Ephesus Church Road – Fordham Boulevard Area Transportation Impact Analysis

Public Information Meeting #3

October 5th, 2017

Presented By:

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Director of Planning and Development Services – Town of Chapel Hill

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HNTB North Carolina, PC

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

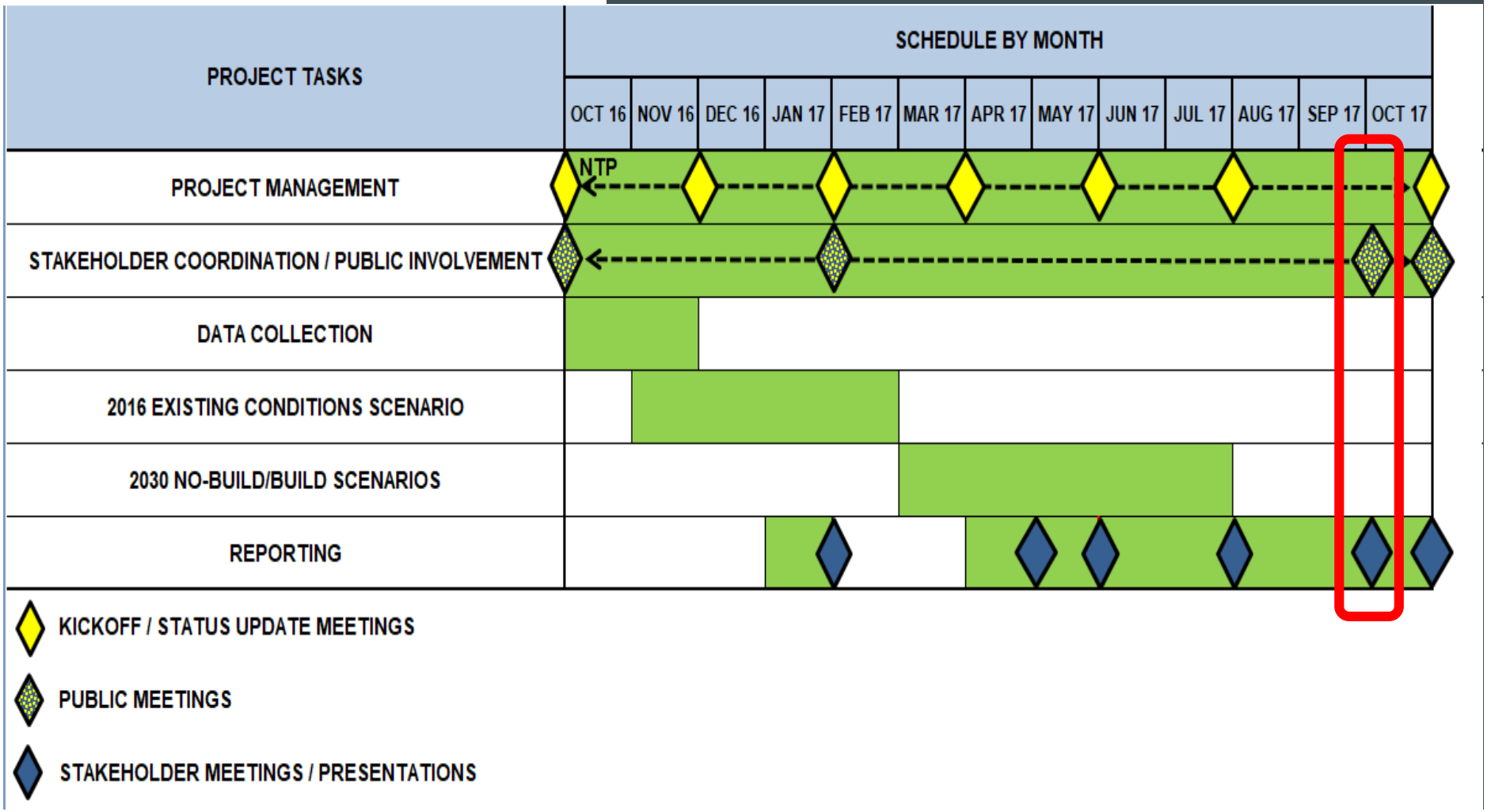
Today's Presentation

- Introduction by Town Staff
- Project Background
- 2030 "No-Build" Conditions and Results
- 2030 "Build" Conditions and Results
- 2030 "Build+Mitigation" Recommendations and Results
- 2030 Multi-Modal Analyses
- Superstreet Discussion
- Next Steps

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

Project Schedule – Where We Are At

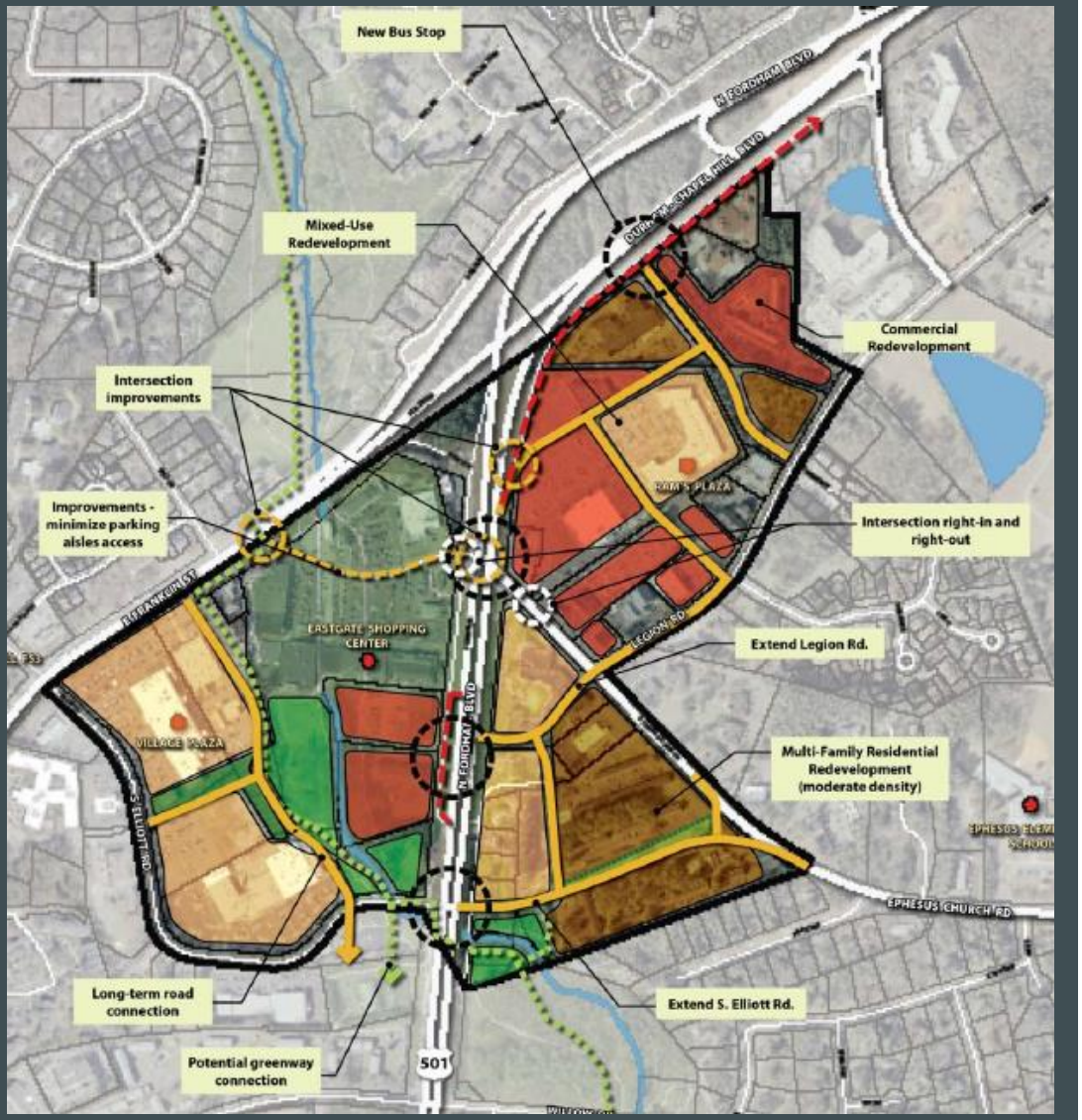


Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

Project Background

2011 Ephesus Church Road – Fordham Boulevard Area SAP

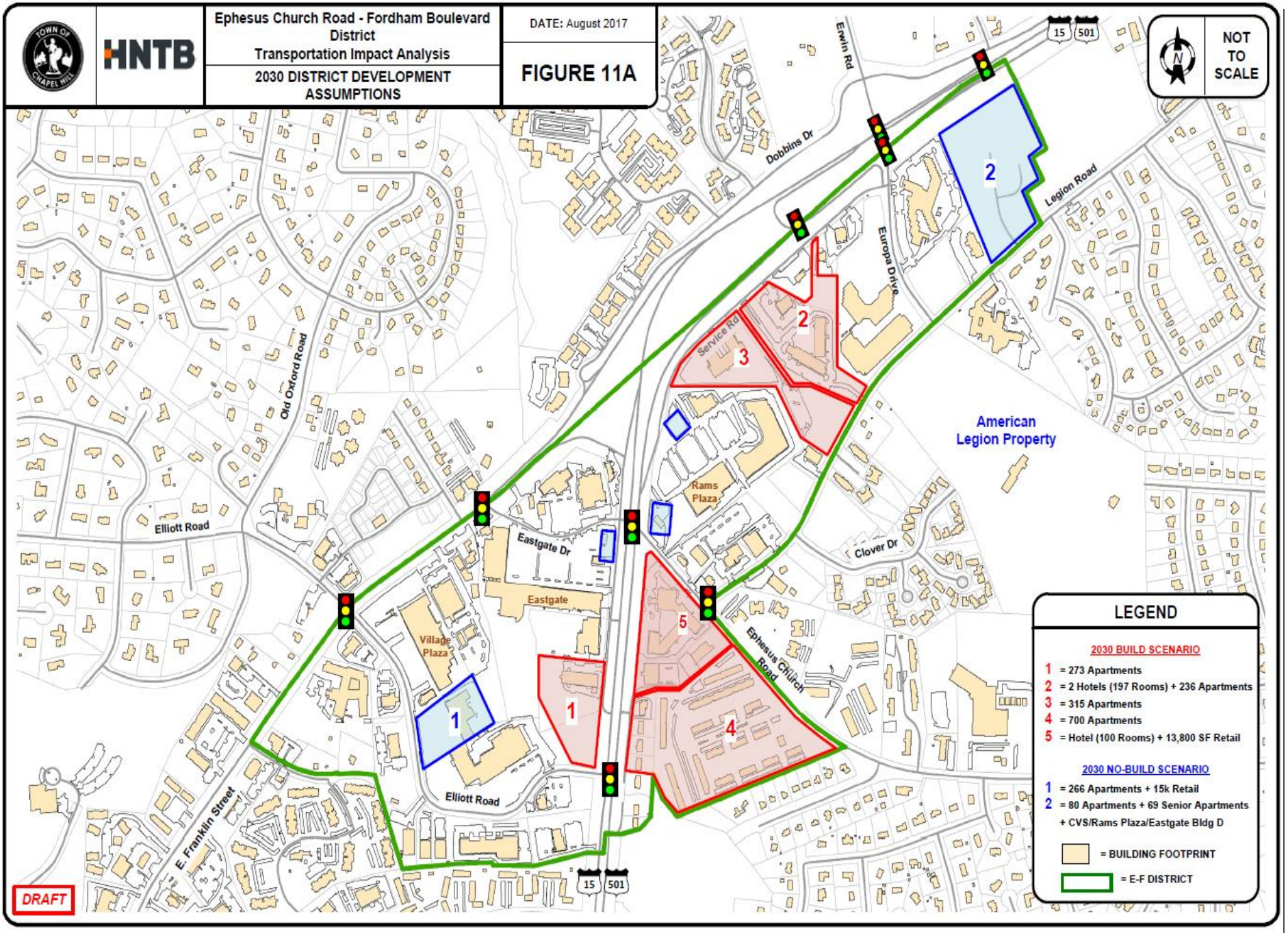


Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

DATE: August 2017

FIGURE 11A

2030 DISTRICT DEVELOPMENT ASSUMPTIONS



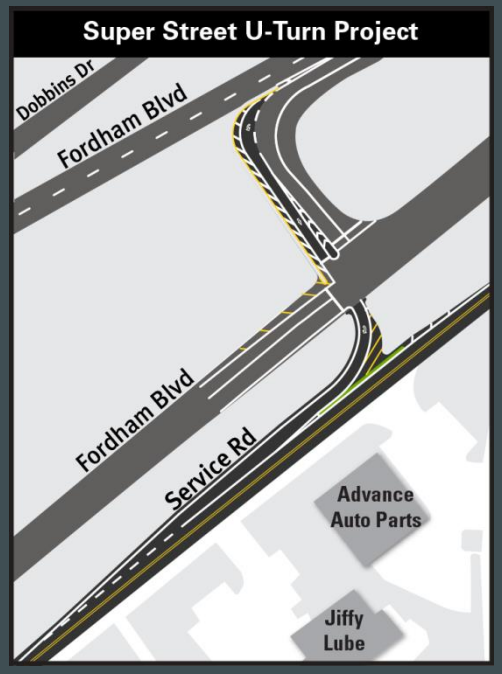
Ephesus Church Road – Fordham Boulevard Area

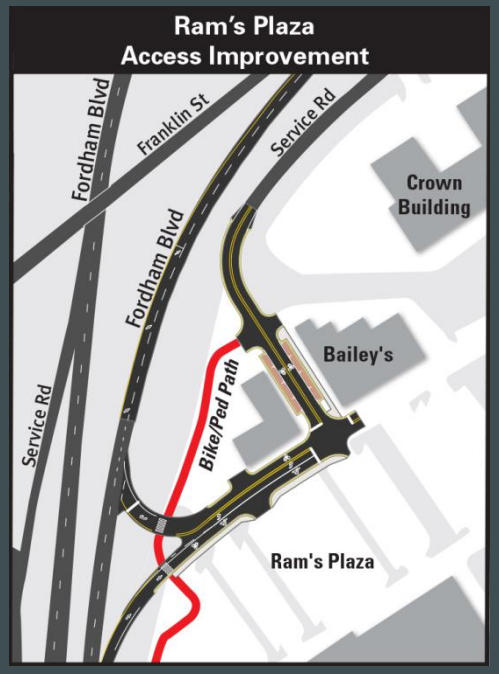
Transportation Impact Analysis

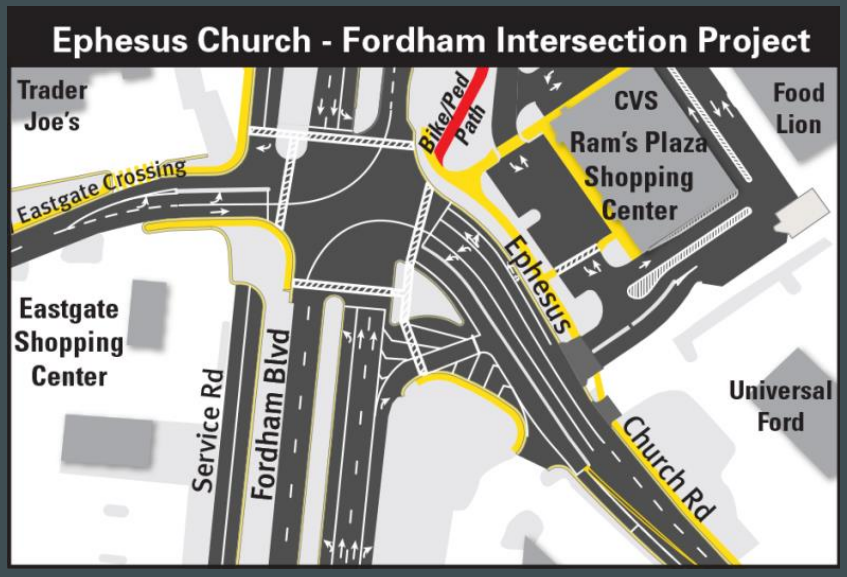
Project Background

E-F Area Transportation Improvements

Completed Projects







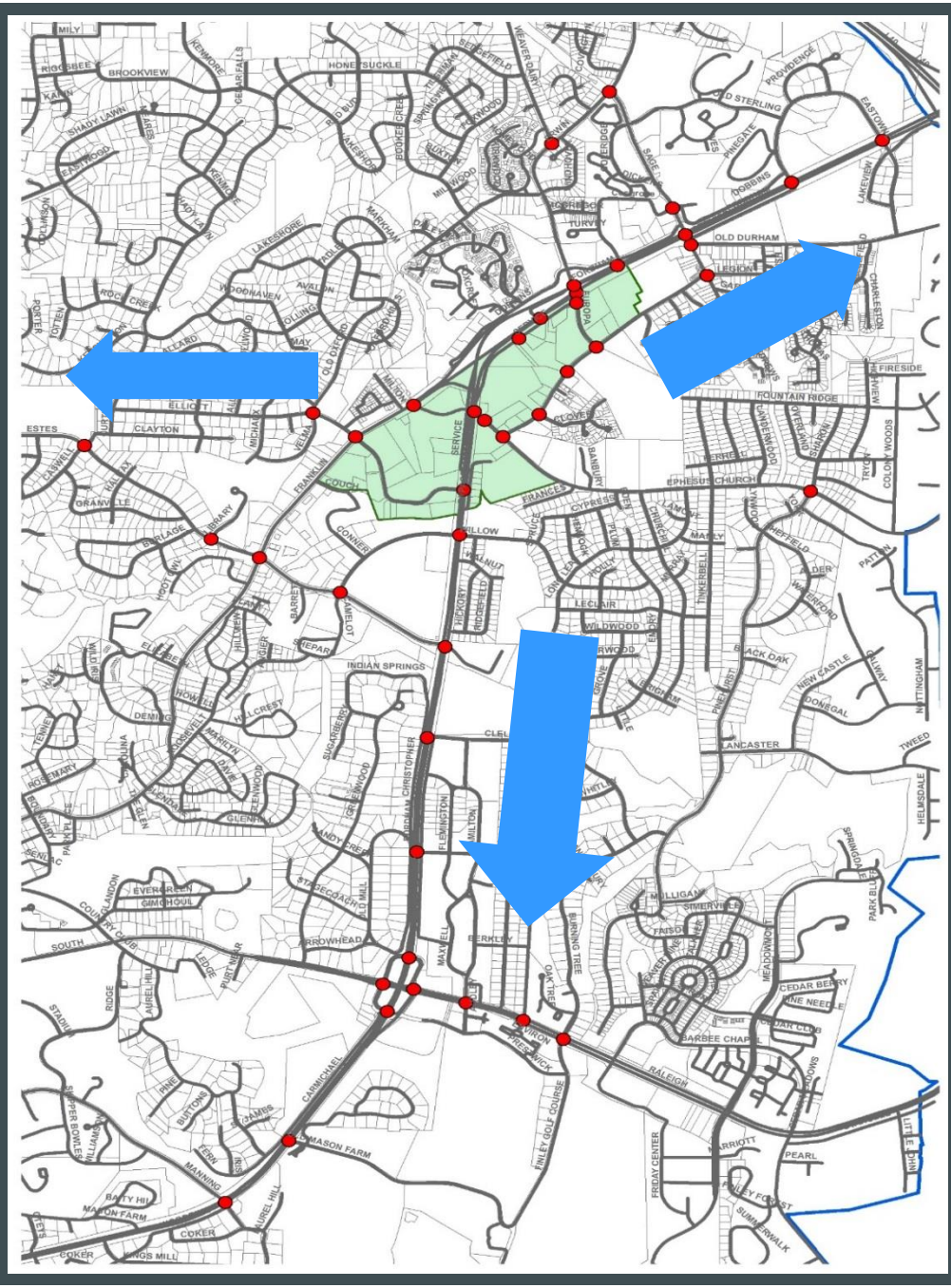
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

