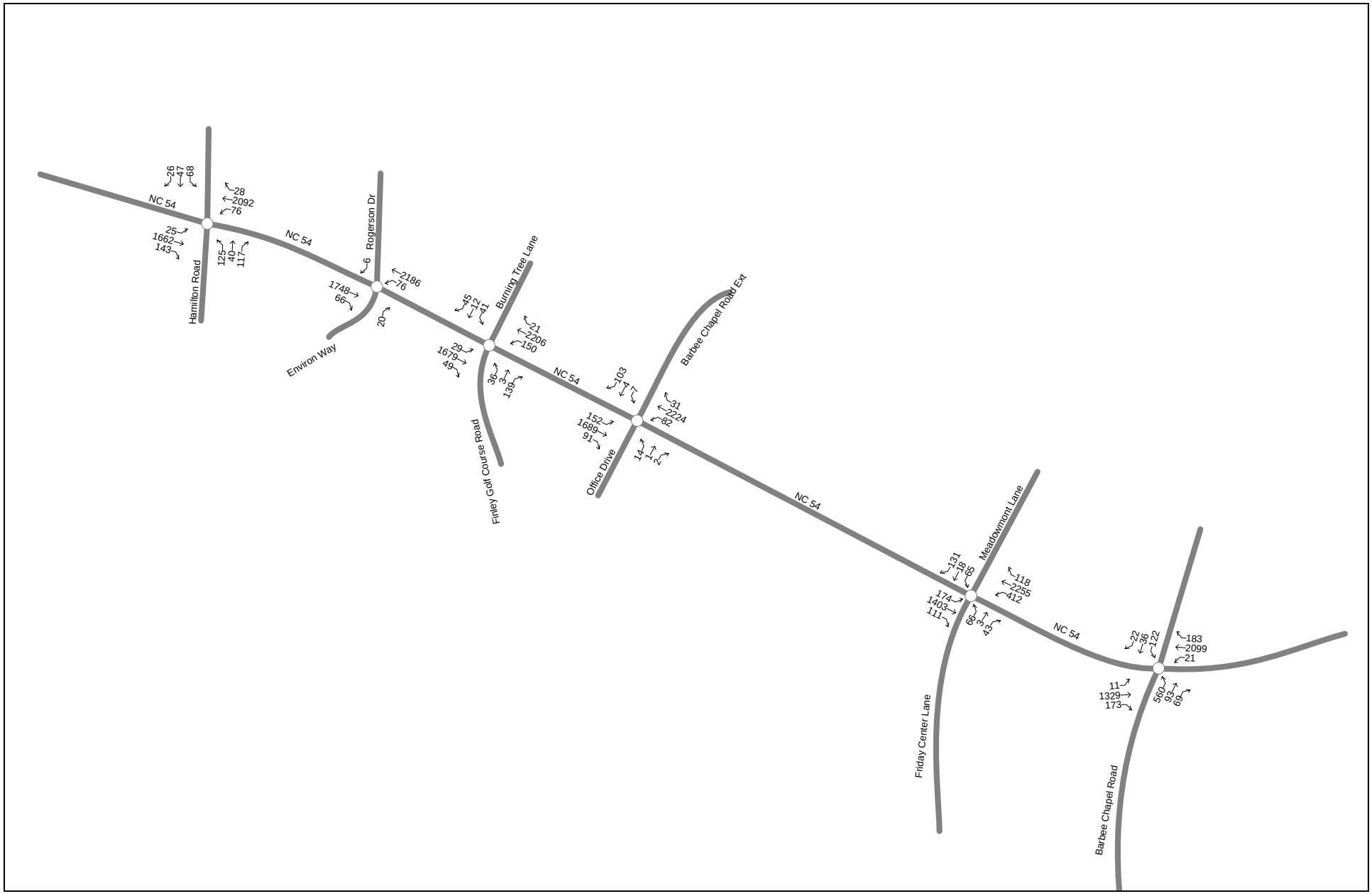


Figure 4-4d
Year 2017 A.M. Peak Hour Turning Movement Volumes

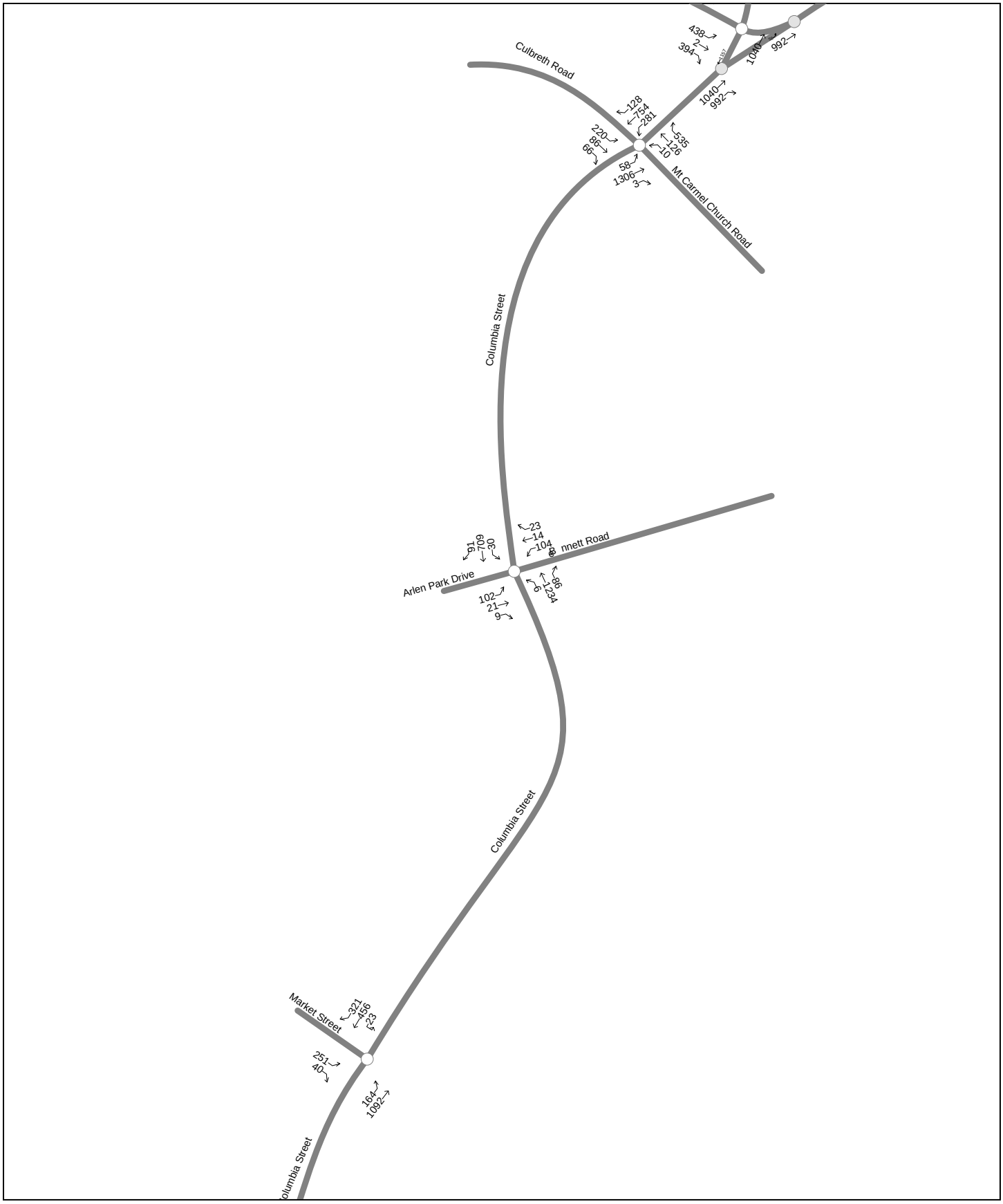


Figure 4-4e
Year 2017 A.M. Peak Hour Turning Movement Volumes

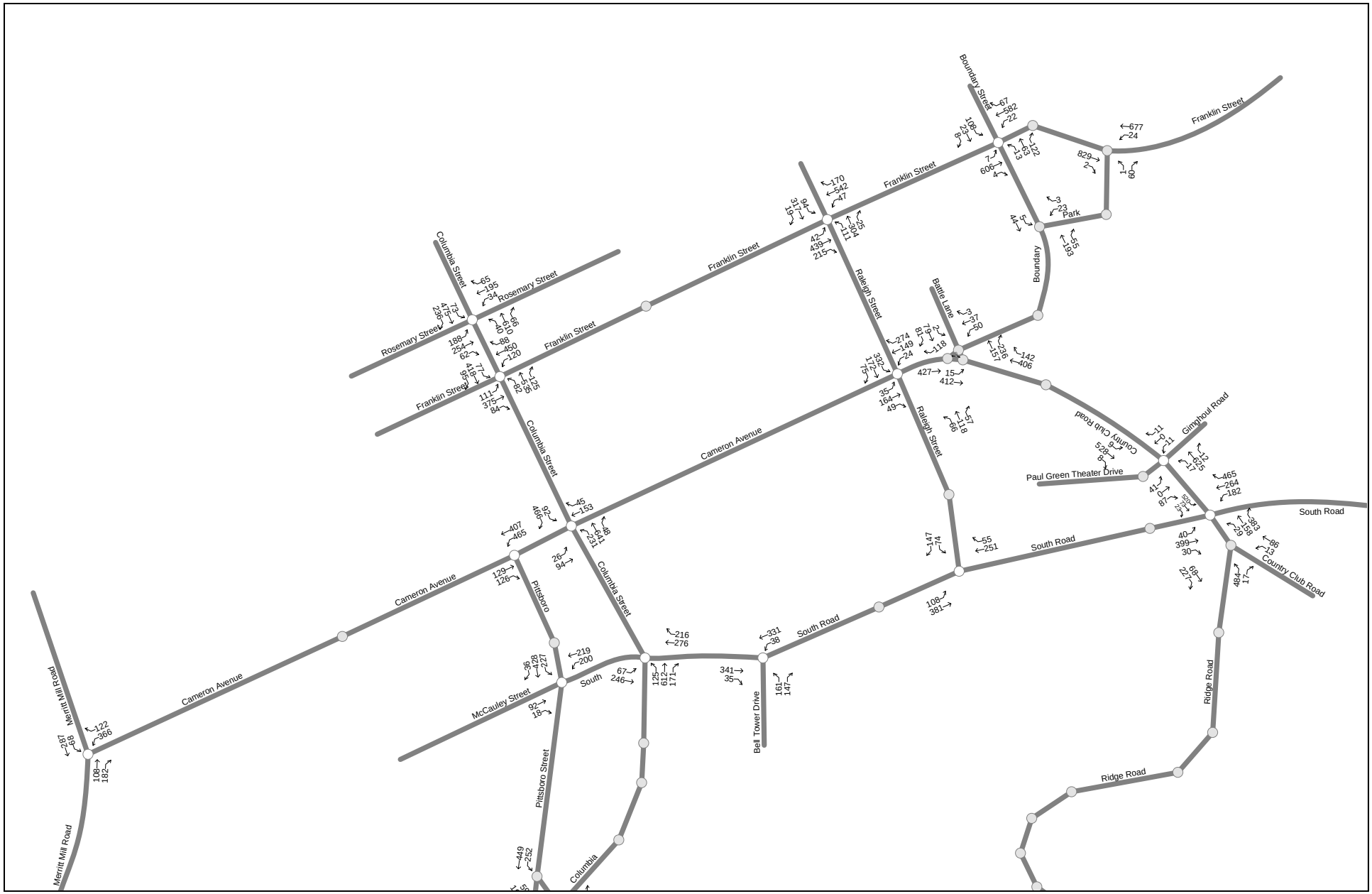


Figure 4-5a
Year 2017 P.M. Peak Hour Turning Movement Volumes

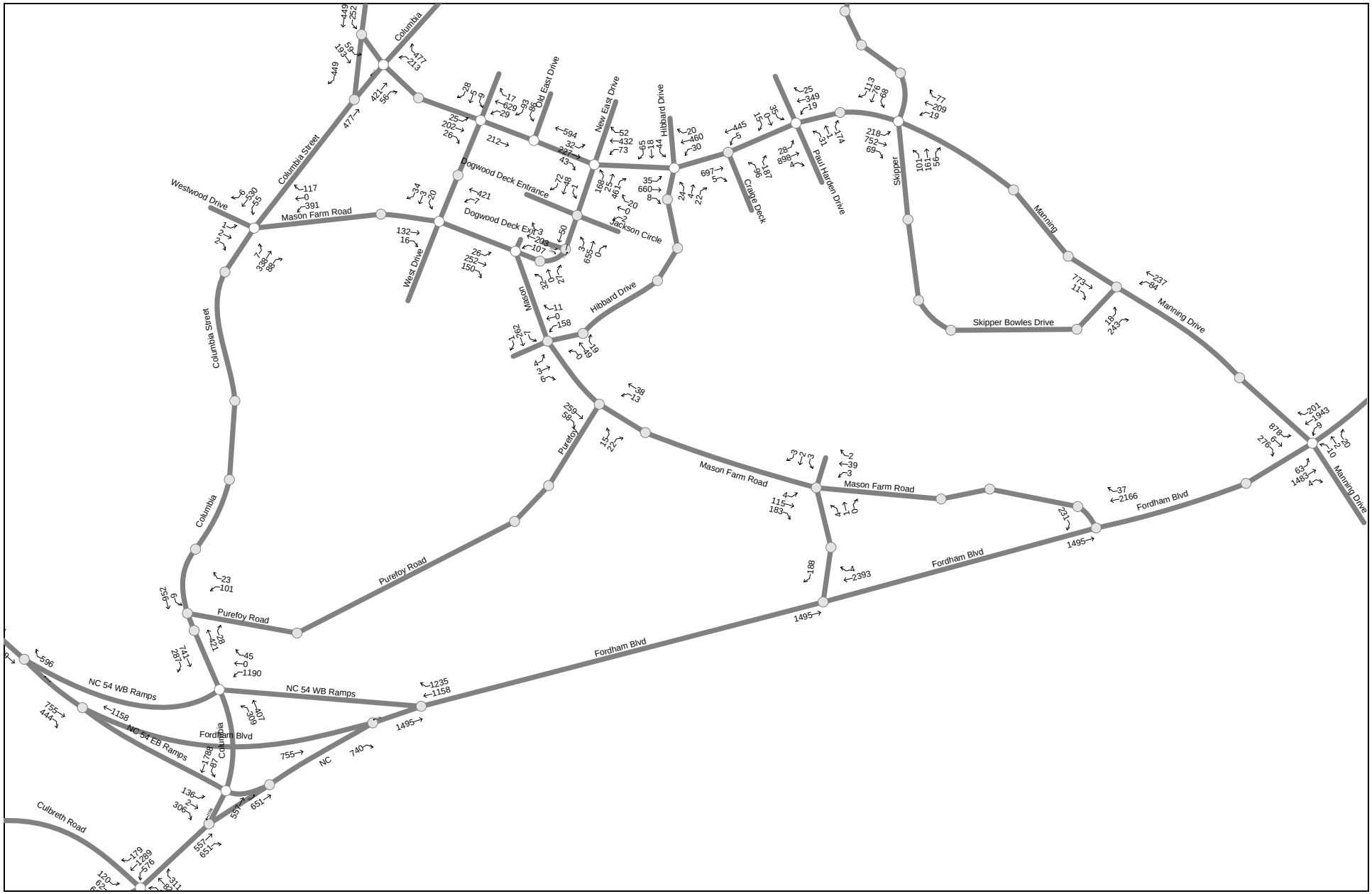


Figure 4-5b
Year 2017 P.M. Peak Hour Turning Movement Volumes

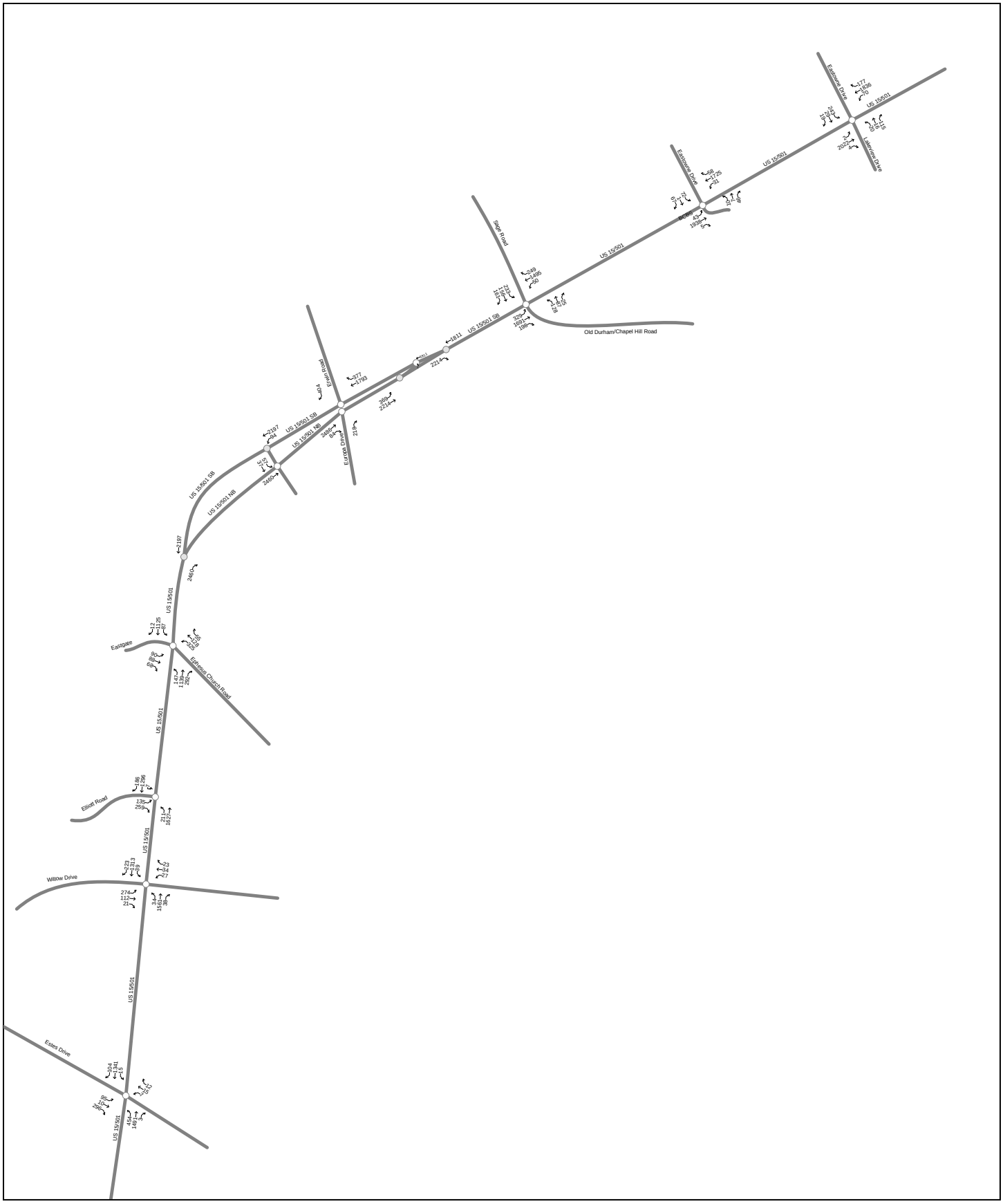


Figure 4-5c
Year 2017 P.M. Peak Hour Turning Movement Volumes

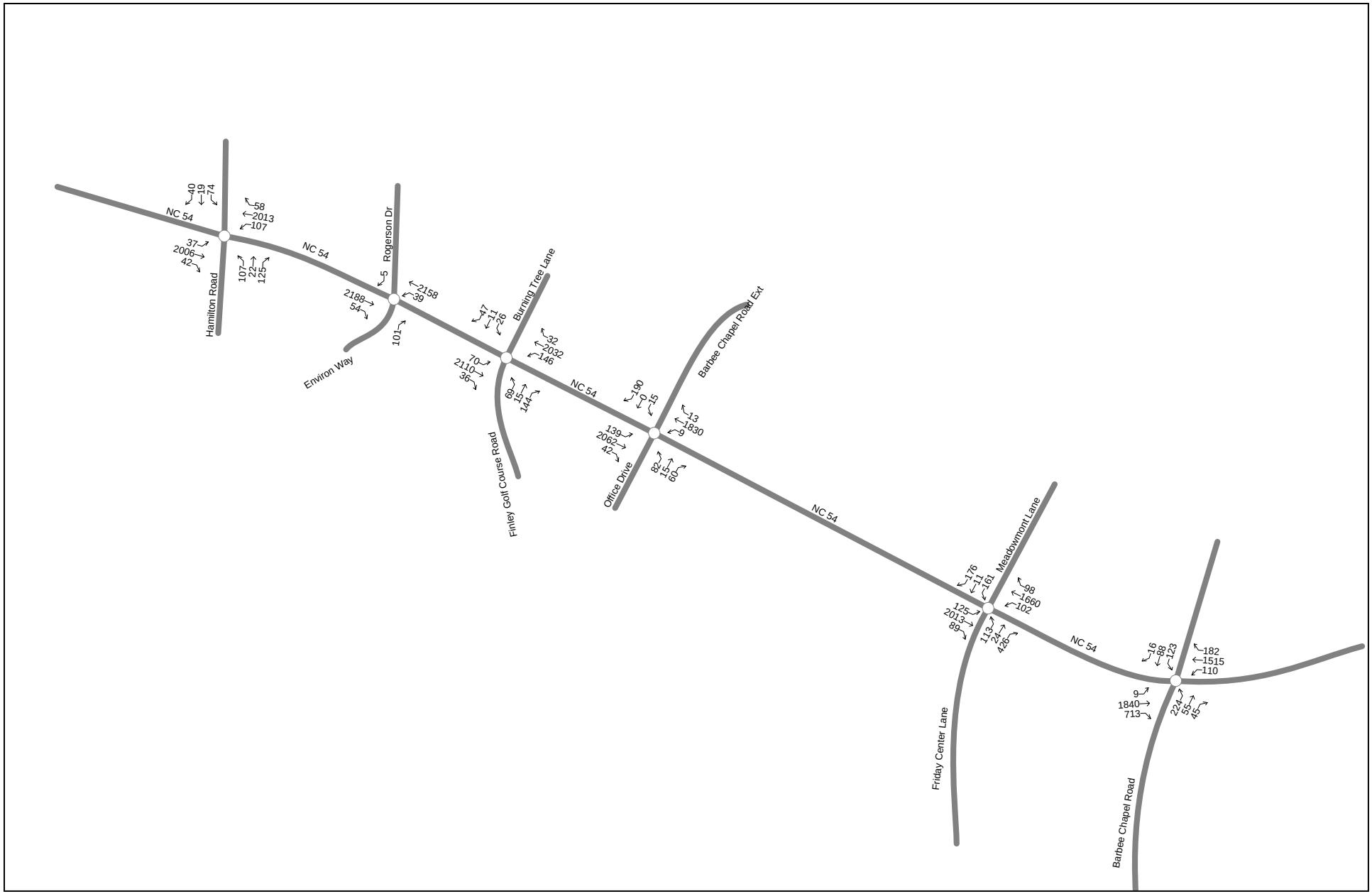


Figure 4-5d
Year 2017 P.M. Peak Hour Turning Movement Volumes

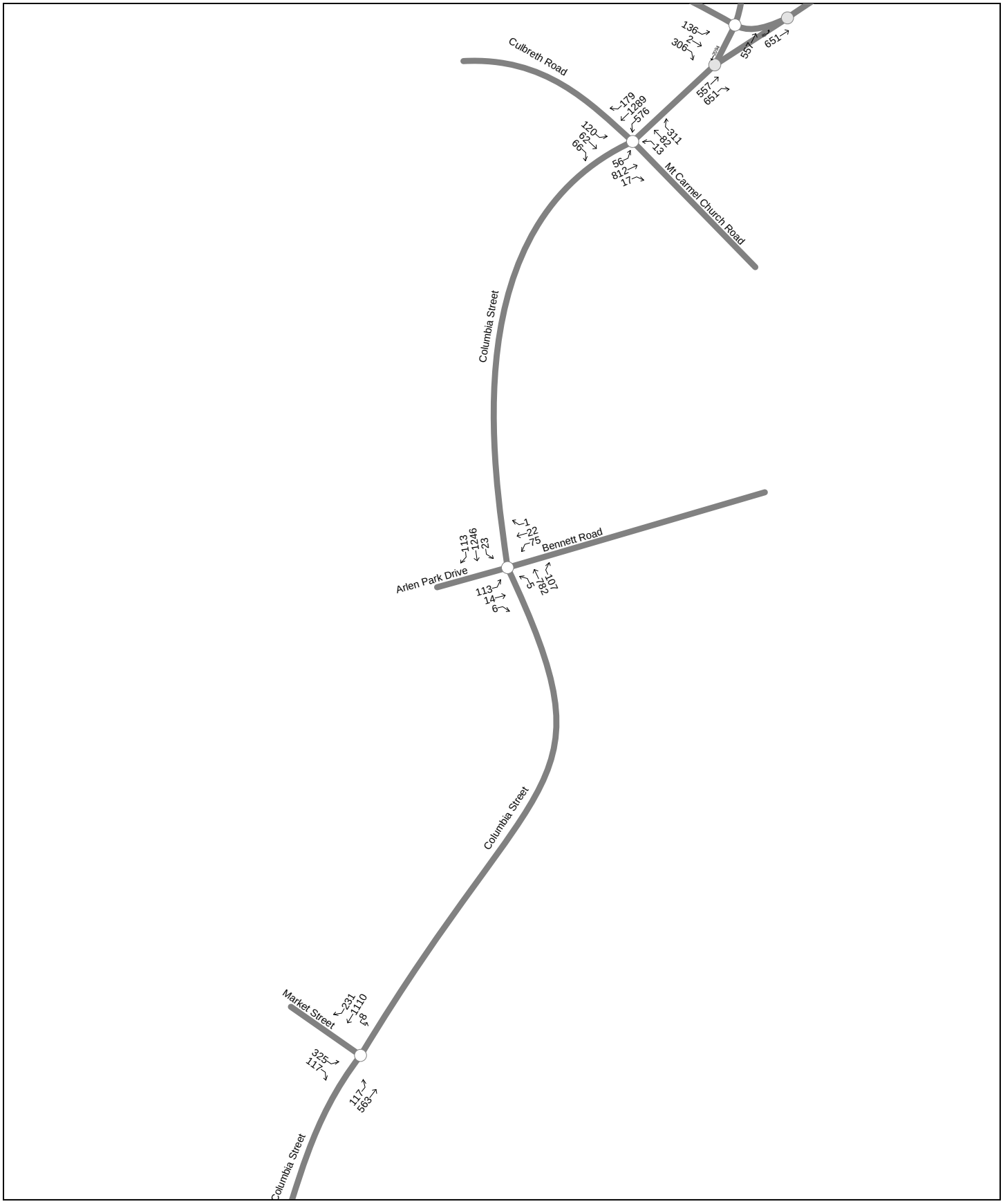


Figure 4-5e
Year 2017 P.M. Peak Hour Turning Movement Volumes

4.3.2 Level of Service Criteria

Peak hour level of service (LOS) measures the adequacy of the intersection geometrics and traffic controls of a particular intersection or approach for the given turning movement volumes. Levels of service range from A through F, based on the average control delay experienced by vehicles traveling through the intersection during the peak hour. Control delay represents the portion of total delay attributed to traffic control devices (e.g., signals or stop signs). The engineering profession generally accepts level of service D as an acceptable operating condition for signalized intersections in urban areas and level of service C for rural areas.

At unsignalized intersections, a level of service E is generally considered acceptable only if the side street encounters delay. Nevertheless, side streets sometimes function at level of service F during peak traffic periods, because the traffic volumes often do not warrant a traffic signal to assist side street traffic. Table 4-4 below provides a general description of the various LOS categories and delay ranges.

Table 4-4: Level of Service Descriptions for Intersections

Level of Service	Description	Signalized Intersection	Unsignalized Intersection
A	Little or no delay	<= 10 sec.	<= 10 sec.
B	Short traffic delay	10-20 sec.	10-15 sec.
C	Average traffic delay	20-35 sec.	15-25 sec.
D	Long traffic delay	35-55 sec.	25-35 sec.
E	Very long traffic delay	55-80 sec.	35-50 sec.
F	Unacceptable delay	> 80 sec.	> 50 sec.

4.3.3 Analysis Results

Capacity analysis for the existing roadway geometrics and traffic volumes were performed for both morning and afternoon peak hour periods using *Synchro Professional Version 9* and *Highway Capacity Software* (HCS+) software packages. A network outlining the study area was created in *Synchro* using existing geometric and timing/phasing data. Signalized intersections were grouped according to the Town of Chapel Hill's signal system zones, and timing splits were optimized within these zones using cycle length's based on signal timings provided by the Town. Lane widths, grades, pedestrian volumes, etc., were included in the analysis when available.

Table 4-5 summarizes the existing intersection levels of service. In Table 4-5, the overall intersection level of service and worst movement level of service are provided. The Appendix contains the output obtained from *Synchro*, which summarizes the peak period levels of service. Table 4-5 shows that the overall intersection level of service for the majority of Campus study area intersections is LOS D or better, while some minor street approaches are suffering longer delays (worse than LOS D). Delays and queues are typically experienced on the southbound approach of Manning Drive at the intersection with Fordham Boulevard during the AM and PM peak hours of traffic. While the overall level of service during the PM peak hour is indicated at LOS E, the southbound approach is operating at LOS F with queues that typically extend north toward Skipper Bowles Drive.

The following intersections were reported to be operating at LOS D or better in either the AM or PM peak hour in the 2015 TIA update but are reported to be operating at LOS E or worse in this update of the TIA: Columbia Street at Rosemary Street, Columbia Street at Franklin Street, Cameron Avenue at Columbia Street, and Manning Drive at Fordham Boulevard.

The degraded LOS can be attributed to increased peak hour traffic volumes, since the signal phasing was unchanged from the 2015 TIA with minor differences in split times.

As indicated in Table 4-5, a number of intersections operate at LOS D or better for the overall intersection operations, but report LOS E or F on some approaches at the same intersection. Many of the intersections along NC 54 and US 15-501 are examples. In these instances, the major street approaches are given priority over the minor side street approaches in order to coordinate the traffic flow along the major corridor.

As stated in the past updates of the Development Plan Impact Analysis reports, the US 15-501 Major Investment Study concluded that while some minor improvements could be made at intersections along this corridor, the magnitude of the delays being experienced requires a large-scale integrated, multimodal solution. It is anticipated that this corridor will undergo significant highway and transit improvements in the future. These improvements will help relieve congestion along this heavily traveled roadway. The section of US 15-501 at the intersection with Europa Drive and Erwin Road has been converted to a superstreet facility. All of the intersections in the superstreet section of US 15-501 are operating at LOS D or better in both the AM peak hour and the PM peak hour.

Some unsignalized intersections are experiencing long delays on their stop-controlled approaches. These intersections include Purefoy Road at Columbia Street, Mason Farm Road at Fordham Boulevard, and Battle Lane at Country Club Road. All are registering long delays on the side street approaches but still maintaining acceptable overall levels of service; however as previously required by the Town of Chapel Hill, traffic signal warrants analyses were performed for the unsignalized intersections of Skipper Bowles Drive at Manning Drive, Mason Farm Road at Purefoy Road, and Mason Farm Road at Oteys Road. Those analyses are described in further detail in section 4.8.

Table 4-5: Existing (2017) Intersection Levels of Service

ID #	Intersection	Control	Existing (2017)	
			AM	PM
1	Columbia Street/Rosemary Street	Signalized	C (WB-D)	E (NB-F)
2	Columbia Street/Franklin Street	Signalized	C (SB-D)	E (EB-E)
3	Franklin Street/Raleigh Street	Signalized	B (NB-D)	B (NB-C)
4	Merritt Mill Road/Cameron Avenue	Signalized	B (WB-D)	C (WB-C)
5	Cameron Avenue/Pittsboro Street	Signalized	B (EB-C)	B (EB-E)
6	Cameron Avenue/Columbia Street	Signalized	D (WB-E)	E (EB-F)
7	Cameron Avenue/Raleigh Street	Signalized	C (NB-E)	D (NB-E)
8	Pittsboro Street/McCauley Street	Signalized	B (WB-C)	B (WB-C)
9	Columbia Street/South Road	Signalized	B (EB-C)	C (EB-D)
10	Raleigh Street/South Road	Signalized	A (SB-C)	A (SB-B)
11	Country Club Road/South Road	Signalized	C (SB-D)	C (EB-D)
12	Columbia Street/Manning Drive	Signalized	C (EB-E)	C (EB-E)
13	Manning Drive/West Drive	Signalized	A (SB-D)	A (SB-B)
14	Manning Drive/East Drive	Signalized	B (NB-C)	C (NB-E)
15	Ridge Road/Manning Drive	Signalized	C (NB-D)	C (NB-D)
16	Mason Farm Road/Columbia Street	Signalized	B (EB-D)	C (EB-D)
17	Mason Farm Road/West Drive	Signalized	A (SB-C)	A (SB-C)
18	Mason Farm Road/East Drive	Signalized	B (NB-B)	A (EB-A)
19	Mason Farm Road/Purefoy Road	Unsignalized	A (EB-A)	A (SB-A)
20	Manning Drive/Skipper Bowles Drive	Unsignalized	A (NB-B)	A (NB-C)
21	Columbia Street/Purefoy Road	Unsignalized	A (WB-E)	B (WB-F)
22	Columbia Street/Fordham Boulevard (northern ramp)	Signalized	C (WB-E)	D (WB-E)
23	Columbia Street/Fordham Boulevard (southern ramp)	Signalized	C (EB-E)	B (EB-E)
24	Mason Farm Road/Fordham Boulevard	Unsignalized	A (SB-C)	C (SB-F)
25	Manning Drive/Fordham Boulevard	Signalized	C (SB-E)	E (SB-F)
26	Mason Farm Road/Oteys Road	Unsignalized	A (NB-A)	A (EB-A)
27	Franklin Street/Boundary Street	Signalized	A (SB-C)	A (SB-C)
28	Franklin Street/Park Place	Unsignalized	A (NB-A)	A (NB-B)
29	Battle Lane/Boundary Street	Unsignalized	A (WB-A)	A (NB-B)
30	Country Club Road/Battle Lane	Unsignalized	A (SB-C)	A (SB-E)
307	Country Club Road & Boundary Street	Unsignalized	A (SB-B)	A (SB-B)
31	Country Club Road/Gimghoul Road	Signalized	A (WB-C)	A (EB-B)
32	Manning Drive/Hibbard Drive	Signalized	A (SB-D)	B (SB-E)
33	Manning Drive/Craige Drive	Signalized	A (SB-D)	B (SB-F)
34	East Drive/Jackson Circle/Dogwood Deck Entrance	Unsignalized	A (WB-B)	A (WB-B)
35	East Drive/Dogwood Deck Exit	Unsignalized	A (EB-B)	A (EB-B)
36	Mason Farm Road/Hibbard Drive	Unsignalized	A (EB-B)	A (WB-C)
37	South Road/Bell Tower Drive	Signalized	A (NB-C)	C (NB-C)
38	Manning Drive/Old East Drive	Signalized	B (SB-D)	A (SB-C)
39	Manning Drive/Craige Deck	Unsignalized	A (NB-C)	A (NB-D)
101	US 15-501/Estes Drive	Signalized	C (WB-D)	C (WB-E)
102	US 15-501/Willow Drive	Signalized	B (WB-E)	C (EB-E)
103	US 15-501/Elliot Road	Signalized	A (EB-E)	C (EB-E)
104	US 15-501/Ephesus Church Road	Signalized	C (WB-F)	D (EB-F)
105	US 15-501/Erwin Road	Signalized	A (WB-A)	A (WB-A)
106	US 15-501/Europa Drive	Signalized	A (NB-E)	A (NB-E)
107	US 15-501/Superstreet NB U-Turn	Signalized	C (NB-E)	C (NB-E)
108	US 15-501/Superstreet SB U-Turn	Signalized	A (SB-E)	B (SB-E)
109	US 15-501/Sage Road	Signalized	E (NB-F)	D (NB-F)
110	US 15-501/Eastowne Drive/BCBS	Signalized	C (SB-E)	B (SB-E)
111	US 15-501/Eastowne Drive/Lakeview Drive	Signalized	C (SB-F)	C (SB-F)
201	NC 54/Hamilton Street	Signalized	B (NB-E)	B (NB-E)
202	NC 54/Burning Tree Lane	Signalized	B (SB-E)	B (NB-E)
203	NC 54/Barbee Chapel Road Ext	Signalized	A (NB-E)	B (NB-F)
204	NC 54/Meadowmont Lane	Signalized	C (NB-D)	C (NB-D)
205	NC 54/Barbee Chapel Road (East)	Signalized	D (NB-F)	C (SB-F)
301	US 15-501/Culbreth Road/Mt Carmel Church Road	Signalized	C (EB-E)	C (EB-D)
302	US 15-501/Bennett Road/Arlen Park Drive	Signalized	B (EB-E)	B (EB-E)
303	US 15-501/Market Street	Signalized	B (EB-C)	B (EB-C)

Legend: X = Overall intersection level of service; (X) = worst movement level of service.

4.4 TRIP GENERATION

To determine the impact of the future development on Campus, parking was determined to be the best indicator of additional trips on the study area network. By 2024, the overall additional parking on campus will increase by approximately 1,579 spaces in comparison to the number of spaces present in 2001. In some areas of campus, parking will decrease, while in other areas parking will increase. The objective of the future analysis is to determine the impact of these changes on surrounding intersections. To accomplish this, the parking was converted into peak hour vehicle trips and then distributed to the study area network, as described below.

4.4.1 Parking Generation Rates

Parking generation rates (the number of vehicular trips generated per parking space) were applied to the parking sites which lost or gained spaces. These rates were developed for five types of users: employees, commuter students, resident students, hospital visitor/patients, and University visitors. The rates are shown in Table 4-6 and were developed using traffic counts undertaken at the entry and exit points of selected parking facilities during the fall of 2001, data from card readers at entrances to gated facilities, and visitor counts from various University and UNC Health Care parking areas.

Table 4-6: Trip Generation Rates (Vehicle Trips per Space)

User Type	Trip Rates (Trips per Space)				
	Weekday	AM In	AM Out	PM In	PM Out
Hospital Visitor	8.2	0.62	0.19	0.17	0.44
University Visitor	7.6	0.41	0.13	0.71	0.59
Employee	3.6	0.36	0.07	0.13	0.30
Resident Student	7.2	0.22	0.17	0.25	0.28
Commuter Student	3.6	0.33	0.05	0.27	0.34

4.4.2 Campus Parking Areas and Distribution

In total there are nearly 30 parking lots on Campus that will be affected by the Development Plan. These parking lots were divided into 24 geographical areas in the analysis. Within each area, the resulting net change in trips was distributed over the study area network, based on an overall regional distribution of traffic and an understanding of how traffic uses the intra-campus road network. The regional distribution of traffic was determined from employee and hospital patient home address data. Intra-campus traffic distribution was based on the existing AM and PM traffic counts (see Figure 4-4 and Figure 4-5).

Table 4-7 summarizes the trip generation by campus parking area. The parking areas and overall directional distribution of traffic per area are shown in Figure 4-6.

Table 4-7: Trip Generation by Campus Parking Area

Campus Parking Areas*	Lot Name	Parking Zone	Parking Designation	Change in Parking Totals (spaces)	Change in AM In (trips)	Change in AM Out (trips)	Change in PM In (trips)	Change in PM Out (trips)	Change in Daily Trips (ADT)
1	Porthole	N2	Employee	-40	-15	-3	-5	-12	-144
			Area 1 Totals	-40	-15	-3	-5	-12	-144
2	Cameron Deck	ND1	Visitor	330	136	44	236	195	2500
2	Swain	NG1	Net Change	-214	-81	-19	-63	-82	-1009
			Area 2 Totals	116	55	25	173	113	1491
3	Hanes		Visitor	-32	-13	-4	-23	-19	-242
			Area 3 Totals	-32	-13	-4	-23	-19	-242
4	Sitterson	NG2	Employee	-135	-49	-9	-18	-41	-486
4	Venable Deck	ND2	Employee	0	0	0	0	0	0
4	Wilson Library	N8	Employee	-41	-15	-3	-5	-12	-148
			Area 4 Totals	-176	-64	-12	-23	-53	-634
5	McCauley Street	W	Employee/Student	-20	-26	12	13	-9	409
			Area 5 Totals	-20	-26	12	13	-9	409
6	Conner/Cobb/Joyner	N4	Employee	126	46	18	25	44	454
6	Conner/Cobb/Joyner	N4	Visitor	-6	0	0	0	0	0
6	Conner/Cobb/Joyner	N4	Student	-33	-11	-2	-9	-11	-119
6	Conner/Cobb/Joyner	N4	Service	-8	3	1	1	2	29
			Area 6 Totals	79	38	17	17	35	364
7	North Medical Drive		Service	-26	-9	-2	-3	-8	-94
			Area 7 Totals	-26	-9	-2	-3	-8	-94
8	Rams Head	S5	Net Change	303	125	40	217	179	2296
8	Ridge Road	S1	Net Change	-16	-5	-2	-3	-5	-79
			Area 8 Totals	287	120	38	214	174	2217
9	Glaxo/HousingSupport/MFM/MRI	S6	Employee	-46	-17	-3	-6	-14	-166
			Area 9 Totals	-46	-17	-3	-6	-14	-166
10	ACC		Visitor	198	122	37	33	87	1621
			Area 10 Totals	198	122	37	33	87	1621
11	Dental School	S6	Employee	-53	-19	-4	-7	-16	-191
			Area 11 Totals	-53	-19	-4	-7	-16	-191
12	Gravely	CG	Net Change	595	401	127	105	280	5491
			Area 12 Totals	595	401	127	105	280	5491
13	Neurosciences	CG	Employee	-108	-39	-7	-14	-33	-389
			Area 13 Totals	-108	-39	-7	-14	-33	-389
14	Student Family Housing	MR/MR2	Student	79	18	14	19	22	568
			Area 14 Totals	79	18	14	19	22	568
15	Craige Surface/Deck	CD	Net Change	741	274	47	93	224	2536
			Area 15 Totals	741	274	47	93	224	2536
16	Bowles	S11	Net Change	-628	-223	-40	-104	-195	-2262
16	Kenan/McColl Visitor Parking		Visitor	-40	-16	-5	-29	-24	-303
			Area 16 Totals	-668	-240	-46	-132	-219	-2565
17	Hinton James	M	Student	-250	-56	-43	-61	-70	-1797
			Area 17 Totals	-250	-56	-43	-61	-70	-1797
18	Jackson Circle		Employee	606	220	42	80	183	2182
18	Jackson Circle		Student	100	33	5	27	34	360
18	Jackson Circle		Visitor	-54	-12	-9	-13	-15	-442
			Area 18 Totals	652	241	37	93	201	2100
19	Bell Tower North Access	BG	Employee	124	45	9	16	37	447
			Area 19 Totals	124	45	9	16	37	447
20	ITS	S2	Service	24	9	2	3	7	86
20	ITS	S2	Visitor	-2	0	0	0	0	0
20	ITS	S2	Employee	-29	-11	-2	-4	-9	-104
			Area 20 Totals	-7	-2	0	-1	-2	-18
21	Unassigned Spaces	S11	Employee	32	12	2	4	10	115
			Area 21 Totals	32	12	2	4	10	115
22	South Chiller	S6	Employee	-129	-47	-9	-17	-39	-465
			Area 22 Totals	-129	-47	-9	-17	-39	-465
23	Tennis Deck	P12	Employee	231	84	16	30	70	832
			Area 23 Totals	231	84	16	30	70	832
				Parking Totals (spaces)	**AM In (trips)**	**AM Out (trips)**	**PM In (trips)**	**PM Out (trips)**	**Daily Trips (ADT)**
			Campus-Wide Totals	**1,579**	**863**	**249**	**518**	**781**	**11,487**

*See Figure 4-8 for Campus Parking Areas Locations

Figure 4-6a

Campus Parking Areas and Directional Distribution

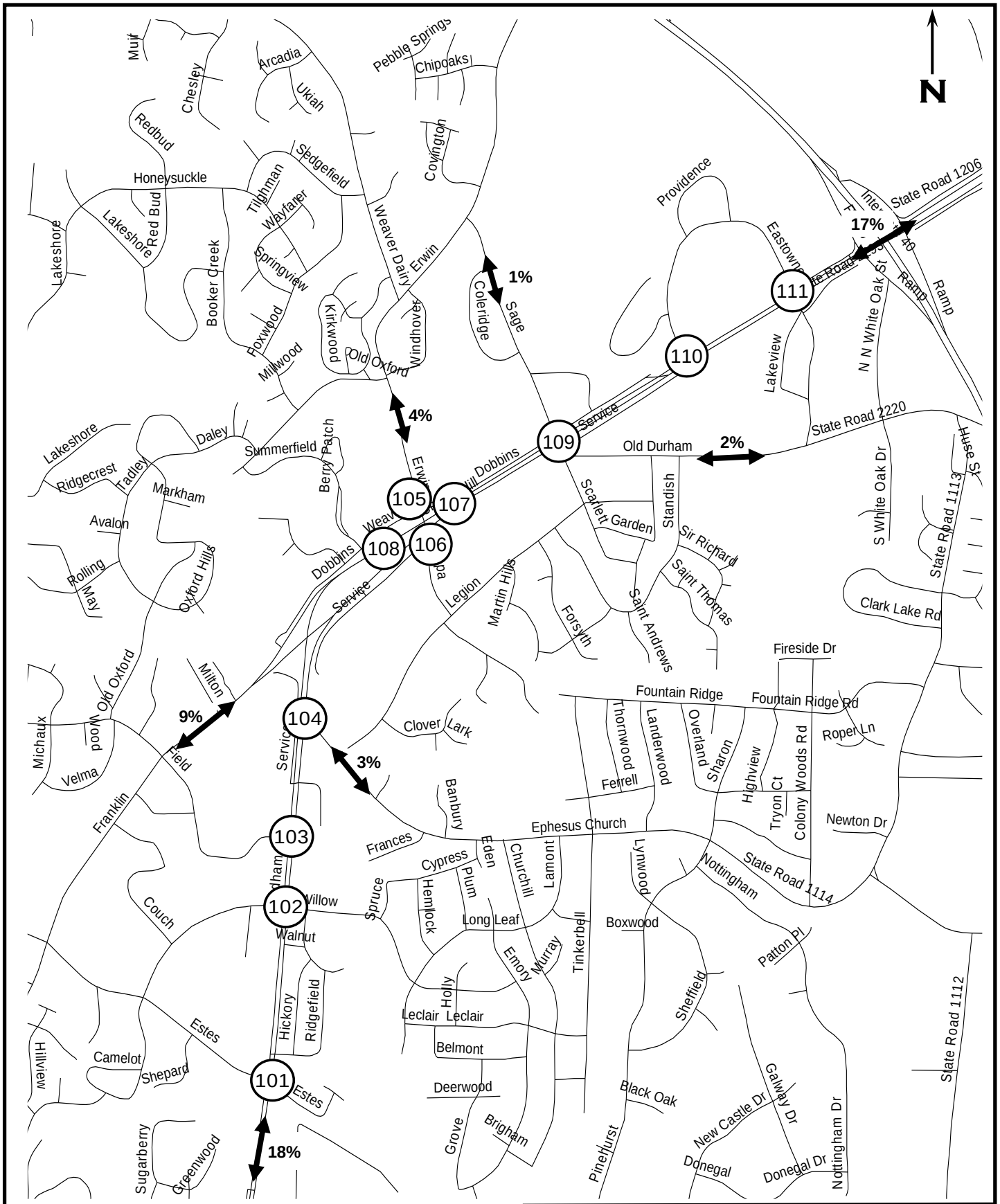


Figure 4-6b

US 15-501 Directional Distribution

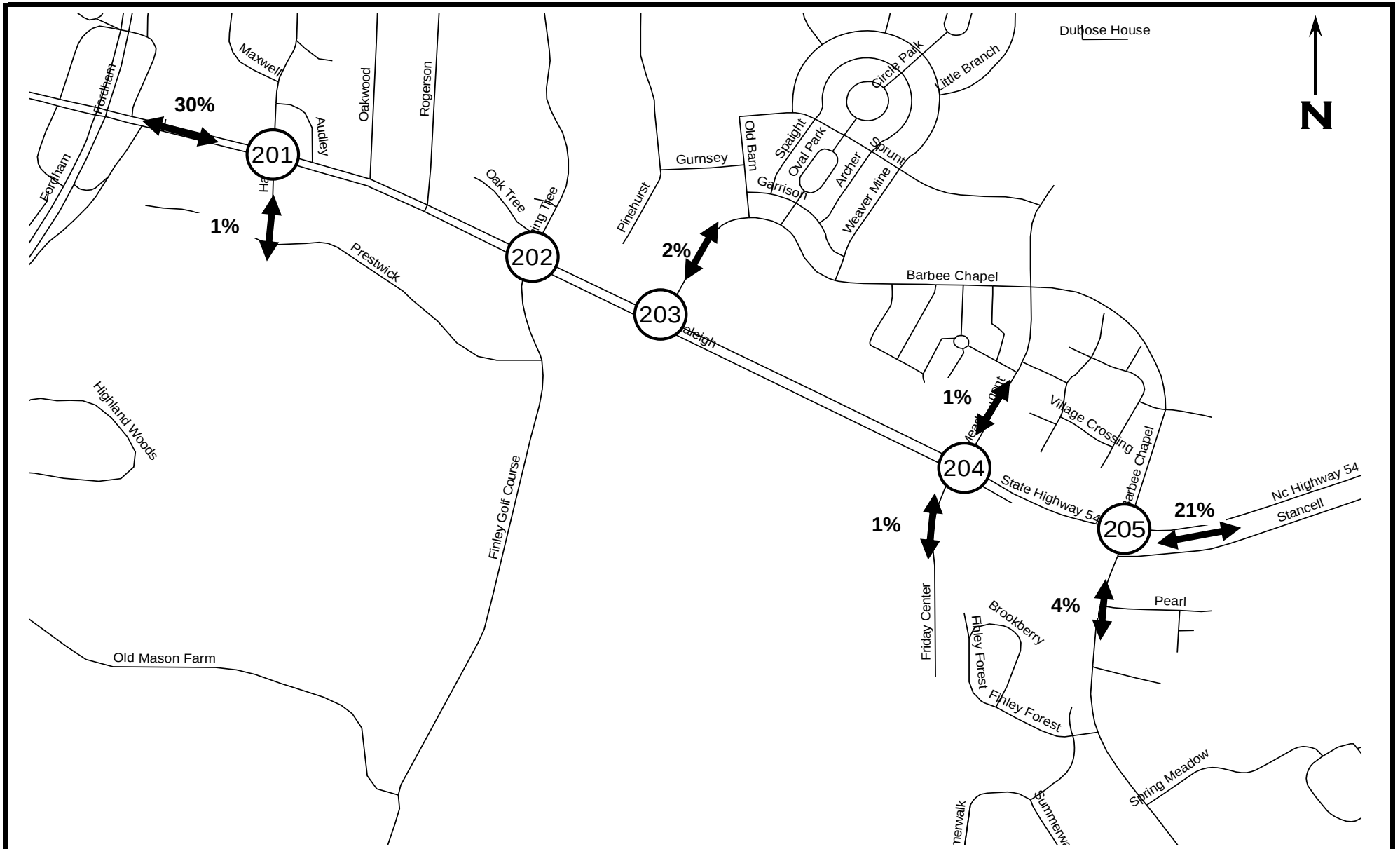
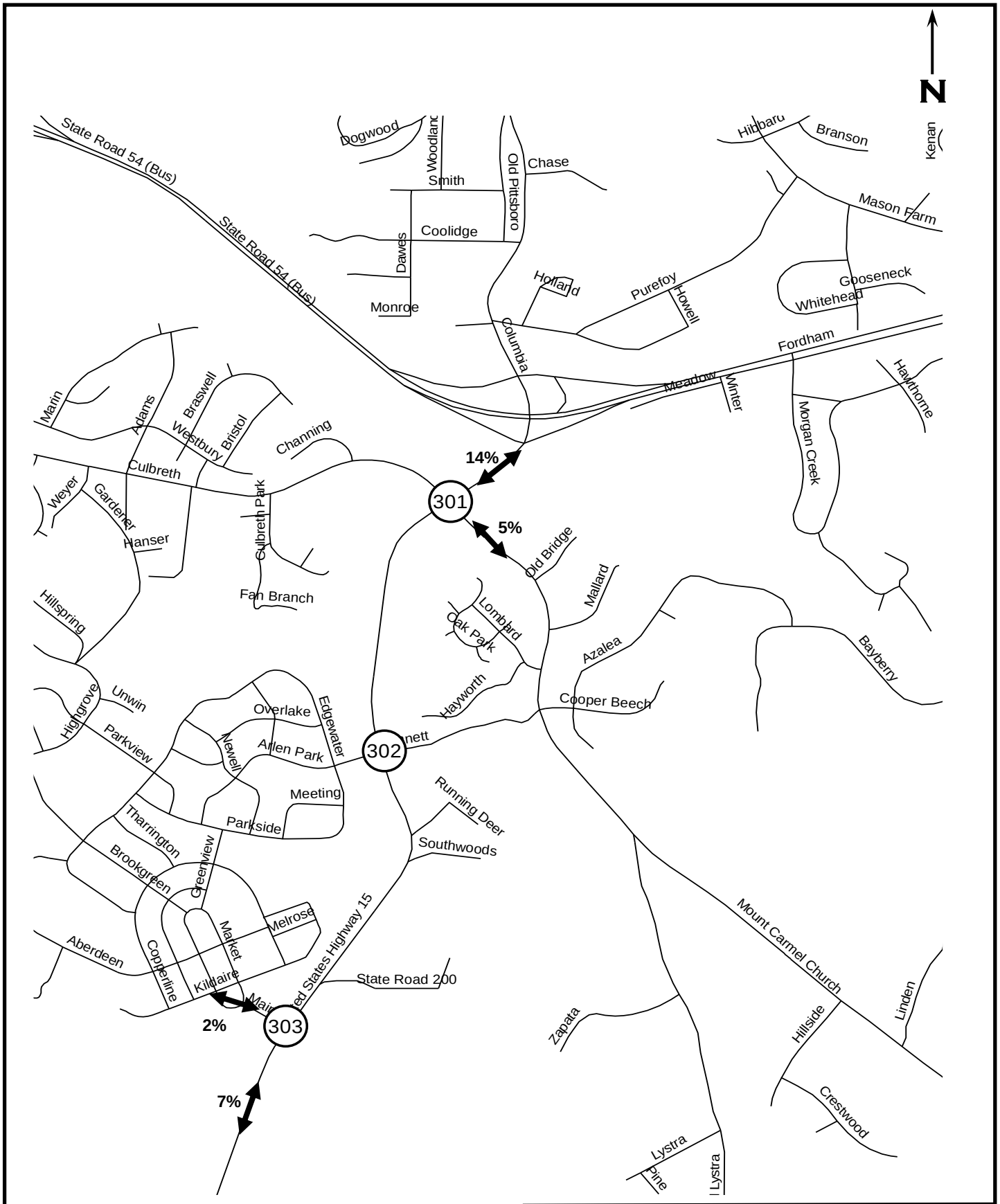


Figure 4-6c

NC 54 Directional Distribution



○ Study Area Intersections

Figure 4-6d

US 15-501 South Directional Distribution

4.5 TRAFFIC PROJECTIONS

Through the year 2013 Development Plan TIA Update, the traffic projections for No-Build and Build conditions were estimated for the year 2015; however, the build year was changed to 2022 for the 2015 update. The No-Build and Build analyses for the 2017 update have been completed for the year 2024, maintaining a seven-year horizon. The change is intended to capture the anticipated completion of the main campus development plan.

The future build year traffic analysis is presented for the following cases:

- Year 2024 No-Build scenario traffic projections, consisting of projected background traffic growth.

- Year 2024 Build scenario traffic projections, including background traffic growth and Development Plan traffic as described in Section 4.4.

4.5.1 No-Build Scenario

No-Build traffic was developed for 2024. No-Build year 2024 intersection Average Daily Traffic (ADT) and turning movement volumes were determined as described below.

No-Build Average Daily Traffic

Based on historical count data from NCDOT, projected annual growth rates determined from the regional travel demand model, and information from the Town, annual growth rates were applied to existing traffic to yield the future background traffic for year 2024. The annual growth rates and projected future ADTs for study area roads are listed in Table 4-9 and are displayed in Figure 4-9.

No-Build Turning Movement Volumes

Utilizing the annual growth rates from Table 4-9, the intersection turning movement counts listed in Table 4-8 and shown in Figure 4-4 and Figure 4-5 were adjusted to reflect future year 2024 conditions. Growth rates were applied to each approach of the intersections, ranging from no growth to three percent annually. These volumes were then used in the 2024 No-Build analysis.

Table 4-8: Future No-Build Year 2024 Turning Movement Volumes

AM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	122	179	23	11	120	59	35	348	35	0	122	588	163
2	Columbia Street/Franklin Street	63	296	49	89	327	74	39	298	93	0	50	544	45
3	Franklin Street/Raleigh Street	10	284	125	53	460	79	112	158	30	0	50	279	18
4	Merritt Mill Road/Cameron Avenue	0	0	0	64	0	33	0	175	455	0	120	95	0
5	Cameron Avenue/Pittsboro Street	0	122	178	638	136	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	17	94	0	0	117	39	88	370	48	0	75	0	566
7	Cameron Avenue/Raleigh Street	19	90	27	27	183	207	24	48	14	0	330	158	54
8	Pittsboro Street/McCauley Street	0	113	32	146	37	0	0	0	0	0	169	597	10
9	Columbia Street/South Road	20	306	0	0	197	127	57	393	225	0	0	0	0
10	Raleigh Street/South Road	46	207	0	0	334	35	0	0	0	0	37	0	125
11	Country Club Road/South Road	5	158	48	516	406	532	30	37	78	0	313	180	18
12	Columbia Street/Manning Drive	69	415	0	61	0	181	0	411	357	0	0	0	0
13	Manning Drive/West Drive	70	404	322	217	238	38	0	0	0	0	18	6	17
14	Manning Drive/East Drive	85	351	124	262	340	95	94	31	280	0	0	0	0
15	Ridge Road/Manning Drive	124	345	74	11	659	62	23	40	6	0	47	117	365
16	Mason Farm Road/Columbia Street	7	6	1	147	0	74	6	658	249	0	119	210	5
17	Mason Farm Road/West Drive	0	261	24	10	234	0	0	0	0	0	33	7	31
18	Mason Farm Road/East Drive	60	210	66	14	134	6	59	19	170	0	0	0	0
19	Mason Farm Road/Purefoy Road	203	0	13	0	0	0	16	96	0	0	0	20	19
20	Manning Drive/Skipper Bowles Drive	0	354	24	283	645	0	1	0	43	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	30	0	5	0	1003	366	0	13	406	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	553	0	68	252	1299	0	0	0	291	138
23	Columbia Street/Fordham Boulevard (southern ramp)	470	2	422	0	0	0	0	1079	0	0	58	791	0
24	Mason Farm Road/Fordham Boulevard	0	2419	0	0	1223	109	0	0	0	0	0	0	37
25	Manning Drive/Fordham Boulevard	233	2350	4	8	1259	848	19	7	28	0	235	3	34
26	Mason Farm Road/Oteys Road	1	26	11	5	69	1	14	0	0	0	1	0	1
27	Franklin Street/Boundary Street	6	325	8	57	558	72	5	26	27	0	77	19	6
28	Franklin Street/Park Place	0	422	1	69	701	0	0	0	13	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	82	50	2	0	126	76	0	0	47	61
30	Country Club Road/Battle Lane	4	339	0	0	395	125	0	0	0	0	128	0	0
307	Country Club Road & Boundary Street	0	344	0	0	395	0	0	0	0	0	0	0	111
31	Country Club Road/Gimghoul Road	5	1	18	11	1	6	90	554	13	0	5	461	30
32	Manning Drive/Hibbard Drive	47	553	17	10	620	39	18	10	53	0	27	4	40
33	Manning Drive/Craige Drive	42	450	21	163	819	37	4	4	14	0	18	3	9
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	0	0	3	20	395	2	0	81	106	217
35	East Drive/Dogwood Deck Exit	215	0	122	0	0	0	0	205	0	0	0	56	0
36	Mason Farm Road/Hibbard Drive	4	2	1	5	5	19	7	249	184	0	42	39	12
37	South Road/Bell Tower Drive	0	340	204	192	299	0	29	0	55	0	0	0	0
38	Manning Drive/Old East Drive	0	425	0	0	434	0	0	0	0	0	141	0	82
39	Manning Drive/Craige Deck	0	543	132	178	681	0	7	0	13	0	0	0	0
101	US 15-501/Estes Drive	71	2	277	1	10	15	378	1468	4	0	9	1342	73
102	US 15-501/Willow Drive	121	29	8	59	61	19	66	1475	12	0	17	1387	288
103	US 15-501/Elliot Road	40	0	115	0	0	0	127	1480	0	5	0	1590	124
104	US 15-501/Ephesus Church Road	28	31	32	239	96	85	56	1247	225	0	65	1326	8
105	US 15-501/Erwin Road	0	0	0	0	2035	297	0	0	0	0	0	0	469
106	US 15-501/Europa Drive	0	2009	140	0	0	0	0	0	175	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	0	0	0	0	2001	0	276	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	2091	0	0	0	0	0	0	0	0	70	17	0
109	US 15-501/Sage Road	330	1534	148	170	1749	163	157	106	21	0	297	155	140
110	US 15-501/Eastowne Drive/BCBS	84	1631	9	30	2058	69	1	6	26	0	50	3	46
111	US 15-501/Eastowne Drive/Lakeview Drive	14	1646	3	68	2136	326	13	31	144	0	88	8	2
201	NC 54/Hamilton Street	28	1885	162	86	2377	32	129	41	121	0	70	49	27
202	NC 54/Burning Tree Lane	33	1905	56	170	2506	24	37	3	144	0	42	12	47
203	NC 54/Barbee Chapel Road Ext	172	1916	103	93	2527	35	14	1	2	0	7	4	107
204	NC 54/Meadowmont Lane	197	1592	126	467	2562	134	68	3	45	0	67	19	136
205	NC 54/Barbee Chapel Road (East)	13	1615	210	25	2551	222	582	96	71	0	126	37	23
301	US 15-501/Culbreth Road/Mt Carmel Church Road	228	89	68	10	130	555	69	1557	4	0	334	897	152
302	US 15-501/Bennett Road/Arlen Park Drive	106	22	9	108	14	24	7	1472	102	0	36	844	108
303	US 15-501/Market Street	261	0	41	0	0	0	202	1347	0	28	0	562	395

PM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	195	263	64	35	202	67	43	655	71	0	78	510	253
2	Columbia Street/Franklin Street	115	388	87	126	466	91	88	575	138	0	83	449	102
3	Franklin Street/Raleigh Street	43	456	225	49	561	176	116	315	26	0	97	328	20
4	Merritt Mill Road/Cameron Avenue	0	0	0	379	0	126	0	112	188	0	70	297	0
5	Cameron Avenue/Pittsboro Street	0	134	130	487	421	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	27	97	0	0	161	48	248	692	51	0	99	0	503
7	Cameron Avenue/Raleigh Street	36	173	51	25	156	285	68	122	59	0	346	178	78
8	Pittsboro Street/McCauley Street	0	95	19	207	227	0	0	0	0	0	244	463	39
9	Columbia Street/South Road	91	336	0	0	376	294	134	660	183	0	0	0	0
10	Raleigh Street/South Road	112	395	0	0	260	57	0	0	0	0	77	0	152
11	Country Club Road/South Road	41	413	31	191	273	484	31	169	407	0	554	78	24
12	Columbia Street/Manning Drive	65	201	0	221	2	496	0	437	58	0	0	0	0
13	Manning Drive/West Drive	26	211	27	30	654	18	0	0	0	0	9	5	29
14	Manning Drive/East Drive	33	237	45	76	447	54	174	26	477	0	0	0	0
15	Ridge Road/Manning Drive	226	781	71	20	216	89	105	167	58	0	83	79	117
16	Mason Farm Road/Columbia Street	1	2	2	405	0	122	7	350	91	0	57	551	6
17	Mason Farm Road/West Drive	0	137	17	7	436	0	0	0	0	0	21	3	35
18	Mason Farm Road/East Drive	27	261	155	111	210	3	33	0	28	0	0	0	0
19	Mason Farm Road/Purefoy Road	16	0	23	0	0	0	16	47	0	0	0	323	72
20	Manning Drive/Skipper Bowles Drive	0	815	11	87	255	0	19	0	252	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	126	0	29	0	436	29	0	9	988	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	1279	0	48	320	421	0	0	0	769	297
23	Columbia Street/Fordham Boulevard (southern ramp)	146	2	328	0	0	0	0	577	0	0	90	1857	0
24	Mason Farm Road/Fordham Boulevard	0	1608	0	0	2328	40	0	0	0	0	0	0	239
25	Manning Drive/Fordham Boulevard	73	1590	4	10	2083	220	10	2	21	0	919	6	291
26	Mason Farm Road/Oteys Road	4	119	190	3	40	2	4	1	0	0	3	2	3
27	Franklin Street/Boundary Street	7	629	4	23	603	69	13	65	126	0	112	24	8
28	Franklin Street/Park Place	0	859	2	26	701	0	1	0	64	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	53	38	3	0	163	246	0	2	82	84
30	Country Club Road/Battle Lane	17	440	0	0	432	151	0	0	0	0	135	0	0
307	Country Club Road & Boundary Street	0	457	0	0	432	0	0	0	0	0	0	0	122
31	Country Club Road/Gimghoul Road	42	0	90	11	0	11	18	665	13	0	10	564	8
32	Manning Drive/Hibbard Drive	36	686	8	31	476	21	25	4	23	0	46	19	67
33	Manning Drive/Craige Drive	29	932	4	20	361	26	32	1	180	0	36	0	16
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	2	0	21	3	678	0	0	1	50	75
35	East Drive/Dogwood Deck Exit	256	0	141	0	0	0	0	284	0	0	0	52	0
36	Mason Farm Road/Hibbard Drive	4	3	6	164	0	11	0	51	20	0	7	271	1
37	South Road/Bell Tower Drive	0	465	48	52	450	0	167	0	152	0	0	0	0
38	Manning Drive/Old East Drive	0	222	0	0	615	0	0	0	0	0	89	0	99
39	Manning Drive/Craige Deck	0	724	5	5	461	0	99	0	194	0	0	0	0
101	US 15-501/Estes Drive	102	11	317	8	16	13	487	1608	3	0	16	1442	112
102	US 15-501/Willow Drive	294	120	23	29	36	25	36	1683	41	0	42	1412	239
103	US 15-501/Elliot Road	145	0	278	0	0	0	226	1754	0	8	0	1394	199
104	US 15-501/Ephesus Church Road	96	94	73	348	137	59	158	1230	314	0	93	1210	13
105	US 15-501/Erwin Road	0	0	0	0	1927	406	0	0	0	0	0	0	434
106	US 15-501/Europa Drive	0	2677	90	0	0	0	0	0	234	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	2	0	0	0	1946	0	396	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	2647	0	0	0	0	0	0	0	0	61	40	0
109	US 15-501/Sage Road	353	1822	213	54	1606	267	138	93	27	0	250	167	173
110	US 15-501/Eastowne Drive/BCBS	46	2086	5	33	1853	62	11	8	49	0	77	1	72
111	US 15-501/Eastowne Drive/Lakeview Drive	2	2176	4	75	1972	190	21	17	123	0	261	31	20
201	NC 54/Hamilton Street	42	2280	48	121	2285	66	111	23	129	0	77	20	41
202	NC 54/Burning Tree Lane	79	2397	41	165	2307	36	71	16	149	0	27	11	49
203	NC 54/Barbee Chapel Road Ext	157	2343	48	10	2078	15	85	16	62	0	16	0	197
204	NC 54/Meadowmont Lane	142	2288	101	116	1885	111	117	25	441	0	167	11	182
205	NC 54/Barbee Chapel Road (East)	11	2238	866	133	1842	221	233	57	47	0	127	91	17
301	US 15-501/Culbreth Road/Mt Carmel Church Road	124	64	68	13	85	323	67	968	20	0	687	1536	213
302	US 15-501/Bennett Road/Arlen Park Drive	117	14	6	78	23	1	6	932	127	0	27	1485	134
303	US 15-501/Market Street	337	0	121	0	0	0	144	695	0	10	0	1368	285