Project Background

Expanded Study Area and Methodology

"Transportation" Impacts to All Modes



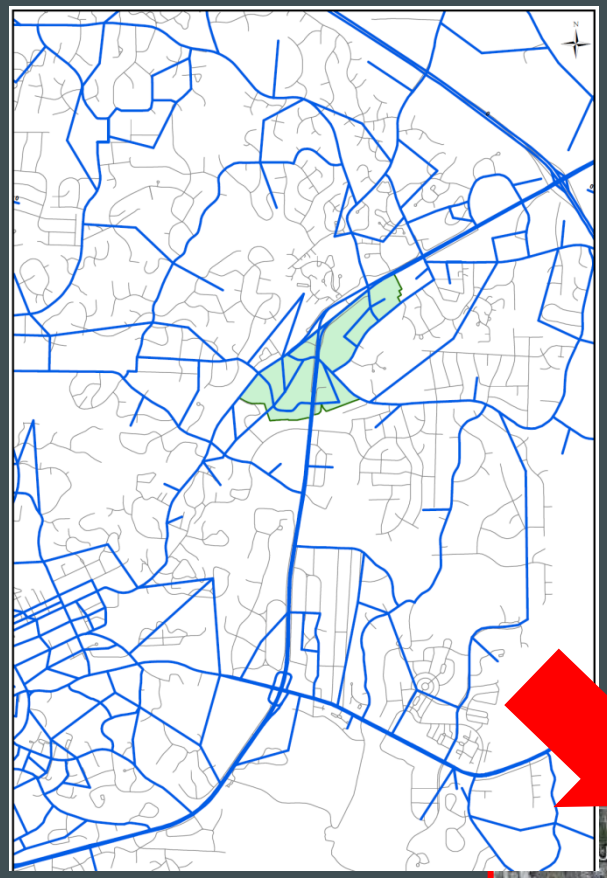
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

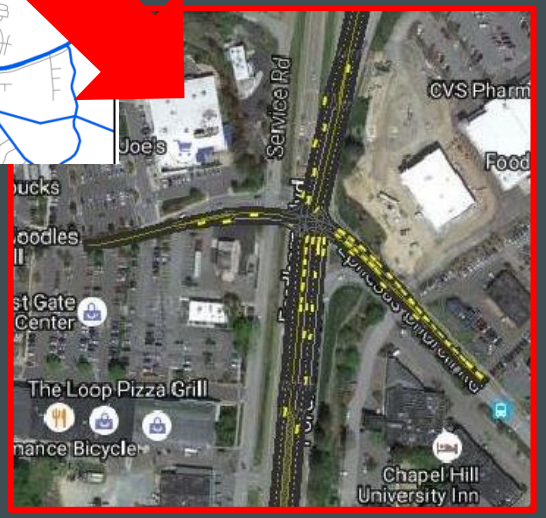
Project Background

Transportation Models

"BIG PICTURE MODEL"



"DETAILED MODEL"

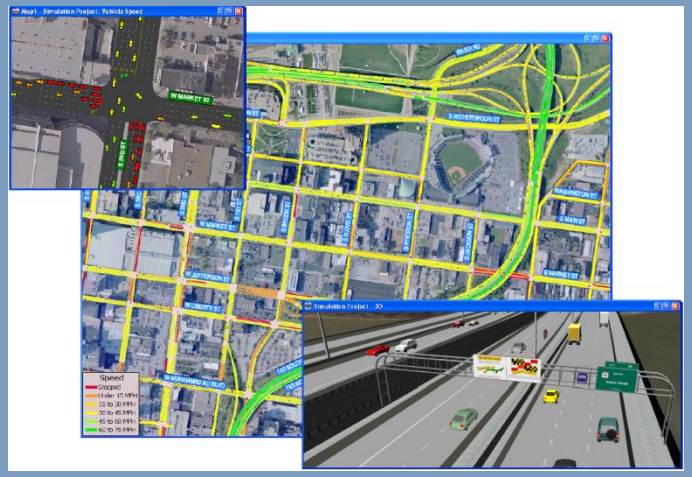


Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

Project Background

Transportation Models



TransModeler Traffic Simulation Software

- TransModeler Software Tool
- Integrates with Triangle Regional Model
- Can Model Both Traffic and Pedestrian Networks
- Will Model Effects of Background Development Projects
- Integrated Previous Traffic Models/Studies
- To Serve as Basis for Town-wide Traffic Model

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Assumptions

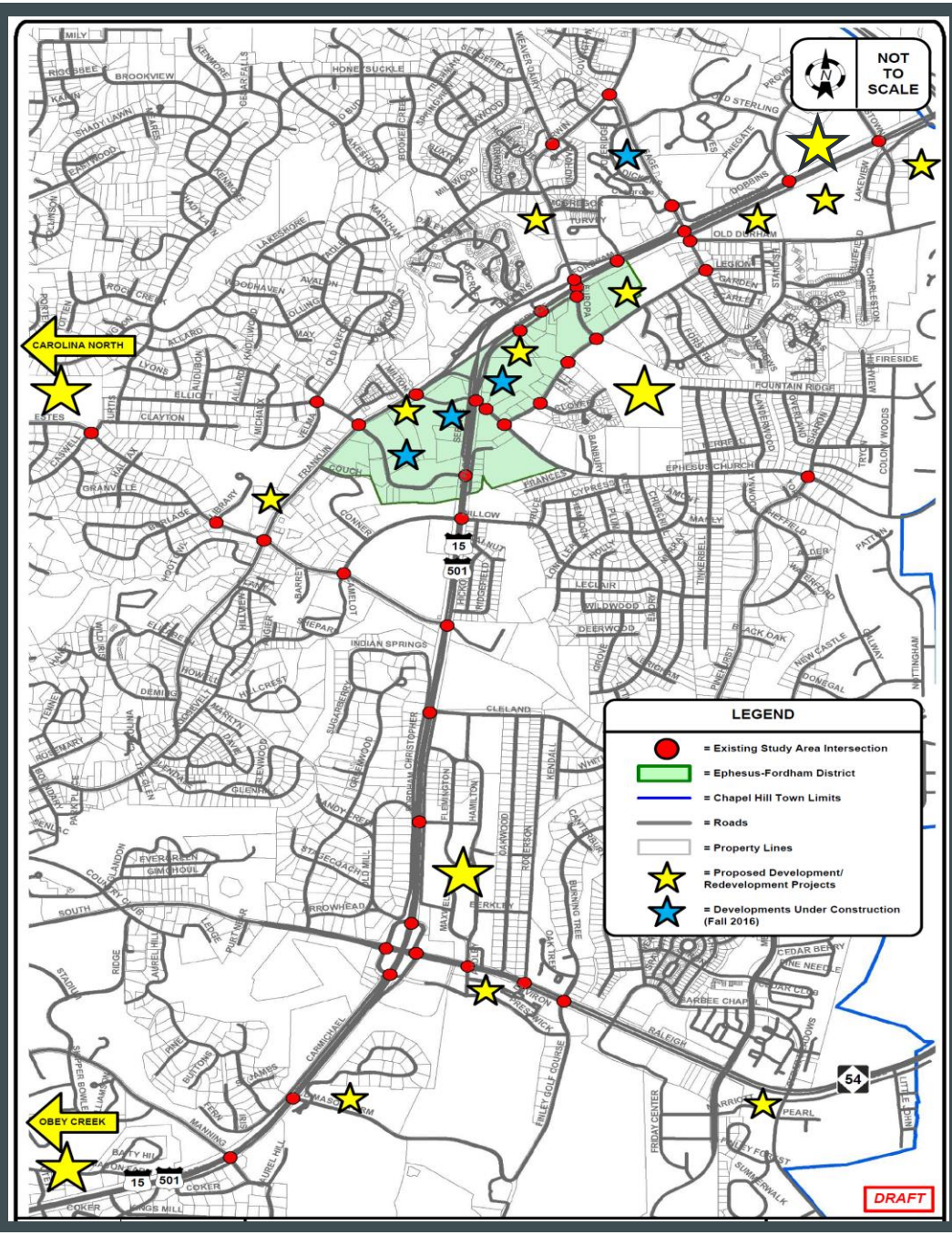
- Broad Study Area Development/Redevelopment Projects Occur
- No "New" E-F District Development
- Local Roadway Improvements from Development Projects
- No Major NCDOT/Town Projects
- Signal Retiming

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Background Development Assessment



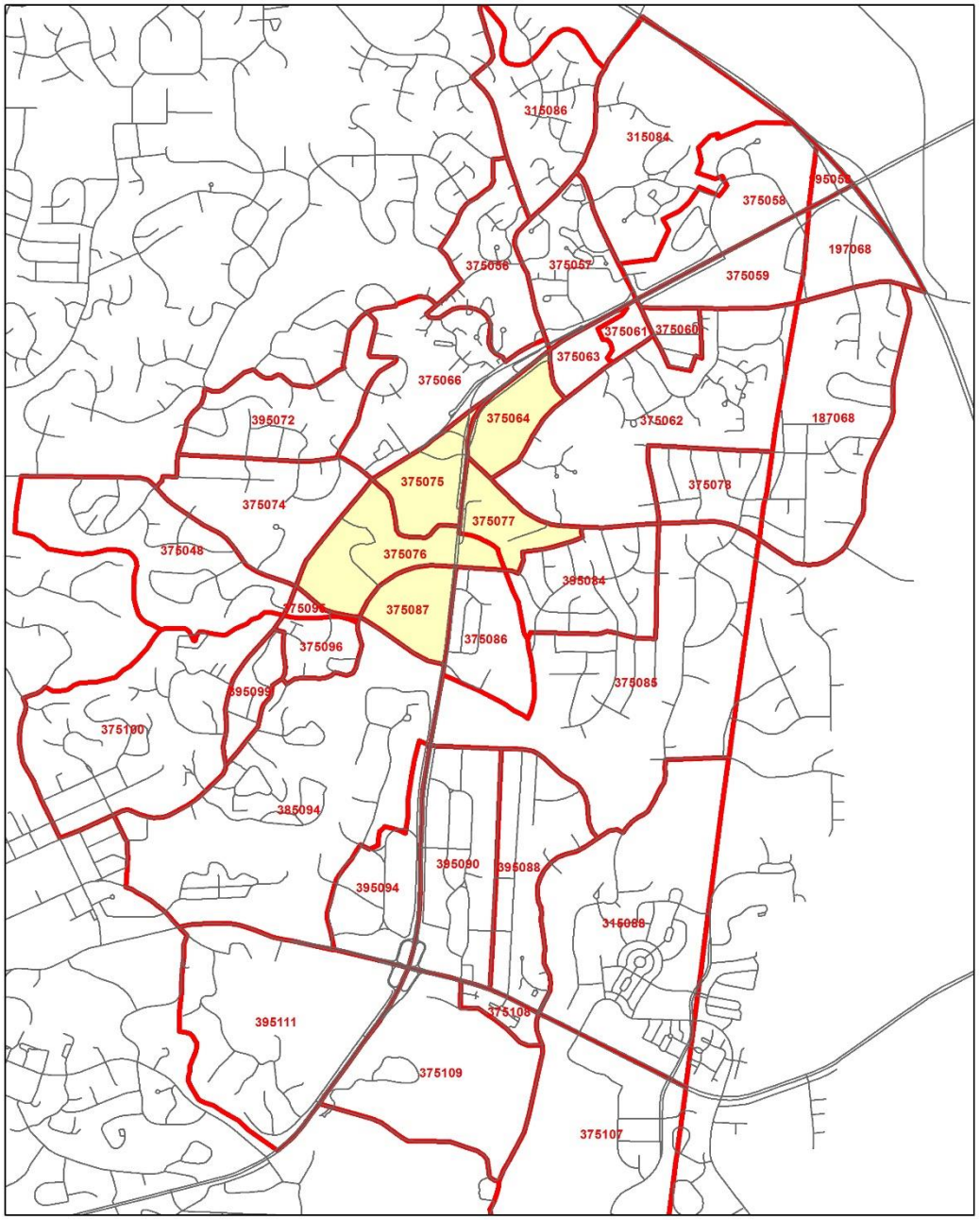
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Sub-Area Model

Traffic Analysis Zones (TAZ)



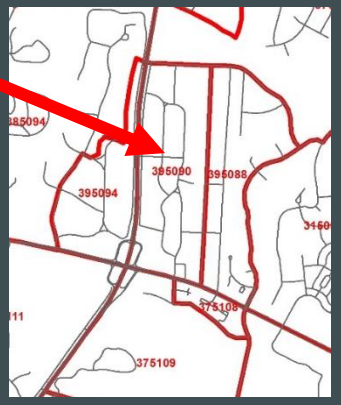
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Sub-Area Model Modifications

Background Development	TAZ	Data Scenario	Residential Data			Employment Data				
			HH	STUD_OFF	POP	IND	RET	HWY	OFF	SER
Gateway LRT**	525	Adjusted	404	0	810	5	82	69	87	584
		Original TRM	404	0	810	5	82	69	87	584
Wegmans & SECU	1990	Adjusted	301	0	603	0	280	35	736	378
		Original TRM	119	240	240	0	280	81	70	560
American Legion	1993	Adjusted	1065	187	2272	10	9	9	744	312
		Original TRM	843	187	1836	0	10	9	9	18
Greenfield Place	1994	Adjusted	117	0	235	0	12	2	5	182
		Original TRM	6	0	13	0	12	2	5	182
Berkshire (Village Plaza)	1998	Adjusted	266	0	532	67	771	180	24	788
		Original TRM	200	0	332	67	742	180	24	788
Obey Creek	2053	Adjusted	680	12	1431	25	770	66	648	164
		Original TRM	255	21	614	25	40	28	40	258
Carolina North	2089	Adjusted	253	363	541	0	48	48	379	473
		Original TRM	409	573	853	0	95	95	757	946
Glen Lennox	2107	Adjusted	1649	732	3182	16	263	126	1753	358
		Original TRM	628	279	1144	16	63	88	78	268