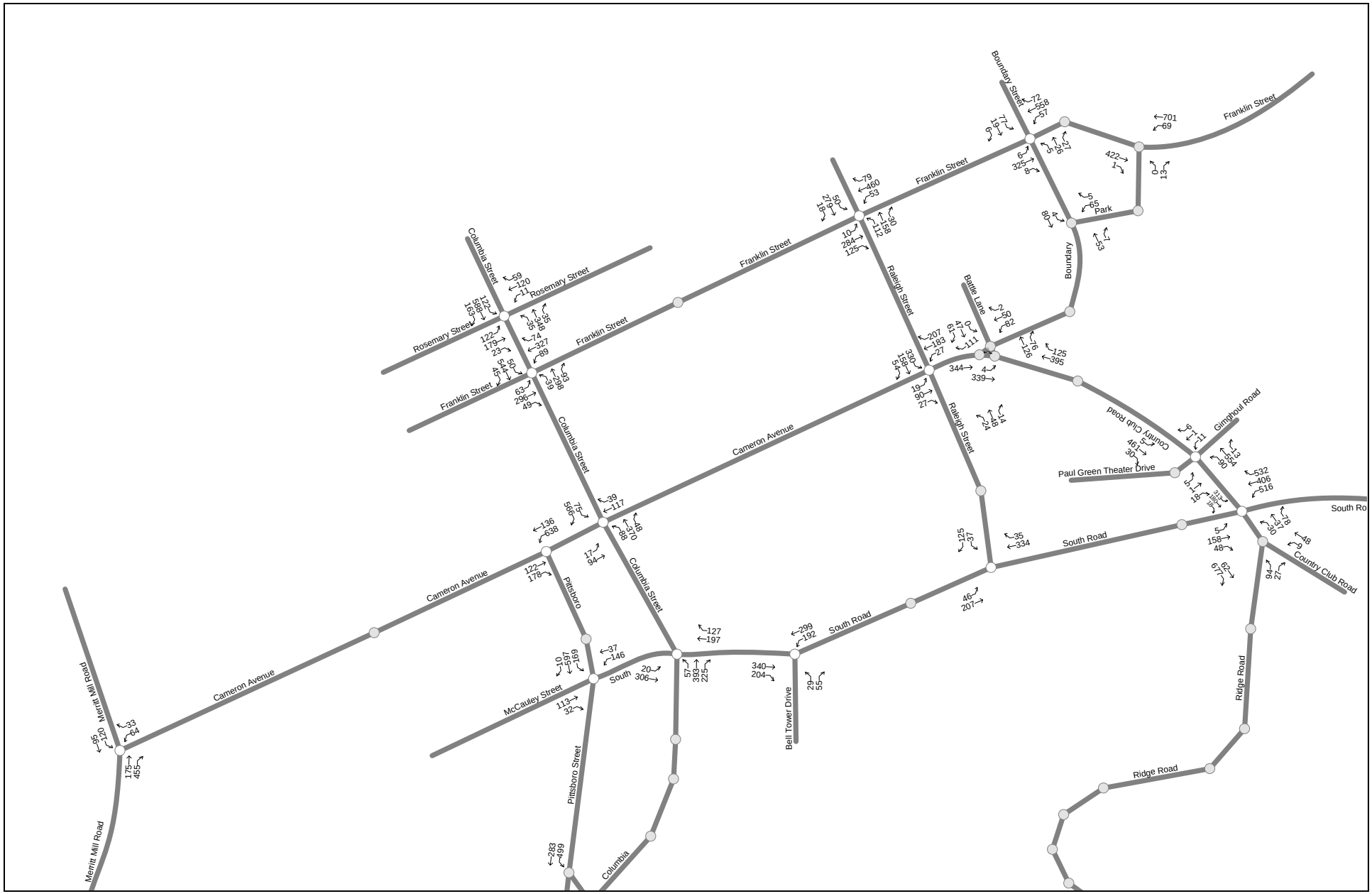


Figure 4-7a
Future No-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

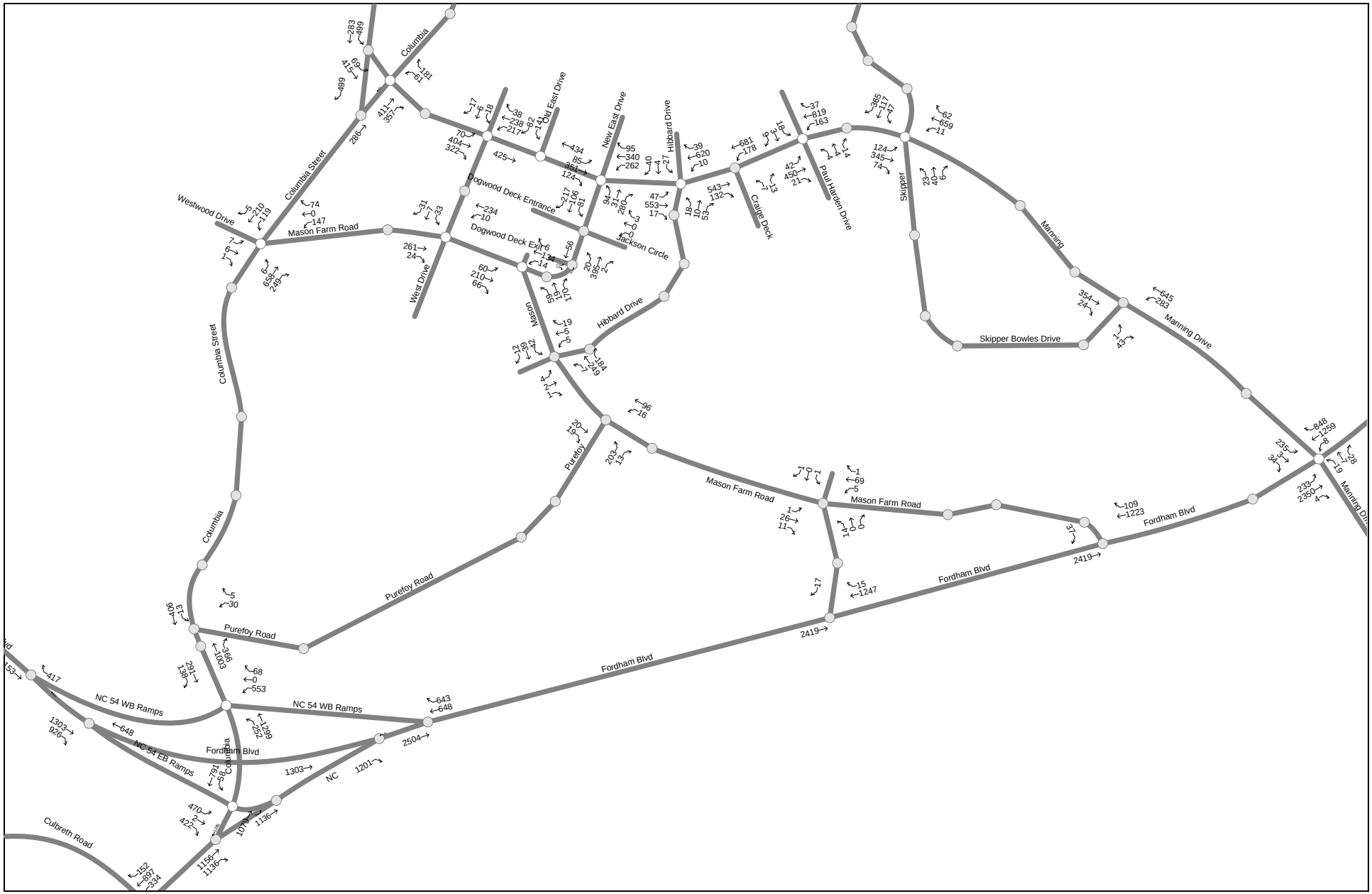


Figure 4-7b
Future No-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

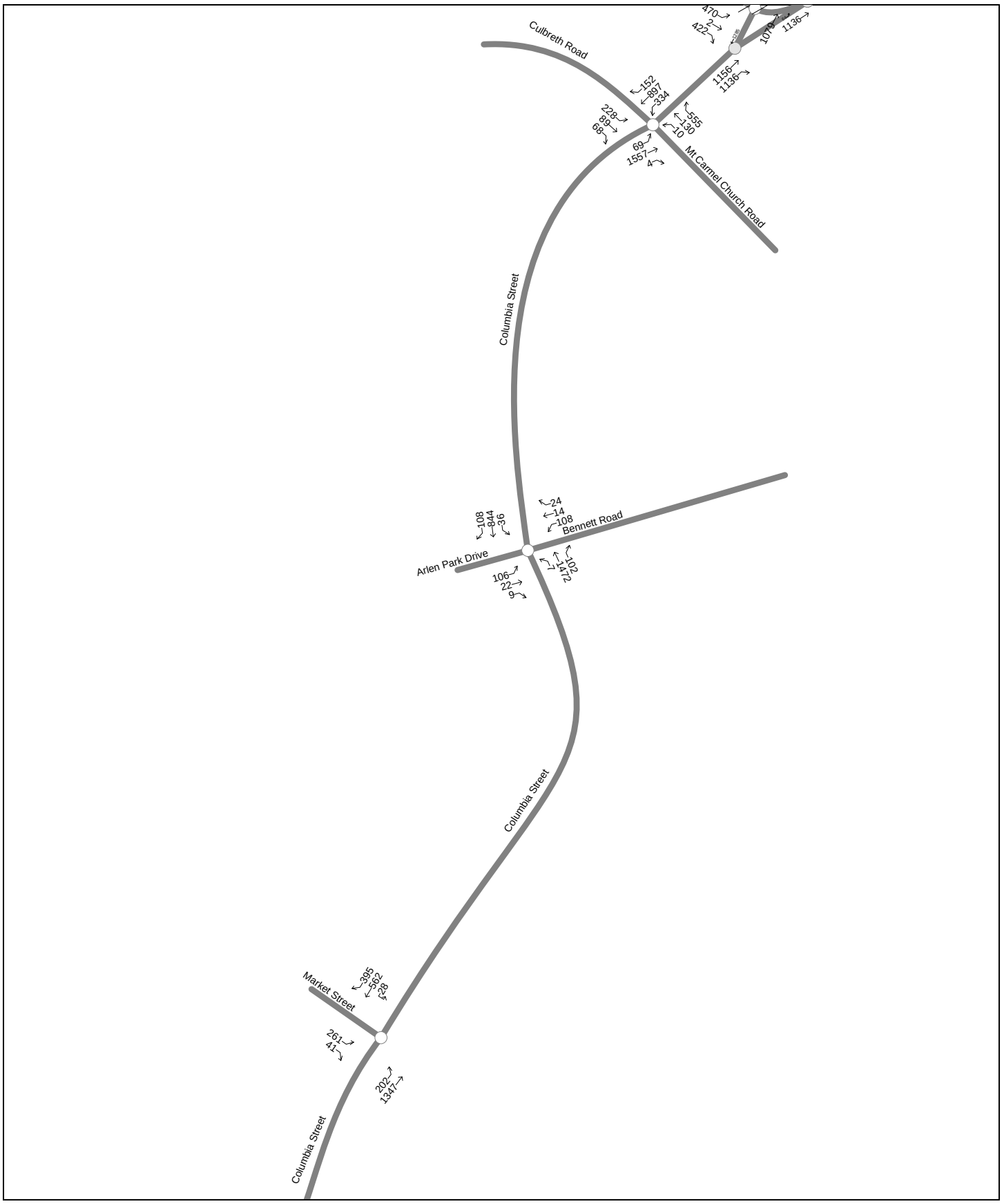


Figure 4-7c
Future No-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

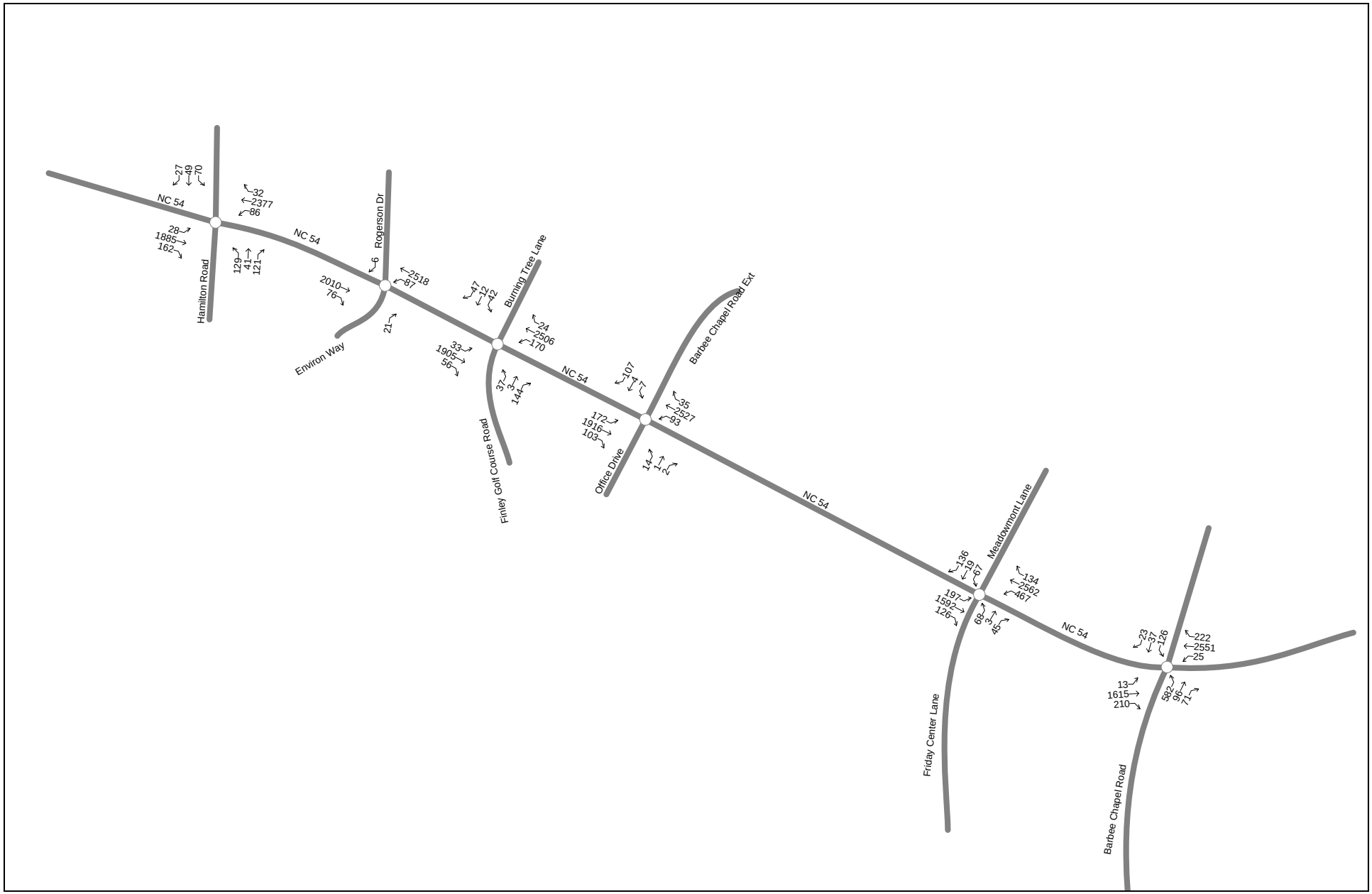


Figure 4-7d
Future No-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

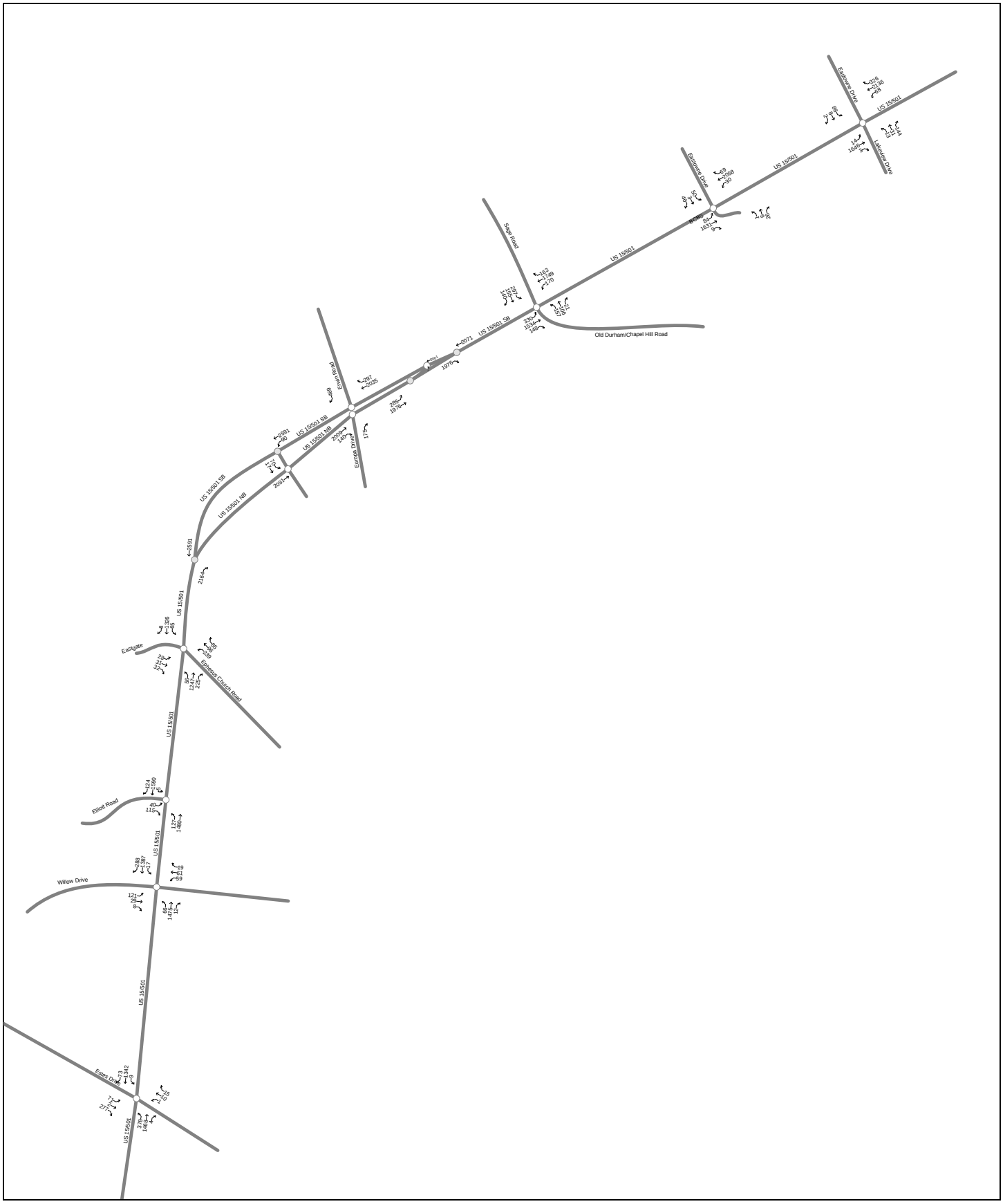


Figure 4-7e
Future No-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

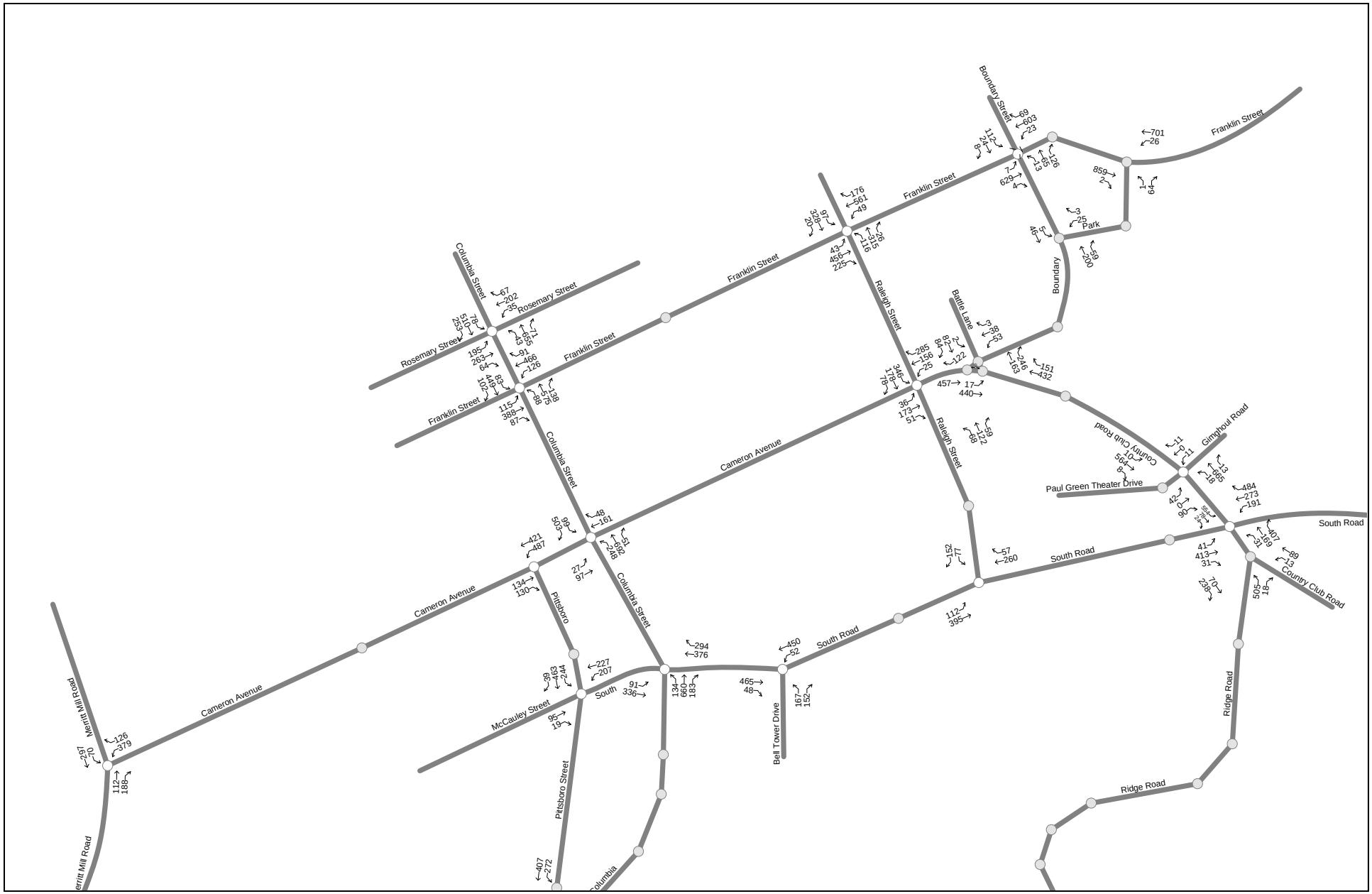


Figure 4-7a
Future No-Build Year 2024 P.M. Peak Hour Turning Movement Volumes

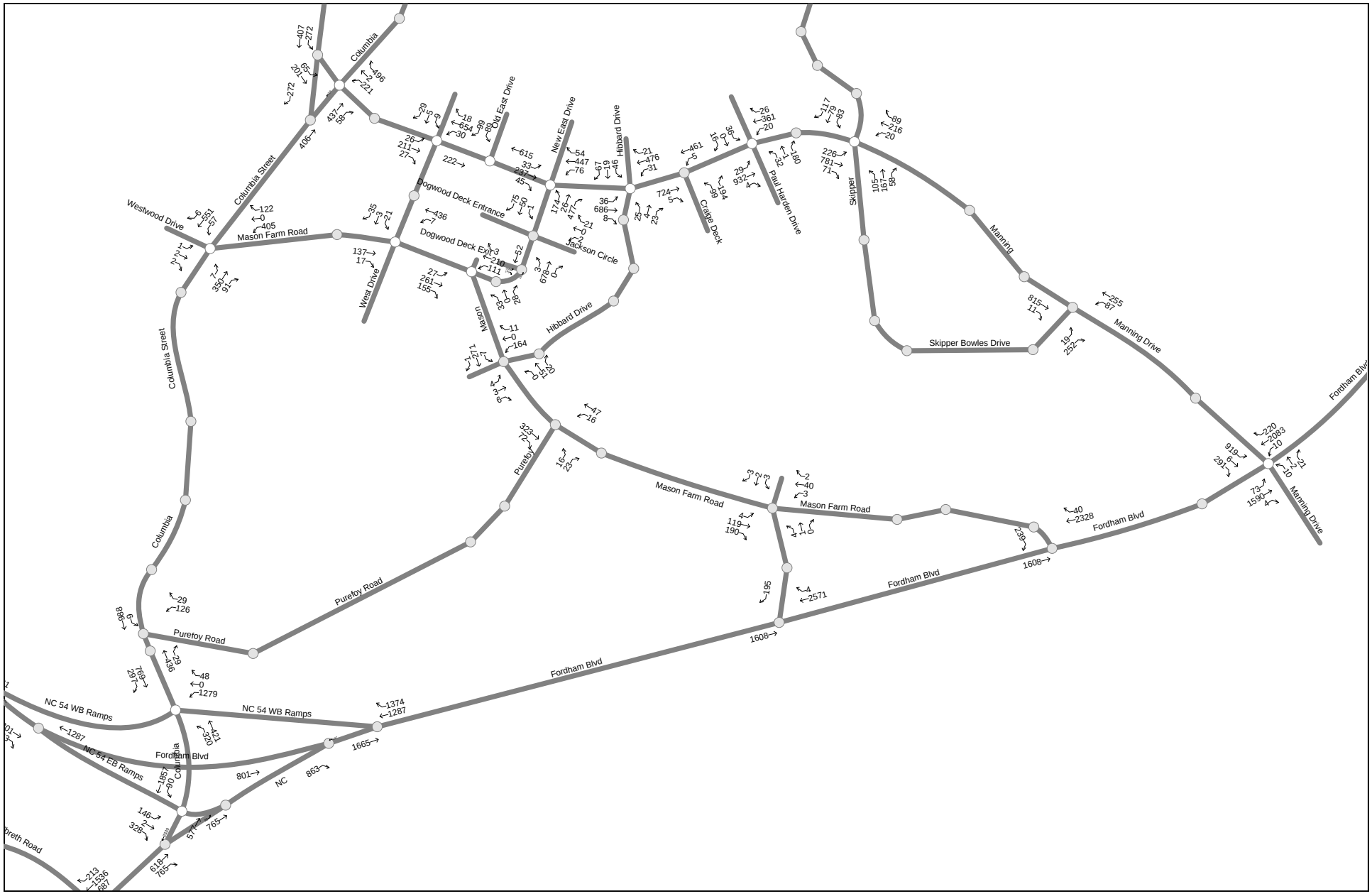


Figure 4-7b
Future No-Build Year 2024 P.M. Peak Hour Turning Movement Volumes

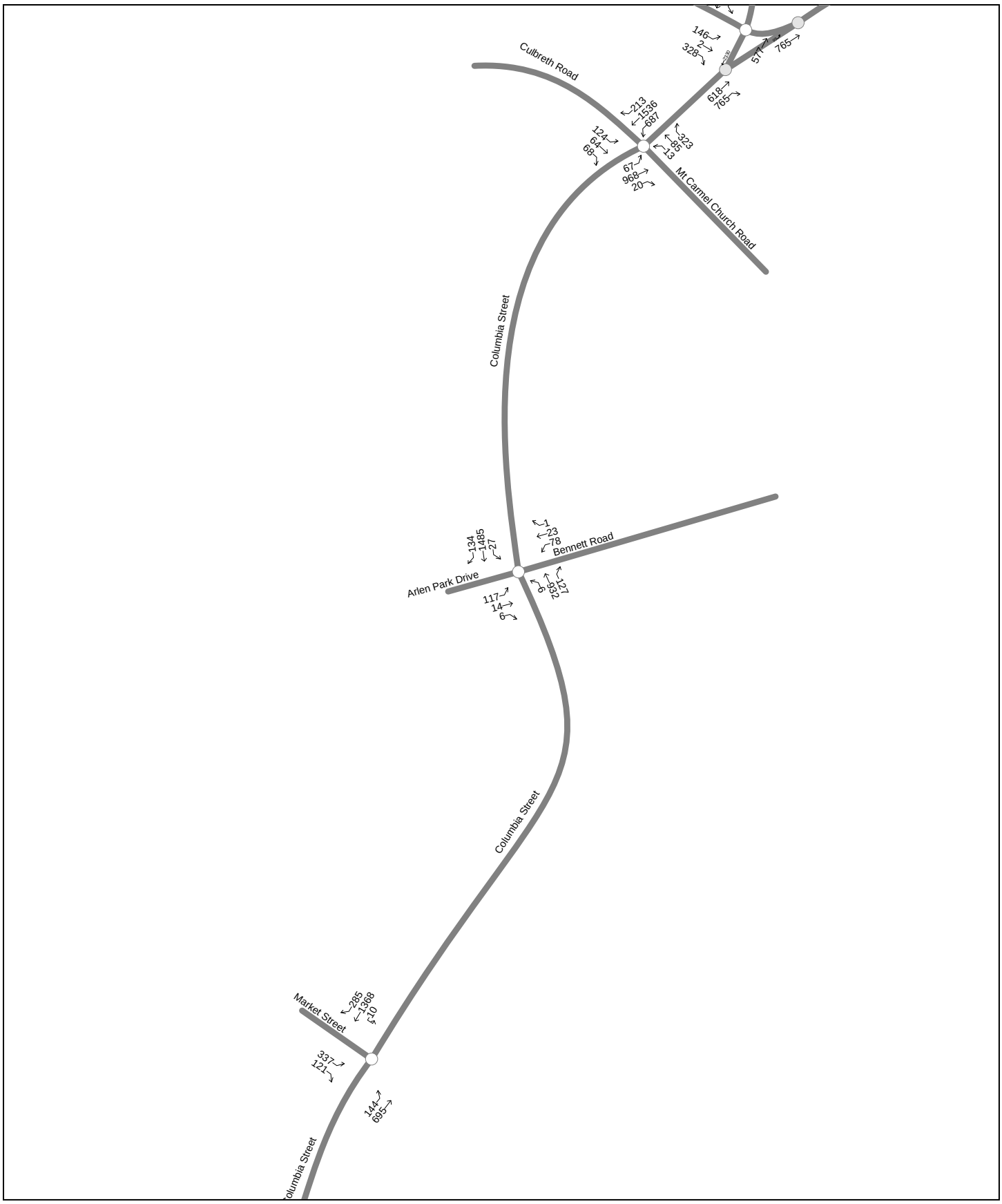


Figure 4-7c
Future No-Build Year 2024 P.M. Peak Hour Turning Movement Volumes

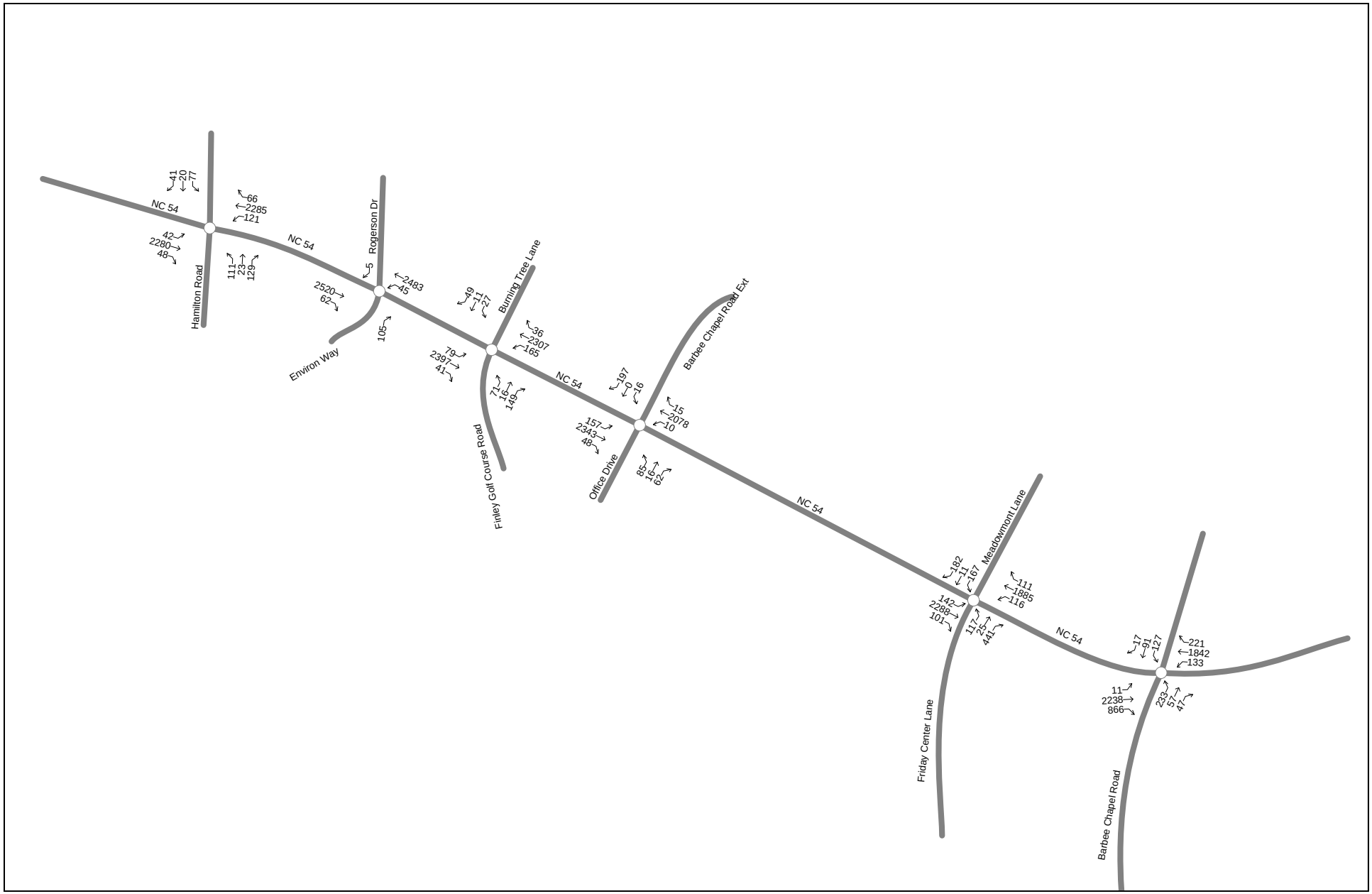


Figure 4-7d
Future No-Build Year 2024 P.M. Peak Hour Turning Movement Volumes

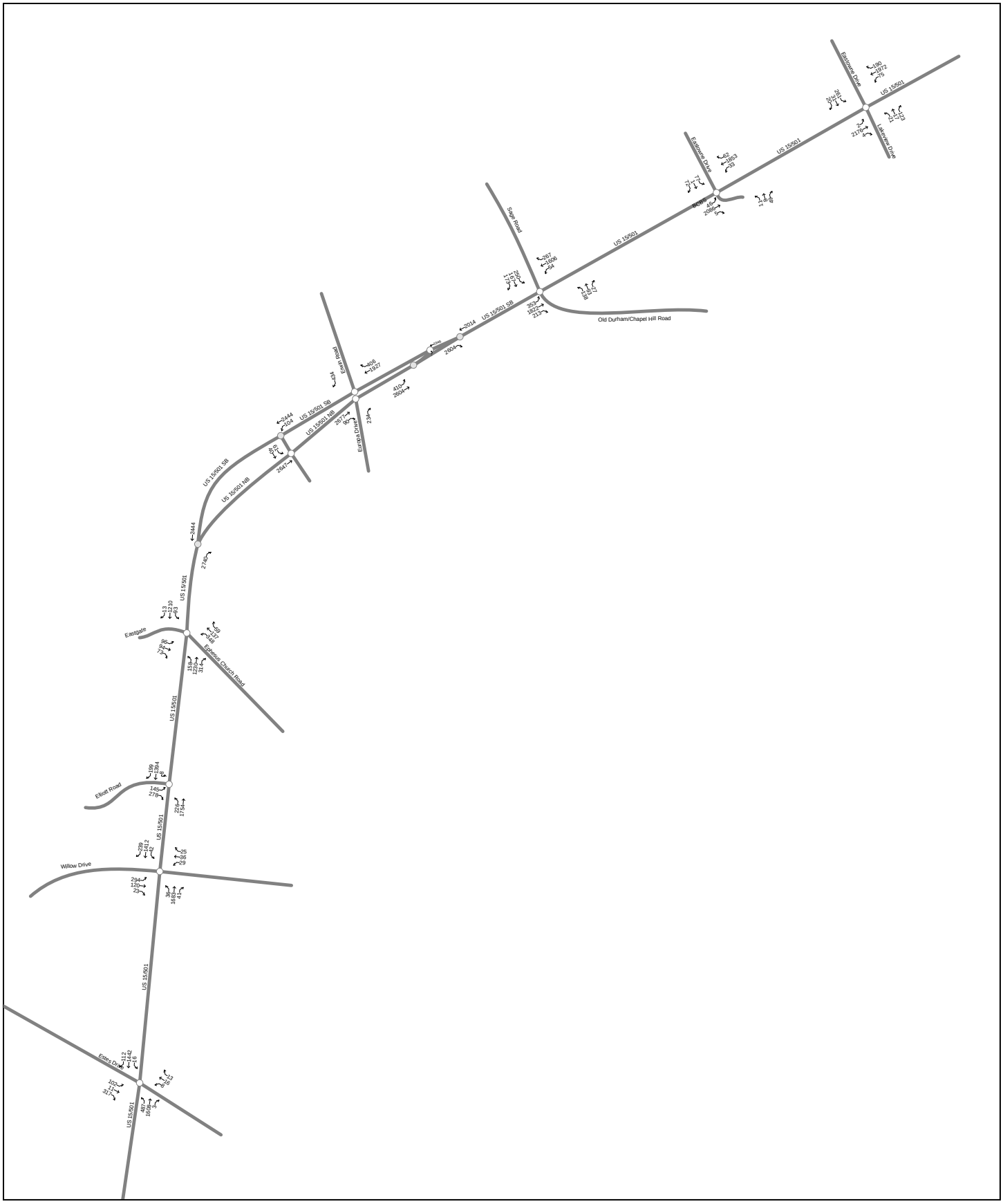


Figure 4-7e
Future No-Build Year 2024 P.M. Peak Hour Turning Movement Volumes

4.5.2 Build Scenario

The development of the 2024 Build scenario turning movement volumes included the following steps:

- The 2024 No-Build volumes (Table 4-8) were used as a base, accounting for existing volumes and future annual growth.

- The future parking generated trips (as described in Section 4.4) were added to the 2024 No-Build volumes to yield 2024 Build volumes.

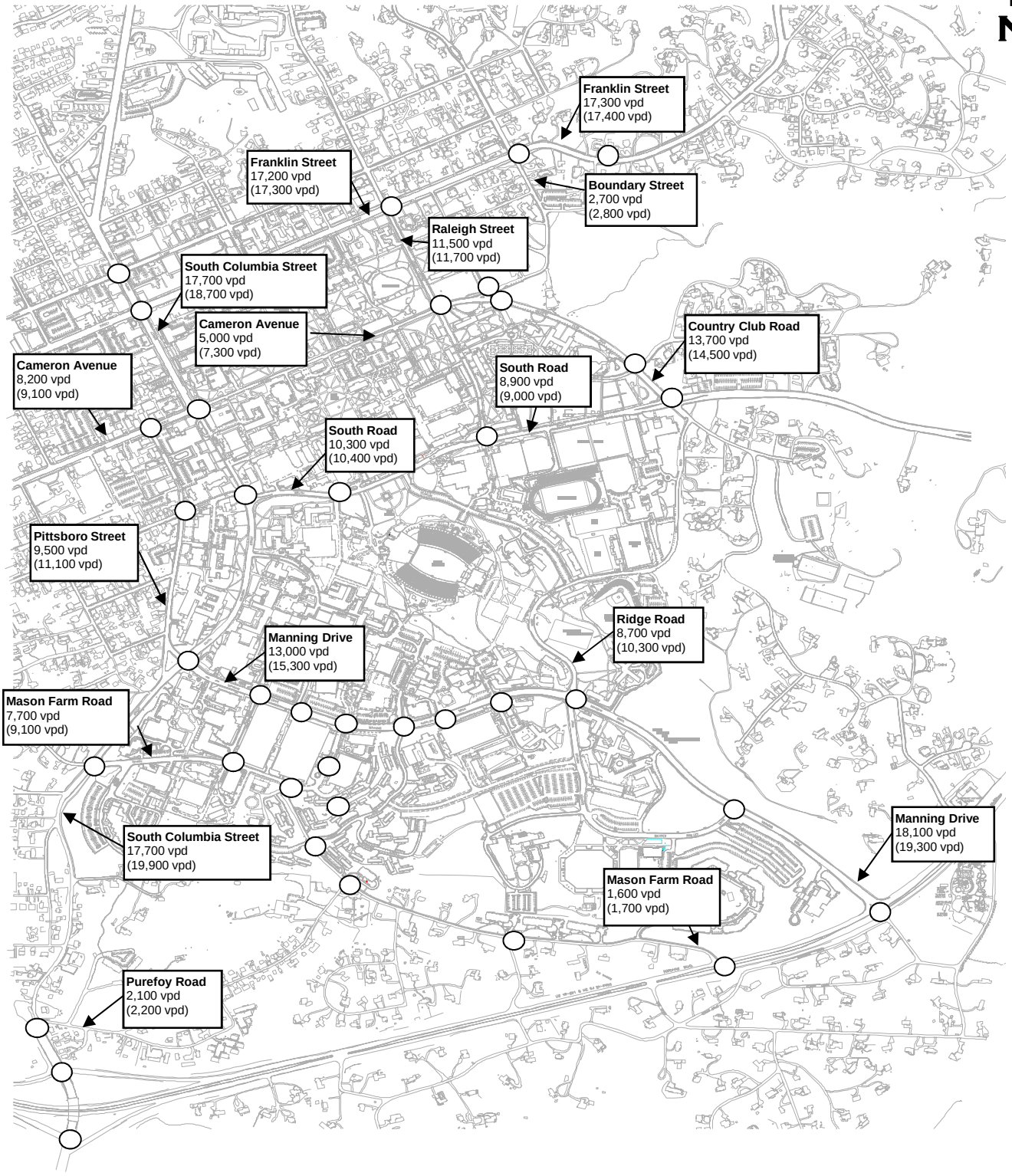
The Build scenario traffic volumes for the AM and PM peak hours are listed in Table 4-10 and illustrated in Figure 4-10 and Figure 4-11. The increase in traffic along the majority of campus roads will be minimal, though increases in individual turning movements at some intersections near proposed parking facilities may be significant. In some areas where parking is being eliminated, some turning movements will decrease compared to the No-Build scenario.

The largest increases in traffic volumes will be experienced on the major arteries serving Campus.

The annual growth rates and projected future ADTs for study area roads are listed in Table 4-9 and are displayed in Figure 4-9.

Table 4-9: Existing and Future (2024) Average Daily Traffic Volumes

Link #	Roadway	2001 ADT	2003 ADT	2005 ADT	2006 ADT	2007 ADT	2009 ADT	2011 ADT	2013 ADT	2015 ADT	2017 ADT	2017-2024 Annual Growth Rate	Projected 2024 No-Build ADT	Projected 2024 Build ADT	2001-2009 AGR
1	S. Columbia St. (south of Franklin St.)	20,720	19,060	17,530	-	17,530	15,410	14,380	14,663	16,329	15,783	1.7%	17,700	18,700	-3.6%
2	Raleigh St. (south of Franklin St.)	14,470	10,710	13,080	13,080	11,020	11,710	9,910	10,514	10,450	11,031	0.6%	11,500	11,700	-2.6%
3	Cameron Ave. (west of Pittsboro St.)	9,820	8,300	8,510	-	7,630	9,260	7,220	6,693	7,558	7,710	0.9%	8,200	9,100	-0.7%
4	Cameron Ave. (east of S. Columbia St.)	9,070	8,330	6,430	6,430	5,270	5,540	5,910	4,679	4,881	4,616	1.2%	5,000	7,300	-6.0%
5	Country Club Rd. (north of South Rd.)	13,470	14,080	12,200	12,200	12,990	11,960	11,260	10,726	12,534	13,060	0.7%	13,700	14,500	-1.5%
6	South Rd. (east of Columbia St.)	10,460	8,840	11,400	-	8,400	7,430	8,370	8,593	9,649	9,209	1.7%	10,300	10,400	-4.2%
7	South Rd. (east of Raleigh St.)	9,840	10,000	12,890	12,890	7,500	7,510	7,730	7,944	7,744	7,802	2.0%	8,900	9,000	-3.3%
8	Pittsboro St. (south of McCauley St.)	10,960	10,070	10,920	-	9,550	9,750	8,810	8,061	8,487	8,632	1.4%	9,500	11,100	-1.5%
9	Manning Dr. (east of Columbia St.)	14,100	13,220	12,480	12,480	11,070	11,060	10,020	10,713	11,298	11,828	1.4%	13,000	15,300	-3.0%
10	Ridge Rd. (north of Manning Dr.)	8,320	7,870	7,300	7,300	7,910	8,730	8,110	7,819	7,216	7,594	2.0%	8,700	10,300	0.6%
11	S. Columbia St. (south of Mason Farm Rd.)	18,470	18,250	16,190	-	16,090	15,430	14,760	13,982	15,480	16,285	1.3%	17,700	19,900	-2.2%
12	Manning Dr. (east of Ridge Rd.)	17,260	14,680	17,880	17,880	15,680	16,150	14,660	15,734	15,879	17,023	0.9%	18,100	19,300	-0.8%
13	Franklin St. (west of Raleigh St.)	17,000	19,260	18,850	-	19,320	16,250	14,370	14,605	14,895	16,228	0.9%	17,200	17,300	-0.6%
14	Franklin St. (east of Boundary St.)	-	23,560	20,190	20,190	24,730	17,390	16,770	16,614	16,620	16,327	0.9%	17,300	17,400	-4.9%
15	Boundary St. (south of Franklin St.)	-	3,230	2,320	2,320	2,140	2,230	2,400	2,225	2,008	2,581	0.6%	2,700	2,800	-6.0%
16	Mason Farm Rd.(east of S. Columbia St.)	7,700	8,230	3,400	3,400	8,390	7,330	6,910	6,314	6,755	6,746	2.0%	7,700	9,100	-0.6%
17	Mason Farm Rd. (north of Fordham Blvd.)	1,360	770	1,830	-	1,820	1,770	1,730	1,720	1,546	1,596	0.4%	1,600	1,700	3.3%
18	Purefoy Rd. (east of Columbia St.)*	970	970	1,130	-	1,360	1,450	2,070	1,705	1,747	2,044	0.4%	2,100	2,200	5.2%
19	US 15-501 (west of Main St.)	-	-	-	-	17,840	17,080	16,770	19,993	20,801	22,587	2.0%	25,800	26,400	-2.2%
20	US 15-501 (east of Culbreth Rd.)	30,480	-	30,000	-	30,310	30,570	28,390	31,867	35,429	38,238	2.0%	43,600	44,800	0.0%
21	NC 54 (west of Hamilton Rd.)	45,400	-	44,000	-	47,940	43,470	41,230	41,388	48,286	51,099	2.0%	58,300	60,800	-0.5%
22	NC 54 (east of East Barbee Chapel Hill Rd.)	-	-	-	-	32,100	37,390	36,320	39,967	44,174	46,875	2.0%	53,400	55,600	7.9%



Legend:
2024 No-Build Vehicles Per Day
(2024 Build Vehicles Per Day)

Figure 4-9a

Future (2024) Average Daily Traffic Volumes

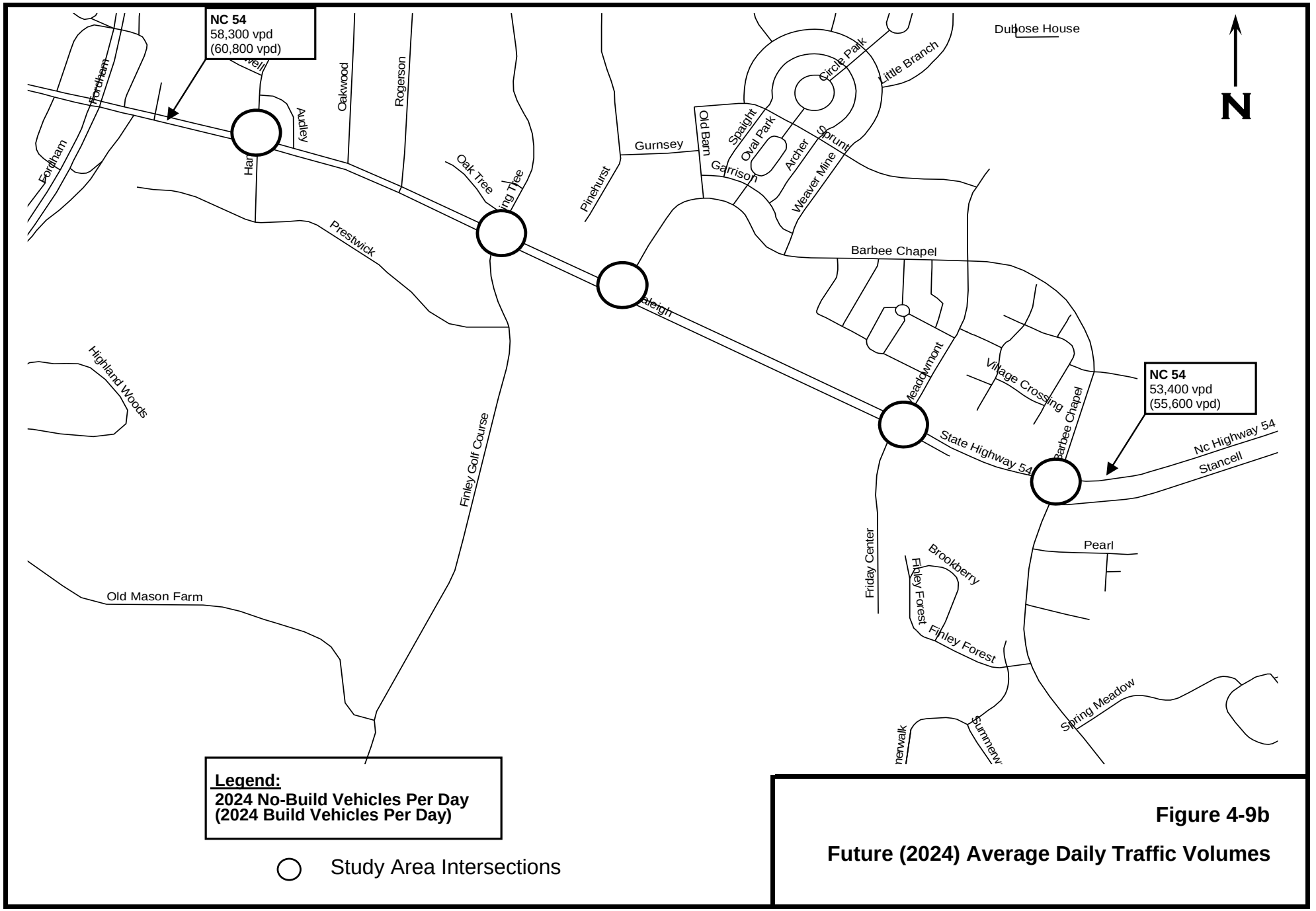


Figure 4-9b

Future (2024) Average Daily Traffic Volumes

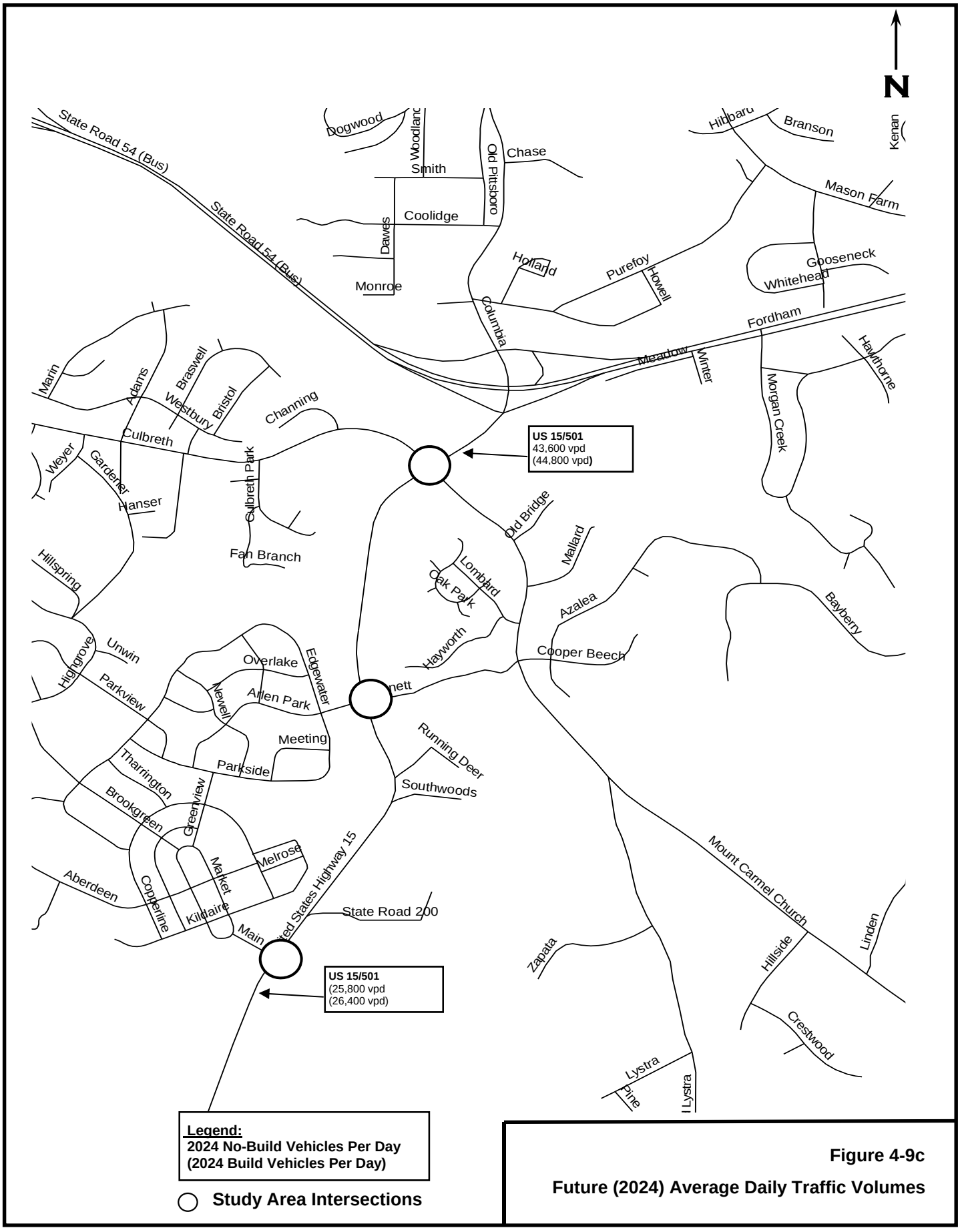


Figure 4-9c

Future (2024) Average Daily Traffic Volumes

Table 4-10: Future Build Year 2024 Turning Movement Volumes

AM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	122	179	28	11	120	59	36	359	35	0	122	619	163
2	Columbia Street/Franklin Street	63	296	61	89	327	74	44	310	93	0	50	580	45
3	Franklin Street/Raleigh Street	10	284	125	53	460	79	112	163	30	0	50	279	18
4	Merritt Mill Road/Cameron Avenue	0	0	0	72	0	38	0	175	478	0	137	95	0
5	Cameron Avenue/Pittsboro Street	0	133	207	755	149	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	17	105	0	0	200	42	98	384	107	0	86	0	603
7	Cameron Avenue/Raleigh Street	25	123	27	27	282	206	24	48	14	0	330	155	74
8	Pittsboro Street/McCauley Street	0	116	41	146	41	0	0	0	0	0	169	742	11
9	Columbia Street/South Road	23	306	0	0	197	127	61	473	225	0	0	0	0
10	Raleigh Street/South Road	46	207	0	0	334	35	0	0	0	0	37	0	122
11	Country Club Road/South Road	5	158	48	621	406	565	30	34	113	0	324	172	18
12	Columbia Street/Manning Drive	80	407	0	61	0	216	0	439	446	0	0	0	0
13	Manning Drive/West Drive	283	392	322	275	294	228	0	0	0	0	18	6	17
14	Manning Drive/East Drive	85	400	124	262	575	95	94	31	298	0	0	0	0
15	Ridge Road/Manning Drive	164	390	56	-145	770	62	20	32	-15	0	50	81	492
16	Mason Farm Road/Columbia Street	7	6	1	183	0	86	6	763	276	0	156	215	5
17	Mason Farm Road/West Drive	0	279	24	10	262	0	0	0	0	0	33	7	89
18	Mason Farm Road/East Drive	60	228	66	14	134	6	87	19	170	0	0	0	0
19	Mason Farm Road/Purefoy Road	203	0	13	0	0	0	16	124	0	0	0	20	10
20	Manning Drive/Skipper Bowles Drive	0	378	27	344	600	0	1	0	54	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	21	0	5	0	1135	366	0	13	447	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	556	0	68	252	1431	0	0	0	308	153
23	Columbia Street/Fordham Boulevard (southern ramp)	518	2	422	0	0	0	0	1163	0	0	58	811	0
24	Mason Farm Road/Fordham Boulevard	0	2372	0	0	1250	109	0	0	0	0	0	0	37
25	Manning Drive/Fordham Boulevard	186	2350	4	8	1287	911	19	7	28	0	271	3	33
26	Mason Farm Road/Oteys Road	1	26	11	5	69	1	42	0	0	0	1	0	1
27	Franklin Street/Boundary Street	6	325	8	57	558	72	5	26	27	0	77	19	6
28	Franklin Street/Park Place	0	422	1	127	701	0	0	0	33	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	74	116	2	0	126	96	0	0	47	61
30	Country Club Road/Battle Lane	26	350	0	0	427	123	0	0	0	0	120	0	0
307	Country Club Road & Boundary Street	0	377	0	0	427	0	0	0	0	0	0	0	177
31	Country Club Road/Gimghoul Road	5	1	18	11	1	6	90	584	13	0	5	464	30
32	Manning Drive/Hibbard Drive	47	620	17	10	855	39	18	10	53	0	27	4	40
33	Manning Drive/Craige Drive	42	517	21	163	1054	37	4	4	14	0	18	3	9
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	0	0	3	20	413	2	0	81	106	217
35	East Drive/Dogwood Deck Exit	215	0	122	0	0	0	0	223	0	0	0	56	0
36	Mason Farm Road/Hibbard Drive	4	2	1	-4	5	19	35	249	184	0	42	39	12
37	South Road/Bell Tower Drive	0	340	204	192	299	0	29	0	55	0	0	0	0
38	Manning Drive/Old East Drive	0	413	0	0	669	0	0	0	0	0	202	0	151
39	Manning Drive/Craige Deck	0	610	132	178	916	0	7	0	13	0	0	0	0
101	US 15-501/Estes Drive	71	2	277	1	10	15	378	1504	4	0	9	1433	73
102	US 15-501/Willow Drive	121	29	8	59	61	19	66	1511	12	0	17	1478	288
103	US 15-501/Elliot Road	40	0	115	0	0	0	127	1516	0	5	0	1681	124
104	US 15-501/Ephesus Church Road	28	33	32	252	96	85	56	1279	229	0	65	1404	8
105	US 15-501/Erwin Road	0	0	0	0	2146	305	0	0	0	0	0	0	494
106	US 15-501/Europa Drive	0	2059	140	0	0	0	0	0	175	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	0	0	0	0	2112	0	276	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	2141	0	0	0	0	0	0	0	0	70	17	0
109	US 15-501/Sage Road	332	1569	152	170	1843	163	168	106	21	0	297	155	146
110	US 15-501/Eastowne Drive/BCBS	84	1666	9	30	2152	69	1	6	26	0	50	3	46
111	US 15-501/Eastowne Drive/Lakeview Drive	14	1681	3	68	2230	326	13	31	144	0	88	8	2
201	NC 54/Hamilton Street	28	1929	164	86	2510	32	134	41	121	0	70	49	27
202	NC 54/Burning Tree Lane	33	1949	56	170	2639	24	37	3	144	0	42	12	47
203	NC 54/Barbee Chapel Road Ext	175	1957	103	93	2652	35	14	1	2	0	7	4	116
204	NC 54/Meadowmont Lane	199	1629	128	467	2677	134	73	3	45	0	67	19	141
205	NC 54/Barbee Chapel Road (East)	13	1646	216	25	2648	222	600	96	71	0	126	37	23
301	US 15-501/Culbreth Road/Mt Carmel Church Road	228	89	68	10	130	575	69	1593	4	0	341	910	152
302	US 15-501/Bennett Road/Arlen Park Drive	106	22	9	108	14	24	7	1508	102	0	36	857	108
303	US 15-501/Market Street	269	0	41	0	0	0	202	1375	0	28	0	572	398

PM Peak Hour

ID #	Intersection	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT	SBR
1	Columbia Street/Rosemary Street	195	263	67	35	202	67	50	690	71	0	78	531	253
2	Columbia Street/Franklin Street	115	388	96	126	466	91	102	617	123	0	83	473	102
3	Franklin Street/Raleigh Street	43	456	225	49	561	176	116	333	26	0	97	328	20
4	Merritt Mill Road/Cameron Avenue	0	0	0	405	0	144	0	112	206	0	83	297	0
5	Cameron Avenue/Pittsboro Street	0	154	141	570	465	0	0	0	0	0	0	0	0
6	Cameron Avenue/Columbia Street	27	117	0	0	247	61	276	720	163	0	119	0	516
7	Cameron Avenue/Raleigh Street	53	279	51	25	253	286	68	122	59	0	346	179	90
8	Pittsboro Street/McCauley Street	0	101	22	207	236	0	0	0	0	0	244	552	44
9	Columbia Street/South Road	97	336	0	0	376	294	143	822	183	0	0	0	0
10	Raleigh Street/South Road	112	395	0	0	260	57	0	0	0	0	77	0	153
11	Country Club Road/South Road	41	413	31	231	273	542	31	175	507	0	602	80	24
12	Columbia Street/Manning Drive	113	203	0	221	8	596	0	490	82	0	0	0	0
13	Manning Drive/West Drive	82	239	27	99	772	69	0	0	0	0	9	5	29
14	Manning Drive/East Drive	33	397	45	76	544	54	174	26	518	0	0	0	0
15	Ridge Road/Manning Drive	314	891	74	20	272	92	112	182	58	0	84	87	151
16	Mason Farm Road/Columbia Street	1	2	2	485	0	148	7	401	99	0	67	573	6
17	Mason Farm Road/West Drive	0	178	17	7	444	0	0	0	0	0	21	3	104
18	Mason Farm Road/East Drive	27	302	155	111	210	3	41	0	28	0	0	0	0
19	Mason Farm Road/Purefoy Road	16	0	23	0	0	0	16	55	0	0	0	323	72
20	Manning Drive/Skipper Bowles Drive	0	925	12	109	311	0	22	0	304	0	0	0	0
21	Columbia Street/Purefoy Road	0	0	0	126	0	29	0	495	29	0	9	1090	0
22	Columbia Street/Fordham Boulevard (northern ramp)	0	0	0	1295	0	48	320	480	0	0	0	834	334
23	Columbia Street/Fordham Boulevard (southern ramp)	168	2	328	0	0	0	0	614	0	0	90	1938	0
24	Mason Farm Road/Fordham Boulevard	0	1619	0	0	2361	40	0	0	0	0	0	0	239
25	Manning Drive/Fordham Boulevard	84	1590	4	10	2091	287	10	2	21	0	1056	6	316
26	Mason Farm Road/Oteys Road	4	119	190	3	40	2	12	1	0	0	3	2	3
27	Franklin Street/Boundary Street	7	629	4	23	603	69	13	65	126	0	112	24	8
28	Franklin Street/Park Place	0	859	2	67	701	0	1	0	127	0	0	0	0
29	Battle Lane/Boundary Street	0	0	0	55	77	3	0	163	309	0	2	82	84
30	Country Club Road/Battle Lane	75	488	0	0	491	156	0	0	0	0	137	0	0
307	Country Club Road & Boundary Street	0	563	0	0	491	0	0	0	0	0	0	0	161
31	Country Club Road/Gimghoul Road	42	0	90	11	0	11	18	729	13	0	10	614	8
32	Manning Drive/Hibbard Drive	36	887	8	31	573	21	25	4	23	0	46	19	67
33	Manning Drive/Craige Drive	29	1133	4	20	458	26	32	1	180	0	36	0	16
34	East Drive/Jackson Circle/Dogwood Deck Entrance	0	0	0	2	0	21	3	719	0	0	1	50	75
35	East Drive/Dogwood Deck Exit	256	0	141	0	0	0	0	325	0	0	0	52	0
36	Mason Farm Road/Hibbard Drive	4	3	6	164	0	11	0	51	20	0	7	271	1
37	South Road/Bell Tower Drive	0	465	48	52	450	0	167	0	152	0	0	0	0
38	Manning Drive/Old East Drive	0	250	0	0	712	0	0	0	0	0	221	0	240
39	Manning Drive/Craige Deck	0	925	5	5	558	0	99	0	194	0	0	0	0
101	US 15-501/Estes Drive	102	11	317	8	16	13	487	1745	3	0	16	1517	112
102	US 15-501/Willow Drive	294	120	23	29	36	25	36	1820	41	0	42	1487	239
103	US 15-501/Elliot Road	145	0	278	0	0	0	226	1891	0	8	0	1469	199
104	US 15-501/Ephesus Church Road	96	112	73	348	137	69	158	1347	334	0	93	1275	13
105	US 15-501/Erwin Road	0	0	0	0	2013	436	0	0	0	0	0	0	454
106	US 15-501/Europa Drive	0	2855	90	0	0	0	0	0	234	0	0	0	0
107	US 15-501/Superstreet NB U-Turn	32	0	0	0	2032	0	396	0	0	0	0	0	0
108	US 15-501/Superstreet SB U-Turn	0	2809	0	0	0	0	0	0	0	0	61	40	0
109	US 15-501/Sage Road	360	1948	228	54	1679	267	147	93	27	0	250	167	177
110	US 15-501/Eastowne Drive/BCBS	46	2212	5	33	1926	62	11	8	49	0	77	1	72
111	US 15-501/Eastowne Drive/Lakeview Drive	2	2302	4	75	2045	190	21	17	123	0	261	31	20
201	NC 54/Hamilton Street	42	2423	53	121	2380	66	114	23	129	0	77	20	41
202	NC 54/Burning Tree Lane	79	2540	41	165	2402	36	71	16	149	0	27	11	49
203	NC 54/Barbee Chapel Road Ext	167	2476	48	10	2166	15	85	16	62	0	16	0	203
204	NC 54/Meadowmont Lane	147	2411	106	116	1967	111	120	25	441	0	167	11	185
205	NC 54/Barbee Chapel Road (East)	11	2341	886	133	1911	221	246	57	47	0	127	91	17
301	US 15-501/Culbreth Road/Mt Carmel Church Road	124	64	68	13	85	339	67	996	20	0	716	1588	213
302	US 15-501/Bennett Road/Arlen Park Drive	117	14	6	78	23	1	6	960	127	0	27	1537	134
303	US 15-501/Market Street	343	0	121	0	0	0	144	717	0	10	0	1408	297