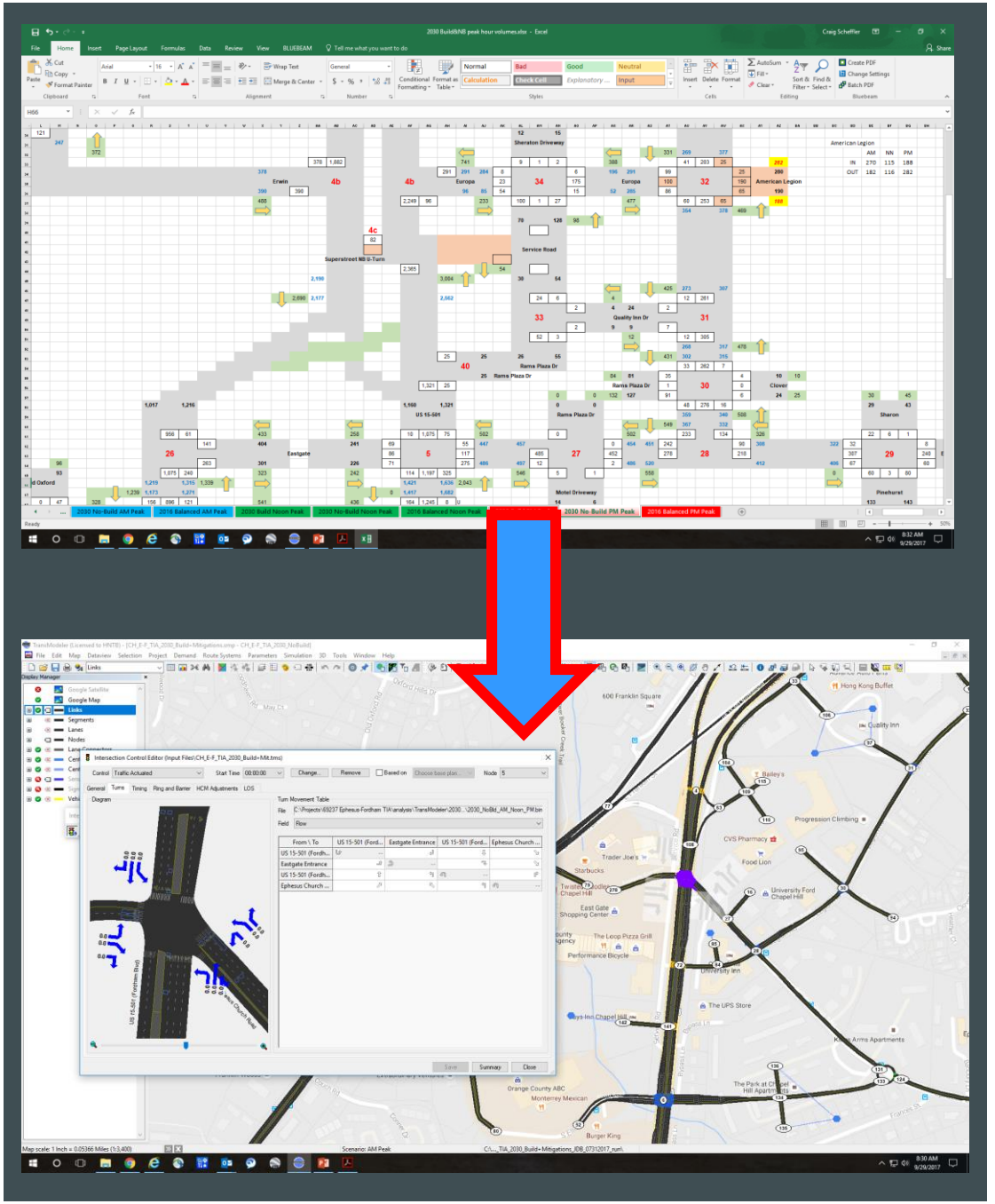


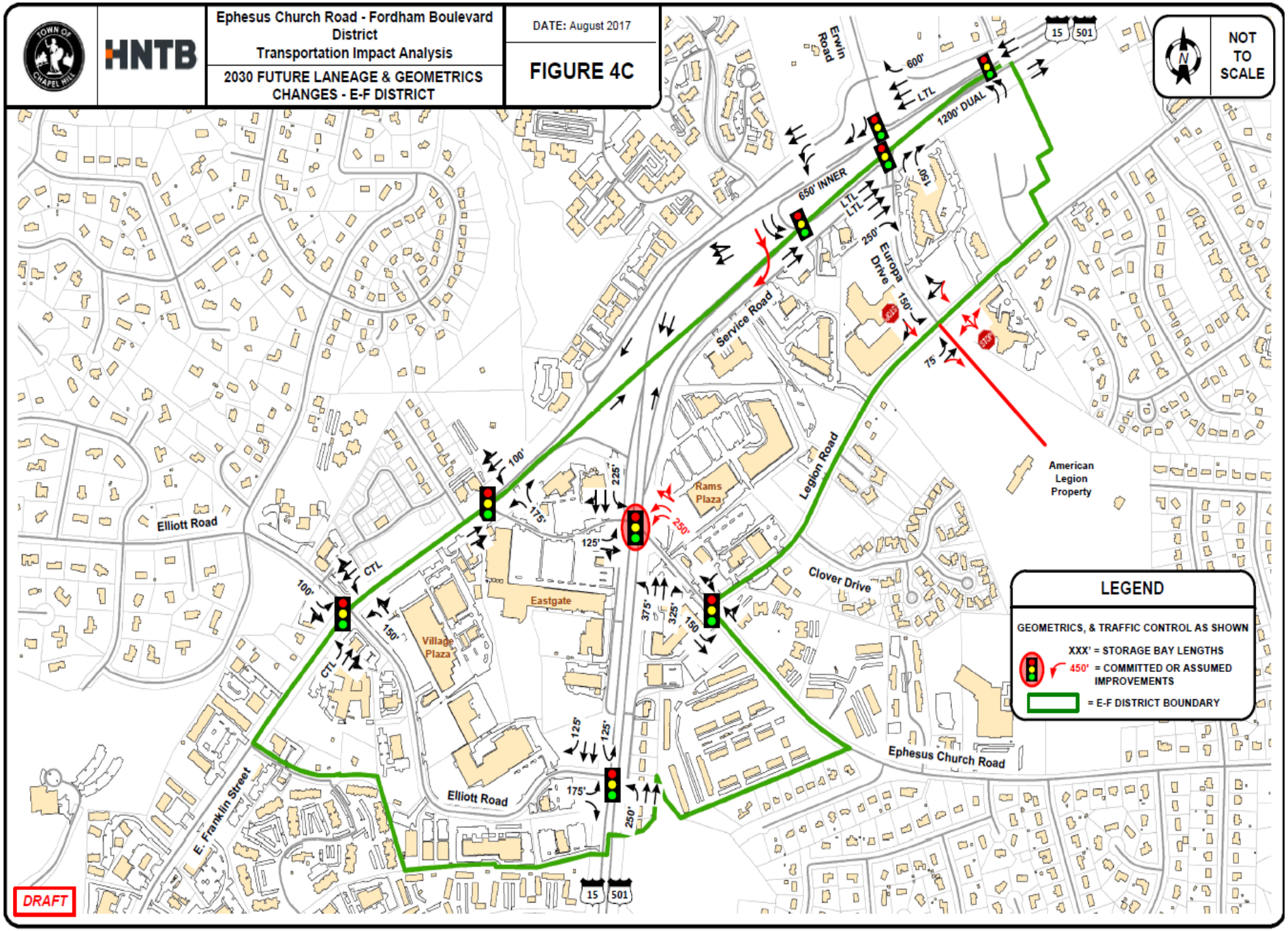
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Model Development




Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis
2030 FUTURE LANEAGE & GEOMETRICS CHANGES - E-F DISTRICT
DATE: August 2017
FIGURE 4C
HNTB
NOT TO SCALE
Erwin Road
600'
LTL
1200' DUAL
650' INNER
LTL
LTL
150'
250'
Europa Drive
150'
75'
Service Road
American Legion Property
Legion Road
Rams Plaza
225'
250'
125'
100'
175'
Elliott Road
CTL
100'
150'
CTL
Eastgate
Village Plaza
375'
325'
150'
Clover Drive
125'
125'
175'
250'
Elliott Road
E. Franklin Street
Ephesus Church Road
15
501
LEGEND
GEOMETRICS, & TRAFFIC CONTROL AS SHOWN
XXX' = STORAGE BAY LENGTHS
450' = COMMITTED OR ASSUMED IMPROVEMENTS
= E-F DISTRICT BOUNDARY
DRAFT

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Capacity Analysis Results

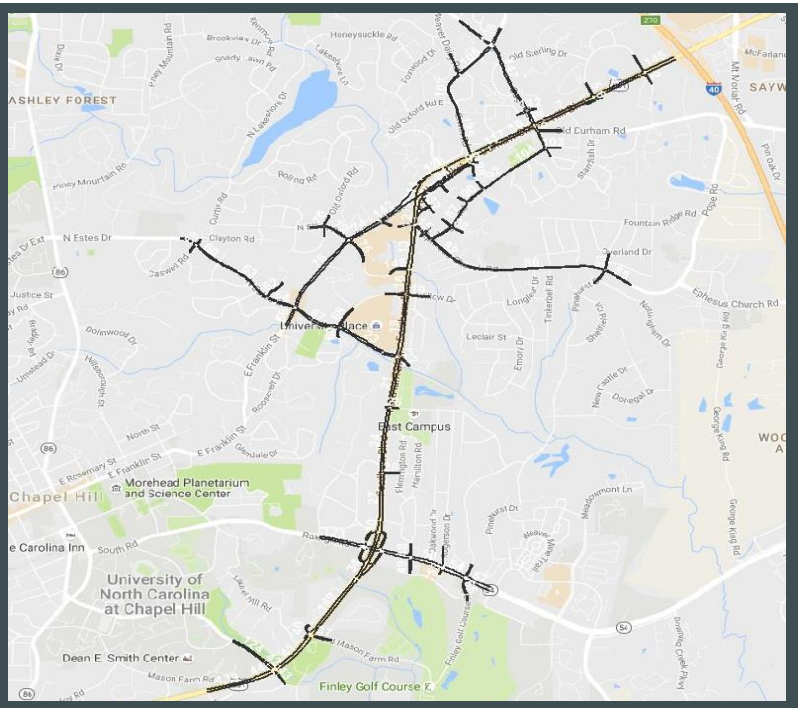
- System-wide Performance
- US 15-501 Corridor Performance
- Individual Intersection (Signal/Stop-Control/Roundabout) Performance
- Comparisons with 2016 Base Year

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

System Performance Measures of Effectiveness (MOEs)



MOE	AM Peak Hour			Noon Peak Hour			PM Peak Hour		
	2030 No - Build	2016 Base Year	Δ 2016-2030	2030 No - Build	2016 Base Year	Δ 2016-2030	2030 No - Build	2016 Base Year	Δ 2016-2030
Trips Completed	16,897	14,463	16.8%	15,494	13,001	19.2%	19,096	16,871	13.2%
Trips Queued	218	115	89.6%	76	37	105.0%	593	130	356.1%
Vehicle Miles Traveled (VMT)	29,572	25,533	15.8%	27,675	23,121	19.7%	33,014	28,481	15.9%
Vehicle Hours Traveled (VHT)	1,398	1,134	23.3%	1,240	977	26.9%	1,840	1,420	29.6%
Network Speed (mph)	21	22.5	-6.7%	22	23.7	-5.8%	18	20.1	-10.7%
Network Delay (Hours)	784	605	29.6%	665	497	33.7%	1,040	821	26.6%
Delay Per Vehicle (Seconds)	167	151	10.6%	154	138	11.9%	196	175	12.0%

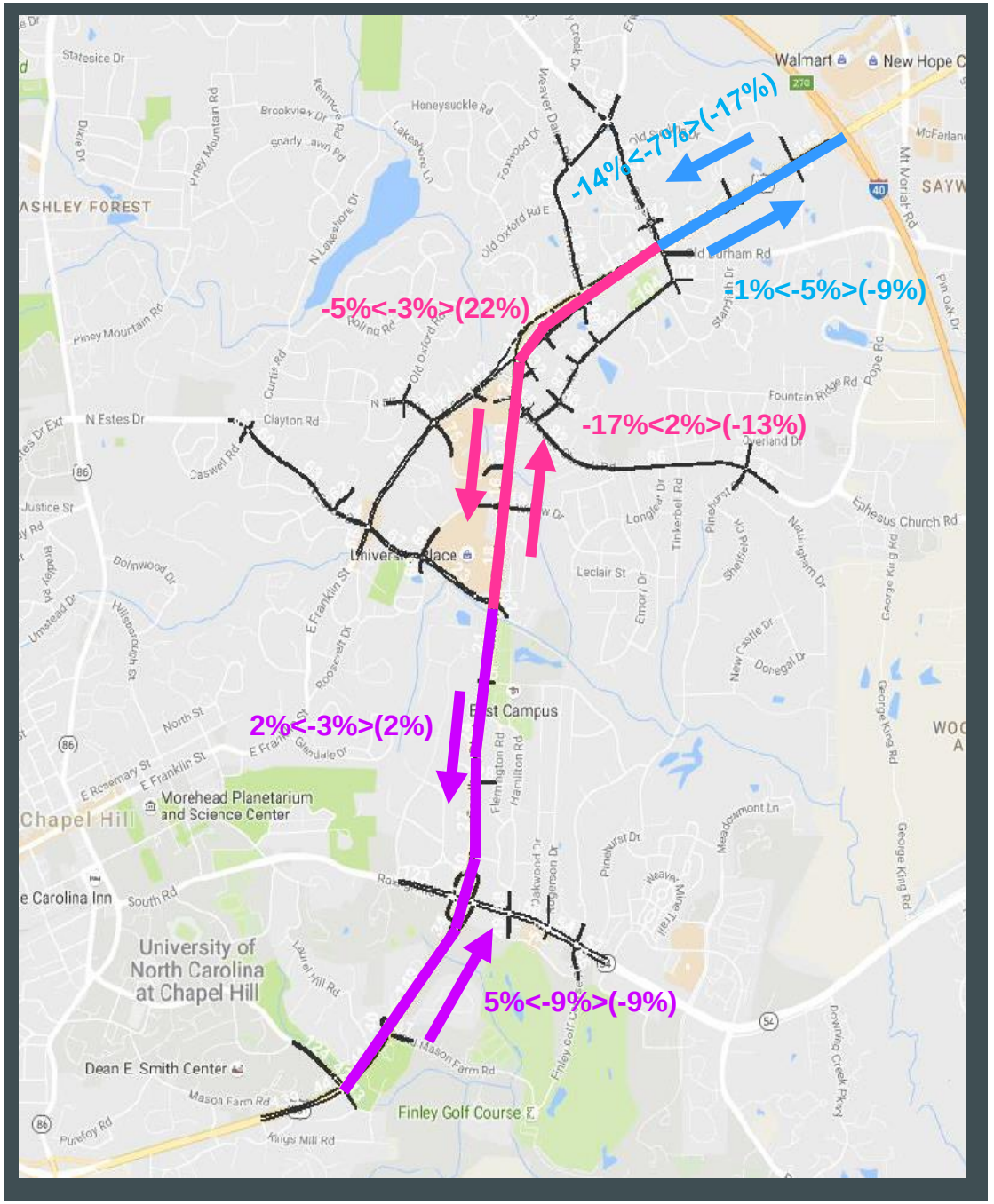
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

US 15-501 Corridor Performance MOEs

AM <Noon> (PM) Peak Hour
Percent Change in **Speed**
From 2016 Base Year



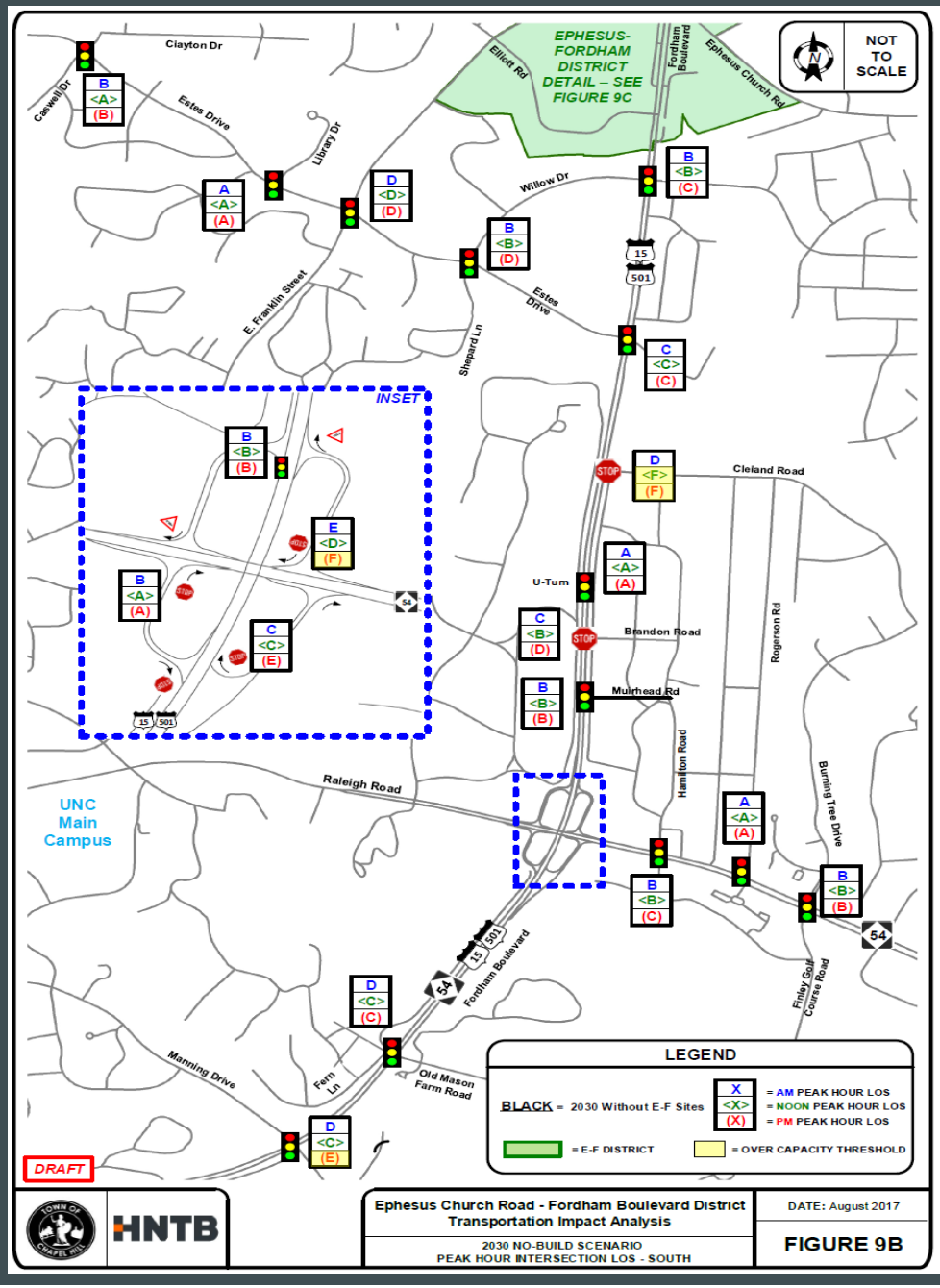
Ephesus Church Road – Fordham Boulevard Area

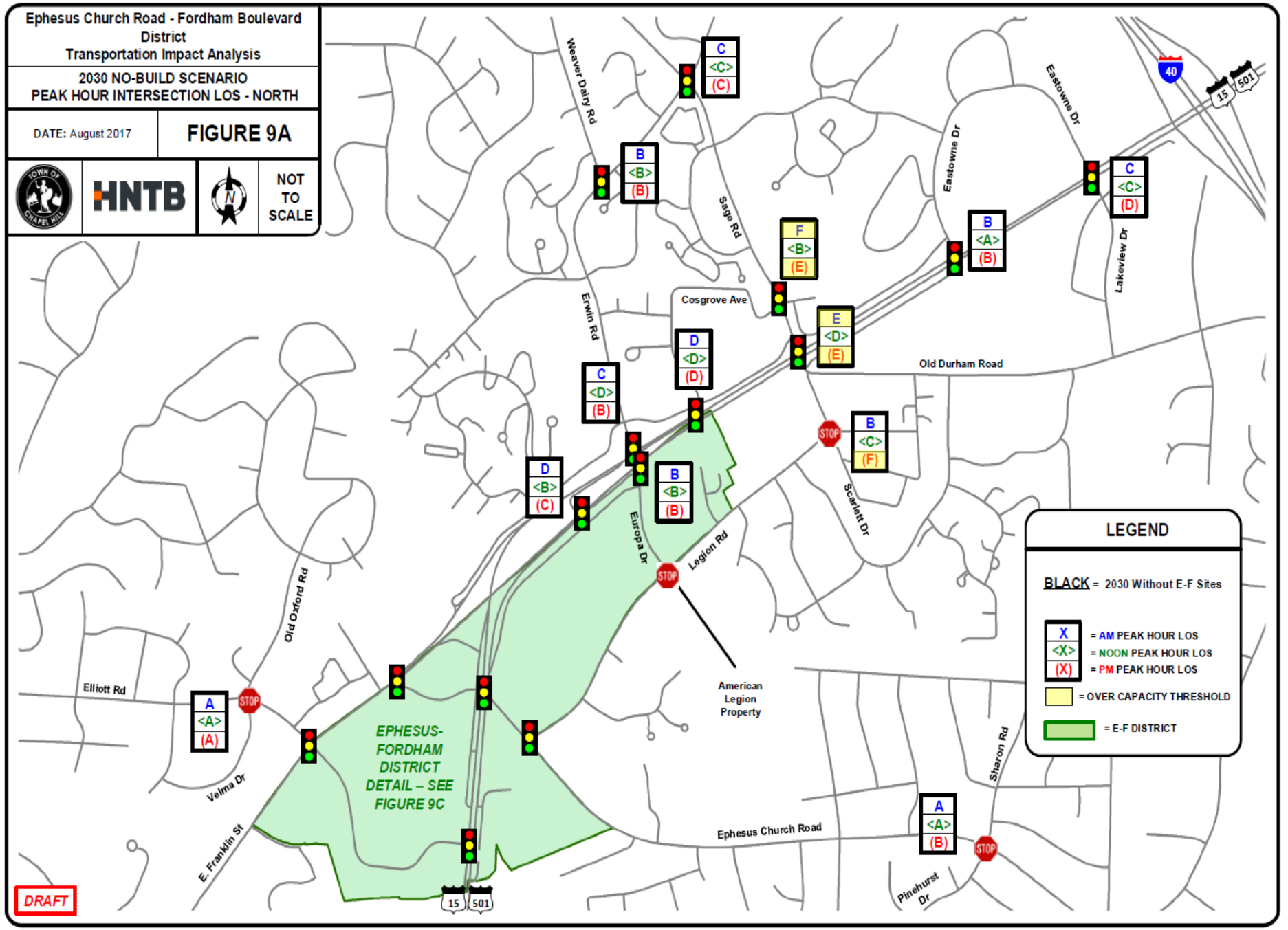
Transportation Impact Analysis

2030 "No-Build" Scenario

Intersection Performance MOEs

Overall Intersection Level-of-Service (LOS)



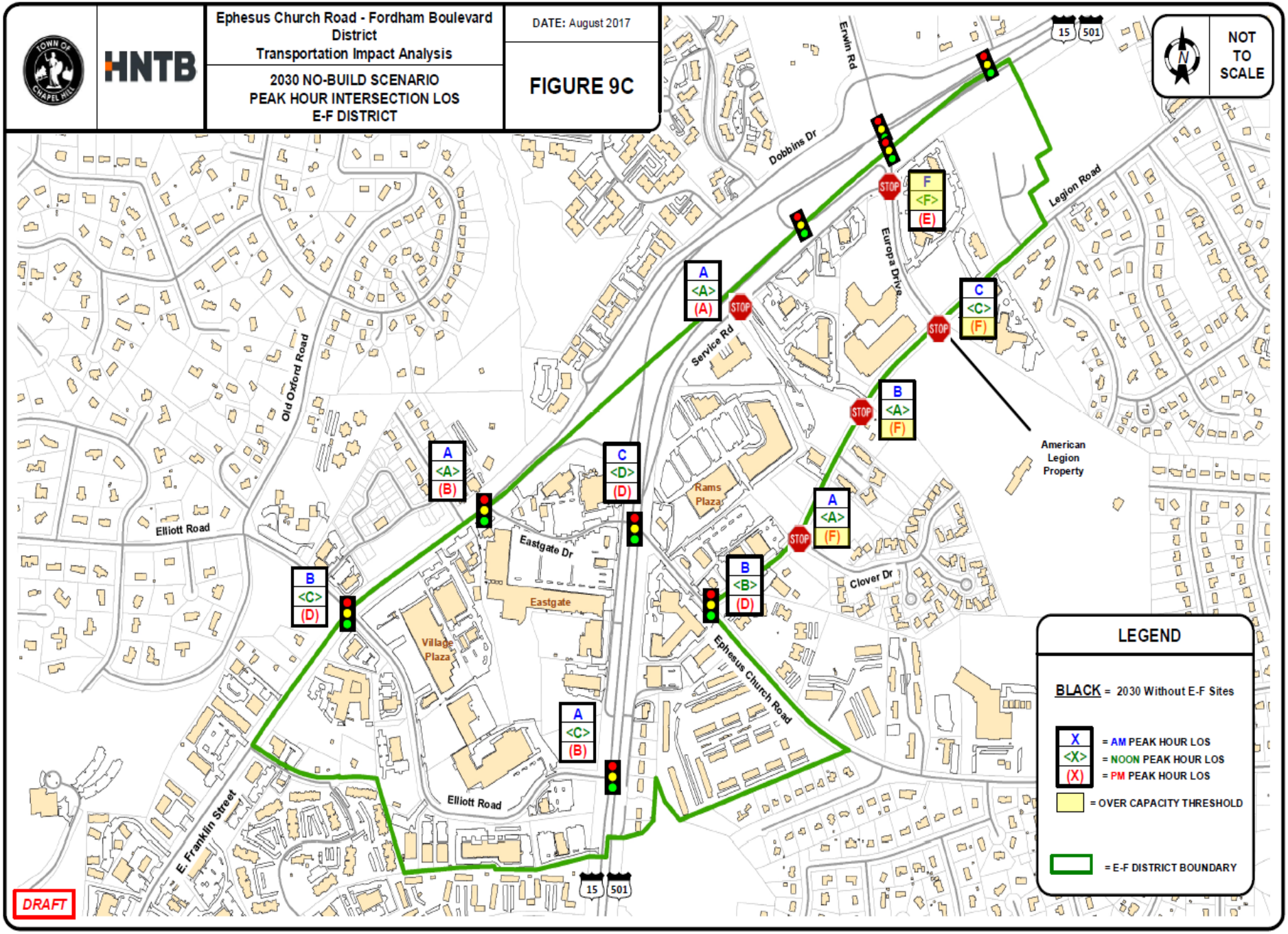

Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis
2030 NO-BUILD SCENARIO
PEAK HOUR INTERSECTION LOS - NORTH
DATE: August 2017
FIGURE 9A
HNTB
NOT TO SCALE
Weaver Dairy Rd
Sage Rd
Erwin Rd
Cosgrove Ave
Eastowne Dr
Lakeview Dr
Old Durham Road
Scarlett Dr
Europa Dr
Legion Rd
Old Oxford Rd
Elliott Rd
Velma Dr
E. Franklin St
Sharon Rd
Pinehurst Dr
Ephesus Church Road
American Legion Property
EPHESUS-FORDHAM DISTRICT DETAIL – SEE FIGURE 9C
STOP
40
15
501
LEGEND
BLACK = 2030 Without E-F Sites
= AM PEAK HOUR LOS
= NOON PEAK HOUR LOS
= PM PEAK HOUR LOS
= OVER CAPACITY THRESHOLD
= E-F DISTRICT
DRAFT

Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

2030 NO-BUILD SCENARIO
PEAK HOUR INTERSECTION LOS
E-F DISTRICT

DATE: August 2017

FIGURE 9C



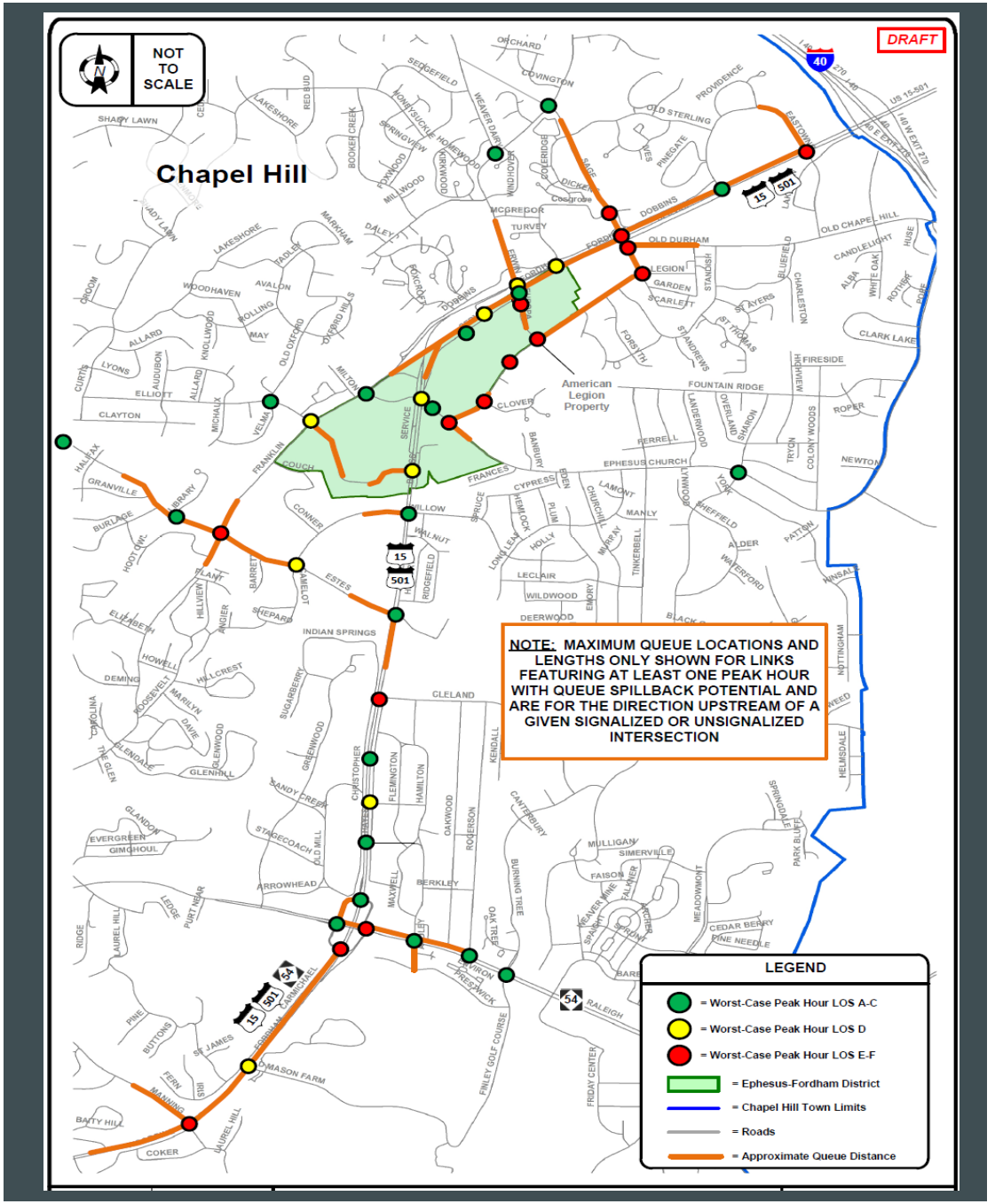
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" Scenario

Intersection Performance MOEs

Queuing Analysis



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build" Scenario

Assumptions

- 5 E-F District Development/Redevelopment Projects
- Retime Traffic Signals
- Proposed New Roadways
  - Elliott Road Extension
  - Legion Road Extension
  - Public Street Between Service Road & Legion Road

Ephesus Church Road – Fordham Boulevard Area

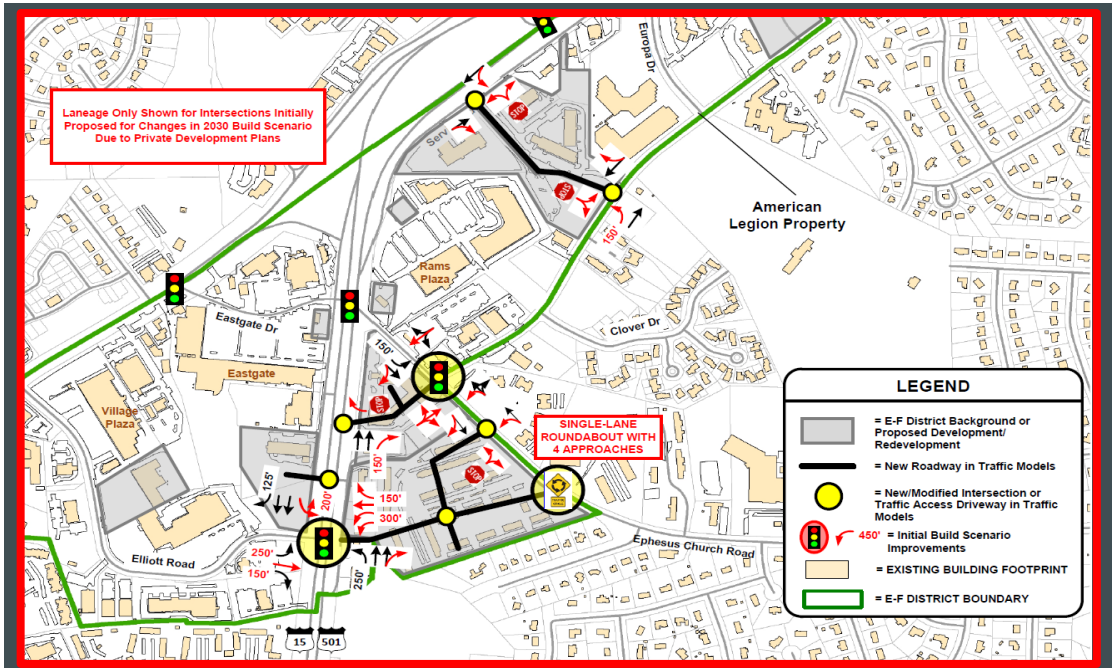
Transportation Impact Analysis

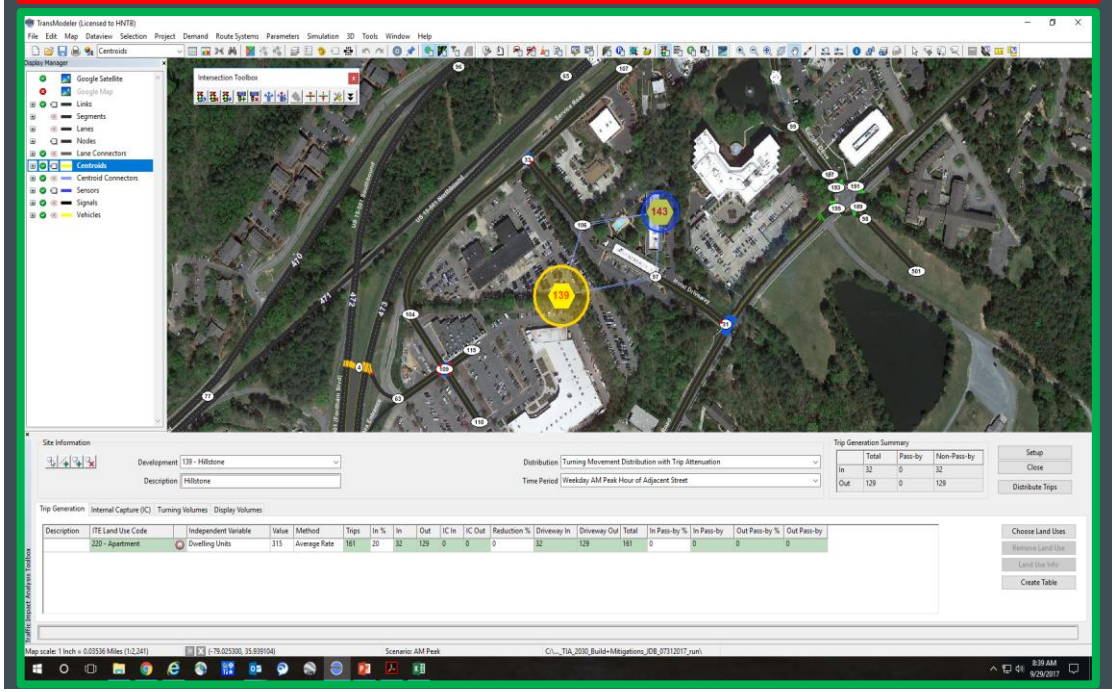
2030 "Build" Scenario

Model Development

New Roadways

New Development Traffic



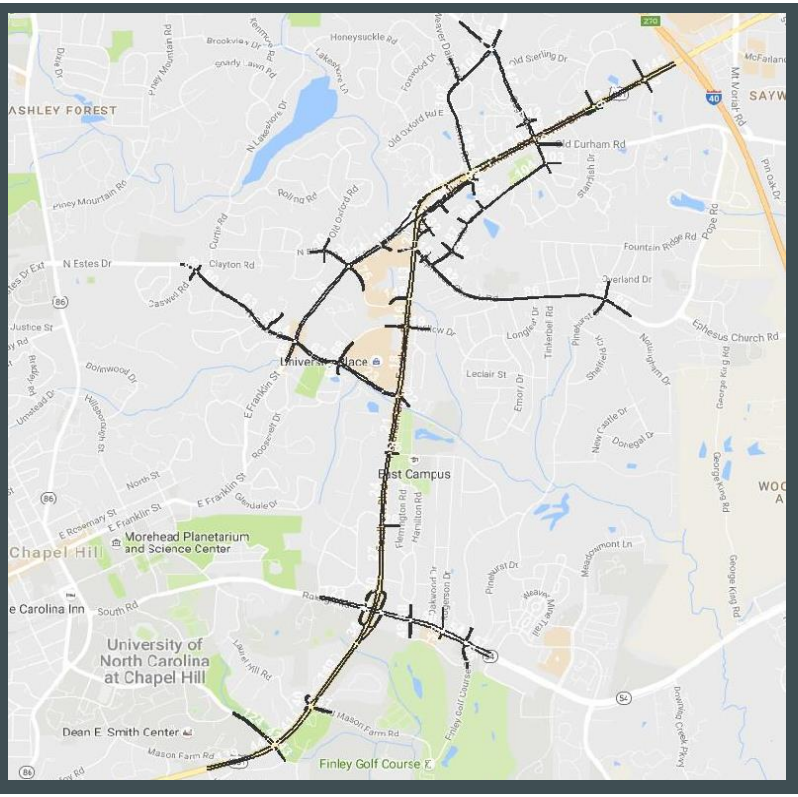


Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build" Scenario

System Performance MOEs



MOE	AM Peak Hour			Noon Peak Hour			PM Peak Hour		
	2030 Build	2030 No-Build	Δ No-Build to Build	2030 Build	2030 No-Build	Δ No-Build to Build	2030 Build	2030 No-Build	Δ No-Build to Build
Trips Completed	17,901	16,897	5.9%	15,947	15,494	2.9%	20,100	19,096	5.3%
Trips Queued	214	218	-2.1%	59	76	-22.2%	583	593	-1.8%
Vehicle Miles Traveled (VMT)	29,884	29,572	1.1%	28,249	27,675	2.1%	33,353	33,014	1.0%
Vehicle Hours Traveled (VHT)	1,427	1,398	2.1%	1,263	1,240	1.9%	1,863	1,840	1.2%
Network Speed (mph)	21	21	-0.3%	22	22	0.2%	18	18	-0.2%
Network Delay (Hours)	806	784	2.8%	678	665	1.9%	1,071	1,040	3.1%
Delay Per Vehicle (Seconds)	162	167	-3.0%	153	154	-0.9%	192	196	-2.1%