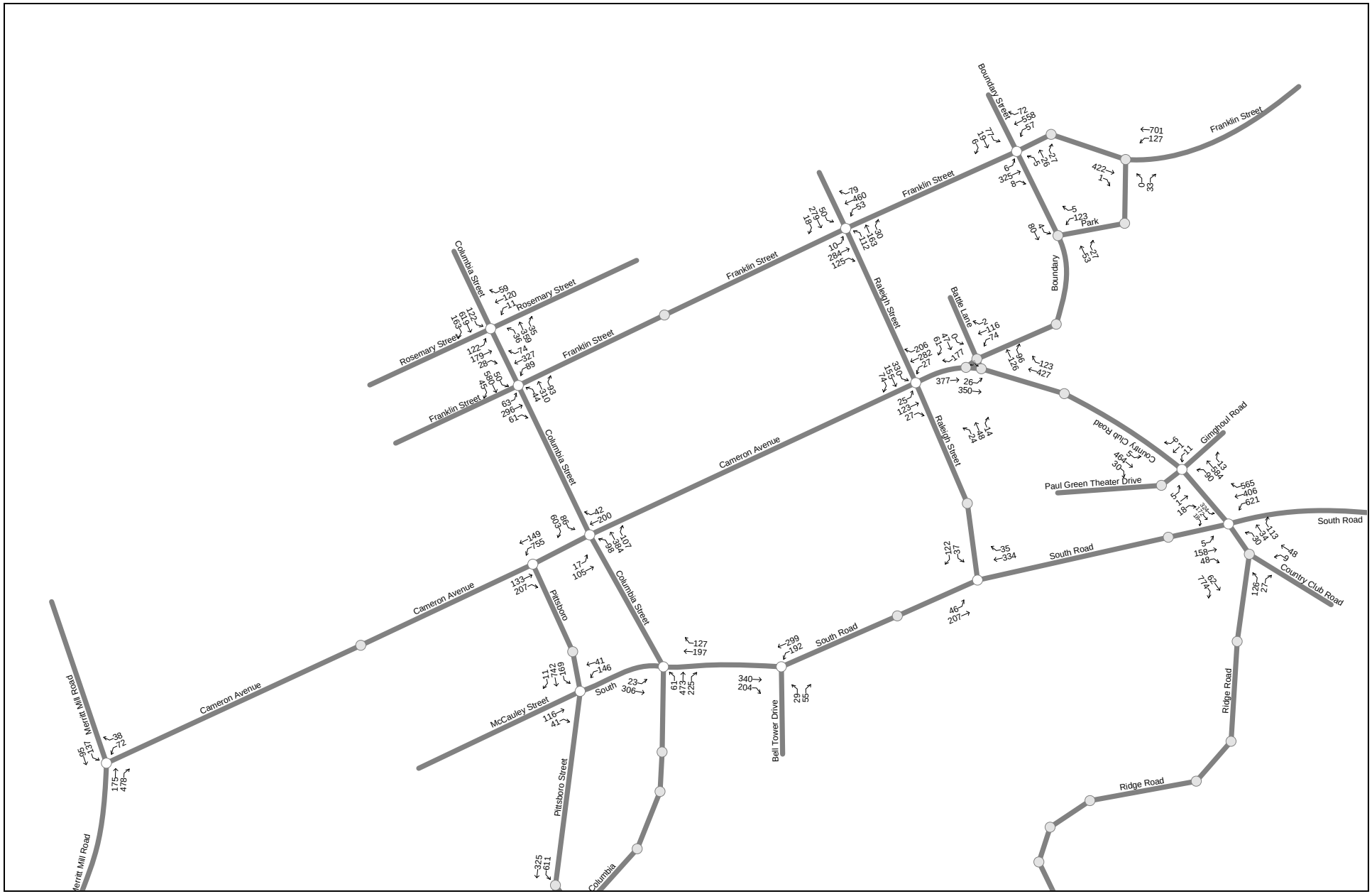


Figure 4-10a
Future Build Year 2024 A.M. Peak Hour Turning Movement Volumes

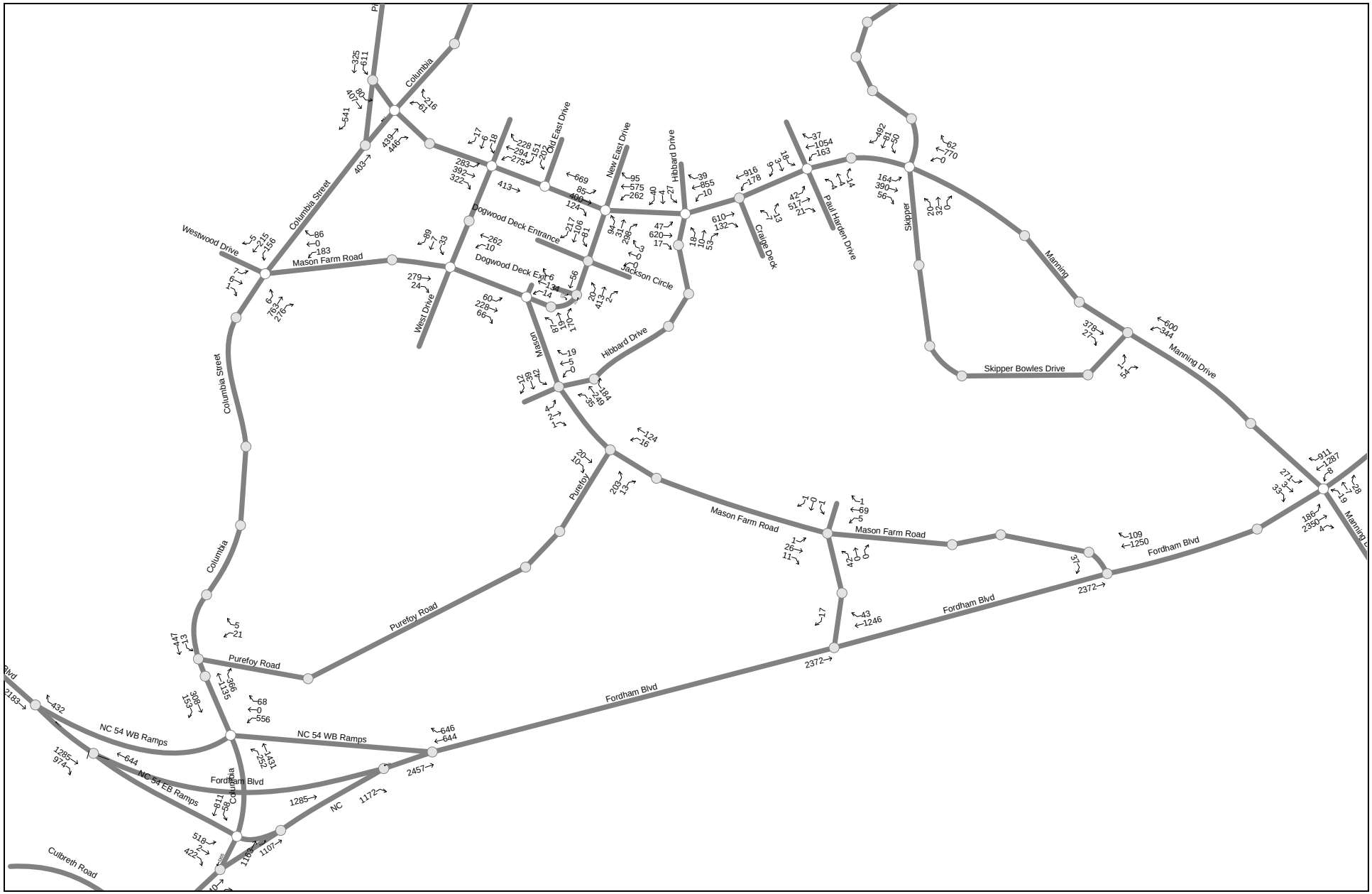


Figure 4-10b
Future Build Year 2024 A.M. Peak Hour Turning Movement Volumes

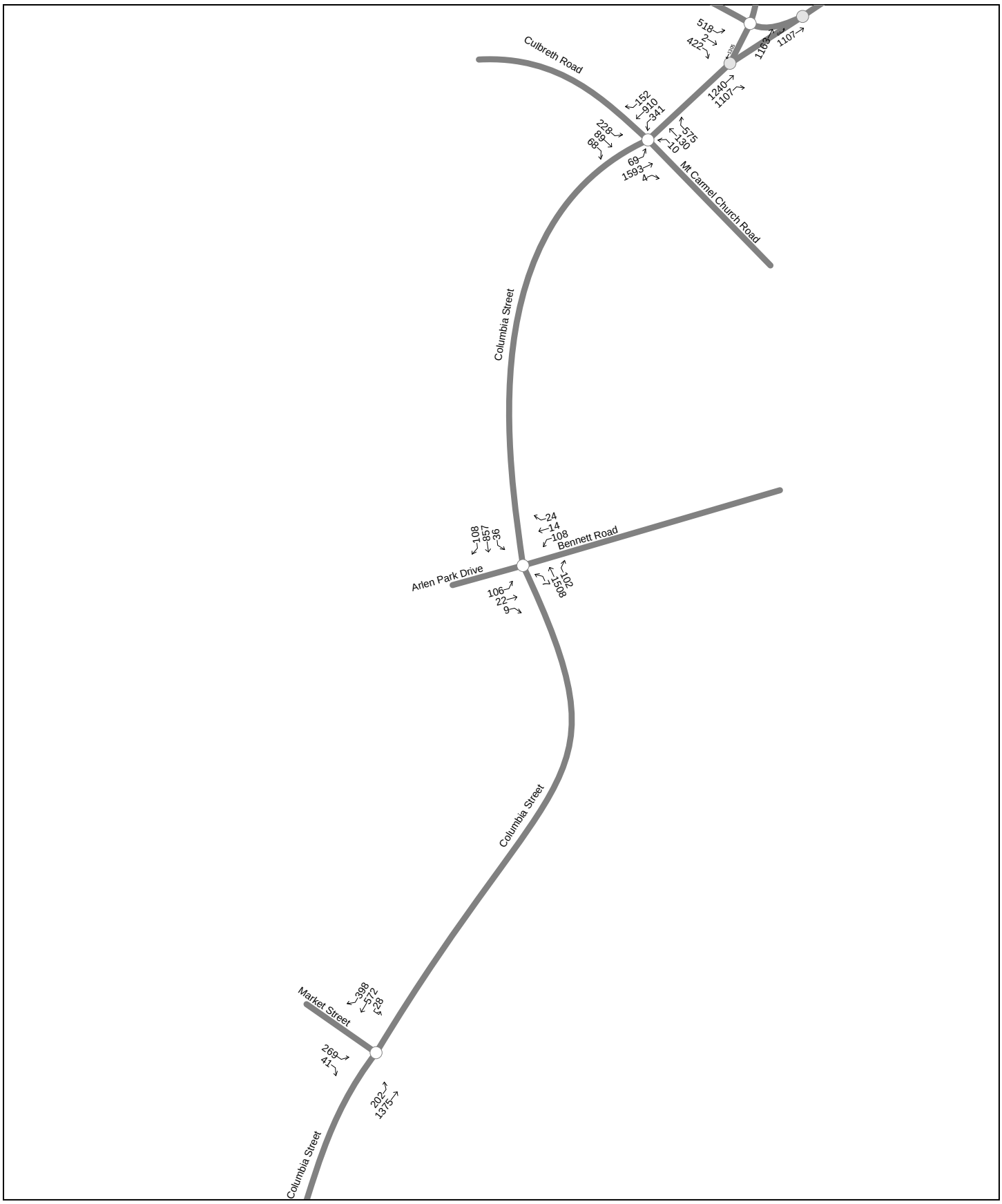


Figure 4-10c
Future-Build Year 2024 A.M. Peak Hour Turning Movement Volumes

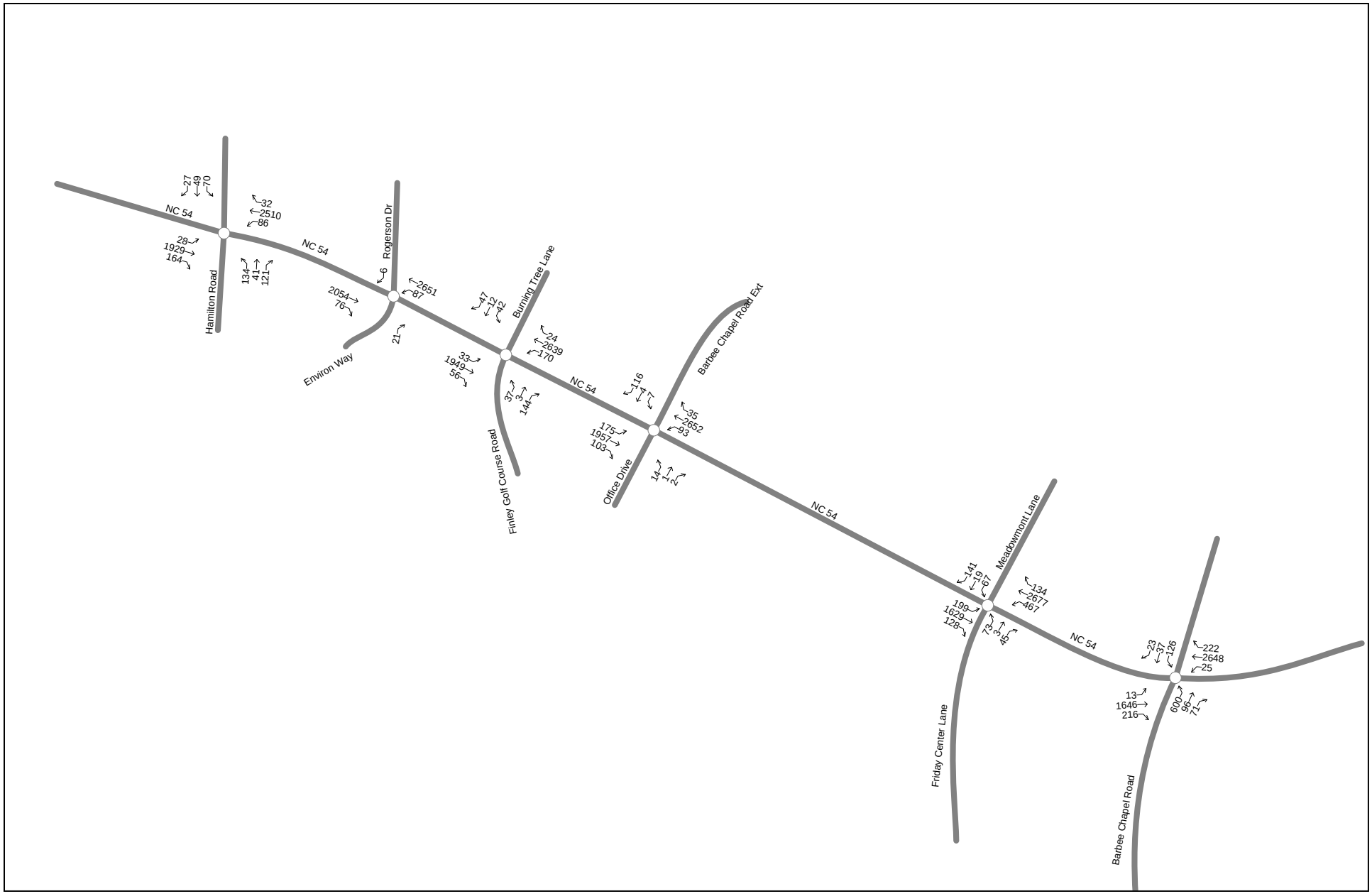


Figure 4-10d
Future Build Year 2024 A.M. Peak Hour Turning Movement Volumes

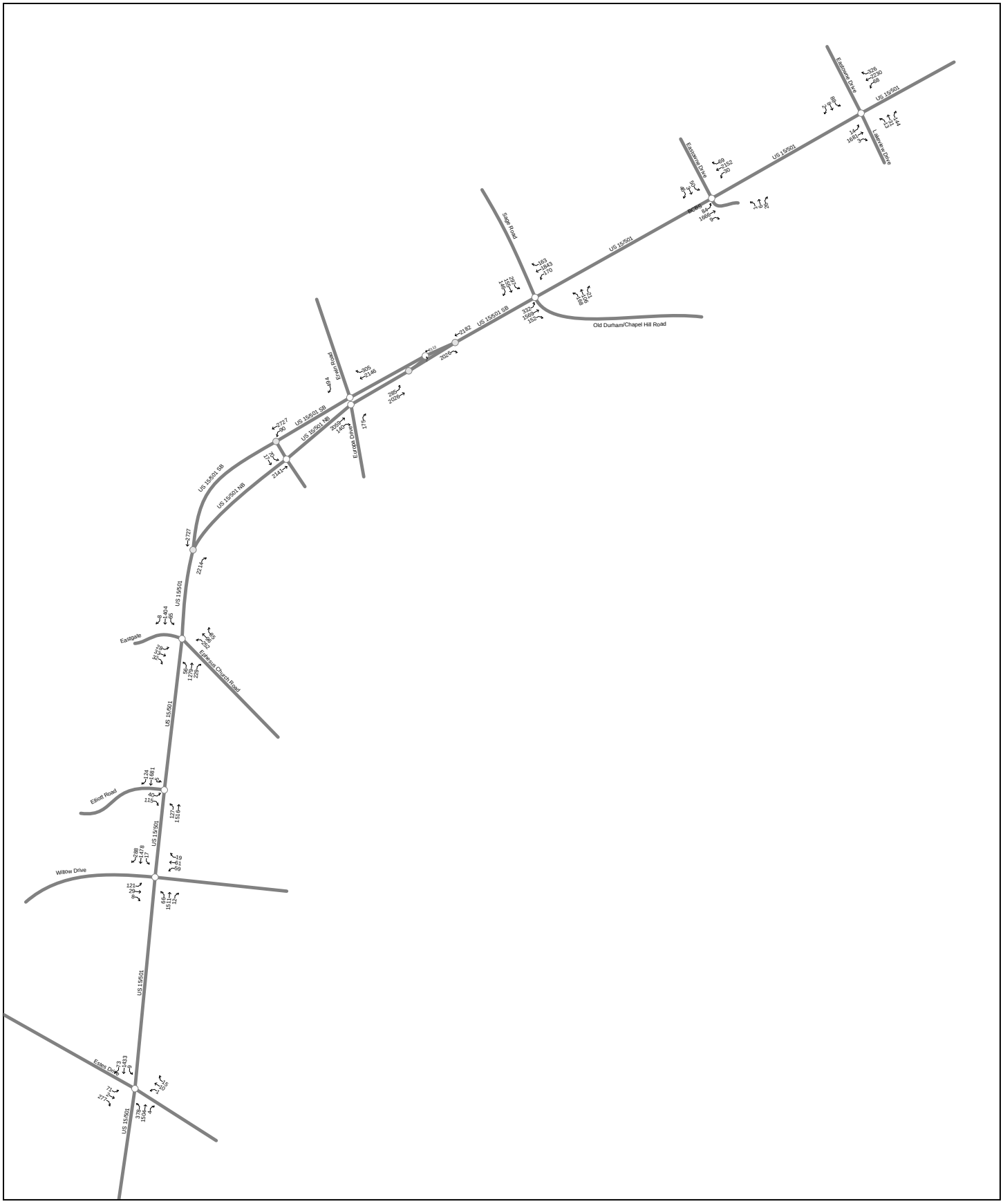


Figure 4-10e
Future Build Year 2024 A.M. Peak Hour Turning Movement Volumes

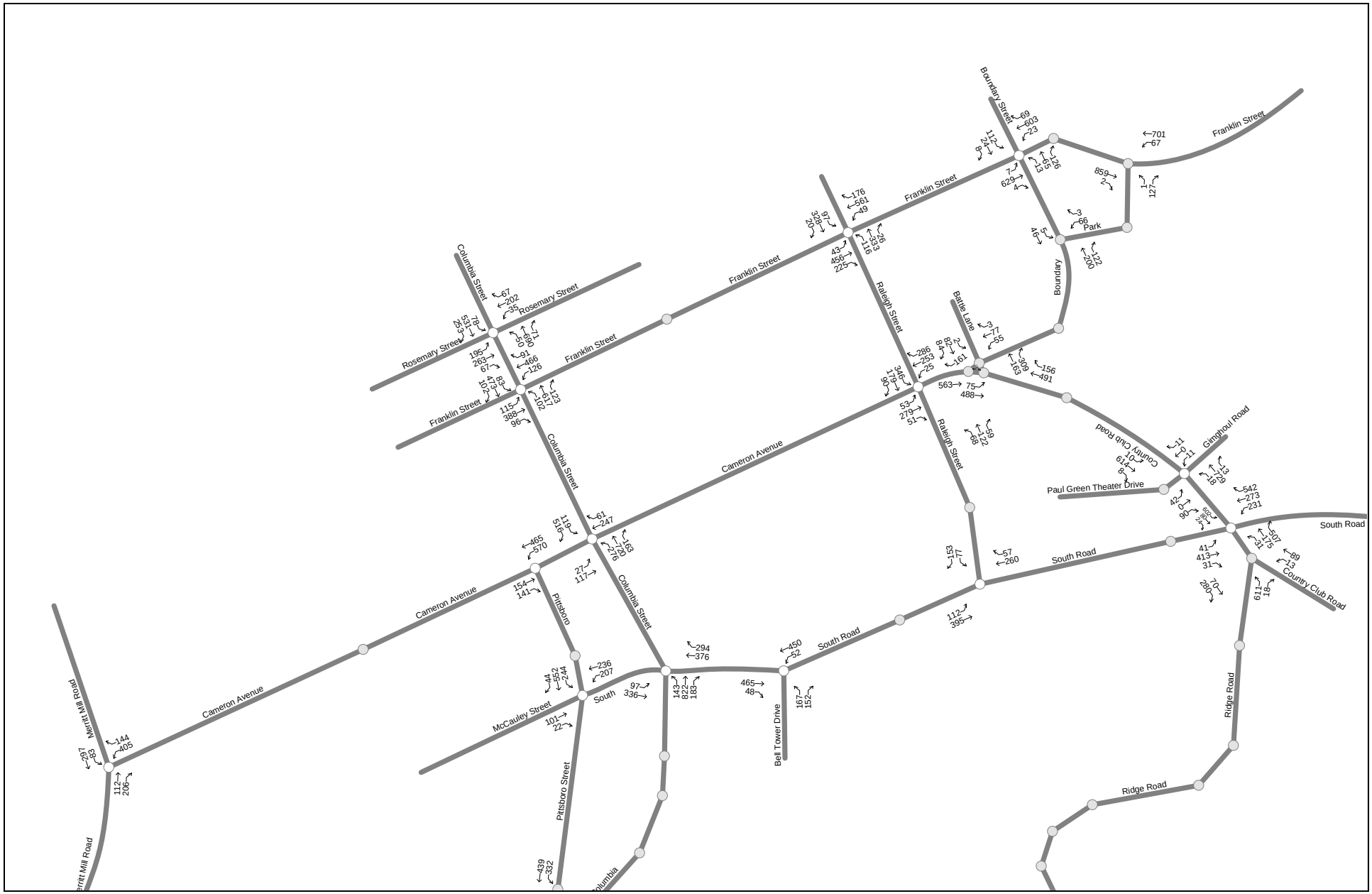


Figure 4-11a
Future Build Year 2024 P.M. Peak Hour Turning Movement Volumes

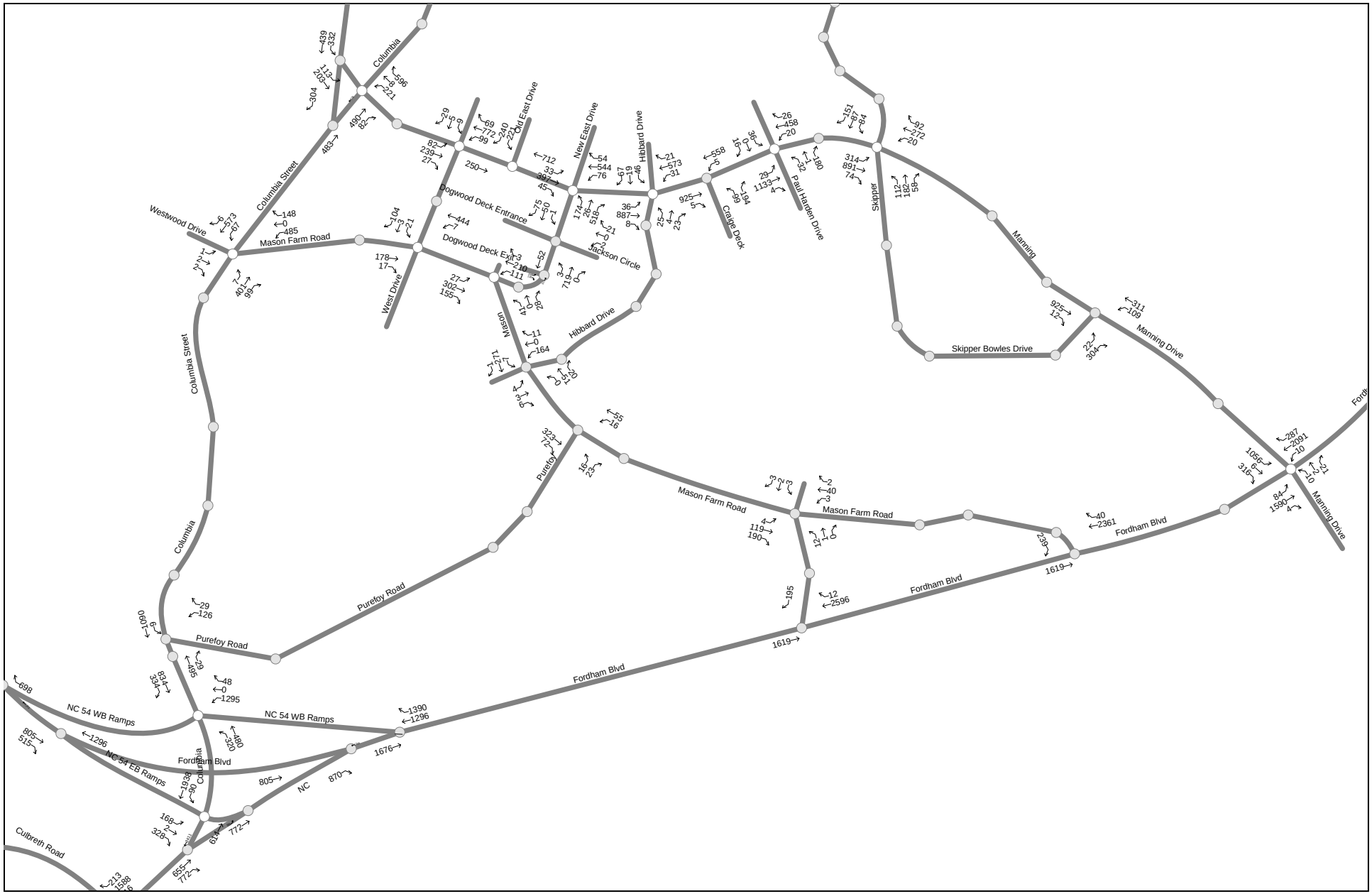


Figure 4-11b
Future Build Year 2024 P.M. Peak Hour Turning Movement Volumes

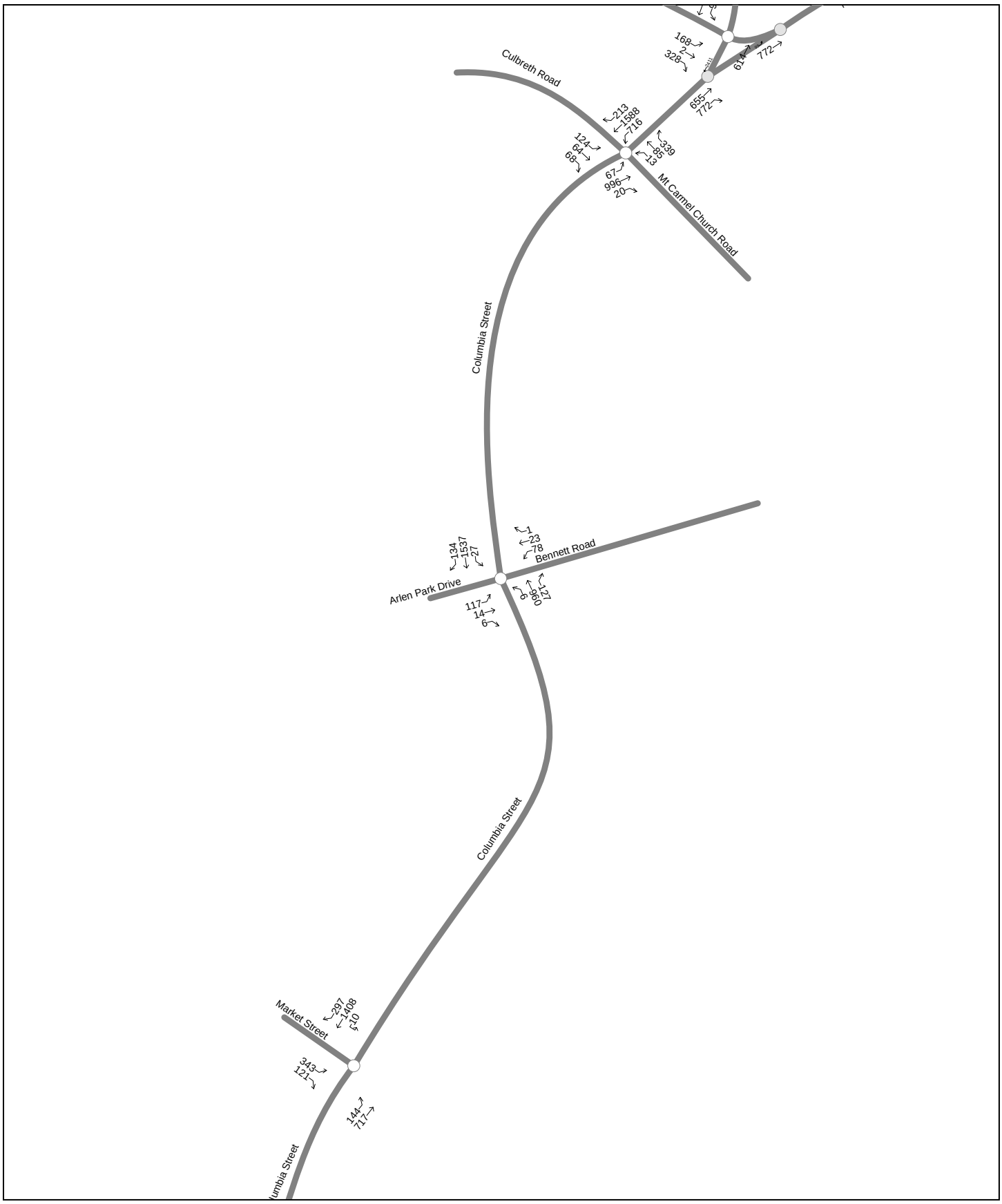


Figure 4-11c
Future Build Year 2024 P.M. Peak Hour Turning Movement Volumes

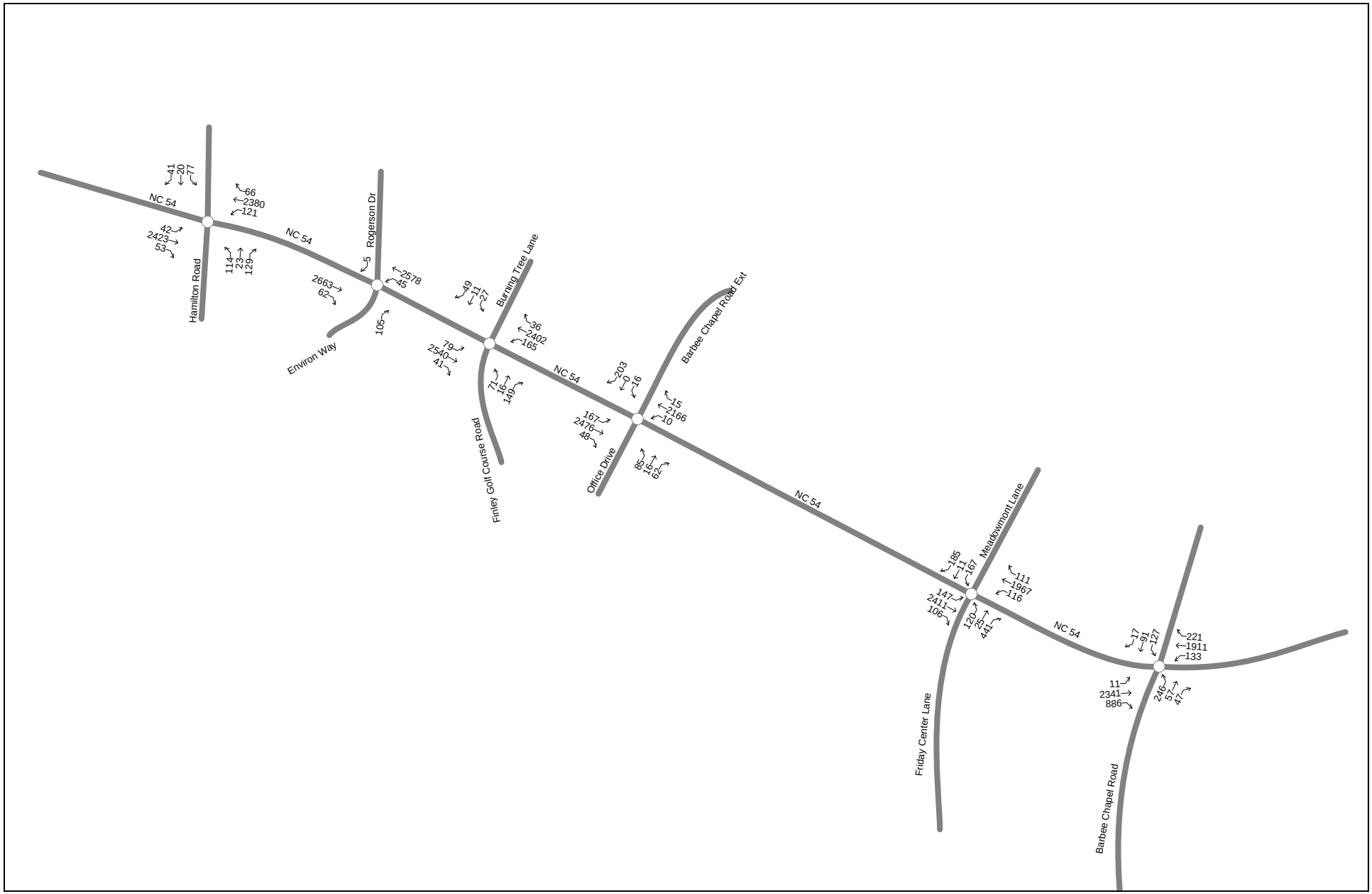


Figure 4-11d
Future Build Year 2024 P.M. Peak Hour Turning Movement Volumes

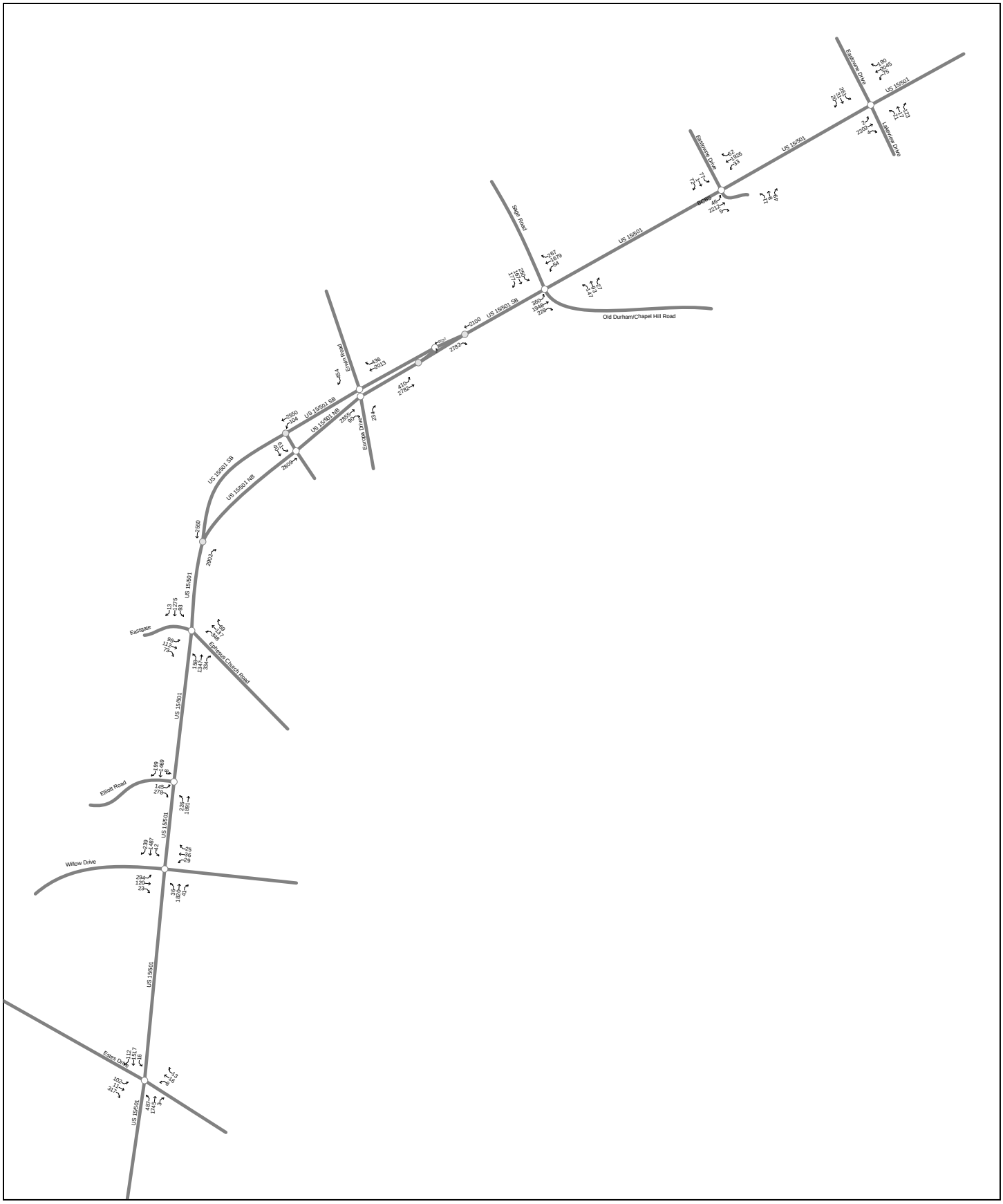


Figure 4-11e
Future Build Year 2024 P.M. Peak Hour Turning Movement Volumes

4.6 FUTURE INTERSECTION LEVEL OF SERVICE ANALYSIS

AM and PM peak hour capacity analyses were performed for the No-Build (2024) and Build (2024) conditions. Per the *Transportation Impact Analysis Guidelines*, all intersections listed in Section 4-3 for which traffic data was available were analyzed for the AM and PM peak hours.

The traffic volumes computed for both scenarios were used to conduct an intersection capacity analysis in the same manner that the existing intersections were examined. The No-Build and Build cases utilized the existing geometrics shown in Figure 4-2. The LOS results are summarized in Table 4-11.

4.6.1 No-Build Analysis Results

As in the Existing Conditions analysis described in Section 4.3, the same intersections that were suffering poor levels of service in 2017 will continue to operate poor levels in 2024 even without any impacts from the Development Plan. Other intersections that were not operating at poor levels in the analysis of existing conditions will deteriorate to poor levels of service in the future as well with the addition of background traffic. In particular, the following intersections were determined to experience a substantial change in LOS (i.e. from acceptable LOS to unacceptable LOS) under No-Build (2024) conditions:

- The intersection of Columbia Street at Manning Drive is currently operating at LOS C during the PM peak hour but is projected to operate at LOS F during the PM peak hour in the No-Build (2024) scenario.

- The intersection of Columbia Street at Fordham Boulevard (northern ramp) is currently operating at LOS D during the PM peak hour but is projected to operate at LOS E during the PM peak hour in the No-Build (2024) scenario.

- The intersection of Manning Drive at Fordham Boulevard is currently operating at LOS E during the PM peak hour but is projected to operate at LOS F during the PM peak hour in the No-Build (2024) scenario.

4.6.2 Build Analysis Results

The following intersections were further degraded under Build (2024) conditions:

- The intersection of Cameron Avenue at Columbia Street is expected to operate at LOS E during the AM peak hour and at LOS F during the PM peak hour in the Build (2024) scenario.

- The intersection of Columbia Street at Purefoy Road is expected to operate at LOS E during the PM peak hour under the Build (2024) scenario.

- The intersection of NC 54 at Barbee Chapel Road (East) is expected to operate at LOS E during the AM peak hour under the Build (2024) scenario.

Table 4-11: Future No-Build and Build Year 2024 Intersection Levels of Service

ID #	Intersection	Control	No-Build (2024)		Build (2024)	
			AM	PM	AM	PM
1	Columbia Street/Rosemary Street	Signalized	C (WB-D)	C (WB-E)	C (WB-D)	C (WB-E)
2	Columbia Street/Franklin Street	Signalized	C (SB-D)	D (NB-E)	C (EB-D)	D (NB-E)
3	Franklin Street/Raleigh Street	Signalized	C (NB-F)	C (NB-D)	C (NB-F)	C (NB-C)
4	Merritt Mill Road/Cameron Avenue	Signalized	B (WB-D)	B (NB-C)	B (WB-D)	B (NB-C)
5	Cameron Avenue/Pittsboro Street	Signalized	B (EB-D)	C (EB-E)	B (EB-D)	C (EB-E)
6	Cameron Avenue/Columbia Street	Signalized	D (WB-E)	E (WB-F)	E (NB-F)	F (WB-F)
7	Cameron Avenue/Raleigh Street	Signalized	C (NB-D)	D (NB-E)	C (NB-D)	D (NB-F)
8	Pittsboro Street/McCauley Street	Signalized	B (WB-E)	D (WB-E)	B (WB-E)	D (WB-E)
9	Columbia Street/South Road	Signalized	C (EB-D)	D (EB-E)	C (EB-D)	D (EB-E)
10	Raleigh Street/South Road	Signalized	A (SB-C)	A (SB-D)	A (SB-C)	A (SB-C)
11	Country Club Road/South Road	Signalized	C (SB-D)	C (SB-D)	C (SB-D)	D (SB-D)
12	Columbia Street/Manning Drive	Signalized	C (EB-D)	F (WB-F)	C (EB-D)	F (WB-F)
13	Manning Drive/West Drive	Signalized	A (SB-D)	A (SB-C)	A (SB-D)	A (SB-C)
14	Manning Drive/East Drive	Signalized	B (NB-D)	C (NB-D)	B (NB-D)	C (NB-D)
15	Ridge Road/Manning Drive	Signalized	C (NB-D)	C (NB-D)	C (NB-D)	C (NB-D)
16	Mason Farm Road/Columbia Street	Signalized	B (EB-D)	C (WB-D)	C (EB-D)	C (WB-D)
17	Mason Farm Road/West Drive	Signalized	A (SB-D)	A (SB-C)	A (SB-C)	A (SB-C)
18	Mason Farm Road/East Drive	Signalized	C (NB-D)	A (NB-C)	C (NB-E)	A (NB-C)
19	Mason Farm Road/Purefoy Road	Unsignalized	A (EB-A)	B (SB-B)	A (EB-A)	B (SB-B)
20	Manning Drive/Skipper Bowles Drive	Unsignalized	A (NB-B)	A (NB-C)	A (NB-B)	A (NB-D)
21	Columbia Street/Purefoy Road	Unsignalized	A (WB-E)	C (WB-F)	A (WB-F)	E (WB-F)
22	Columbia Street/Fordham Boulevard (northern ramp)	Signalized	C (WB-E)	E (WB-E)	C (WB-E)	E (WB-E)
23	Columbia Street/Fordham Boulevard (southern ramp)	Signalized	C (EB-D)	B (EB-E)	C (EB-D)	B (EB-E)
24	Mason Farm Road/Fordham Boulevard	Unsignalized	A (SB-C)	C (SB-F)	A (SB-C)	D (SB-F)
25	Manning Drive/Fordham Boulevard	Signalized	D (SB-E)	F (WB-F)	D (SB-E)	F (WB-F)
26	Mason Farm Road/Oteys Road	Unsignalized	A (NB-A)	A (EB-A)	A (NB-A)	A (EB-A)
27	Franklin Street/Boundary Street	Signalized	A (SB-E)	C (SB-F)	A (SB-E)	C (SB-F)
28	Franklin Street/Park Place	Unsignalized	A (NB-A)	A (NB-B)	A (NB-B)	A (NB-B)
29	Battle Lane/Boundary Street	Unsignalized	A (WB-A)	B (NB-B)	A (WB-A)	B (NB-B)
30	Country Club Road/Battle Lane	Unsignalized	A (SB-D)	A (SB-F)	A (SB-D)	C (SB-F)
307	Country Club Road & Boundary Street	Unsignalized	A (SB-B)	A (SB-B)	A (SB-B)	A (SB-C)
31	Country Club Road/Gimghoul Road	Signalized	A (WB-D)	A (EB-D)	A (WB-D)	A (EB-D)
32	Manning Drive/Hibbard Drive	Signalized	A (SB-D)	A (SB-D)	A (SB-D)	A (SB-D)
33	Manning Drive/Craige Drive	Signalized	A (SB-D)	B (SB-E)	A (SB-D)	B (SB-D)
34	East Drive/Jackson Circle/Dogwood Deck Entrance	Unsignalized	A (WB-B)	A (WB-B)	A (WB-B)	A (WB-C)
35	East Drive/Dogwood Deck Exit	Unsignalized	A (EB-B)	A (EB-B)	A (EB-B)	A (EB-B)
36	Mason Farm Road/Hibbard Drive	Unsignalized	A (EB-B)	A (WB-C)	A (EB-C)	A (WB-C)
37	South Road/Bell Tower Drive	Signalized	A (NB-D)	C (NB-D)	A (NB-D)	C (NB-D)
38	Manning Drive/Old East Drive	Signalized	B (SB-D)	A (SB-D)	B (SB-D)	B (SB-D)
39	Manning Drive/Craige Deck	Unsignalized	A (NB-D)	A (NB-E)	A (NB-D)	B (NB-F)
101	US 15-501/Estes Drive	Signalized	C (WB-D)	C (WB-E)	C (WB-D)	D (WB-E)
102	US 15-501/Willow Drive	Signalized	B (WB-E)	C (EB-E)	B (WB-E)	C (EB-F)
103	US 15-501/Elliot Road	Signalized	A (EB-D)	B (EB-E)	A (EB-E)	B (EB-E)
104	US 15-501/Ephesus Church Road	Signalized	C (WB-F)	D (EB-F)	C (WB-F)	D (EB-F)
105	US 15-501/Erwin Road	Signalized	A (WB-A)	A (WB-A)	A (WB-A)	A (WB-A)
106	US 15-501/Europa Drive	Signalized	A (NB-F)	A (NB-F)	A (NB-F)	A (NB-F)
107	US 15-501/Superstreet NB U-Turn	Signalized	B (NB-E)	B (NB-E)	B (NB-E)	B (NB-E)
108	US 15-501/Superstreet SB U-Turn	Signalized	A (SB-C)	B (SB-E)	A (SB-D)	C (SB-E)
109	US 15-501/Sage Road	Signalized	E (NB-E)	D (NB-F)	E (WB-F)	D (NB-F)
110	US 15-501/Eastowne Drive/BCBS	Signalized	B (SB-E)	B (SB-D)	B (SB-E)	B (SB-D)
111	US 15-501/Eastowne Drive/Lakeview Drive	Signalized	C (SB-F)	D (SB-F)	C (SB-F)	D (SB-F)
201	NC 54/Hamilton Street	Signalized	B (NB-E)	B (SB-E)	B (NB-E)	B (NB-E)
202	NC 54/Burning Tree Lane	Signalized	A (SB-E)	B (NB-D)	A (SB-E)	B (NB-D)
203	NC 54/Barbee Chapel Road Ext	Signalized	A (NB-E)	B (NB-F)	A (NB-E)	B (NB-F)
204	NC 54/Meadowmont Lane	Signalized	C (NB-D)	C (NB-E)	C (NB-D)	C (NB-E)
205	NC 54/Barbee Chapel Road (East)	Signalized	D (NB-F)	C (SB-F)	E (NB-F)	C (SB-F)
301	US 15-501/Culbreth Road/Mt Carmel Church Road	Signalized	D (EB-E)	C (EB-E)	D (EB-E)	D (NB-E)
302	US 15-501/Bennett Road/Arlen Park Drive	Signalized	B (EB-E)	B (EB-E)	B (EB-E)	B (EB-E)
303	US 15-501/Market Street	Signalized	B (EB-D)	C (EB-E)	B (EB-D)	C (EB-E)

Legend: X = Overall intersection level of service; (X) = worst movement level of service.

4.7 COMPARISON OF 2015 TIA UPDATE AND 2017 TIA UPDATE

Table 4-12 identifies those intersections where the existing year LOS has degraded compared to the existing year LOS from the 2015 Update during either the AM peak hour or the PM peak hour. Some minor changes in LOS are simply a result of the traffic assignment and simulation programs responding to a change anywhere in the network. Some of the other changes can be contributed to changes in the transportation network such as increases in volume.

Some of the LOS changes have occurred at unsignalized intersections where a poor LOS is expected on the stop-controlled approaches; however some degradation in LOS is apparent at signalized intersections as well. As noted in previous sections, most intersections are currently operating at LOS D or better and even though some intersections are reporting a worse LOS than in the 2015 Update, most are still reporting acceptable LOS D or better.

Table 4-12: Comparison of 2015 Update and 2017 Update Existing Levels of Service

ID #	Intersection	Existing (2015)		Existing (2017)	
		AM	PM	AM	PM
1	Columbia Street/Rosemary Street	C (WB-E)	C (WB-E)	C (WB-D)	E (NB-F)
2	Columbia Street/Franklin Street	C (SB-D)	D (EB-D)	C (SB-D)	E (EB-E)
4	Merritt Mill Road/Cameron Avenue	A (WB-C)	C (WB-D)	B (WB-D)	C (WB-C)
6	Cameron Avenue/Columbia Street	C (WB-E)	D (WB-F)	D (WB-E)	E (EB-F)
7	Cameron Avenue/Raleigh Street	C (NB-D)	C (NB-E)	C (NB-E)	D (NB-E)
12	Columbia Street/Manning Drive	B (EB-C)	C (EB-D)	C (EB-E)	C (EB-E)
14	Manning Drive/East Drive	A (NB-C)	C (NB-D)	B (NB-C)	C (NB-E)
21	Columbia Street/Purefoy Road	A (WB-E)	A (WB-F)	A (WB-E)	B (WB-F)
22	Columbia Street/Fordham Boulevard (northern ramp)	B (WB-D)	D (WB-D)	C (WB-E)	D (WB-E)
23	Columbia Street/Fordham Boulevard (southern ramp)	B (EB-D)	B (EB-D)	C (EB-E)	B (EB-E)
24	Mason Farm Road/Fordham Boulevard	A (SB-C)	A (SB-F)	A (SB-C)	C (SB-F)
25	Manning Drive/Fordham Boulevard	C (SB-E)	D (SB-E)	C (SB-E)	E (SB-F)
32	Manning Drive/Hibbard Drive	A (SB-D)	A (SB-D)	A (SB-D)	B (SB-E)
101	US 15-501/Estes Drive	B (WB-D)	C (WB-E)	C (WB-D)	C (WB-E)
102	US 15-501/Willow Drive	A (WB-D)	C (WB-E)	B (WB-E)	C (EB-E)
103	US 15-501/Elliot Road	A (EB-C)	B (EB-E)	A (EB-E)	C (EB-E)
107	US 15-501/Superstreet NB U-Turn	B (NB-D)	B (NB-E)	C (NB-E)	C (NB-E)
110	US 15-501/Eastowne Drive/BCBS	A (SB-D)	B (SB-E)	C (SB-E)	B (SB-E)
111	US 15-501/Eastowne Drive/Lakeview Drive	B (SB-F)	D (SB-F)	C (SB-F)	C (SB-F)
202	NC 54/Burning Tree Lane	A (SB-D)	A (SB-D)	B (SB-E)	B (NB-E)
204	NC 54/Meadowmont Lane	B (NB-D)	B (SB-D)	C (NB-D)	C (NB-D)
301	US 15-501/Culbreth Road/Mt Carmel Church Road	D (WB-F)	B (EB-D)	C (EB-E)	C (EB-D)
302	US 15-501/Bennett Road/Arlen Park Drive	A (EB-E)	A (EB-E)	B (EB-E)	B (EB-E)

Legend: X = Overall intersection level of service; (X-XX) = worst movement level of service.

4.8 SIGNAL WARRANT ANALYSES

This section provides a signal warrant analysis of three intersections on or near Main Campus that are likely to be impacted by the Development Plan. Intersection level of service analyses were undertaken for these intersections for existing conditions, and year 2024 with and without the Development Plan (No-Build and Build conditions respectively), per the *Transportation Impact Analysis Guidelines*. The following three intersections are

now analyzed for potential signalization for the existing (2017) and future (2024) scenarios:

1. Mason Farm Road and Purefoy Road (unsignalized)
2. Mason Farm Road and Oteys Road (unsignalized)
3. Manning Drive and Skipper Bowles Drive (unsignalized)

The following two intersections were assessed for traffic signal warrants in prior updates and modifications to the Development Plan.

1. Mason Farm Road and West Drive – A traffic signal with metal pole and mast arm supports was constructed in the Fall of 2015.
2. Mason Farm Road and East Drive – A design for a new traffic signal with metal poles and mast arm supports has been constructed at this intersection.

Because the traffic signals at the intersections on Mason Farm at West Drive and at East Drive have been implemented, signal warrant analyses were not performed for those intersections for this update of the TIA.

4.8.1 Warrants for Traffic Signalization

The *Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition* recommends the following warrants for installation of a traffic signal:

1. Warrant 1, Eight-Hour Vehicular Volume
2. Warrant 2, Four-Hour Vehicular Volume
3. Warrant 3, Peak Hour Vehicular Volume
4. Warrant 4, Pedestrian Volume
5. Warrant 5, School Crossing
6. Warrant 6, Coordinated Signal System
7. Warrant 7, Crash Experience
8. Warrant 8, Roadway Network
9. Warrant 9, Intersection Near a Grade Crossing

Satisfaction of one or more of the warrants does not in itself justify the installation of a traffic signal. Additional data and study may be necessary to determine the appropriate measure to address a congested or unsafe condition at an unsignalized intersection. As per the *Transportation Impact Analysis Guidelines,* Warrants 1, 2, 3 and 7 were tested for the intersections of Manning Drive at Skipper Bowles Drive, Mason Farm Road at Purefoy Road, and Mason Farm Road at Oteys Road.

As stated in the MUTCD regarding Warrant 1, the Eight-Hour Vehicular Volume Warrant is intended for application either at locations “where a large volume of intersection traffic is the principal reason to consider installing a traffic control signal” or locations “where the traffic volume on a major street is so heavy that traffic on a minor intersecting street suffers excessive delay or conflict in entering or crossing the major street.”

For Warrant 2, “The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.”

For Warrant 3, “The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.”

For Warrant 7, “The Crash Experience signal warrant conditions are intended for application where the severity and frequency of crashes are the principal reasons to consider installing a traffic control signal.”

4.8.2 Existing Conditions Signal Warrant Analysis Results

Signal warrant analyses were performed for existing conditions at the subject intersections utilizing data collected and summarized in Section 4.3. A reduction of right-turning vehicles as recommended by the MUTCD was applied for the northbound right-turn at Manning Drive and Skipper Bowles Drive due to the exclusive right-turn lane at the intersection. The results of the existing warrant analysis are presented in Table 4-13.

For Warrant 7, the accident reports for the three subject intersections were obtained from NCDOT for a five-year period from August 1, 2012 through July 31, 2017.

Table 4-13: Existing (2017) Conditions Signal Warrant Analysis

Intersection	Eight-Hour Volume Warrant Satisfied? (Warrant 1)	Four-Hour Volume Warrant Satisfied? (Warrant 2)	Peak Hour Volume Warrant Satisfied? (Warrant 3)	Crash Experience Warrant Satisfied? (Warrant 7)
1. Mason Farm Road at Purefoy Road	No	No	AM – No PM - No	No
2. Mason Farm Road at Oteys Road	No	No	AM – No PM - No	No
3. Manning Drive at Skipper Bowles Drive	No	No	AM – No PM – No	No

The intersections of Mason Farm Road at Purefoy Road, Mason Farm Road at Oteys Road do not meet the requirements for Warrants 1-3. Additionally, there were no crashes recorded at either location during the study period for consideration in Warrant 7.

The intersection of Manning Drive and Skipper Bowles Drive does not meet the requirements for Warrants 1-3. The Warrant 7 - Crash Experience requirement was not met for signalization. The thirteen (13) crashes occurring at this intersection over the 5-year period could be attributed to the delays and queues that occur on the southbound approach of Manning Drive to Fordham Boulevard. Additionally, ten (12) or ninety-two percent (92%) of the crashes recorded at this location were property damage only crashes. Class C severity accounted for zero (0) of the total crashes and Class B severity accounted for one (1) or eight percent (8%) of the crashes. No fatal crashes or Class A severity crashes were recorded at this location during the study period.

Turn restrictions, placed at the intersection during the peak hours, have been suggested for the intersection of Manning Drive and Skipper Bowles Drive in past reports. However, turn restrictions should not impact special event traffic utilizing Skipper Bowles Drive, i.e.

concrete median. Any turn restrictions should be accomplished through signing or striping. The number of left-turning vehicles is low during the peak hours; therefore, restricting left-turns would not significantly impact motorists who could simply use the Ridge Road signalized intersection as an alternative route. No daily peak period turn restrictions have been implemented at this intersection.

4.8.3 Future Conditions Signal Warrant Analysis

Signal warrant analyses were performed for future conditions at the subject intersections utilizing the projected volumes summarized in Section 4.5. Under future conditions, Warrants 1, 2, 3 and 7 were tested for the intersections of Manning Drive at Skipper Bowles Drive, Mason Farm Road at Purefoy Road, and Mason Farm Road at Oteys Road.

The results of the analysis are summarized in Table 4-14. Again, the intersections of Mason Farm Road at Purefoy Road and Mason Farm Road at Oteys Road do not meet Warrants 1-3 for signalization given the projected future year volumes. A reduction of right-turning vehicles as recommended by the MUTCD was applied for the northbound right-turn at Manning Drive and Skipper Bowles Drive due to the exclusive right-turn lane at the intersection. The intersection does not meet any of the signal warrants with the right-turn reduction.

Table 4-14: Future (2022) Conditions Signal Warrant Analysis

Intersection	Eight-Hour Volume Warrant Satisfied? (Warrant 1)	Four-Hour Volume Warrant Satisfied? (Warrant 2)	Peak Hour Volume Warrant Satisfied? (Warrant 3)
1. Mason Farm Road at Purefoy Road	No	No	AM – No PM - No
2. Mason Farm Road at Oteys Road	No	No	AM – No PM – No
3. Manning Drive at Skipper Bowles Drive	No	No	AM – No PM - Yes

4.9 MITIGATION STRATEGIES

4.9.1 Planned Intersection Improvements

The intersection improvements previously suggested by the University and approved and/or stipulated by the Town are discussed below. Some have been implemented while some others have not. The improvements include geometric improvements and signal timing and phasing modifications at some intersections. Optimized timings are included in the Appendix.

South Columbia Street/South Road/McCauley Street

The radius of the northbound right-turn lane at this intersection has been reduced as recommended in earlier Development Plan Updates. A smaller island has been provided to provide refuge for pedestrians crossing South Columbia Street and South Road. The existing median island on South Road remained in place.

Following the submittal of the February 2006 Update, the Town requested that the eastbound approach of McCauley Street at the intersection with S. Columbia Street be upgraded to include an exclusive left-turn lane. The requested improvement has been

accomplished through pavement marking changes. The roadway was not widened and the eastbound and westbound approaches continue to operate on split phasing.

These improvements are complete. A new traffic signal controller and traffic signal controller cabinet were installed and the new signal is in operation.

South Road/Country Club Road
An analysis of this intersection with future traffic volumes identified the long-term need for improvements. The stipulations associated with Modification No.1 required the addition of the northbound right-turn lane (which could be accomplished without widening the road), and converting a southbound shared through-right lane to a shared left-though-right lane (again, no widening was required). These improvements have been implemented.

An additional improvement recommended for this area was the realignment of the junction of Ridge Road and Country Club Road to give priority to Ridge Road since this is the major movement. This is particularly important since the construction of the Rams Head deck, and can be achieved by eliminating a small number of parking spaces on the west side of the intersection. The northwest corner of this intersection was altered by removing the curb extension, but the intersection remains with stop control on the approach of Ridge Road.

Cameron Avenue/Raleigh Street
Signal phasing improvements were desirable at this intersection to improve the level of service in the PM peak hour (permitted/protected phasing for the left turns). This improvement has been completed. New traffic signal heads, controller, controller cabinet, and audible, countdown pedestrian signals were installed.

Country Club Road/Battle Lane/Boundary Street
The stipulations associated with Modification No.1 of the University Development Plan required a study of this intersection to identify feasible improvements to traffic safety and operations. Signalization and a roundabout were among the measures studied, but it was agreed to upgrade the Country Club Road/Gimghoul Road intersection instead. Bollards and chains were strategically provided at the intersection of Country Club Road, Battle Lane, and Boundary Street to control pedestrians in and around this intersection.

The recently collected peak period traffic data collected for this intersection indicates that the traffic traveling eastbound and westbound on Country Club Road is slightly higher than what was recorded in the 2015 TIA update, but the turning volumes to and from Country Club Road and Battle Lane are very similar in the AM Peak Hour. The PM peak hour turning volumes and through-moving traffic on Country Club Road are very similar to what was recorded in 2015.

The LOS results indicate that the intersections are operating at acceptable levels now but the intersection of Country Club Road at Battle Lane is projected to degrade to LOS E during the PM peak period in year 2024. The southbound, stop-controlled approach to this intersection would be projected to operate at LOS F in year 2024 as is typical at most unsignalized intersections.

The improvements that have been implemented at this intersection as a result of the study that was performed during Modification No. 1 (marked crosswalks, improved pavement markings, and bollards with chains) have reportedly been successful treatments. At this

time, the University is not recommending any further study or the implementation of additional improvements at this intersection but will continue to monitor this intersection and to coordinate with the Town of Chapel Hill on how to address concerns that may be presented at this intersection.

Country Club Road/Gimghoul Road/Paul Green Theater Drive
The stipulations associated with Modification No.1 required a new traffic signal to be implemented at this intersection. This improvement is complete. A new traffic signal with decorative poles and mast arms was installed. The poles and mast arms were colored dark green and the signal heads were colored black. In addition, stamped asphalt crosswalks were installed to simulate a brick pattern. Audible, countdown pedestrian signal heads were also provided.

Manning Drive/Skipper Bowles Drive
Turn restrictions have been implemented to prevent eastbound left-turns from Skipper Bowles Drive onto northbound Manning Drive during special events.

Pittsboro Street/McCauley Street
One of the stipulations that was associated with the University development plan included replacing the traffic signal heads at the intersection of Pittsboro Street and McCauley Street. The existing traffic signal heads has only 8" incandescent displays; the stipulation specifies for the heads to be upgraded to traffic signal heads with 12" LED displays. Prior to submittal of the 2015 update of this TIA, the University started the necessary steps to replace the heads, but the replacement was not completed prior to publishing the 2015 TIA update.

As part of the efforts to replace the traffic signal heads in 2011, staff of VHB Engineering NC, P.C., measured vertical clearances between the traffic signal heads and the road surface, the clearances between the traffic signal wires and the utilities on the existing wood poles, and the available space at the top of the existing wood poles above the current attachment points of the traffic signal cables and the utilities. It was evident that the existing traffic signal heads did not provide the minimum vertical clearances to satisfy requirements of NCDOT; therefore replacing the existing heads with new traffic signal heads featuring 12" displays would even further violate the minimum vertical clearance requirement. In 2011 staff of the Town of Chapel Hill and NCDOT indicated they would require that the minimum vertical clearances be provided with the replacement of the signal heads.

Since publication of the 2013 TIA Update, University staff have coordinated with staff of the Town of Chapel Hill to eliminate the stipulation requiring that the University upgrade the traffic signal heads at the intersection of Pittsboro Street at McCauley Street to 12" LED displays. It is not anticipated that any further action will be necessary for this formerly stipulated improvement.

4.9.2 Suggested Intersection Improvements

Some intersection improvements were previously suggested by the University. Some have been approved for implementation, some have been implemented, while others are still under consideration. Those improvements are discussed below.

Manning Drive/Ridge Road
Manning Drive is a major access street into Main Campus and is the main access to the UNC Hospitals. Manning Drive is a wide four-lane street, expanding to five lanes at major intersections and driveways. It has the character of a suburban arterial road rather than an urban street. While the speed limit is posted at 25 MPH, the appearance and design of Manning Drive encourages speeding. The high volume of traffic, in conjunction with speeding, poses a major safety hazard to the many pedestrians who cross the street in the vicinity of the student housing towers and the Hospital areas. Pedestrian safety and aesthetic improvements in the vicinity of Ridge Road (the student housing area) are very desirable in the near term. Measures to reduce and calm traffic and improve the appearance of Manning Drive are being studied. This could include adding a median on Manning Drive through this area. This suggested improvement has not been designed or implemented.

Mason Farm Road/East Drive
Prior studies suggested that the unsignalized intersection of Mason Farm Road at East Drive may have needed signalization (although the Master Plan includes changes to the road network in this area). Plans for the design of a new traffic signal at this intersection have been completed and the traffic signal has been constructed. The traffic signal includes metal poles and mast arms, audible countdown pedestrian signals, and push-buttons. The metal poles, mast arms, and push-button housing are colored dark green and the housing for all signal heads are black.

Mason Farm Road/West Drive
Again, prior studies and field observations indicated that this intersection may have needed signalization. A traffic signal was installed at this location utilizing wood poles and messenger cable supports. The wood pole supported signal remained in operation for the duration of the construction of the Marsico Hall (formerly Imaging Research Building) on the adjacent corner of the intersection. The construction of Marsico Hall is complete and the wood pole supported traffic signal has been replaced with a new traffic signal including metal poles and mast arm supports. The new traffic signal includes metal poles and mast arms, audible countdown pedestrian signals, and push-buttons. The metal poles, mast arms, and push-button housing are colored dark green and all signal heads are colored black.

4.9.3 Planned Mid-Block Improvements

A number of mid-block improvements were previously identified by the University and were approved for implementation. Some of those improvements have been implemented, while others are yet to be implemented.

South Columbia Street between Manning Drive and South Road
Modifications to South Columbia Street between Manning Drive and South Road were recommended to improve safety for cyclists and pedestrians. This section of South Columbia Street was one-way northbound with four traffic lanes, though the eastern curb lane was almost exclusively used by buses in the peak times. Preliminary 2025 traffic projections indicated that two lanes with a bus lane should result in acceptable traffic conditions.

There was a desire to narrow the pavement through this area as it represents a barrier between the Health Science buildings on the two sides of South Columbia Street. The number of lanes may have also encouraged motorists to travel at speeds in excess of the

25 MPH speed limit. Pedestrian flows across the street are high, and safety was a concern even with the signalized pedestrian crossing in front of the Health Sciences Library. South Columbia Street directly north of the Manning Drive intersection had additional width on the west side which could also be narrowed by extending the curb out to achieve a symmetrical section. This improvement has been completed and consisted of the following:

- Removal a travel lane resulting in the following cross-section: two general traffic lanes, a dedicated bike lane, and a dedicated bus lane on the east side;

- Extending the western curb to the east to narrow the pavement;

- Eliminating the excess pavement in the northwest corner of the intersection of South Columbia Street and Manning Drive, and

- Construction of a new traffic signal at the intersection of South Columbia Street at Medical Drive. The signal is pedestrian activated, i.e. the traffic signal remains green for the South Columbia Street vehicular traffic until a pedestrian wishing to cross South Columbia Street presses the push-button. The westbound approach of Medical Drive remains stop-controlled.

4.9.4 Suggested Mid-Block Improvements

Some mid-block improvements were suggested previously by the University, but have not yet been approved for implementation by the Town. Those improvements are discussed below.

Ridge Road

Ridge Road is an important north-south connection on Campus. It is the only significant north-south route aside from the one-way pair of S. Columbia Street and Pittsboro Street. In the peak periods Ridge Road is used by employees in the South Campus area as an alternate route to using Fordham Boulevard to travel between NC 54 from the east and the Hospitals area.

The most significant safety problem is created by the sharp curve near the drive by the practice field. For a 20 MPH design speed, cars turning left or right out of the drive need 230 feet sight distance to see approaching vehicles. Cars turning left out of the drive need 210 feet to clear approaching vehicles from the left.

The sight line out of the drive is now restricted by cars parking on the right side of the drive and by cars parking on the north side of Ridge Road on both sides of the drive. There is also a sign on the left side of the drive, which interferes with the left view.

The following improvements were recommended in previous updates to this TIA and have been implemented:

- Remove the last parking space on the right side of the drive at Ridge Road.
- Remove the last two parking spaces in the curve on the left (north side) Ridge Road approach to the drive.
- Remove the parking spaces between the gate to the Hockey field and the drive on the north side of Ridge Road.

- Move the sign 20 feet back from Ridge Road.

Pedestrian facility improvements were implemented on Ridge Road between Boshamer Stadium and Henry Stadium as part of the Boshamer Stadium improvements. Other facility improvements for pedestrians and bicycles are currently under study.

The Rams Head deck included a northbound left-turn lane on Ridge Road at the main entrance to the deck. In addition a speed table/raised crosswalk was constructed on Ridge Road north of the deck entrances and south of the intersection with Stadium Drive.

4.10 TRAFFIC CALMING MEASURES AND PEDESTRIAN MEASURES

This section discusses improvements that are planned or have been completed to calm traffic or to improve pedestrian facilities on Campus.

Traffic calming measures are intended to slow vehicular traffic and enhance the safety of pedestrians. Calming measures can include devices such as medians, speed tables/bumps, or traffic/pedestrian signals. Other calming measures include intersection and mid-block stop signs, enhanced pedestrian crosswalk striping, or the elimination of turning lanes to reduce pavement width for crossing pedestrians. Figure 4-12 shows existing and proposed traffic calming measures, and planned pedestrian enhancements, for Main Campus. Some of these proposed measures are long term that may extend beyond the Development Plan period.

Not only has the University agreed to provide traffic calming measures on campus, but the University agreed to provide traffic calming measures on streets in neighborhoods immediately adjacent to Campus. As part of the 2006 update, the University coordinated with the traffic engineering staff of the Town of Chapel Hill to identify streets in neighborhoods adjacent to Campus for consideration of implementing traffic calming devices and to identify type and location of appropriate traffic control measures.

The traffic calming devices listed below are the types of devices that were considered appropriate for review for implementation on neighboring streets:

- All-way stops at intersections
- Speed tables
- Speed humps
- Pavement markings

Table 4-15 identifies which streets were considered and which streets were recommended for further consideration for the implementation of traffic calming devices. These recommendations remain unchanged from the February 2006 TIA Update. The University designed and implemented the traffic calming plans at no cost to the Town of Chapel Hill. The Town of Chapel Hill has been responsible for maintaining the traffic calming devices on Town streets after implementation was completed.

All of the traffic calming measures identified in Table 4-15 have been implemented.

For the 2011 TIA update, the Town of Chapel Hill requested additional traffic data be collected on some of the streets where the University previously designed and implemented traffic calming devices. Daily traffic volumes and vehicle speed data were collected at the following locations:

- Ransom Street south of McCauley Street
- Ransom Street south of Vance Street
- McCauley Street west of Brookside Drive

These locations were specified in the fall of 2011 by staff of the Town of Chapel Hill during a field meeting with staff of VHB. The daily traffic volume and speed data were provided to the staff of the Town of Chapel Hill as part of the submission of the 2011 TIA update.

During preliminary discussions with Town staff to prepare for the 2017 TIA update, staff of the Town of Chapel Hill requested that the University gather new traffic and volume data at the same locations noted above. The new data was gathered during the Fall of 2017 and has been provided to the Town of Chapel Hill as part of the submission of the 2017 Development Plan TIA Update.

Following the 2009 TIA update, the University designed and implemented an in-pavement warning light system for a mid-block pedestrian crosswalk on Mason Farm Road between West Drive and South Columbia Street. The system was implemented as part of the construction of the Marsico Hall Building with the support and approval of the Town of Chapel Hill and has been maintained by the Town of Chapel Hill. When activated, the warning light system alerts approaching drivers that pedestrians are in or are approaching the crosswalk. The system initially included push-button activation of the warning light and bollards equipped with sensors to detect pedestrians approaching the crosswalk were installed as part of the completed construction of the Marsico Hall Building in 2016. Staff observed that as of November 2017, the warning light system has been disabled.

The following pedestrian facility improvements, not all shown on Figure 4-12, have also been provided:

- Bell Tower area – New campus open space and pedestrian circulation system were constructed throughout what was previously a parking lot, including ADA accessible sidewalks, pedestrian bridge between the new parking deck and Medical Drive, and landscaping. New walks, and steps were also constructed to connect the Genome Science building with the NC Area Health Education Center, and Fordham Hall, and Medical Drive. New walks and steps were constructed to connect to Taylor Student Health.
- Dental School – New sidewalks were constructed, with establishment of a pedestrian safety zone between the street and the sidewalk along South Columbia Street between the Health Sciences Library and Manning Drive. The improvement extends along Manning Drive to a new patient drop-off on Manning drive and includes a new pedestrian bridge across Manning Drive and landscaping.
- Kenan Stadium – A new fire lane/brick sidewalk access between Stadium Drive and the northwest entry to Kenan Stadium has been constructed.
- New sidewalk on north side of Kenan Stadium connecting the east/west sidewalk along Stadium Drive to the east/west sidewalk on the north side of the stadium has been constructed.
- New sidewalk and steps in the Geology Department Wheeler Memorial Garden that connects Wilson and Mitchell Hall have been constructed
- A newly improved pedestrian circulation system between Stadium Drive and South Road between Fetzer Gymnasium and Woollen Gymnasium has been constructed.

Figure 4-12: Traffic Calming Measures

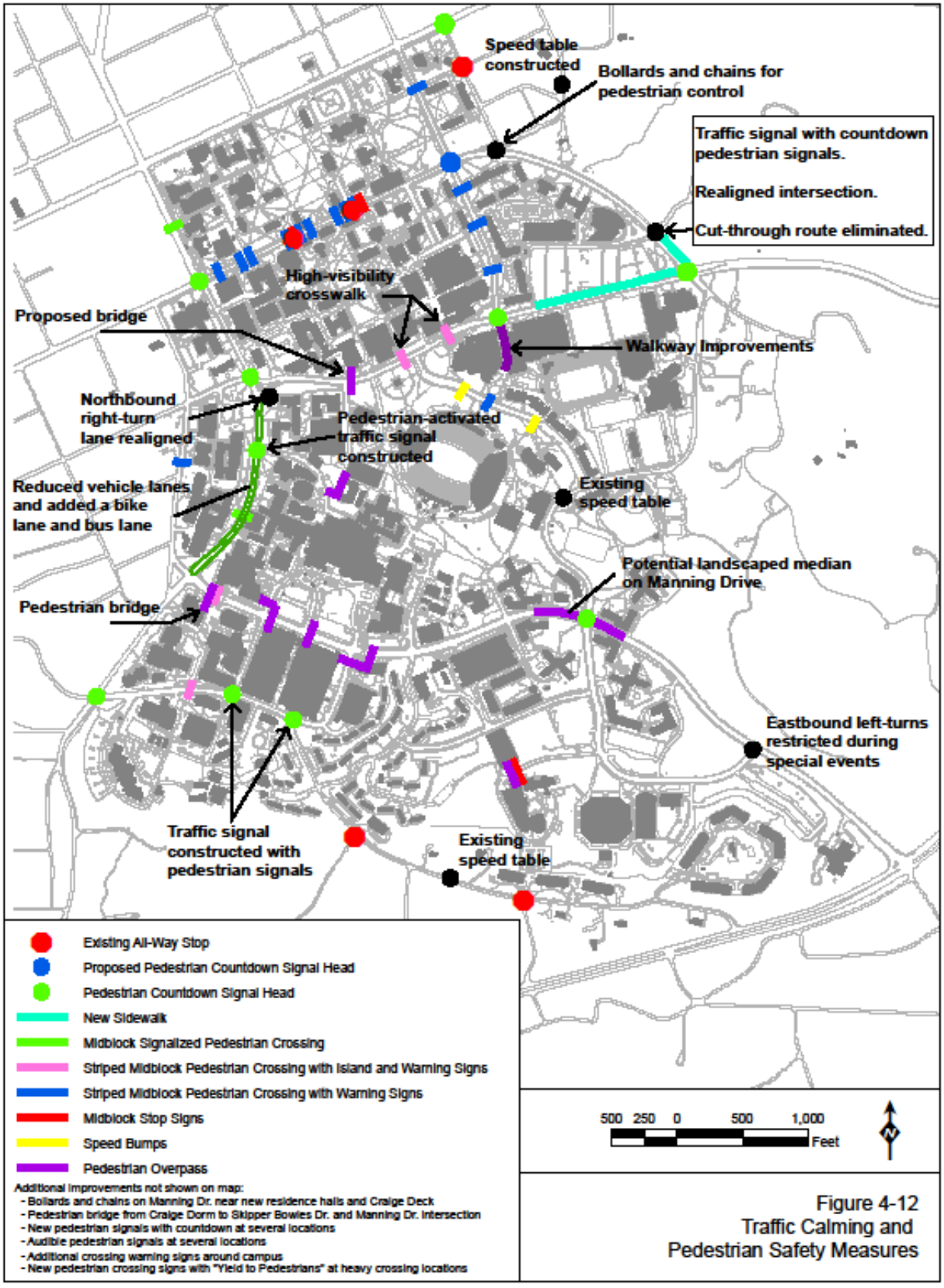


Table 4-15: Neighborhood Streets Considered for Traffic Calming Devices

Street	Identified for Implementation?	Traffic Calming Measures	
		Status	Element
Westwood Drive, Ransom Street, McCauley Street, and Vance Street	No. Traffic calming measures have already been implemented.	Complete	All-way stops Improved pavement markings Speed tables
Oteys Road	No. Traffic calming measures have already been implemented.	Complete	Speed table
Purefoy Road	No. Traffic calming measures have already been implemented.	Complete	Speed tables and all-way stops
Mason Farm Road	No. Traffic calming measures have already been implemented.	N/A	N/A
Ridge Road	No. Traffic calming measures have already been implemented.	N/A	N/A
Laurel Hill Road	No. Alignment and cross-section of road is already a calming measure prohibiting high travel speeds and creating longer travel times than competing routes.	N/A	N/A
Gimghoul Road	No. Church property was sold and will be redeveloped as residential units. As a result, the cut-through route connecting to South Road (NC 54) was eliminated. The intersection of Gimghoul Road and Country Club Road has been signalized. Paul Green Theater Drive was relocated to align with Gimghoul Road.	Complete	New traffic signal Decreased corner radii at intersection with Country Club Road Stamped asphalt crosswalks Audible, countdown pedestrian signals
Raleigh Street	No. Traffic calming measures have already been implemented.	N/A	N/A
Cameron Avenue	No. Traffic calming measures have already been implemented.	N/A	N/A
Battle Lane	No. Traffic calming measures have already been implemented.	N/A	N/A
Boundary Street	Yes. Plans were completed and submitted to Town for implementation.	Complete	Speed table
Park Place	No. Traffic calming devices were deemed not feasible on this street.	N/A	N/A

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 8., **File #:** [18-0191], **Version:** 1 **Meeting Date:** 3/7/2018

Review of Draft Advertisement for Town Manager Process.

Presenter:
Heather A. Lee, Ph.D., SPHR

Company:
Developmental Associates, LLC

Overview: On February 14, 2018, the Council provided job and organizational input to Developmental Associates for the recruitment and selection of a new Town Manager. The Council also requested that Developmental Associates schedule community input sessions and incorporate that input into the job advertisement that will be published as part of the recruitment process. Three drop-in input sessions were advertised to the public and streamed live via the Town's social media channel:

- **Sunday, March 4 -** 3:00 to 5:00 p.m.
  Hargraves Community Center Gymnasium meeting room, 216 N. Roberson St.
- **Monday, March 5 -** 5:30 to 7:30 p.m.
  Christ United Methodist Church Youth and Young Adults Building, 103 Market St. in Southern Village.
- **Tuesday, March 6 -** 1:00 to 3:00 p.m.
  Chapel Hill Public Library Meeting Room B, 100 Library Drive.

The next step in the process is for Developmental Associates to share the draft job advertisement with the Town Council, receive any additional feedback, and finalize the advertisement for posting and distribution.

Recommendation(s):

That the Council offer feedback on the draft advertisement in order for Developmental Associates to finalize and post the job opening.

Where is this item in its process?

Here are the key dates for the Council during this selection process *(future dates are tentative and are subject to change)*:

02/14/18: Provide job and organizational input (Council Business Meeting)
03/04/18: Community Input Session #1 (Hargraves Community Center)
03/05/18: Community Input Session #2 (Christ United Methodist Church)
03/06/18: Community Input Session #3 (Chapel Hill Public Library)
03/07/18: Provide feedback on draft job advertisement (Council Business Meeting)
03/09/18: Post job advertisement
04/11/18: Conduct initial (first) level screening (5:00 PM Council Closed Session)
05/02/18: Conduct second level screening (5:00 PM Council Closed Session)
06/01/18: Assessment Center Debrief (Council Closed Session)
06/11/18: Select candidate to extend conditional offer of employment (Council Closed Session)

Item #: 8., **File #:** [18-0191], **Version:** 1 **Meeting Date:** 3/7/2018

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

PRESENTER: Heather A. Lee, Ph.D., SPHR, Developmental Associates, LLC

The purpose of this discussion is to review the draft advertisement and receive additional public comment regarding the Town Manager search.

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TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 9., **File #:** [18-0192], **Version:** 1 **Meeting Date:** 3/7/2018

Presentation: University of North Carolina at Chapel Hill Semi-Annual Campus Development Report.

Staff Memorandum on next page.

The Agenda will reflect the text below and/or the motion text will be used during the meeting.

PRESENTER: Ben Hitchings, Planning and Development Services Director
Anna Wu, Associate Vice Chancellor for Facilities Services & University Architect, UNC-Chapel Hill

RECOMMENDATION: That the Council receive the report.

PRESENTATION: UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL SEMI-ANNUAL CAMPUS DEVELOPMENT REPORT

STAFF REPORT

TOWN OF CHAPEL HILL PLANNING AND DEVELOPMENT SERVICES
Ben Hitchings, Director
Judy Johnson, Operations Manager
Kay Pearlstein, Senior Planner

PROPERTY ADDRESS UNC Main Campus	BUSINESS MEETING DATE March 7, 2018
STAFF'S RECOMMENDATION That the Council receive the report.	
STAFF ANALYSIS Tonight the University staff will present the first of two semi-annual reports to review the status of current and planned campus development projects.	
PROCESS On June 15, 2005, the Council adopted a resolution requesting that representatives from the University participate in semi-annual meetings to provide the Council with updates on University development activity.	DECISION POINTS • UNC staff will present a second semi-annual report this year in September. • UNC staff will present a Carolina North Annual Report in October of this year.
ATTACHMENT	1. Draft Staff Presentation 2. UNC Presentation 3. University of North Carolina at Chapel Hill March 7, 2018 Semi-Annual Report

University of North Carolina at Chapel Hill

Semi-Annual Development Activity Report
March 2018

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Where is this in the process?

UNC Semi-Annual Reports to Council

March 14, 2018 Spring Semi-Annual Report

September, 2018 Fall Semi-Annual Report

October, 2018 Carolina North Annual Report

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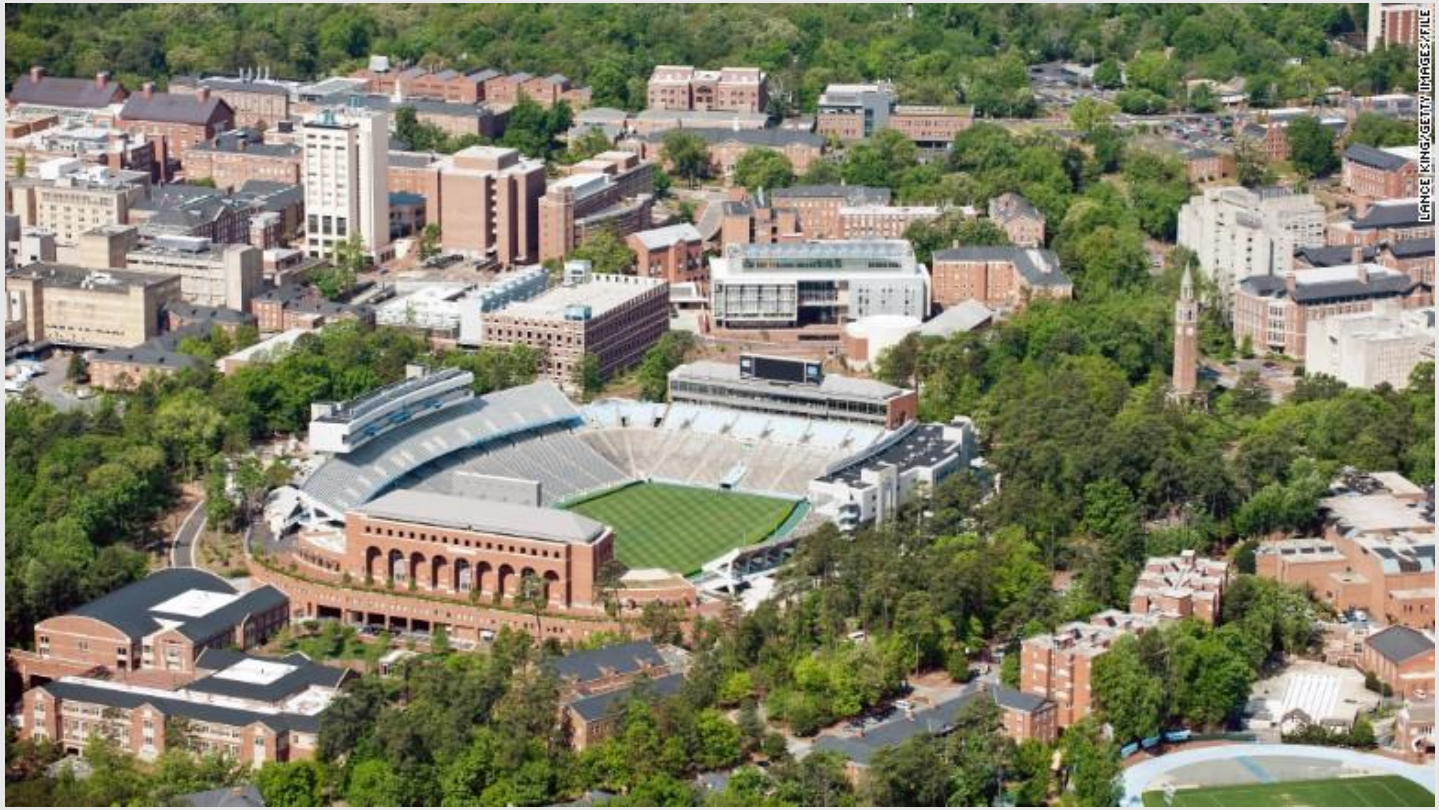
Construction Projects



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THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

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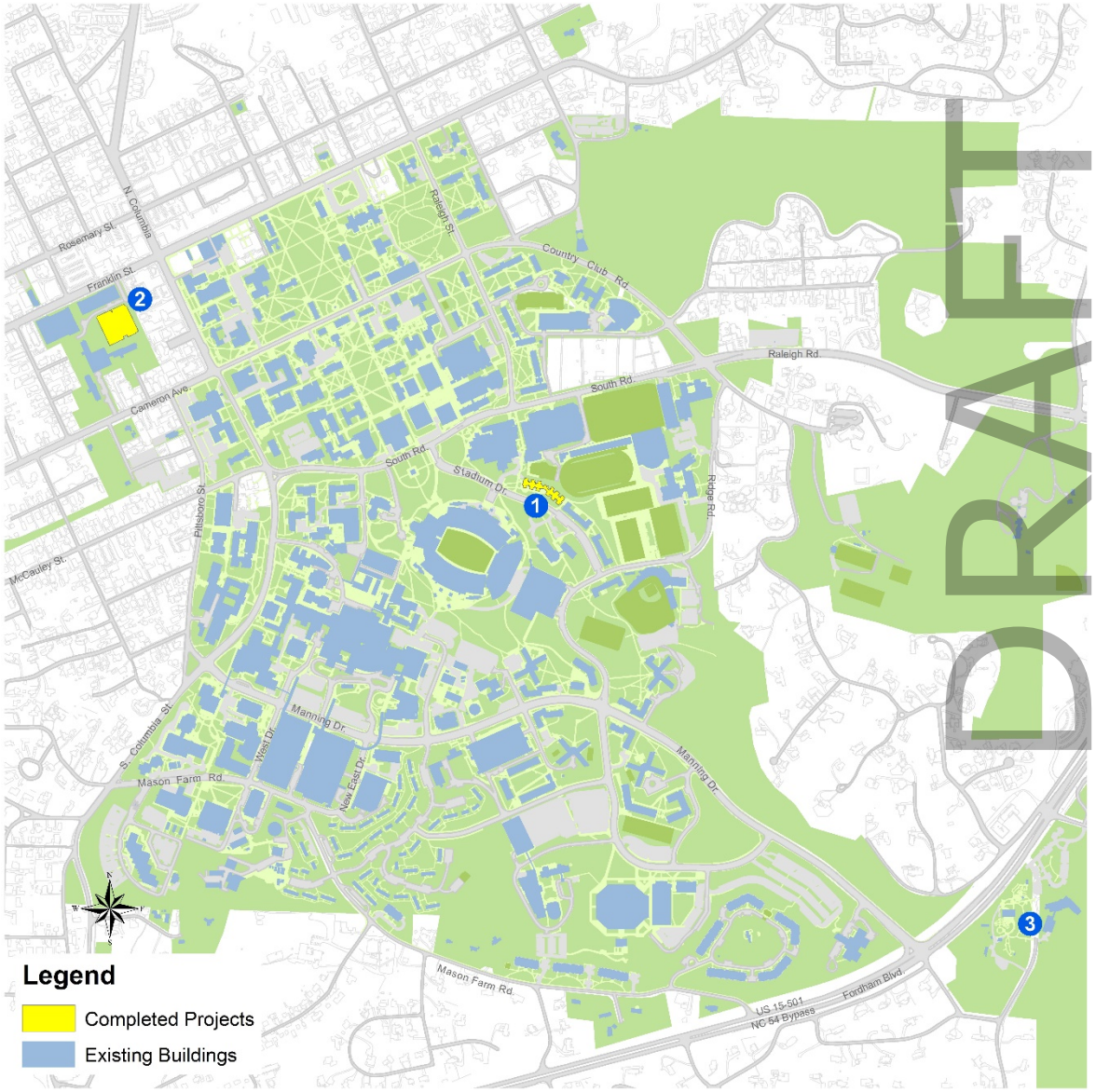
Town of Chapel Hill
Semi-Annual Update
March 7, 2018

Major Projects Completed

1. Carmichael Residence Hall Maker Space
2. The Core @ Carolina Square, Carolina Performing Arts
3. Herbarium Feasibility Study



THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Carmichael Residence Hall Maker Space

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Carmichael Residence Hall Maker Space

DRAFT

The Core @ Carolina Square

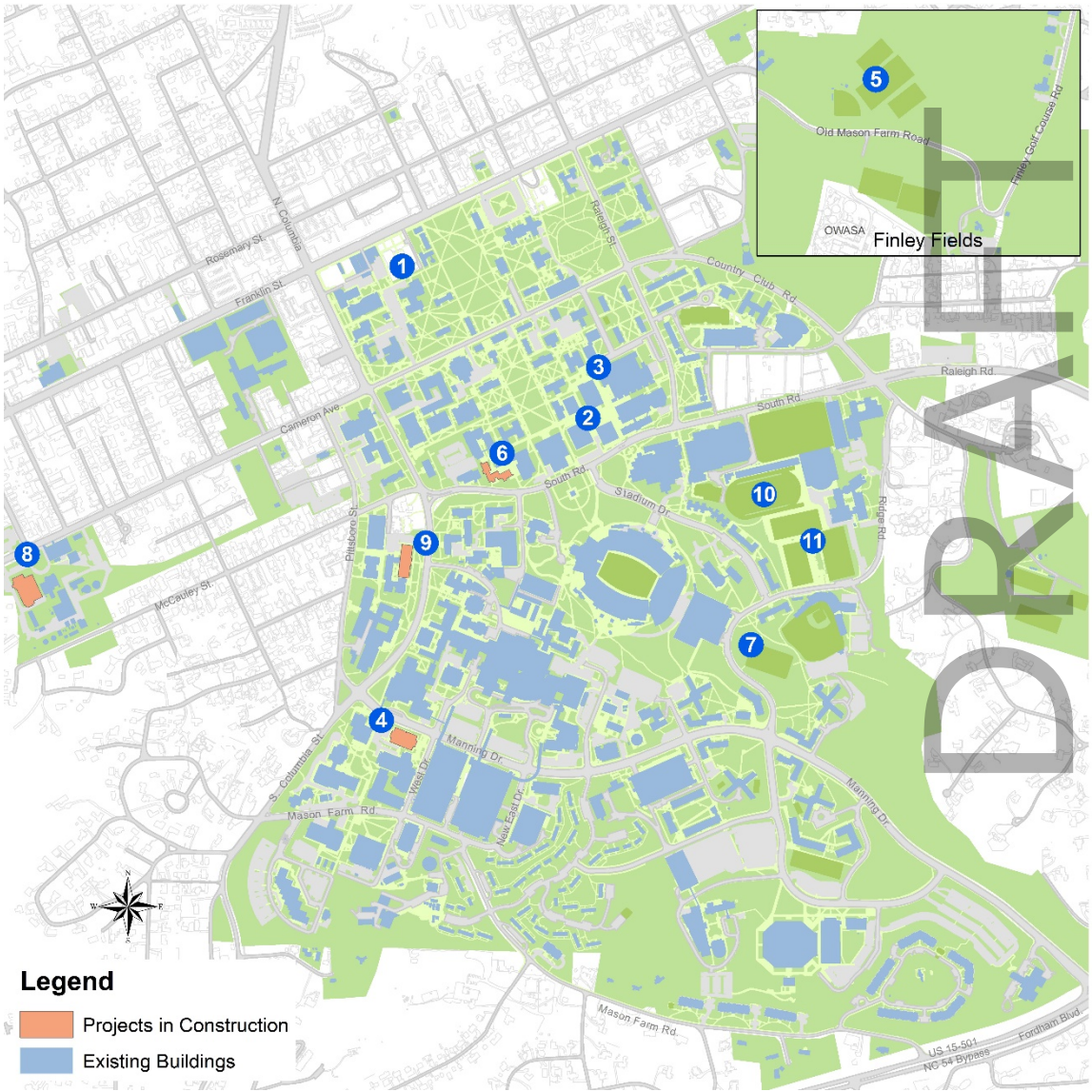
DRAFT

The Core @ Carolina Square

DRAFT

Projects In Construction

1. Porthole Alley Phase 1: Improvements to pedestrian, bicycle and vehicular access
2. Campus Wide Sidewalk Improvements for Pit Area
3. Energy Services Utility Improvements – Academic Affairs Area
4. Mary Ellen Jones Renovation
5. Finley Fields North
6. Kenan Labs Renovation
7. Field Hockey Stadium
8. Cheek Clark
9. Beard Hall 2nd Floor Renovation
10. Fetzer Field Renovation
11. Indoor Practice Facility