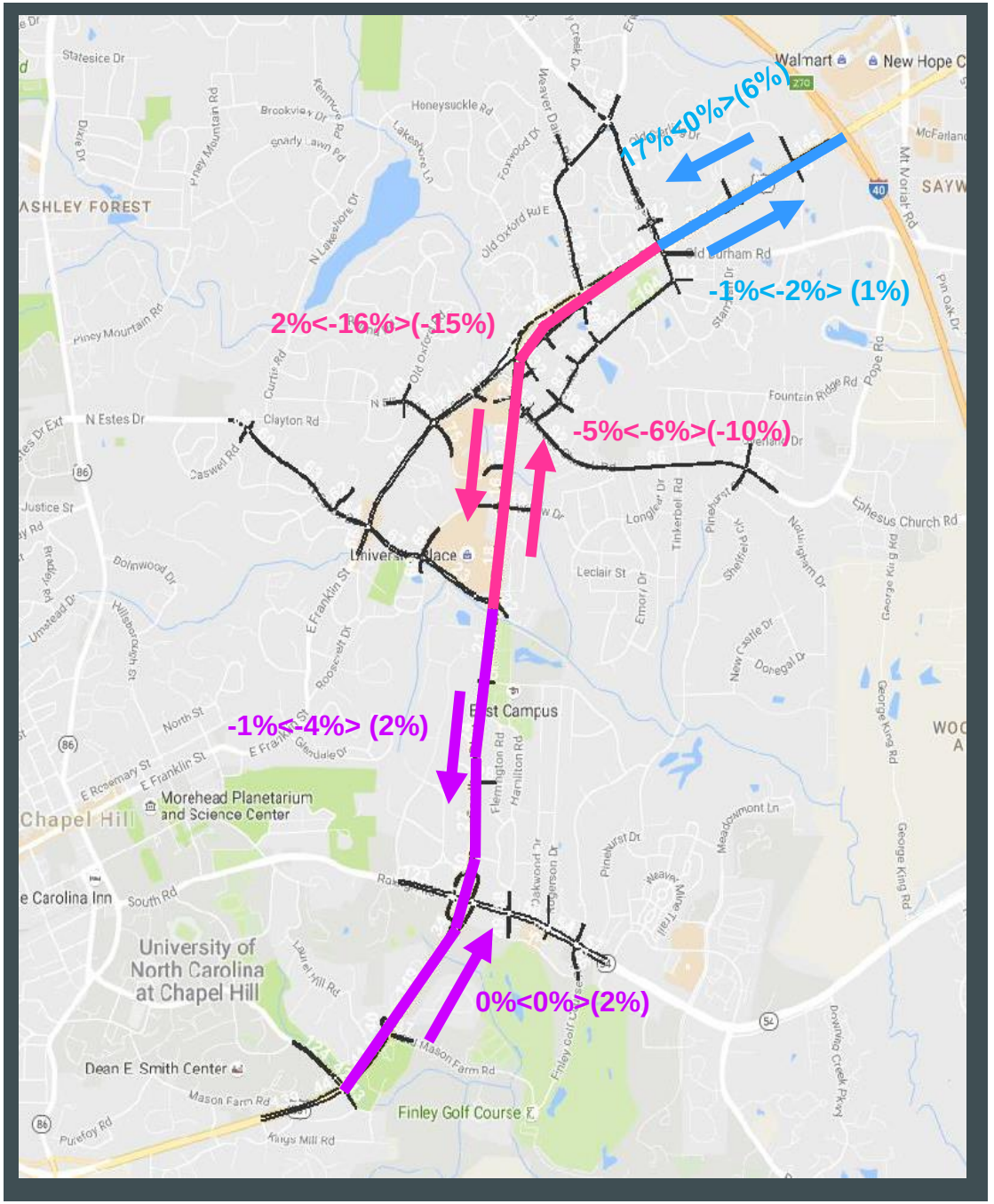
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build" Scenario

US 15-501 Corridor Performance MOEs

AM <Noon> (PM) Peak Hour
Percent Change in Speed
From 2030 "No-Build" Scenario



Ephesus Church Road – Fordham Boulevard Area

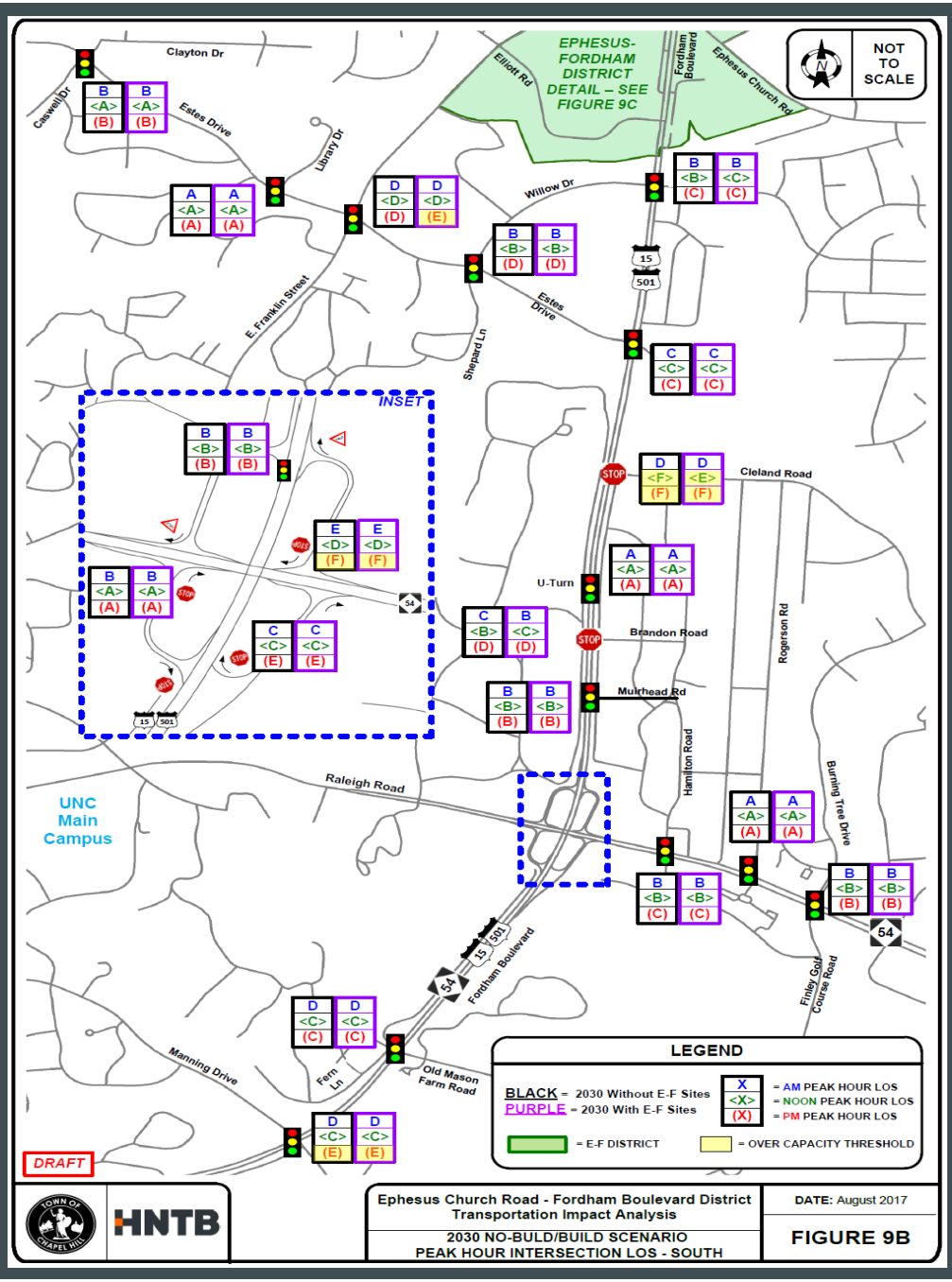
Transportation Impact Analysis

2030 "Build" Scenario

Intersection Performance MOEs

Overall Intersection LOS

Comparison to 2030 "No-Build"



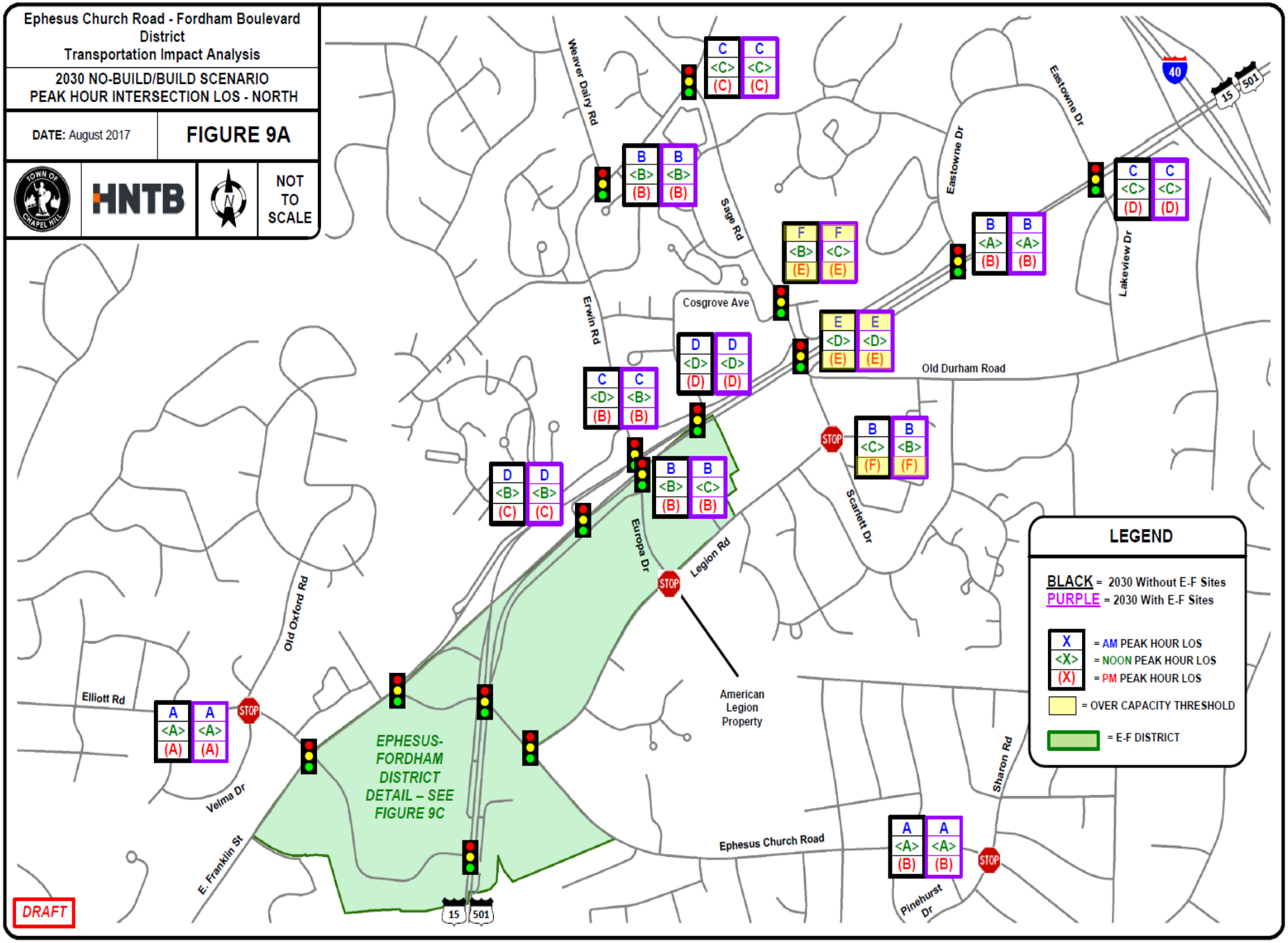
Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

2030 NO-BUILD/BUILD SCENARIO
PEAK HOUR INTERSECTION LOS - NORTH

DATE: August 2017

FIGURE 9A

NOT TO SCALE

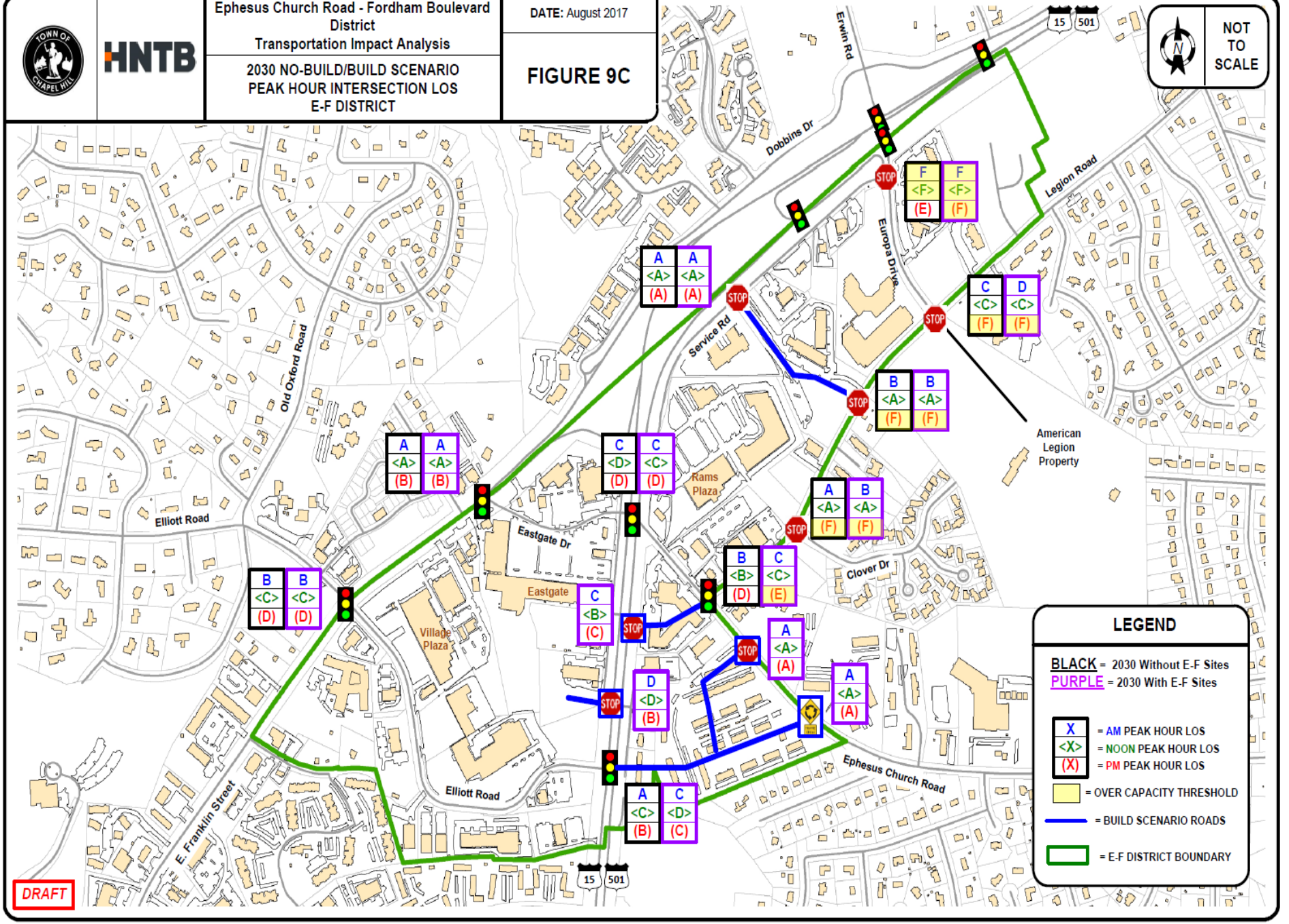


Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

DATE: August 2017

FIGURE 9C

2030 NO-BUILD/BUILD SCENARIO
PEAK HOUR INTERSECTION LOS
E-F DISTRICT



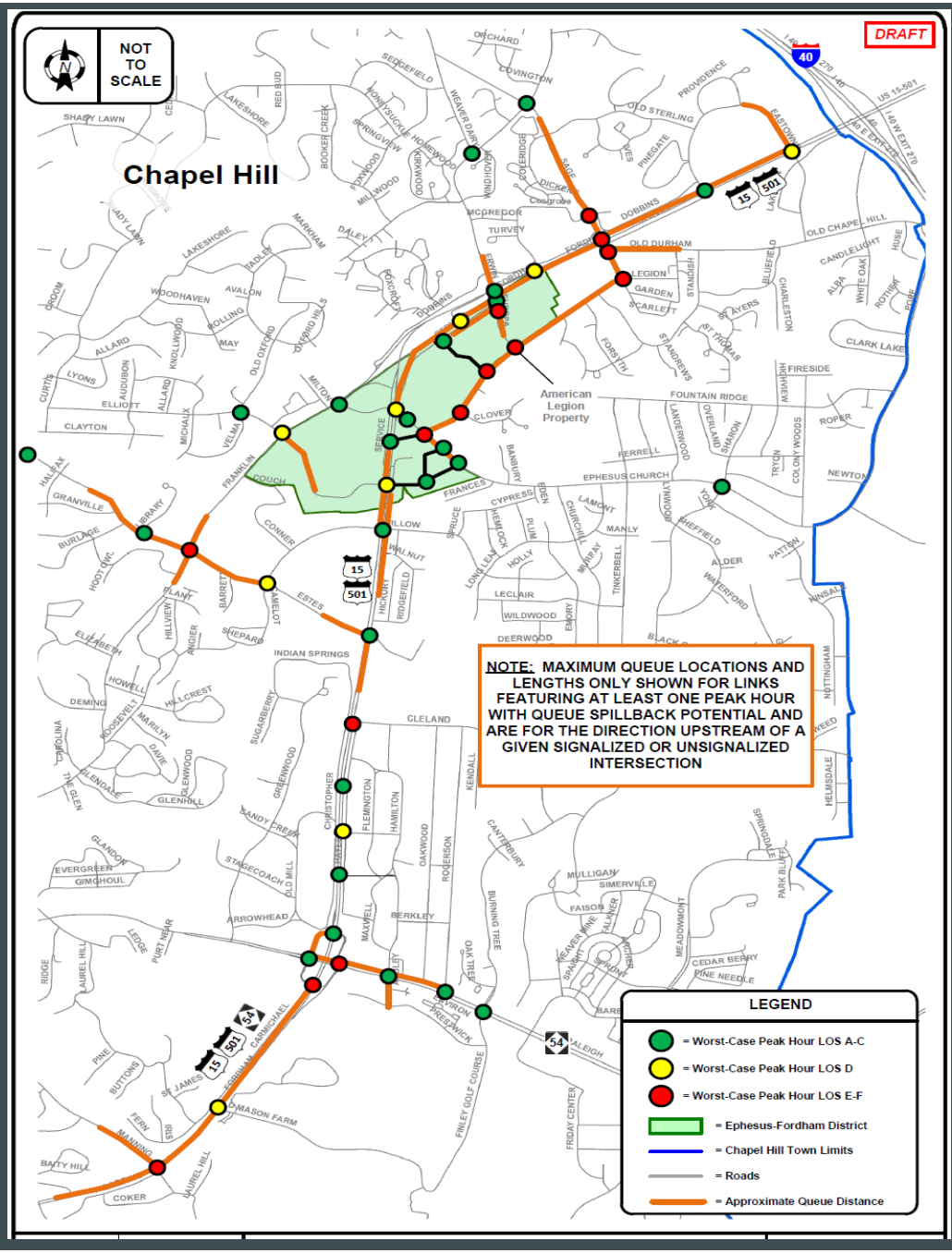
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build" Scenario

Intersection Performance MOEs

Queuing Analysis



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

Assumptions

- Identify Bottlenecks, Queuing and Critical Intersections – Visually in Simulation Runs
- Analyze Intersection Results for LOS E and F Conditions
- Consider "System" Improvements To Make Significant Mobility Improvement
- Assess Smaller Intersection Improvements For Local Congestion
- Retime Traffic Signals

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

Intersection Performance Thresholds

Table 11. Level of Service (LOS) Characteristics

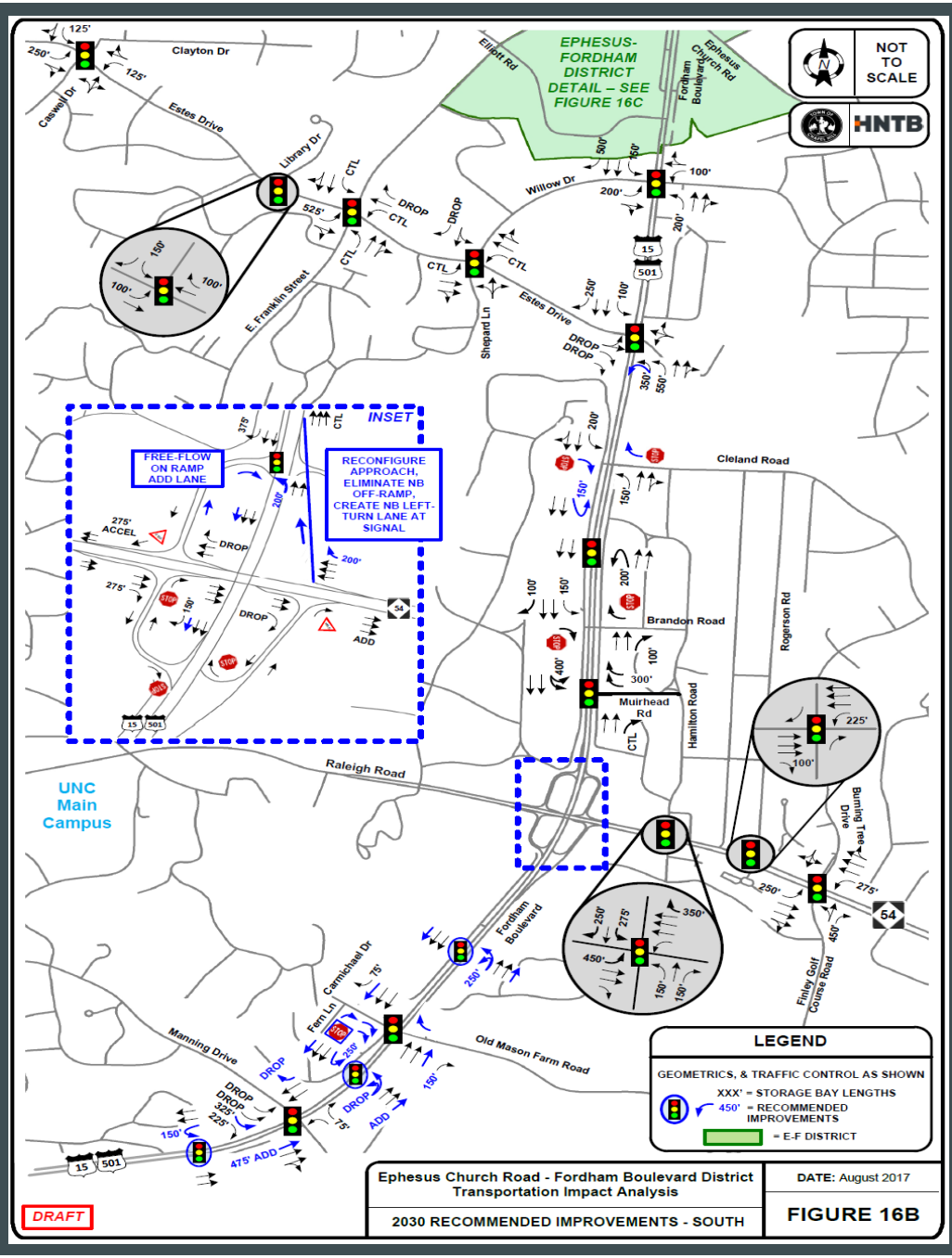
Level of Service Description	Per Vehicle Delay at Signal	Per Vehicle Delay at Stop Sign
LOS A ➢ Free flow ➢ Freedom to select desired speed and to maneuver is extremely high ➢ General level of comfort and convenience for motorists is excellent	< 10.0 sec	< 10.0 sec
LOS B ➢ Stable flow ➢ Other vehicles in the traffic stream become noticeable ➢ Reduction in freedom to maneuver from LOS A	10.0 – 20.0 sec	10.0 – 15.0 sec
LOS C ➢ Stable flow ➢ Maneuverability/operating speed significantly affected by other vehicles ➢ General level of comfort and convenience declines noticeably	20.0 – 35.0 sec	15.0 – 25.0 sec
LOS D ➢ High density but stable flow ➢ Speed/freedom to maneuver are very restricted ➢ General level of comfort / convenience is poor ➢ Small increases in traffic will generally cause operational problems	35.0 – 55.0 sec	25.0 – 35.0 sec
LOS E ➢ Unstable flow ➢ Speed reduced to lower but relatively uniform value ➢ Volumes at or near capacity level ➢ Comfort and convenience are extremely poor ➢ Small flow increases or minor traffic stream disturbances will cause breakdowns	55.0 – 80.0 sec	35.0 – 50.0 sec
LOS F ➢ Forced or breakdown flow ➢ Volumes exceed roadway capacity ➢ Formation of unstable queues ➢ Stoppages for long periods of time because of traffic congestion	> 80.0 sec	> 50.0 sec

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

Recommended Improvements Tested



Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

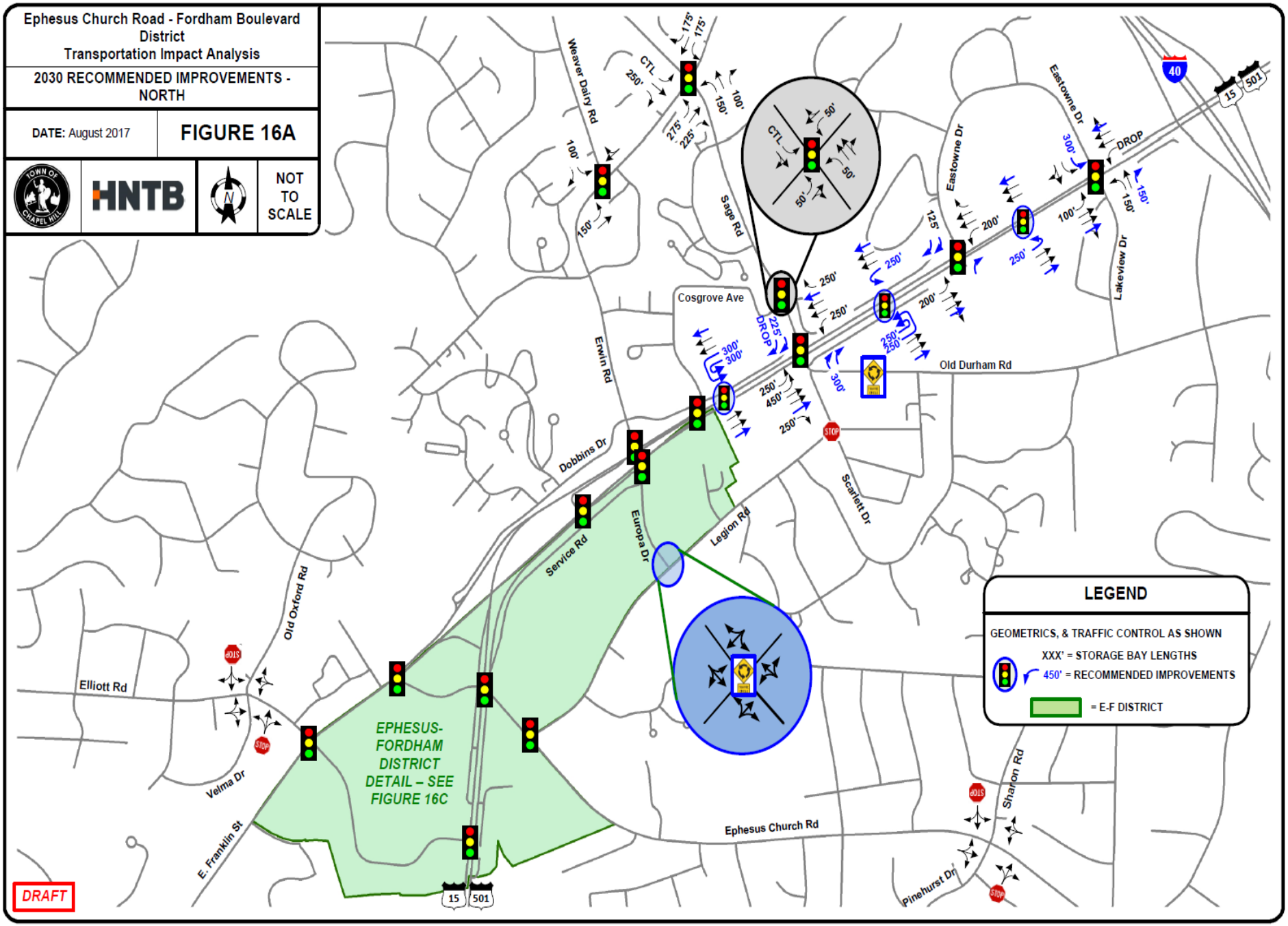
2030 RECOMMENDED IMPROVEMENTS - NORTH

DATE: August 2017

FIGURE 16A

HNTB

NOT TO SCALE

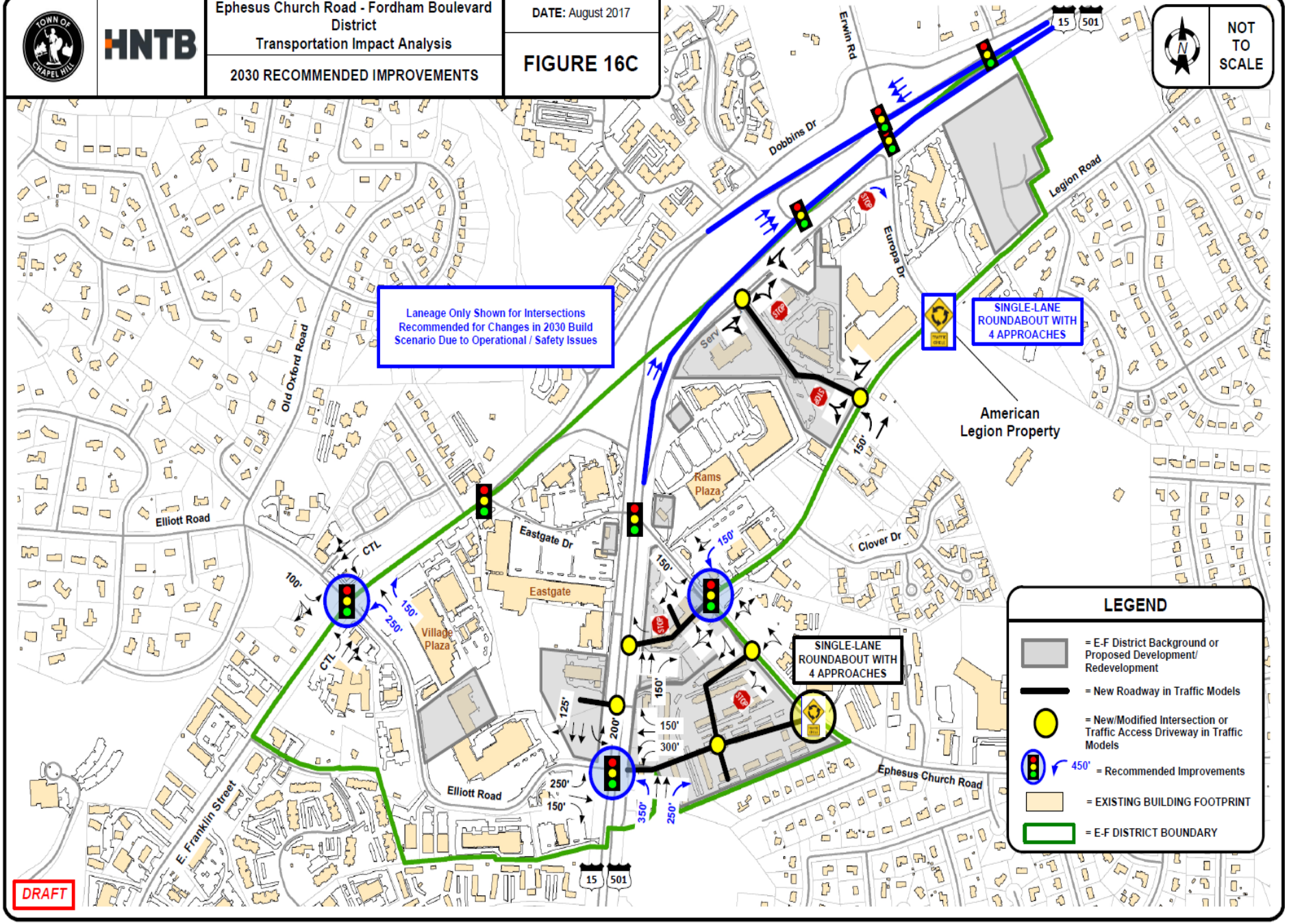


Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

2030 RECOMMENDED IMPROVEMENTS

DATE: August 2017

FIGURE 16C

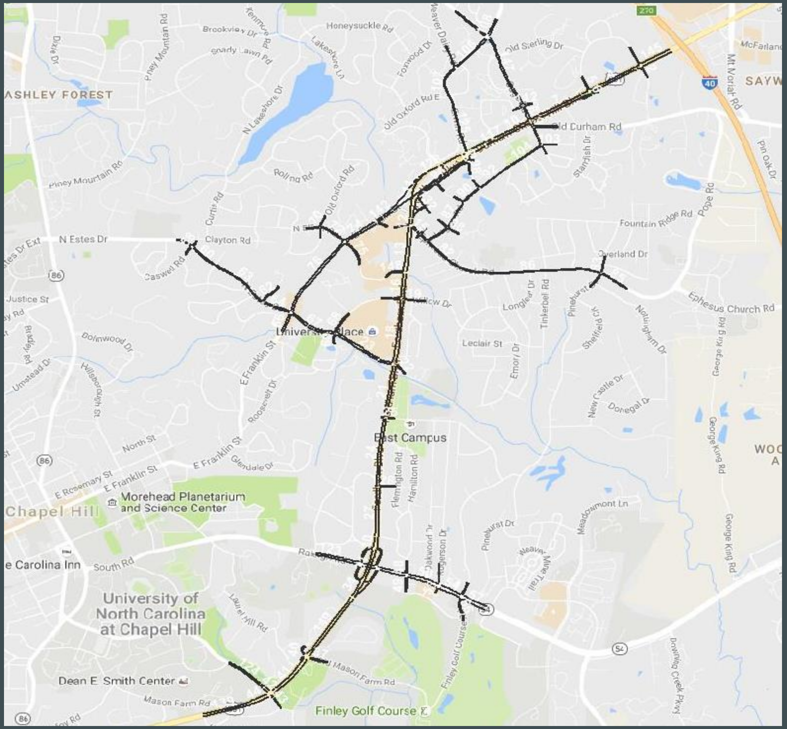


Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

System Performance MOEs



MOE	AM Peak Hour			Noon Peak Hour			PM Peak Hour		
	2030 Build + Imprv	2030 Build	Δ Imprv to Build	2030 Build + Imprv	2030 Build	Δ Imprv to Build	2030 Build + Imprv	2030 Build	Δ Imprv to Build
Trips Completed	18,653	17,901	4.2%	16,207	15,947	1.6%	21,448	20,100	6.7%
Trips Queued	2	214	-99.1%	1	59	-99.0%	4	583	-99.4%
Vehicle Miles Traveled (VMT)	31,774	29,884	6.3%	29,031	28,249	2.8%	35,573	33,353	6.7%
Vehicle Hours Traveled (VHT)	1,193	1,427	-16.4%	1,149	1,263	-9.1%	1,482	1,863	-20.4%
Network Speed (mph)	27	21	27.2%	25	22	13.0%	24	18	34.1%
Network Delay (Hours)	547	806	-32.2%	557	678	-17.9%	752	1,071	-29.9%
Delay Per Vehicle (Seconds)	105	162	-34.9%	124	153	-19.2%	126	192	-34.3%

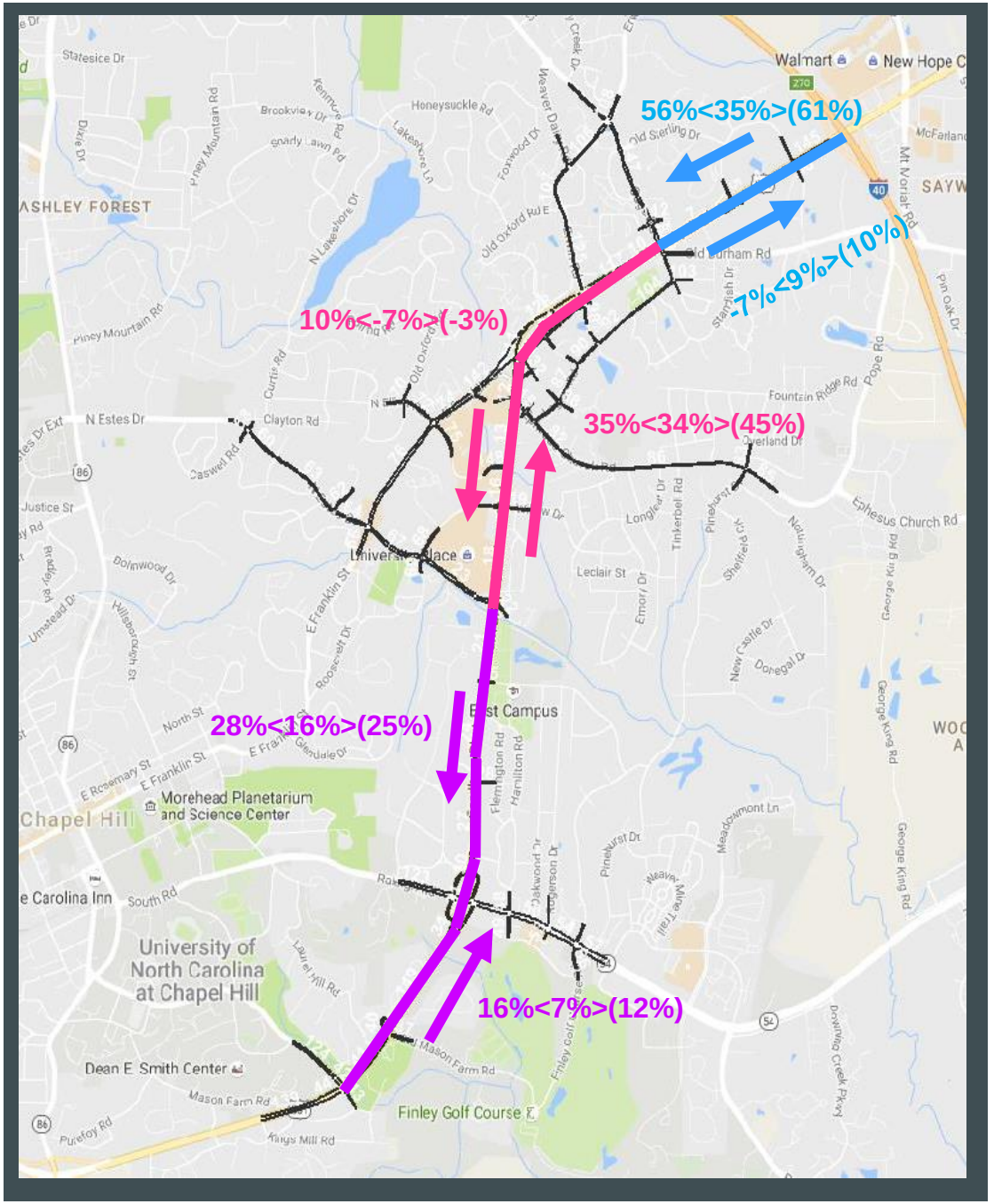
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