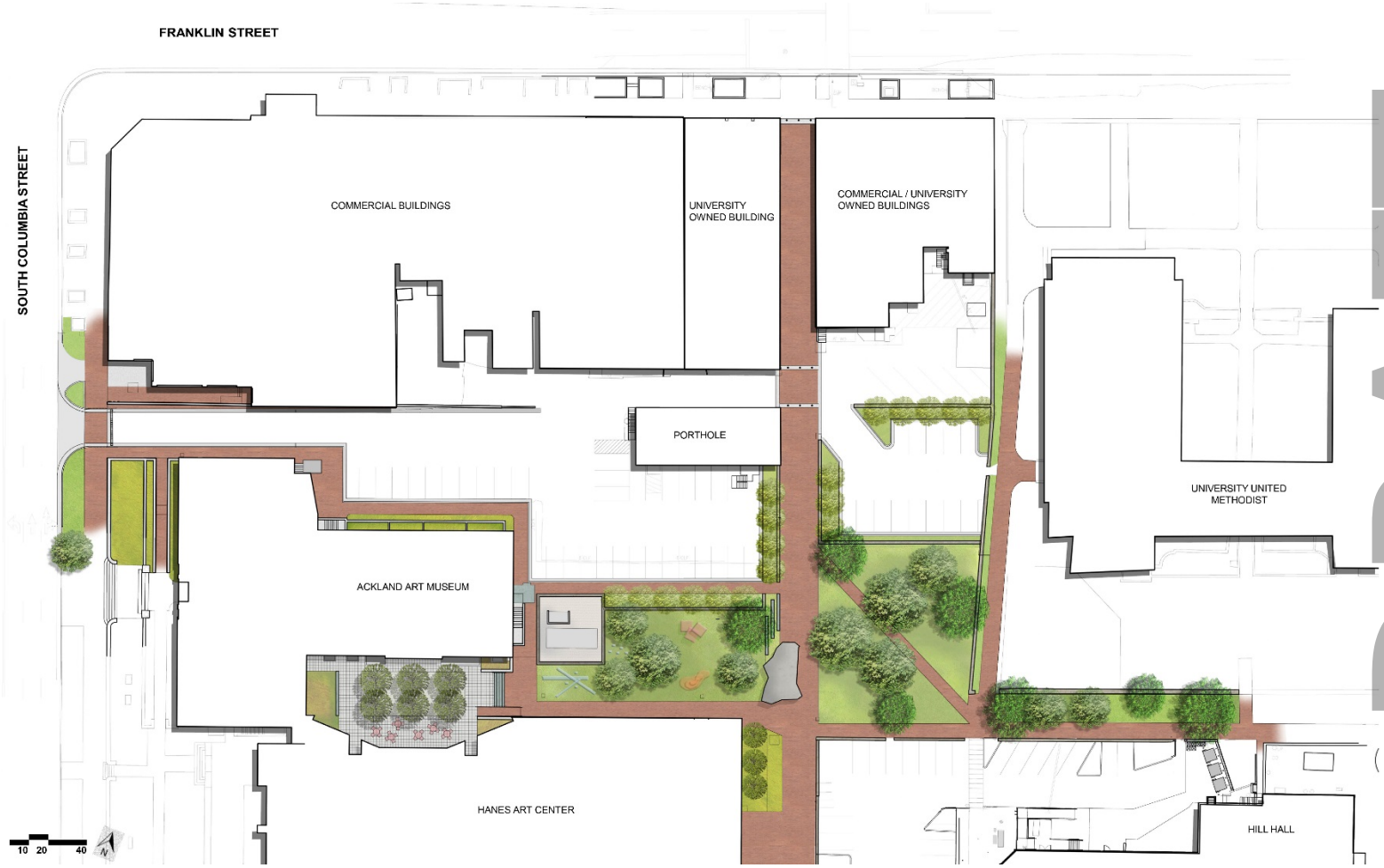
THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Porthole Alley Master Plan

1 FRANKLIN STREET COMMERCIAL BUILDINGS
2 ACCESS DRIVE
3PORTHOLE
4 ACKLAND ART MUSEUM
5UNIVERSITY UNITED METHODIST PLAYGROUND
6 HANES ART CENTER
7 HILL HALL
8 KENAN MUSIC BUILDING
9 KENAN EXPANSION
10 SWAIN
11 SMITH
12 NEW WEST
13 PEABODY
14 PHILLIPS
15 MEMORIAL

DRAFT

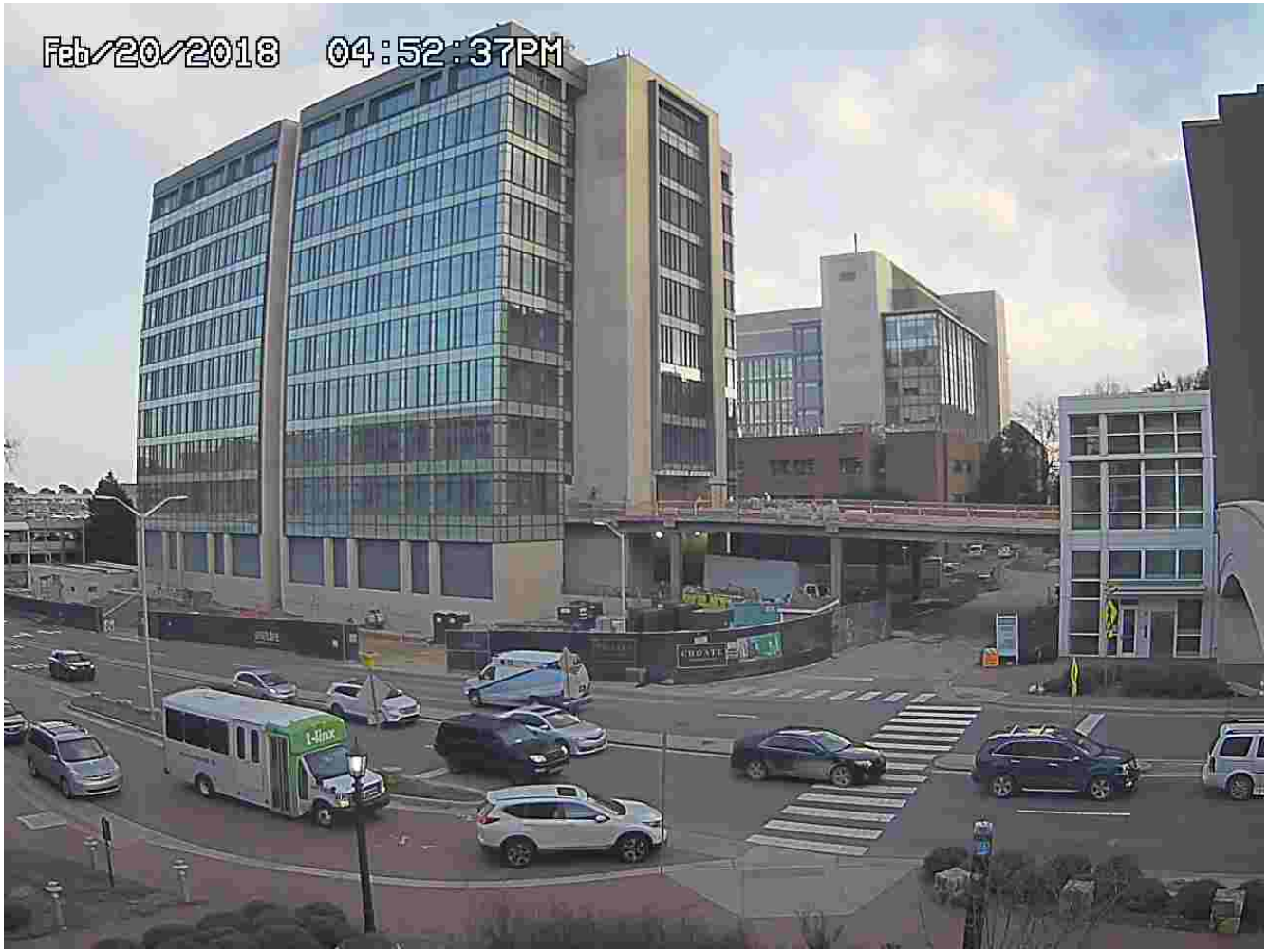
Porthole Alley Phase 1



Campus Sidewalk Improvements for Pit Area

SUMMER 2017 ⟷ SUMMER 2018

Mary Ellen Jones Renovation



NORTH ELEVATION

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Finley Practice Fields North

PROJECT SITE

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Finley Fields

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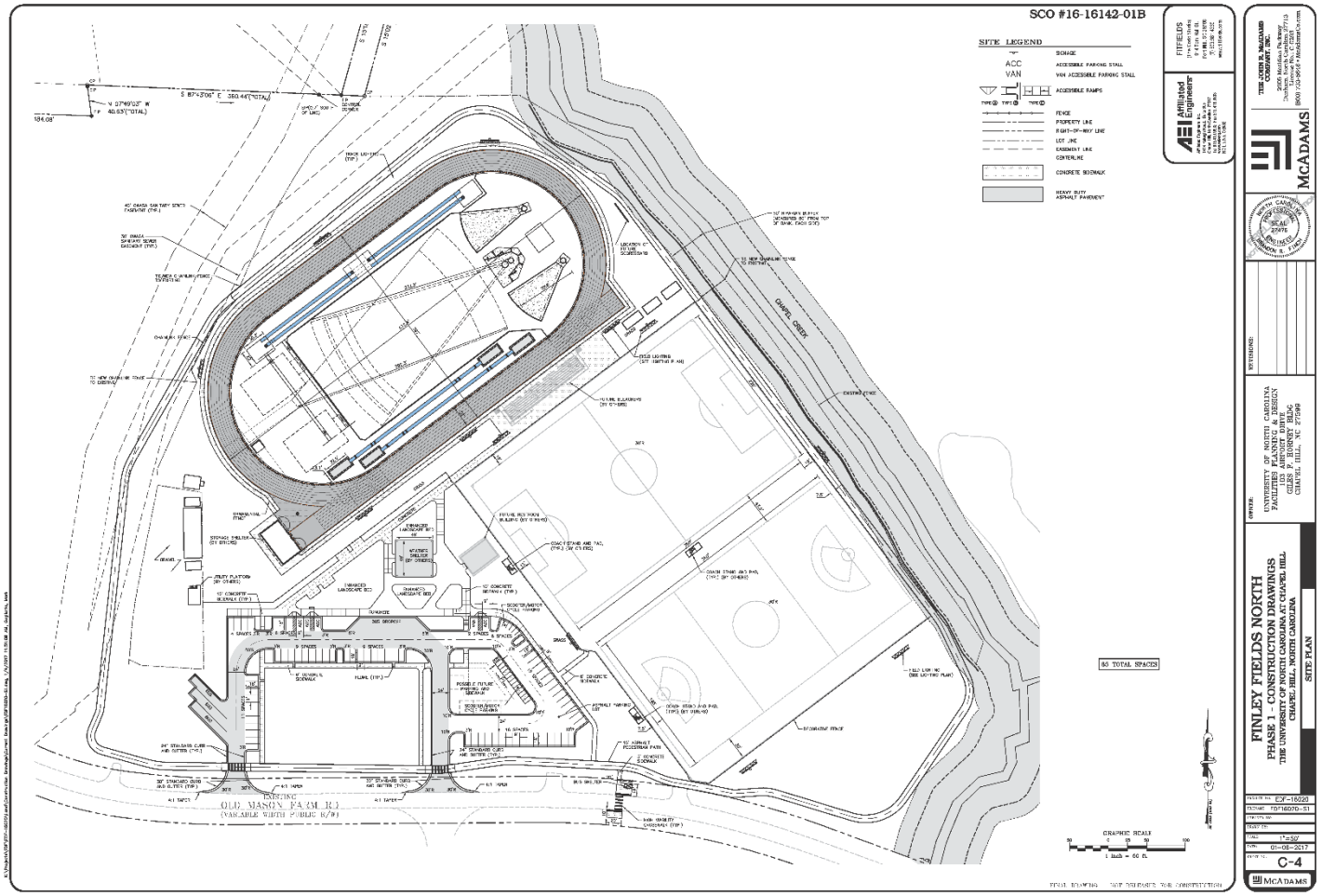
Finley Practice Fields North



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Athletics Projects

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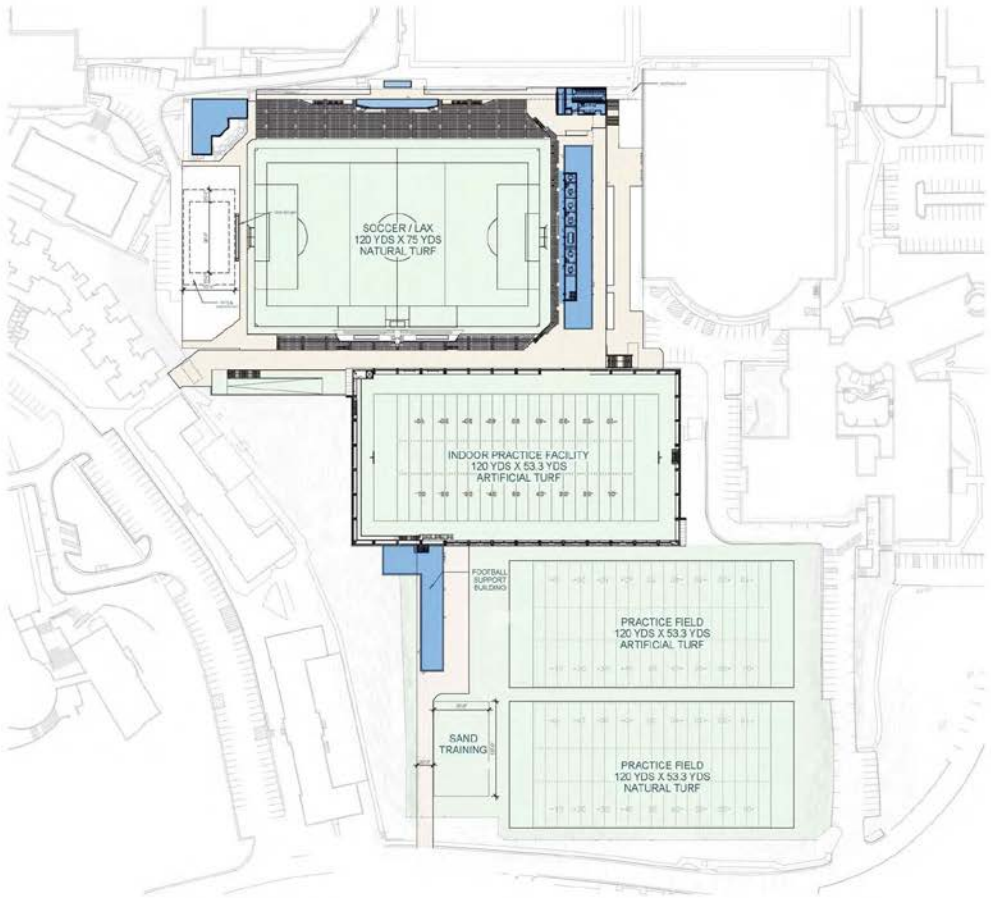
Fetzer Field and Indoor Practice Facility



2 SITE PLAN

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CONFIDENTIAL
NOT FOR EXTERNAL DISTRIBUTION
16 FEBRUARY 2017

Fetzer Field and Indoor Practice Facility

DRAFT

3

FETZER FIELD

CONFIDENTIAL
NOT FOR EXTERNAL DISTRIBUTION
16 FEBRUARY 2017

Fetzer Field and Indoor Practice Facility

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9

INDOOR PRACTICE FACILITY

CONFIDENTIAL
NOT FOR EXTERNAL DISTRIBUTION
16 FEBRUARY 2017

Field Hockey Stadium

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Field Hockey Stadium

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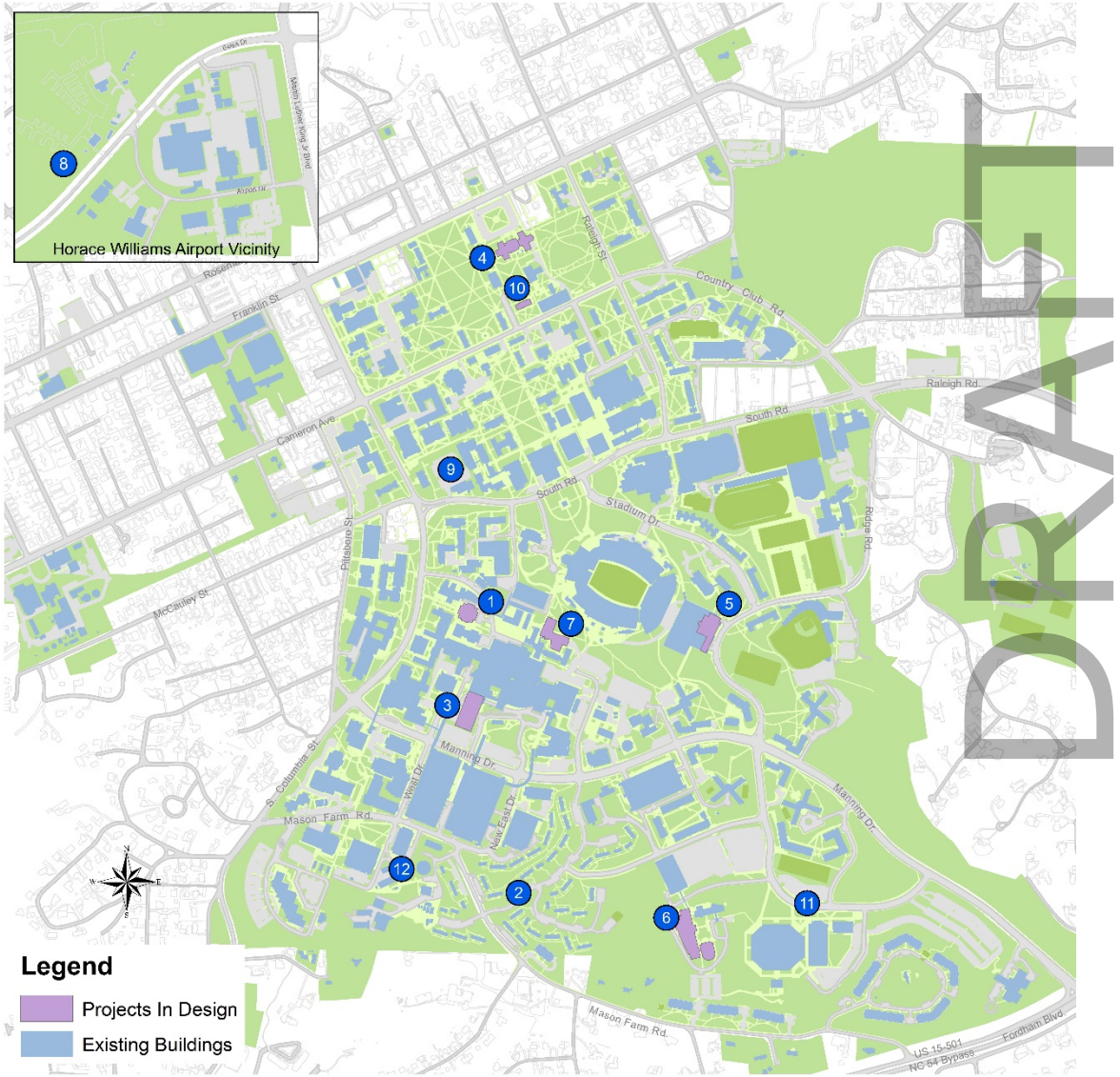
12

FIELD HOCKEY

CONFIDENTIAL
NOT FOR EXTERNAL DISTRIBUTION
28 FEBRUARY 2017

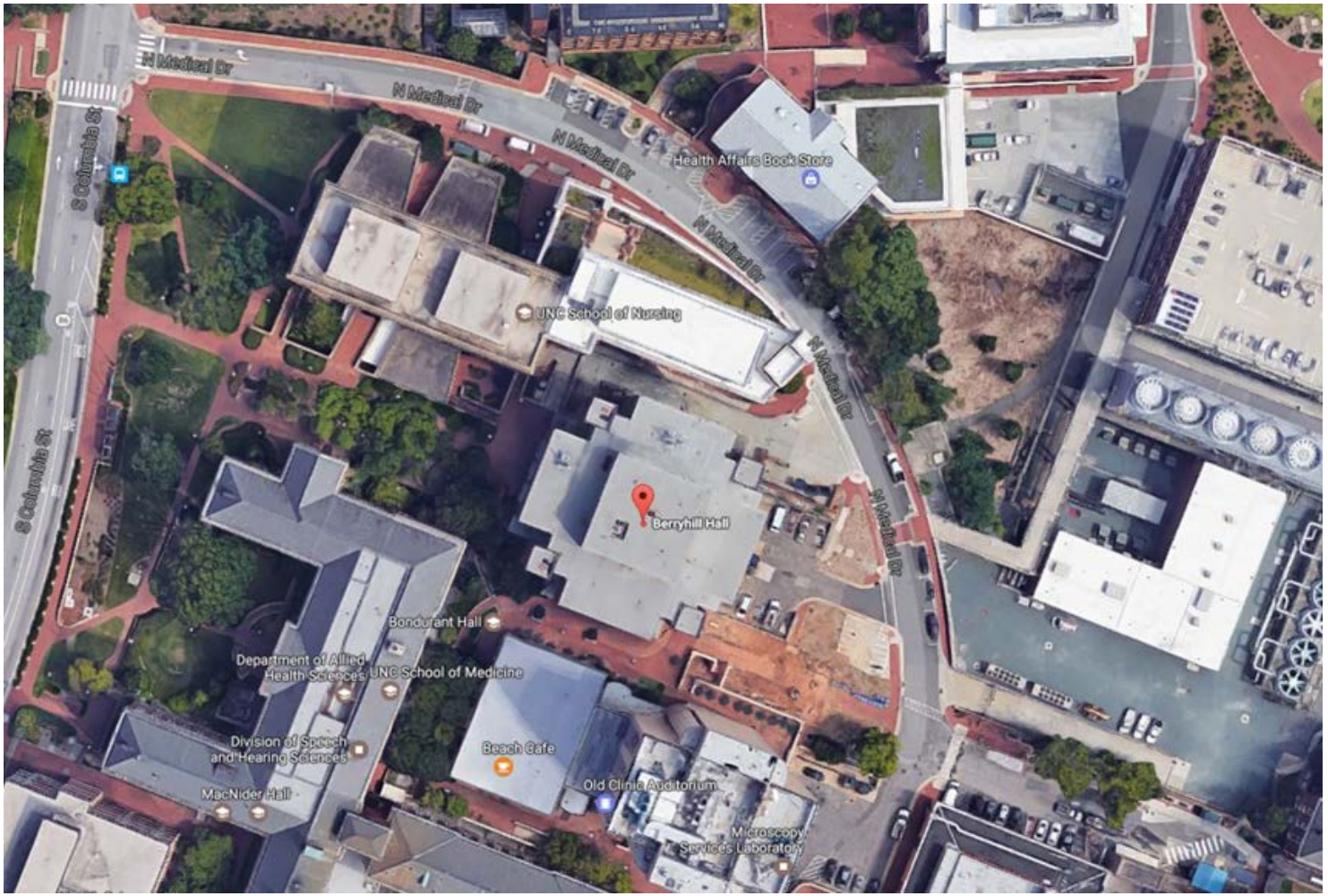
Projects in Design

1. Medical Education Building
2. Odum Village Demolition
3. UNC Hospitals Surgical Tower
4. Morehead Planetarium Renovation
5. Chase Dining Hall Expansion
6. Kenan-Flagler Business School McColl Addition/Renovation Feasibility Study
7. Taylor Campus Health Sports Medicine & Specialty Clinic Renovation
8. Horace Williams Airport Solar & Energy Storage Demo
9. Science Complex Ph. 3 Feasibility Study
10. New East Elevator
11. Media and Communications Studio
12. Translational Research Building



THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

UNC Medical Education Building



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THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

SITE PLAN
EXISTING CONDITIONS

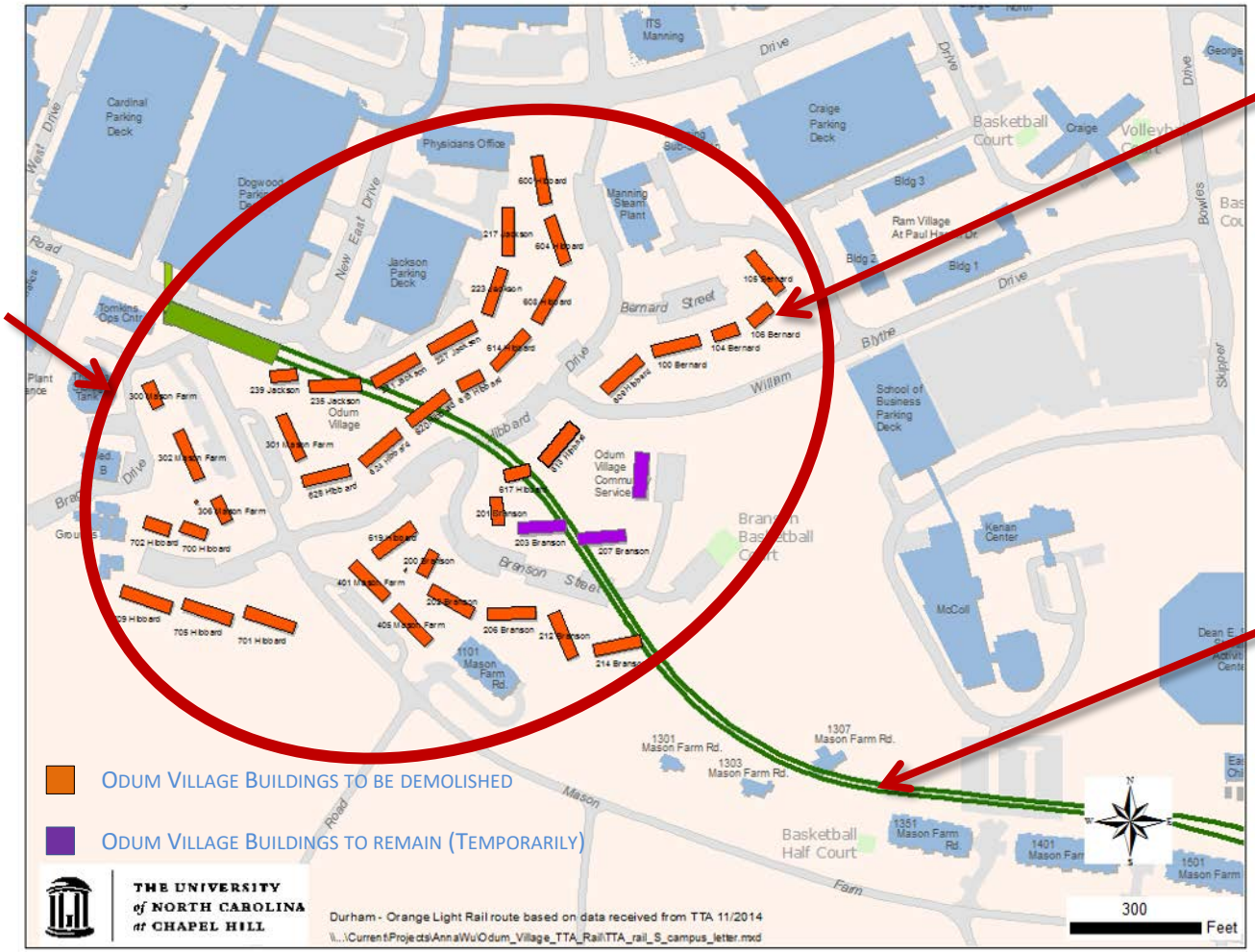
UNC Medical Education Building

N

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

SITE PLAN
PROPOSED DESIGN

Odum Village Demolition



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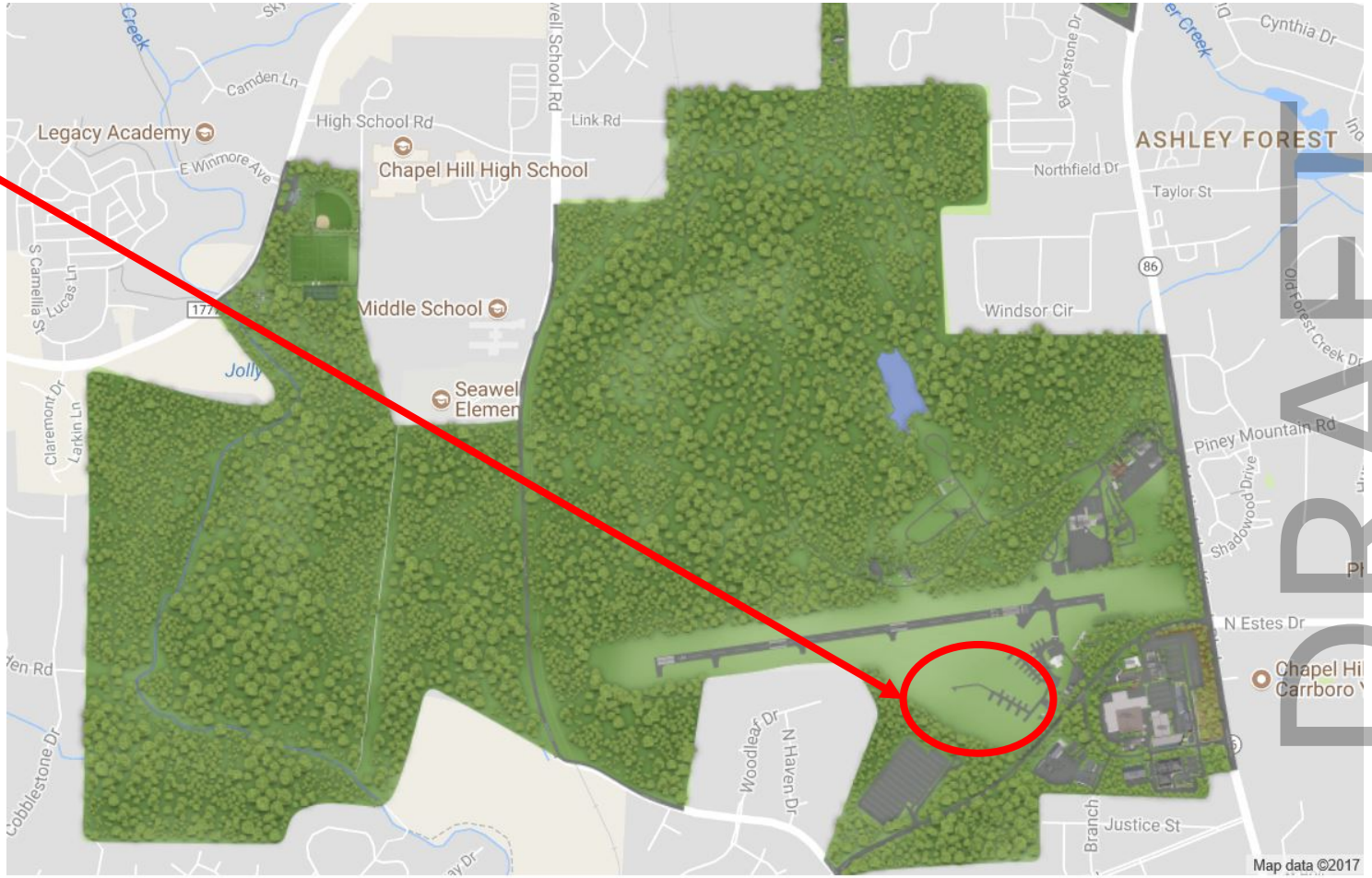
CN Solar & Energy Demo

PROJECT SITE



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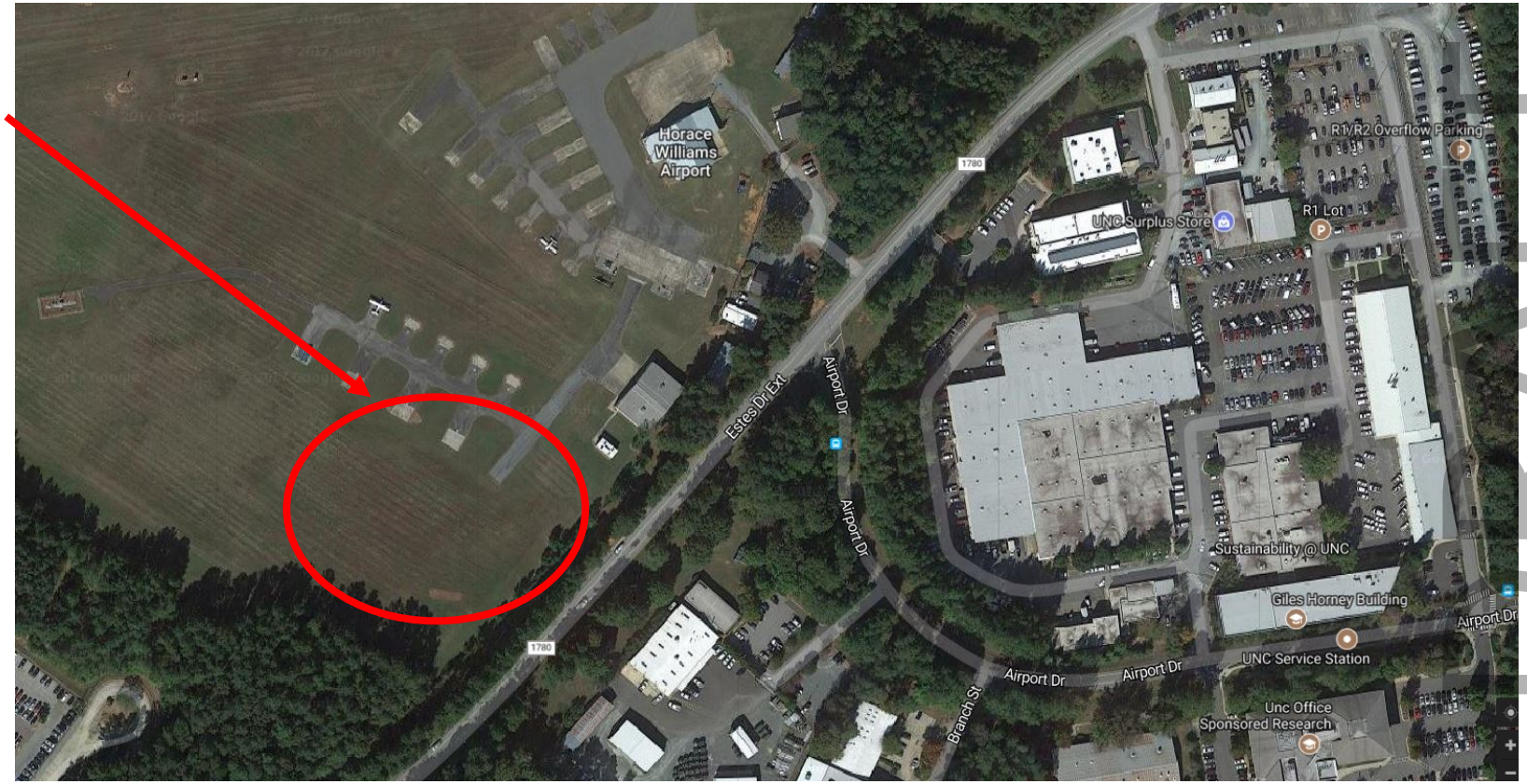
THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

CN Solar & Energy Demo

PROJECT SITE



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THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