US 15-501 Corridor Performance MOEs

AM <Noon> (PM) Peak Hour
Percent Change in Speed
From 2030 "Build" Scenario



Ephesus Church Road – Fordham Boulevard Area

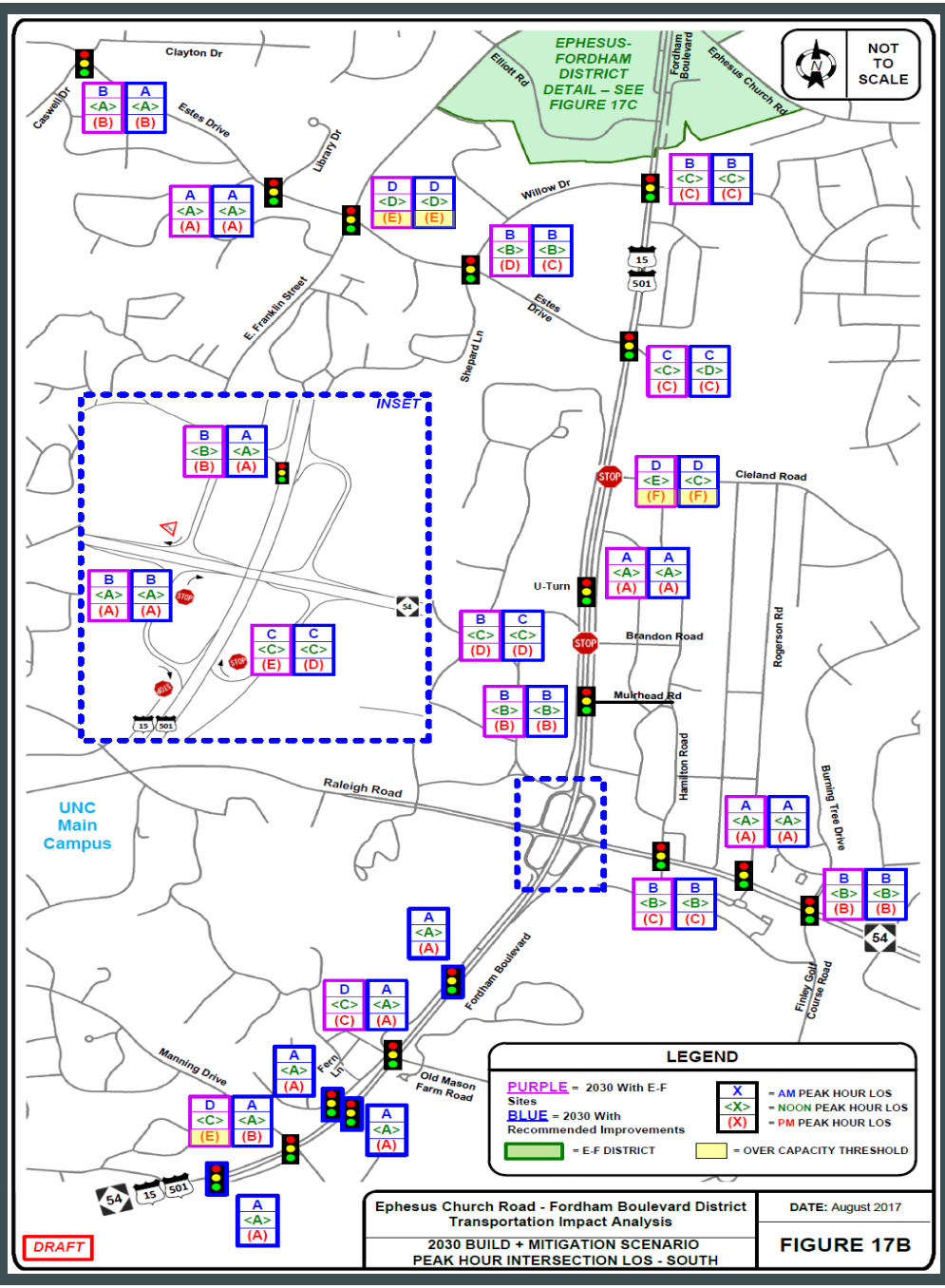
Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

Intersection Performance MOEs

Overall Intersection LOS

Comparison to 2030 "Build" Scenario



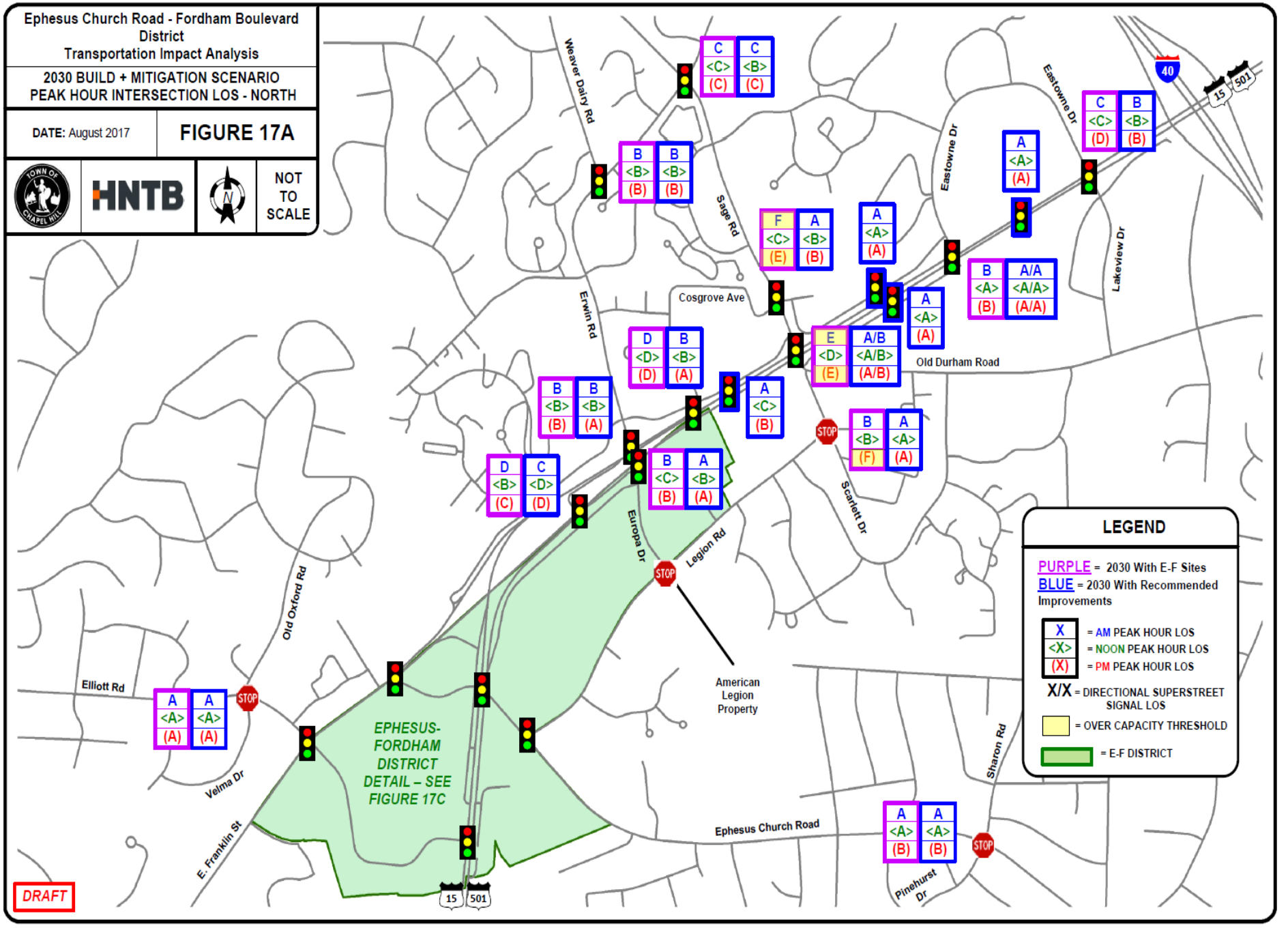
Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

2030 BUILD + MITIGATION SCENARIO
PEAK HOUR INTERSECTION LOS - NORTH

DATE: August 2017

FIGURE 17A

NOT TO SCALE

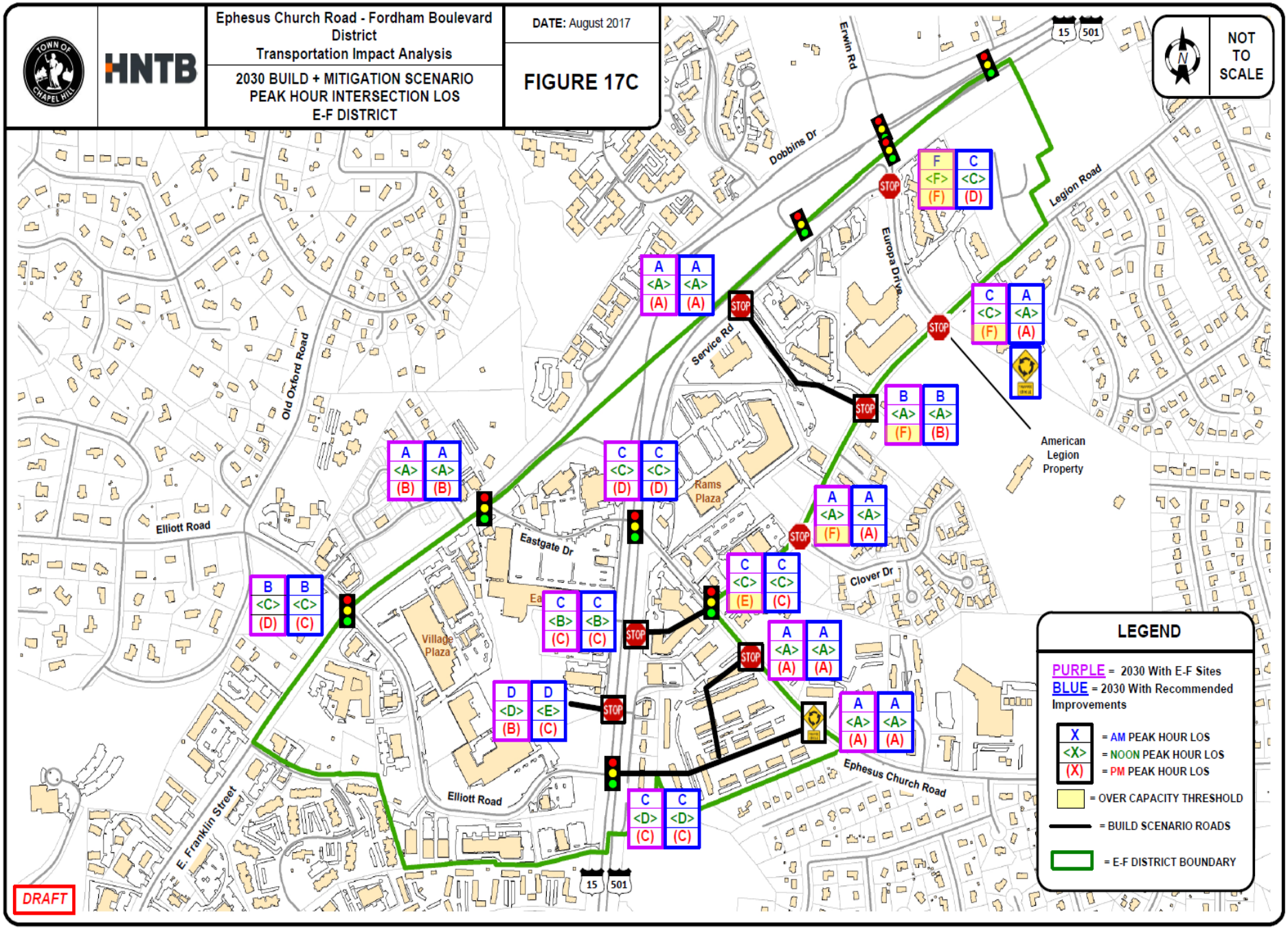


Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

2030 BUILD + MITIGATION SCENARIO
PEAK HOUR INTERSECTION LOS
E-F DISTRICT

DATE: August 2017

FIGURE 17C



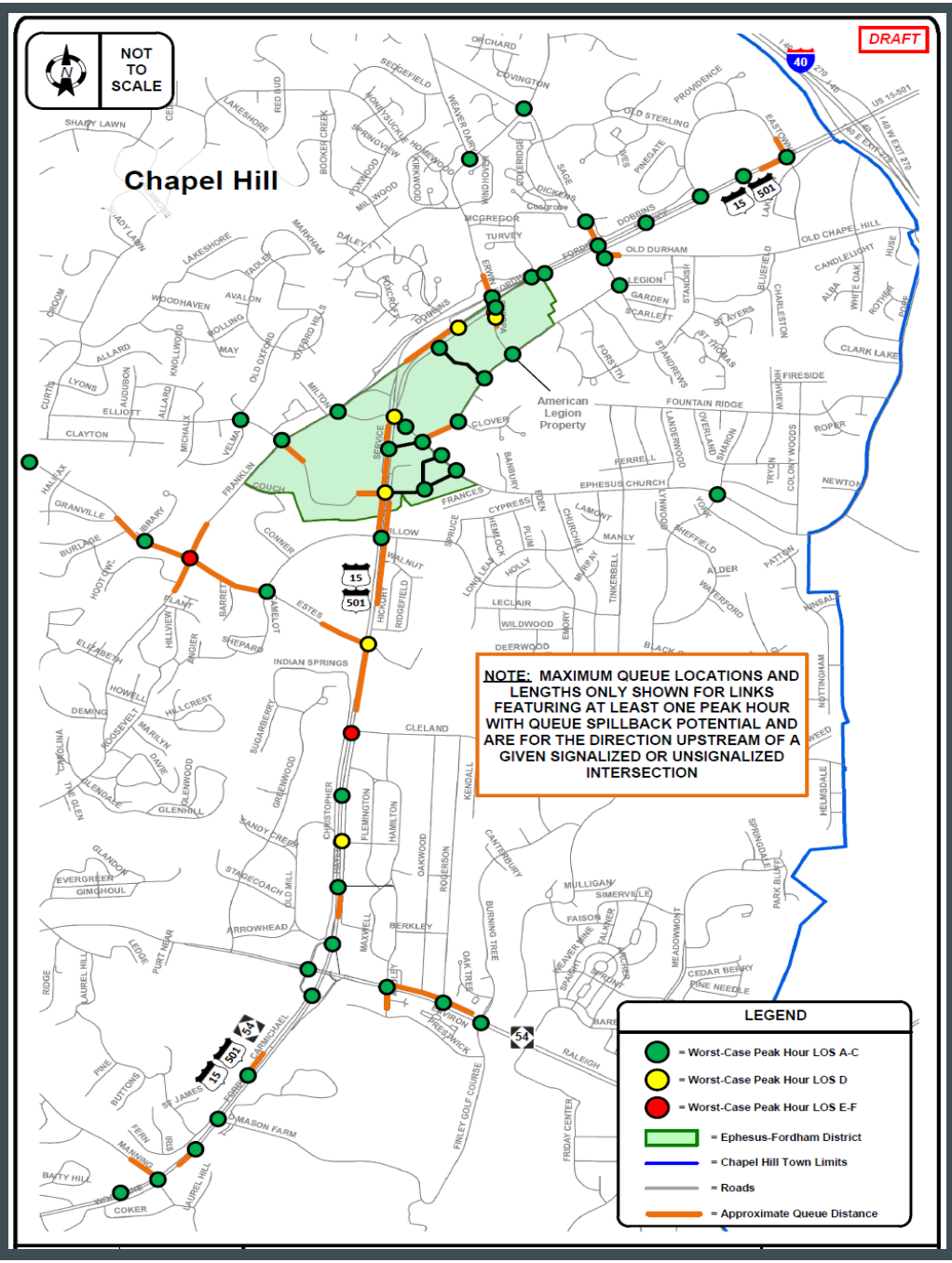
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "Build+Mitigation" Scenario

Intersection Performance MOEs

Queuing Analysis



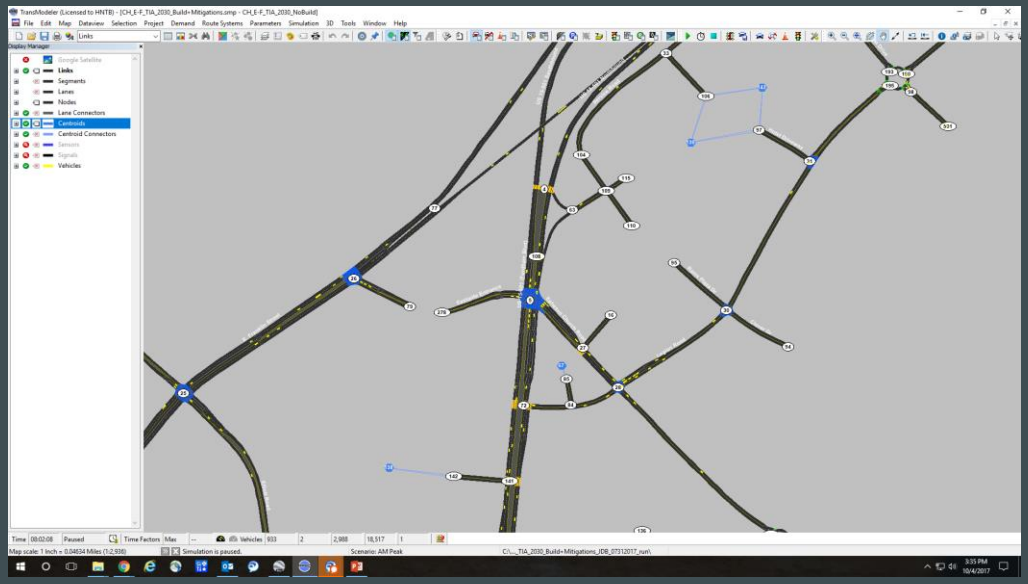
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Scenario Simulation Models

2030 “Build” Scenario
PM Peak Model

2030 “Build + Mitigation” Scenario PM Peak Model



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Multi-Modal Comparative Models

TOWN OF CHAPEL HILL

HNTB

- Assesses 4 Modes “Equally”
- Provides Quantitative Measures (Speeds, Composite Scores) And LOS
- Evaluation By Segment (Block) By Direction And Peak Hour
- Vehicle Characteristics Affect Other Modes (High Volumes/Speeds)