SITE PLAN
EXISTING CONDITIONS

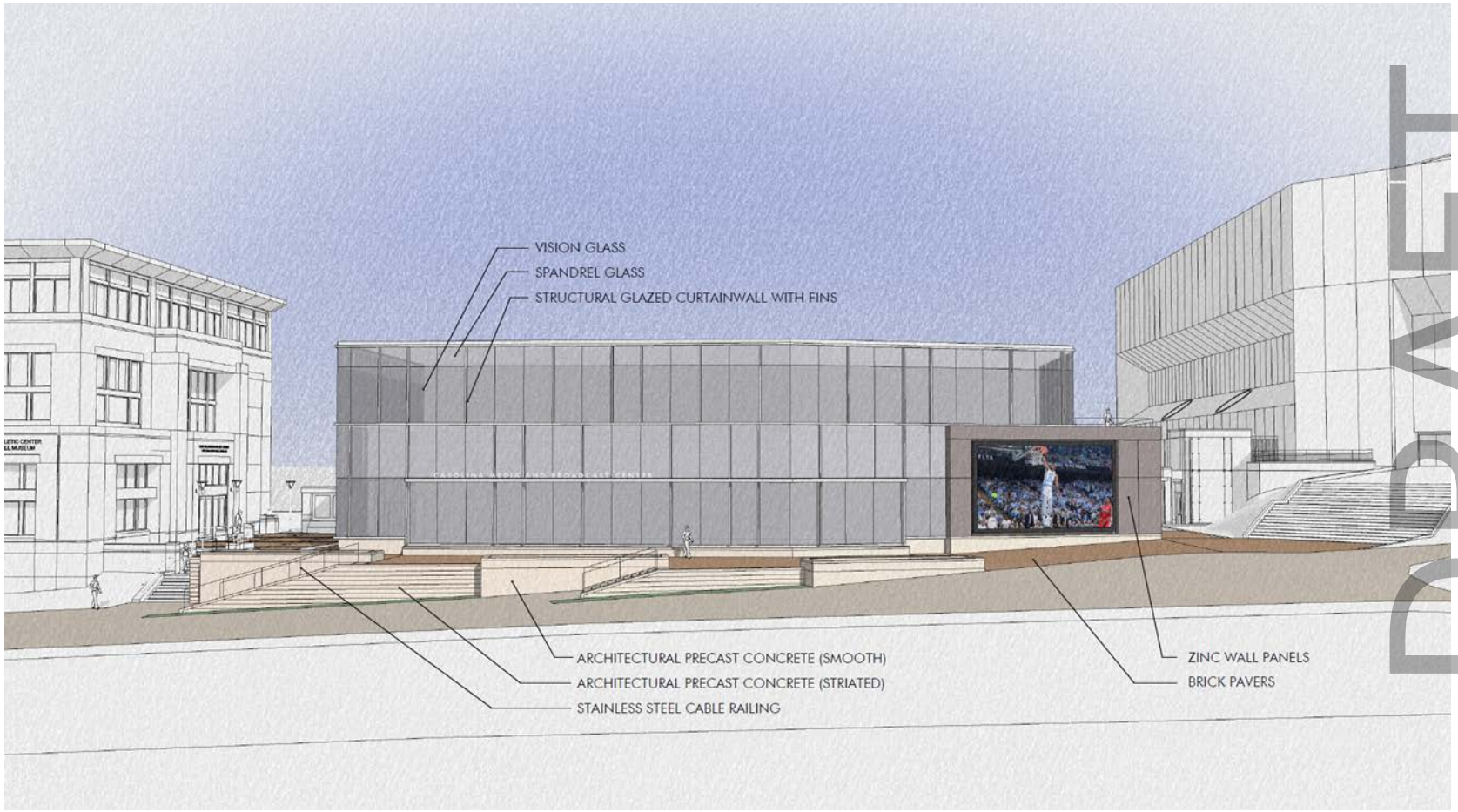
Media & Communications Studio

DRAFT

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

EXISTING CONDITIONS

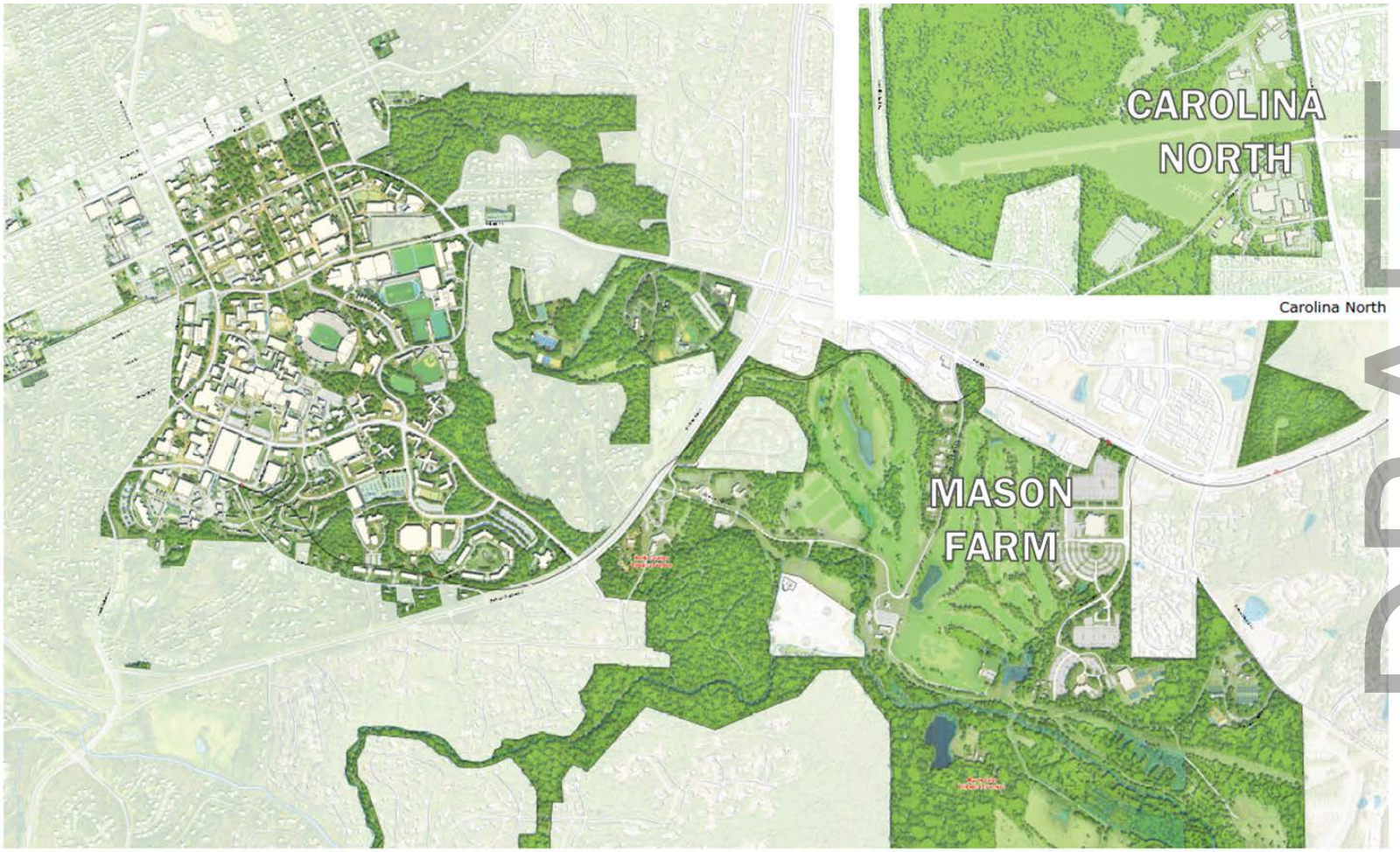
Media & Communications Studio



THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

PROPOSED

Campus Master Plan



Carolina North

Main Campus and Mason Farm

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Surgical Tower Project

- Presentation for
- Town of Chapel Hill Council

DRAFT

Project Scope

- 7 Levels
- 24 Operating Rooms
- 56 Pre and Post Bays
- 56 ICU Beds

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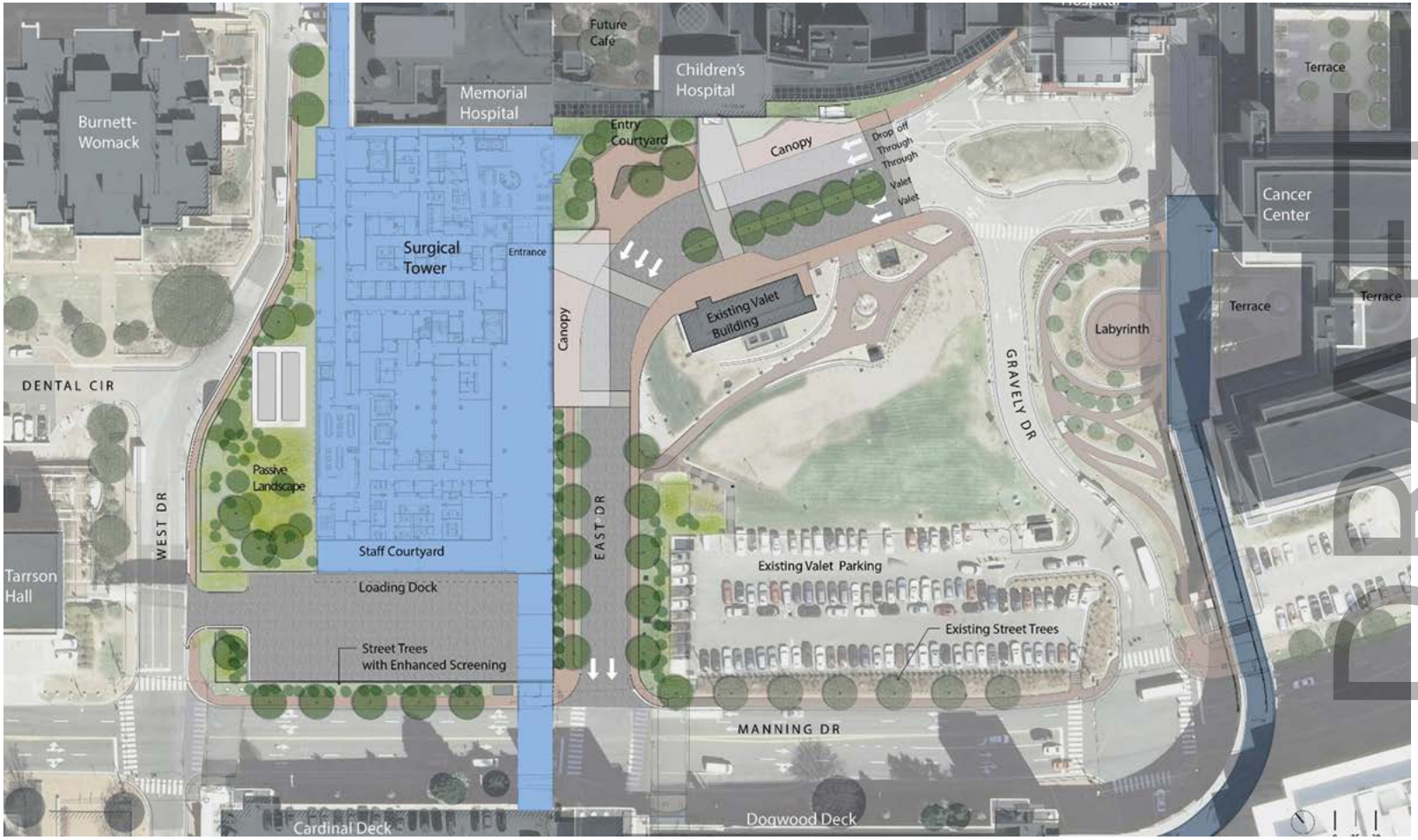
Surgical Tower



N

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

SITE PLAN
PROPOSED DESIGN

PROPOSED

AERIAL VIEW

EAST VIEW

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SOUTH VIEW

WEST VIEW

Project Schedule

Schematic Design	September 2017
Design Development	April 2018
Working Drawings	December 2018
Utility Construction Start	August 2018
Construction Completion	September 2021
Occupancy	October – December 2021

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ATTACHMENT

STATUS OF CAPITAL IMPROVEMENT PROJECTS
THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL
FACILITIES SERVICES

January 1, 2018

PROJECTS COMPLETED SINCE LAST REPORT (JULY 1, 2017)

1. Tompkins Chilled Water Thermal Storage Tank Stabilization	$663,000
2. Ehringhaus, Hinton James and Carmichael Residence Halls Roof Replacement	$2,400,000
3. Elevator Repairs Davie Hall, Lineberger Cancer Center, & Gardner Hall	$2,210,375
4. Single Ply EPDM Roof Replacement – McColl Building	$610,000
5. Air Handling Units Replacement (4th Floor) MacNider Hall (628)	$793,000
7. Odum Village Student Veterans Center Renovation (641)	$899,750
8. Kenan Stadium Turf Replacement (650)	$2,016,163
9. UNC Student Stores Interior Renovation and Exterior Modifications (651)	$3,799,850
10. Carmichael Hall Maker Space	$553,364
Total	$13,945,502

PROJECTS UNDER CONSTRUCTION:

Renovations to Mary Ellen Jones Building (501) - $117,292,391
(Funding - University Non-Appropriated)
Construction began March 2016 and is 60% complete. Project completion is expected in September 2018.

Improvement to Pedestrian, Bicycle & Vehicular Access to an Area between Franklin Street and Cameron Avenue, Porthole Alley (531) - $3,630,000
(Funding - University Non-Appropriated)
Construction began November 2016 and is 90% complete. Project completion is expected January 2018.

Campus Wide Sidewalk Improvements for Pit Area Walkway (538) - $2,300,000
(Funding - University Non-Appropriated)
Construction began June 2016 and will continue over three summers. Project completion is expected in August 2018.

Kenan Lab - Energy Conservation (543&599) - $24,000,000
(Funding - University Non-Appropriated, University SL Debt, State COPS R&R, State Appropriations)

Kenan Lab Fire Alarm - Construction will began July 2017 and is 100% complete. Construction completed was October 2017.

Kenan Lab 7th & 8th Floor Renovation - Construction began October2017 and is 15% complete. Construction completion is expected July 2018.

Davis Library Sprinklers and Fire Alarm Panel Replacement (551) - $8,627,500
(Funding - University Non-Appropriated)
Construction began June 2017 and is 22% complete. Construction completion is expected February 2019.

Elevator repairs – Ehringhaus, Hinton James & Carmichael (568) $2,300,000
Ehringhaus - Construction began October 2016 and is 100% complete. Construction completion was April 2017.

Hinton James - Construction began Augusst 2016 and is 100% complete. Construction completion was July 2017.

Carmichael - Construction began June 2017 and is 50% complete. Construction completion is expected March 2018.

School of Dentistry Vacuum System (578) - $1,252,822
(Funding - University Non-Appropriated)
Construction began November 2016 and is 97% complete. Project completion is expected in January 2018.

Carolina Performing Arts at Carolina Square (123 W Franklin St (592) $3,000,000
(Funding: University Non-Appropriated)
Construction began April 2017 and is 90% complete. Construction completion is expected January 2018.

Cheek Clark – Emergency Declaration Repair Roof Structure and Renovation (598) $5,412,020
(Funding: University Non-Appropriated)
Construction began June 2017 and is 48% complete. Construction completion is expected May 2018.

Emergency Declaration – Van Hecke-Wettach Asbestos (601) $8,170,000
(Funding: University Non-Appropriated)
Phase 1 & 2 completed. Phase 3 is in construction 2017 winter holiday break. Final Phase 4 will be done over summer 2018.

Energy Services Utility Improvements in Academic Affairs Area (606) $9,749,222
(Funding: University Non-Appropriated)
Construction began October 2016 for multiple phases around campus. Construction completion is expected January 2018.

Finley Fields- Practice Field Renovation and Expansion (608) $15,399,225
(Funding: Educational Foundation)
The southern field project began November 2016 and is 100% complete. Construction completion was July 2017. The northern field project began April 2017 and is 80% complete. Construction completion is expected April 2018.

Fetzer Field Renovation/Indoor Practice Facility (610&611) $55,000,000
(Funding: Educational Foundation)
Construction began June 2017 and is 40% complete. Construction completion is expected August 2018.

Emergency Power Improvements for UNC Marine Sciences (615) $414,200
Construction began June 2017 and is 92% complete. Construction completion is expected January 2018.

Install Fire Alarm Panels in (4) Buildings (619) $811,500
(Funding: State Appropriated – Repair & Renovation)
Project on hold. Bids were opened and exceeded project budget. Seeking R&R supplement.

Replace Electrical Service Panels in (5) Campus Buildings (621) $650,000
(Funding: State Appropriated – Repair & Renovation)
Construction began May 2017 and is 82% complete. Construction completion is expected January 2018.

Morehead Planetarium and Health Science Library elevator modernization (627) $825,000
(Funding: State Appropriated – Repair & Renovation)
Project is in construction document phase.

New Women's Field Hockey Stadium and Field (656) $15,246,648
(Funding: Educational Foundation)
Construction began October 2017 and is 20% complete. Construction completion is expected August 2018.

PROJECTS IN DESIGN:

Craige Parking Deck – Exterior Improvements (368) - $750,000
(Funding - University Non-Appropriated)
Project in schematic design. Should we mention our partnership with Arts Everywhere?

Cogeneration Environmental Site Investigation/Remediation (467) - $774,000
(Funding - University Non-Appropriated)
Site survey underway.

Campus Way Finding Signage (514) - $2,466,250
(Funding - University Non-Appropriated)
Project is on hold.

Sitterson Bus Stop (541) - $700,000
(Funding - University Non-Appropriated)
Project is on hold.

Power Generation & Chilled Water Plant Addition (547) - $106,307,988
(Funding - University Non-Appropriated)
Project on hold.

Campus Master Plan (570) - $2,150,000
(Funding - University Non-Appropriated)
Project is in planning phase.

Morehead Planetarium Building, Renovation of Classrooms, Offices (585) $6,576,122
(Funding – Foundation/gifts)
Project in Schematic Development Phase

Campus Safety Upgrade (588) $4,750,000
(Funding: University Non-Appropriated)
Project Phase I – Camera & TV upgrades- is on hold.

Wilson Hall Annex (603) $31,450,173
(Funding: University Non-Appropriated)
Project is on hold.

Beard Hall 2nd Floor Renovation (607) $9,713,728
(Funding: University Non-Appropriated)
Project will be bid January 2018.

Fetzer Field Renovation/Indoor Practice Facility (610&611) $55,000,000
(Funding: Educational Foundation)
Project is in construction

Chase Dining Hall Second Floor Renovation (613) $3,850,000
(Funding: University Non-Appropriated)
Project in construction documents phase

Herbarium Feasibility Study (616) $500,000
(Funding: University Non-Appropriated)
The feasibility study has completed.

Install Fire Alarm Panels in (4) Buildings (619) $541,500
(Funding: State Appropriated – Repair & Renovation)
Project on hold. Bids were opened and exceeded project budget. Seeking R&R supplement.

Wilson Library Slate Roof, Dome Roofing Replacement, and Envelope Repair (623) $2,495,000
(Funding: State Appropriated – Repair & Renovation)
Project in construction document phase.

Built – Up Roof Replacement & Envelope Repairs – Hanes Art Center (626) $1,160,000
(Funding: State Appropriated – Repair & Renovation)
Project is in bidding phase.

Morehead Planetarium and Health Science Library elevator modernization (627) $825,000
(Funding: State Appropriated – Repair & Renovation)
Project is in construction document phase.

Medical Education Building Replacement (633) $67,550,000
(Funding: State Bond)
Project is in schematic design phase.

Mountain Area Health Education Center (637) $8,000,000 Is project in construction? If not, should we move to design section?
(Funding – State Appropriated)
CM@Risk contract is being approved by State Construction Office.

Taylor Campus Health Sports Medicine and Specialty Clinics Renov (642) $1,900,000
(Funding - University Non-Appropriated)

Project is in construction document phase.

Everett, Lewis, and Stacy Window & HVAC Improvements (643) $4,500,000
(Funding - University Non-Appropriated)
Project is in bidding phase.

Medical Education Bldg- Berryhill Vivarium Migration (644) $21,590,000
(Funding - University Non-Appropriated; State Bond)
Project is in design development phase.

Horace William Airport Property Solar and Energy Storage Demo (645) $1,700,310
(Funding – University debt)
Project is in construction document phase

Taylor Air Flow Reduction Energy Project (653) $520,000.
(Funding - University Non-Appropriated)
Project is in design development phase.

Thurston Bowles Air Flow Reduction Energy Project (654) $1,300,000.
(Funding - University Non-Appropriated)
Project is in design development phase.

New East – Install New ADA Compliant Elevator (655) $1,650,000
(Funding – State Appropriation)
Project is in design development phase.

Media and Communications Studi (657) $687,000
(Funding – University Non-Appropriated)
Project is in design development phase.

Science Complex III & Institute of Convergent Science (658) $300,000
(Funding – University Non-Appropriated)
Project is in programming phase.

Translational Research Building (659) - $1,750,000
(Funding – University Non-Appropriated)
Project is in programming phase.

Marsico Hall – Renovation for Vivarium Expansion (662) - $2,550,000
(Funding – State COPS)
Project is in schematic design phase.

Marsico Hall – Mechanical, Electrical, and Plumbing Upfits & Recommissioning (663) - $800,000
(Funding – State COPS)
Developing designer RFQ for large investigation. Moving forward on smaller standalone scope items.

ATTACHMENT

SUMMARY OF MAJOR CAPITAL IMPROVEMENT ACTIVITY:

	No. of Projects	Dollar Value
Completed since 1/2017	10	$ 13,945,502
Under Construction	18	$ 274,080,528
In Design	31	$ 344,807,071

HISTORICAL RECORD OF ACTIVITY:

		UNDER CONSTRUCTION		IN DESIGN	
Date		No. of Projects	Dollar Value	No. of Projects	Dollar Value
Aug.	1986	11	$ 61,093,000	25	$191,213,620
Feb.	1987	14	$ 39,924,000	27	$183,061,220
Aug.	1987	13	$ 26,817,520	25	$210,316,100
Feb.	1988	12	$ 42,354,520	26	$222,477,900
Aug.	1988	14	$ 61,721,870	34	$254,328,430
Feb.	1989	15	$157,882,770	40	$168,321,630
Aug.	1989	20	$158,003,370	29	$170,550,730
Feb.	1990	18	$153,331,770	34	$174,785,500
Aug.	1990	14	$161,479,980	29	$165,398,600
Feb.	1991	10	$191,489,780	26	$147,486,500
Aug.	1991	11	$202,564,380	28	$132,000,800
Jan.	1992	9	$193,656,480	31	$123,015,800
Aug	1992	16	$196,850,380	25	$132,470,400
Jan	1993	15	$178,790,400	27	$137,062,000
July	1993	9	$ 91,072,000	21	$121,141,100
Jan	1994	6	$ 90,707,300	33	$154,615,300
July	1994	15	$101,999,300	28	$147,370,700
Jan	1995	13	$ 66,320,700	52	$175,385,600
July	1995	14	$101,192,800	46	$164,311,800
Jan	1996	11	$ 89,901,800	67	$246,980,600
July	1996	17	$ 92,701,100	61	$299,168,300
Jan.	1997	19	$131,072,400	63	$282,872,700
July	1997	37	$235,425,600	44	$223,235,350
Jan	1998	33	$158,837,100	50	$278,691,575
July	1998	36	$183,705,300	43	$285,946,375
Jan	1999	26	$153,298,200	42	$314,955,275
July	1999	20	$175,689,300	44	$374,499,175
Jan	2000	18	$173,787,000	38	$380,677,875
July	2000	20	$171,732,100	44	$402,994,475
Jan	2001	20	$265,311,575	56	$255,342,400
July	2001	30	$277,577,875	57	$509,245,260
Jan	2002	28	$282,315,475	51	$533,569,700
July	2002	25	$297,186,000	51	$533,569,700
Jan	2003	18	$246,220,200	52	$700,266,390
July	2003	15	$239,095,165	58	$677,135,478
Jan	2004	18	$345,073,797	59	$607,602,868
July	2004	24	$435,597,765	61	$837,011,823
Jan	2005	32	$540,484,649	77	$997,282,175
July	2005	42	$604,951,066	62	$848,018,466
Jan	2006	39	$606,059,278	50	$681,154,808
July	2006	36	$753,387,157	55	$697,916,808
Jan	2007	39	$493,513,761	60	$729,086,980
July	2007	38	$559,519,076	50	$586,321,980
Jan	2008	29	$510,723,322	46	$733,693,000
July	2008	27	$570,815,114	51	$715,328,000
Jan	2009	25	$429,973,546	47	$906,213,000
July	2009	24	$633,089,281	40	$577,740,422
Jan	2010	18	$600,252,605	22	$409,120,032
July	2010	18	$618,429,022	32	$539,620,032
Jan	2011	15	$605,745,206	30	$474,190,032
July	2011	19	$802,905,823	28	$292,000,000
Jan	2012	15	$742,125,183	28	$313,100,000
July	2012	17	$655,508,823	31	$309,600,000
Jan	2013	12	$550,585,206	34	$389,726,000
July	2013	10	$311,575,000	34	$334,449,095
Jan	2014	9	$338,372,095	45	$337,177,000
July	2014	14	$349,553,714	42	$376,843,592
Jan	2015	19	$377,846,839	50	$423,639,550
July	2015	17	$365,166,669	48	$304,163,543
Jan	2016	12	$333,622,316	46	$324,057,991
July	2016	29	$434,745,367	43	$341,359,544
Jan	2017	18	$175,227,717	37	$372,416,500
July	2017	22	$266,078,688	32	$349,812,207
Jan	2018	18	$274,080,528	29	$344,807,071

TOWN OF CHAPEL HILL

Town Hall
405 Martin Luther King Jr. Boulevard
Chapel Hill, NC 27514

Item Overview

Item #: 10., **File #:** [18-0193], **Version:** 1 **Meeting Date:** 3/7/2018

Appointment to the Community Policing Advisory Committee.

Staff:
Sabrina Oliver, Director
Beth Vazquez, Ombuds

Department:
Communications and Public Affairs
Ombuds Office

Recommendation(s):

That the Council make an appointment to the Community Policing Advisory Committee for one Town Resident seat, effective immediately.

Council Goals:

☒		Create a Place for Everyone	☐		Develop Good Places, New Spaces
☐		Support Community Prosperity	☐		Nurture Our Community
☐		Facilitate Getting Around	☐		Grow Town and Gown Collaboration

Attachments:

- Advisory Board Recommendation
- Ballot
- Applications

Please note that applications submitted prior to February 20, 2018 were completed before changes were made to the application and may appear incomplete.

MEMORANDUM

TO: Mayor and Town Council

FROM: Darrell Keyes, Committee Chair

SUBJECT: Recommendation to fill a Community Policing Advisory Committee vacancy

DATE: February 13, 2018

RECOMMENDATION: The Community Policing Advisory Committee met on Tuesday, February 13, 2018, and by a unanimous vote has made the following recommendation to the Town Council for consideration:

- Christopher Jackson, Appointment, Town Resident

SPECIAL REQUEST(S): No Comment

BACKGROUND: The Community Policing Advisory Committee currently has one vacancy for a seat whose term expires June 30, 2018. Christopher Jackson has attended our last two meetings and is excited to be considered for this position. He has been involved in local politics and has a strong interest in serving our community. Mr. Jackson is a local high school senior and will bring a much needed perspective to our work. We are very eager to work with him as our newest member of CPAC.

Note: Communications and Public Affairs notes that the Community Policing Advisory Committee reviewed the following applications: Kalyani Hawaldar, Christopher Jackson, and Gabrielle Tiffin. No additional applications have been received between February 13, 2018 and February 26, 2018 for a Town Resident seat on the Community Policing Advisory Committee.

BALLOT

COMMUNITY POLICING ADVISORY COMMITTEE

MARCH 7, 2018

Total Membership: 9 (9 Town Residents)

Current Membership: 8 (2 Female, 6 Male; 5 Caucasian, 3 African American)

Current Vacancies: 1 (1 Town Resident)

Number of Applicants: 3

Chapel Hill Resident
Please vote for up to one (1) applicant.

_____ Kalyani Hawaldar

_____ Christopher Jackson

_____ Gabrielle Tiffin

_____ Other; please list_____

_____
Council Member Signature

APPLICATION FOR MEMBERSHIP ON ADVISORY BOARD, COMMISSION, COMMITTEE OR TASK FORCE

Submit Date: Jan 29, 2018

Profile

Whenever possible, applications should be submitted prior to the scheduled meeting of the affected advisory board so that they can consider all applications prior to making a recommendation to Council.

Public Records Statement

I acknowledge that all information submitted in this application becomes a public record and will be searchable online. The Town is not able to remove information from the public record once it has been posted.

☑ I Agree

Kalyani
First Name

Middle Initial

Hawaldar
Last Name

kalyanimay30@gmail.com
Email Address

1100 W NC HIghway 54 Bypass Apt 18
Street Address

Suite or Apt

Chapel Hill
City

NC
State

27516
Postal Code

Home:
Primary Phone

Home:
Alternate Phone

Residency within the Town limits is required for membership on most Council advisory bodies. Memberships of some committees and task forces may be composed of up to forty percent of non-Town residents.

What district do you live in? *

☑ Chapel Hill Town limits (Purple)

Please consult the town maps HERE if you are unsure .

If you are a Chapel Hill Resident, How long have you lived here?

☑ 0-12 months

The Council encourages you to visit a meeting of the group that you are interested in serving on. Please choose no more than two groups from the list below to which you would like to apply.

Which Board is your First Choice? *

☑ Community Policing Advisory Committee

Which Boards would you like to apply for?

Community Policing Advisory Committee: Eligible

How did you find out about this opportunity? (select all that apply by holding down the shift key)

☑ Internet

If you chose "Other" from the advertising opportunity listed above, please specify specify:

Interests & Experiences

What perspective(s) do you bring to the board(s), commission(s), committee(s) or task force(s) to which you are applying?

Currently a graduate student at UNC Chapel Hill and a resident of Chapel Hill, I moved to the area in 2017 from Florida, where I attended the University of Florida. During my time as an undergraduate student, I was deeply involved in social justice issues on campus and in the greater Gainesville, FL community. There, I saw the Gainesville Police Department work closely with university administration to create healthier relationships with local residents, particularly residents of color, who have been unfairly targeted by law enforcement. As a member of the Community Policing Advisory Committee, I will work with the Members of the Town Council and the Chapel Hill Police Department to develop equitable and safer policies for working with residents, in particular, people of color, undocumented immigrants, and other marginalized groups. Finally, I will serve as a representative of graduate students--many of whom are international students facing legal barriers in the US.

Please provide a brief summary of any other relevant qualifications (skills, abilities, interests and/or experience) you bring.

KHawaldar_Resume_CH_Board.pdf

You may upload a supporting document (e.g., CV or resume). Please be advised that any information submitted becomes a public record and may be searchable online.

Demographics

In order to consider this application and provide some balance to the various boards, this personal information is required:

Ethnicity

☑ Asian or Pacific Islander

Gender

☑ Female

Please select your age from the following list. *

☑ 18-24

Graduate Research Assistant

Occupation

Are you a Town of Chapel Hill employee?

○ Yes ◉ No

Ethics Statement

ETHICS GUIDELINES FOR TOWN ADVISORY BOARDS AND COMMISSIONS

Members of advisory boards and commissions shall not discuss, advocate, or vote on any matter in which they have a conflict of interest or an interest which reasonably might appear to be in conflict with the concept of fairness in dealing with public business. A conflict of interest or a potential conflict occurs if a member has a separate, private, or monetary interest, either direct or indirect, in any issue or transaction under consideration. In addition, members of the Historic District Commission and Board of Adjustment, when these boards are hearing cases, serve as quasi-judicial bodies. Pursuant to State Statute 106A-388(e)(2), members of these boards "shall not participate in or vote on any quasi-judicial matter in a manner that would violate affected persons' constitutional rights to an impartial decision maker. Impermissible violations of due process include, but are not limited to, a member having a fixed opinion prior to hearing the matter that is not susceptible to change, undisclosed ex parte communications, a close familial, business, or other associational relationship with an affected person, or a financial interest in the outcome of the matter." Any member who violates these Ethics Guidelines may be subject to removal from the board or commission. If the advisory board or commission member believes he/she has a conflict of interest then that member should ask the advisory board or commission to be recused from voting. The advisory board or commission should then vote on the question on whether or not to excuse the member making the request. In cases where the individual member or the advisory board or commission establishes a conflict of interest, then the advisory board or commission member shall remove themselves from the voting area. Any advisory board or commission member may seek the counsel of the Town Attorney on questions regarding the interpretation of these ethics guidelines or other conflict of interest matters. The interpretation may include a recommendation on whether or not the advisory board or commission member should excuse himself/herself from voting. The advisory board or commission member may request the Town Attorney respond in writing.

☑ I Agree *

Applications will be kept on file from July 1st to June 30th of the same fiscal year. Please reapply each fiscal year if you are still interested in serving on an Advisory Board, Commission, Committee or Task Force and have not yet been appointed.

Kalyani Hawaldar

kalyanimay30@gmail.com ◆ (904) 537-6215 ◆ 1100 W NC Highway 54 Bypass #18, Chapel Hill, NC 27516

POLITICAL EXPERIENCE

Legislative Intern, *US House of Representatives* **May 2016 – July 2016**

- Attended briefings and staff-level advocacy group meetings to learn about newly developed Zika biotechnology
- Analyzed 200 news and journal articles to outline the health and infrastructural costs of global warming
- Authored talking points for the Congress Member highlighting benefits of carbon emission reduction policies

Senior Intern, *Jacksonville City Council* **July 2015 – August 2015**

- Streamlined and responded to constituent requests by phone, letter and email
- Researched the Human Rights Ordinance which aimed to address discrimination against LGBT residents

LEADERSHIP EXPERIENCE

Gatorship Assistant Director, *UF Multicultural & Diversity Affairs* **August 2015 – February 2016**

- Collaborated with a team of 20 students to develop an interactive module focused on gender inequality
- Executed three retreats attended by a total of 240 student leaders to discuss issues of diversity, identity, marginalization and social justice

Diversity Affairs Executive Advisor, *UF Student Government* **April 2015 – April 2016**

- Spearheaded and successfully achieved an initiative to establish 63 all-gender restrooms on campus
- Explored the public health implications of all-gender restrooms on transgender students and faculty
- Created and presented a research-based design proposal to the Office of the President on behalf of the student body

PROFESSIONAL EXPERIENCE

Graduate Research Assistant, *Gillings School of Global Public Heath* **August 2017 – Present**

- Conducted literature reviews to determine holistic admissions methods for the Gillings Master of Public Health program
- Analyzed admissions and application data using SAS to improve recruitment methods

Research Assistant, *UF Department of Sociology and Criminology & Law* **January 2016 – December 2016**

- Investigated child welfare case files and court documents for an analysis of the production of family
- Met for weekly research meetings to discuss study design and to develop theoretical basis for study

EDUCATION

University of North Carolina, *Chapel Hill, NC*
Master of Science in Biostatistics, Gillings School of Global Public Health **May 2019**

University of Florida, *Gainesville, FL*
Certificate in Public Health, College of Public Health and Health Professions **May 2017**
Bachelor of Science in Biology, *cum laude*, College of Liberal Arts and Sciences **May 2016**
Bachelor of Arts in Sociology, *cum laude*, College of Liberal Arts and Sciences **May 2016**

HONORS & AWARDS

Recipient, Women in Politics: College Edition, *MSNBC* **2016**
Inductee, Hall of Fame, *University of Florida* **2016**
Recipient, Jack B. Humphries Leadership Award, *UF Department of Sociology and Criminology & Law* **2016**
Recipient, James E. Scott "Bridging the Gap" Award, *UF Student Government* **2016**
Recipient, J. Wayne Reitz Scholar, *University of Florida* **2015 –2016**

APPLICATION FOR MEMBERSHIP ON ADVISORY BOARD, COMMISSION, COMMITTEE OR TASK FORCE

Submit Date: Jan 01, 2018

Profile

Whenever possible, applications should be submitted prior to the scheduled meeting of the affected advisory board so that they can consider all applications prior to making a recommendation to Council.

Public Records Statement

I acknowledge that all information submitted in this application becomes a public record and will be searchable online. The Town is not able to remove information from the public record once it has been posted.

☑ I Agree

Christopher (First Name) | D (Middle Initial) | Jackson (Last Name)

cdjackson2018@gmail.com (Email Address)

1749 dobbins dr apt 126 (Street Address) | (Suite or Apt)

Chapel Hill (City) | NC (State) | 27514 (Postal Code)

Mobile: (919) 924-3742 (Primary Phone) | Home: (Alternate Phone)

Residency within the Town limits is required for membership on most Council advisory bodies. Memberships of some committees and task forces may be composed of up to forty percent of non-Town residents.

What district do you live in? *

☑ Chapel Hill Town limits (Purple)

Please consult the town maps HERE if you are unsure .

If you are a Chapel Hill Resident, How long have you lived here?

☑ 4-9 years

The Council encourages you to visit a meeting of the group that you are interested in serving on. Please choose no more than two groups from the list below to which you would like to apply.

Which Board is your First Choice? *

☑ Community Policing Advisory Committee

Which Boards would you like to apply for?

Community Policing Advisory Committee: Eligible

How did you find out about this opportunity? (select all that apply by holding down the shift key)

☑ Advisory Board or Council member

If you chose "Other" from the advertising opportunity listed above, please specify specify:

Interests & Experiences

What perspective(s) do you bring to the board(s), commission(s), committee(s) or task force(s) to which you are applying?

As of todays political climate when it comes between the police and local communities aren't in a good state. In order for people to feel safe from danger and from the idea of police brutal we need to strengthen the relationships between the police and who they protect. This is one of the major steps I wish to change parts of North Carolina, meeting and serving on this committee can grow more ideas on how we can make a safer environment. The more diversity we have when it comes to advising the more people we can reach, by having someone young you have representation from there side and the same thing goes with race and sex.

Please provide a brief summary of any other relevant qualifications (skills, abilities, interests and/or experience) you bring.

You may upload a supporting document (e.g., CV or resume). Please be advised that any information submitted becomes a public record and may be searchable online.

Demographics

In order to consider this application and provide some balance to the various boards, this personal information is required:

Ethnicity

☑ African American

Gender

☑ Male

Please select your age from the following list. *

☑ 18-24

Occupation

Are you a Town of Chapel Hill employee?

○ Yes ◉ No

Ethics Statement

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☑ I Agree *

Applications will be kept on file from July 1st to June 30th of the same fiscal year. Please reapply each fiscal year if you are still interested in serving on an Advisory Board, Commission, Committee or Task Force and have not yet been appointed.

APPLICATION FOR MEMBERSHIP ON ADVISORY BOARD, COMMISSION, COMMITTEE OR TASK FORCE

Submit Date: Feb 01, 2018

Profile

Whenever possible, applications should be submitted prior to the scheduled meeting of the affected advisory board so that they can consider all applications prior to making a recommendation to Council.

Public Records Statement

I acknowledge that all information submitted in this application becomes a public record and will be searchable online. The Town is not able to remove information from the public record once it has been posted.

☑ I Agree

Gabrielle
First Name

Middle Initial

Tiffin
Last Name

tiffin.gabrielle@gmail.com
Email Address

125 W Franklin St
Street Address

Suite or Apt

Chapel Hill
City

NC
State

27514
Postal Code

Home:
Primary Phone

Home:
Alternate Phone

Residency within the Town limits is required for membership on most Council advisory bodies. Memberships of some committees and task forces may be composed of up to forty percent of non-Town residents.

What district do you live in? *

☑ Chapel Hill Town limits (Purple)

Please consult the town maps HERE if you are unsure .

If you are a Chapel Hill Resident, How long have you lived here?

None Selected

The Council encourages you to visit a meeting of the group that you are interested in serving on. Please choose no more than two groups from the list below to which you would like to apply.

Which Board is your First Choice? *

☑ Community Policing Advisory Committee

Which Boards would you like to apply for?

Community Policing Advisory Committee: Eligible
Environmental Stewardship Advisory Board: Eligible

Question applies to Environmental Stewardship Advisory Board

Select a Seat Category for the Environmental Stewardship Advisory Board *

☑ UNC Chapel Hill Student

How did you find out about this opportunity? (select all that apply by holding down the shift key)

☑ Internet

If you chose "Other" from the advertising opportunity listed above, please specify specify:

Interests & Experiences

What perspective(s) do you bring to the board(s), commission(s), committee(s) or task force(s) to which you are applying?

Interested in getting more involved in local policymaking. Poli Sci major at UNCCH, interested in social justice and racial justice issues.

Please provide a brief summary of any other relevant qualifications (skills, abilities, interests and/or experience) you bring.

You may upload a supporting document (e.g., CV or resume). Please be advised that any information submitted becomes a public record and may be searchable online.

Demographics

In order to consider this application and provide some balance to the various boards, this personal information is required:

Ethnicity

- [x] Other

Gender

- [x] Female

Please select your age from the following list. *

- [x] 18-24

Student
Occupation

Are you a Town of Chapel Hill employee?

- ( ) Yes (•) No

Ethics Statement

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☑ I Agree *

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