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Transit Operations

- Utilized the 2030 TRM Regional Model for Ridership Data
- Compared to 2010 TRM Base Year to Estimate Growth Factors
- 2030 Model Accounts for GoTriangle DOLRT
- No Major CHT Service Changes

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Transit Load/Capacity Models

- Apply TRM Growth Rate to 2016 CHT/GoTriangle Ridership Data
- CHT CL-D-DX-F-G Routes
- GoTriangle 400/405 Routes
- Analysis for Vehicular Peak Hours
- Average Boardings/Alightings and Bus Load for each bus stop = Demand
- Bus Size = Max Capacity/Service Capacity

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" & "Build" Scenario Results

Transit Load/Capacity Analysis

By Route/Direction/Peak Hour

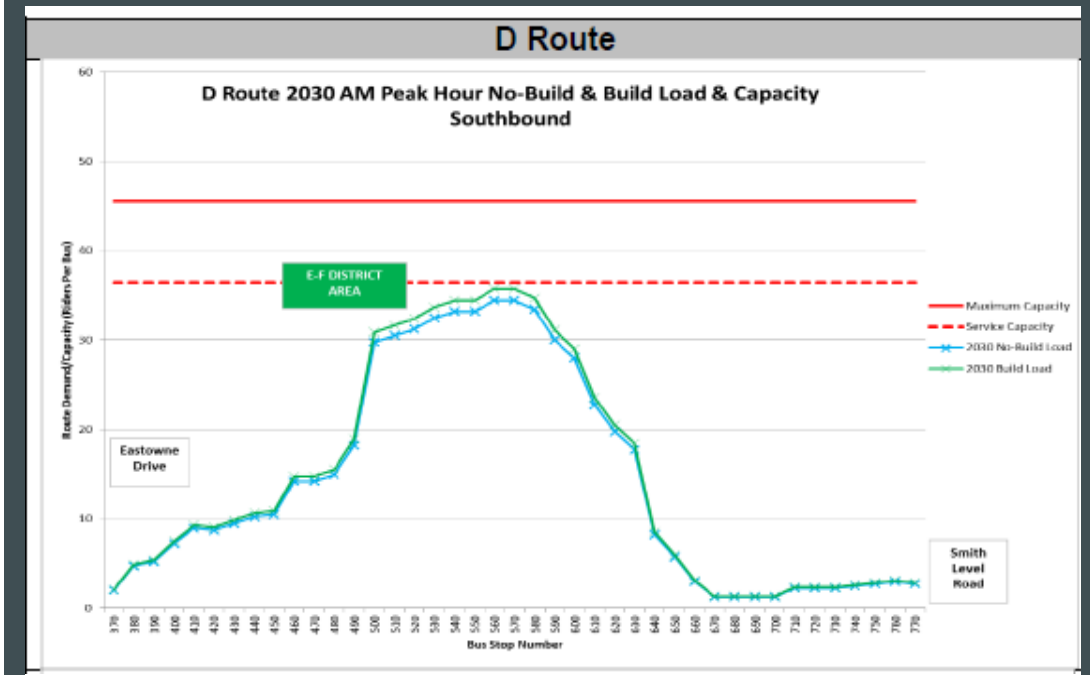
Ephesus Church Road – Fordham Boulevard Area

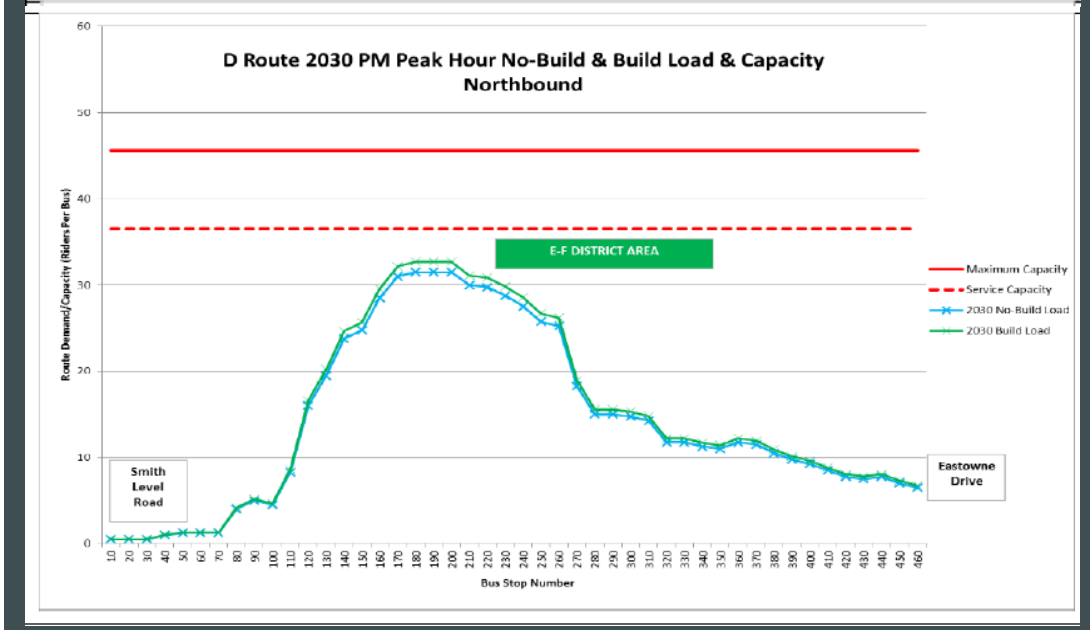
Transportation Impact Analysis

2030 "No-Build" & "Build" Scenario Results

Transit Load/Capacity Analysis

By Route/Direction/Peak Hour





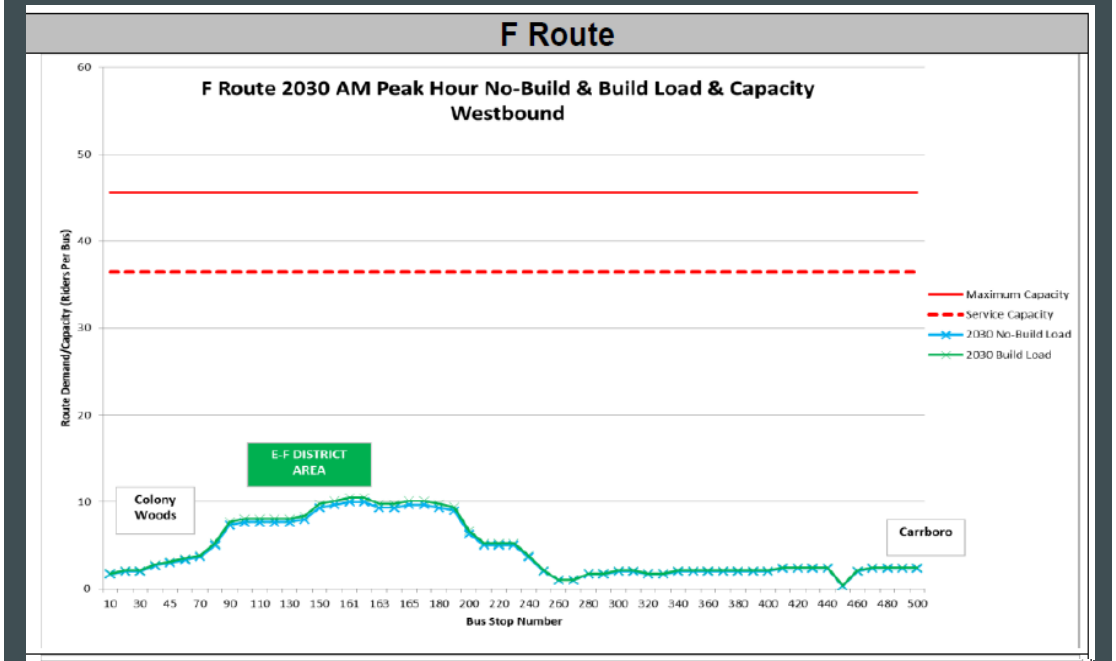
Ephesus Church Road – Fordham Boulevard Area

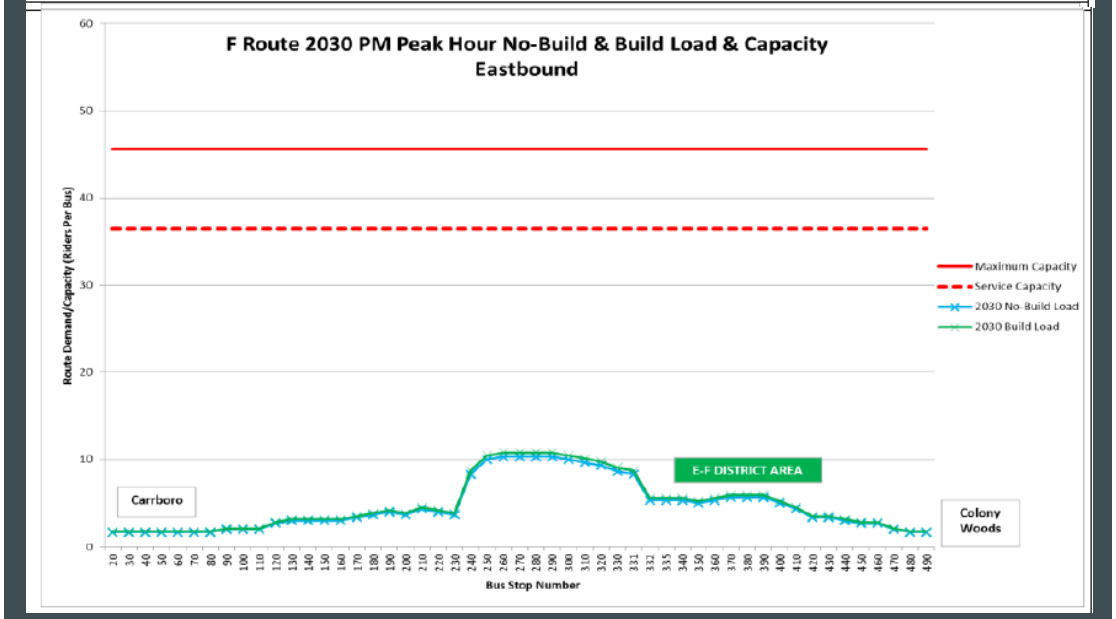
Transportation Impact Analysis

2030 "No-Build" & "Build" Scenario Results

Transit Load/Capacity Analysis

By Route/Direction/Peak Hour





Ephesus Church Road – Fordham Boulevard Area

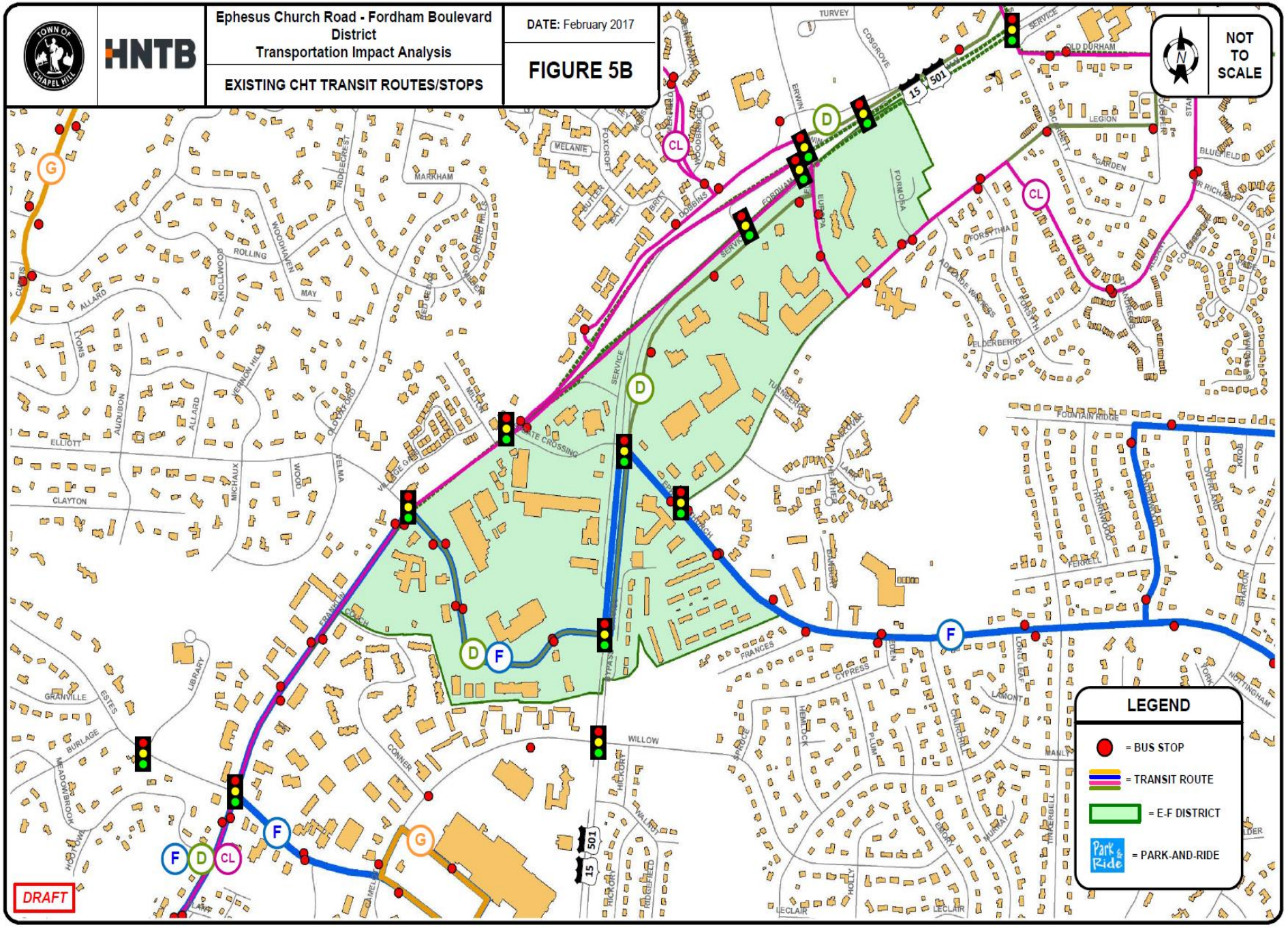
Transportation Impact Analysis

2030 Multi-Modal Analyses

Multi-Modal Comparative Models

Transit LOS

- Bus Frequency (total buses per hour)
- Passenger Load Factor (average for all routes)
- Bus Stop Amenities (excellent, good, fair, poor)
- Bus Stop (typical, major)
- Vehicular LOS – combination of general traffic and signal operations characteristics


Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis
EXISTING CHT TRANSIT ROUTES/STOPS
DATE: February 2017
FIGURE 5B
HNTB
NOT TO SCALE
LEGEND
= BUS STOP
= TRANSIT ROUTE
= E-F DISTRICT
= PARK-AND-RIDE
DRAFT

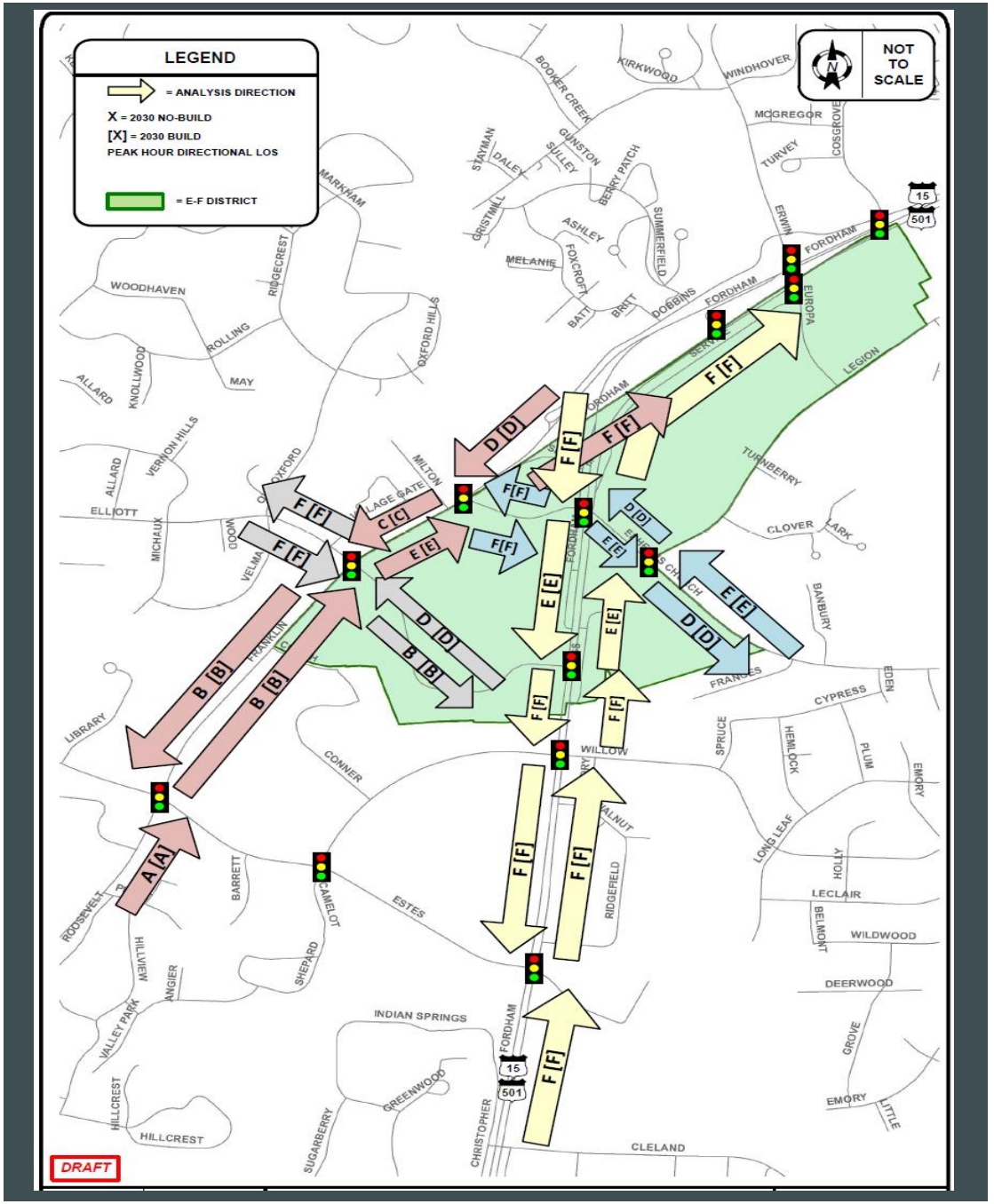
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" & "Build" Scenarios

Multi-Modal LOS Results

Pedestrian/Bicycle/**Transit**



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Pedestrian Operations

- Assume No Major Changes in E-F District Area
- On-going Planning Activity for Town Mobility Plan
- Assume E-F District Developments will Maintain/Improve Sidewalk Connectivity & Crossings
- Only Major Change is Adjacent Traffic Volumes

Ephesus Church Road - Fordham Boulevard District
Transportation Impact Analysis

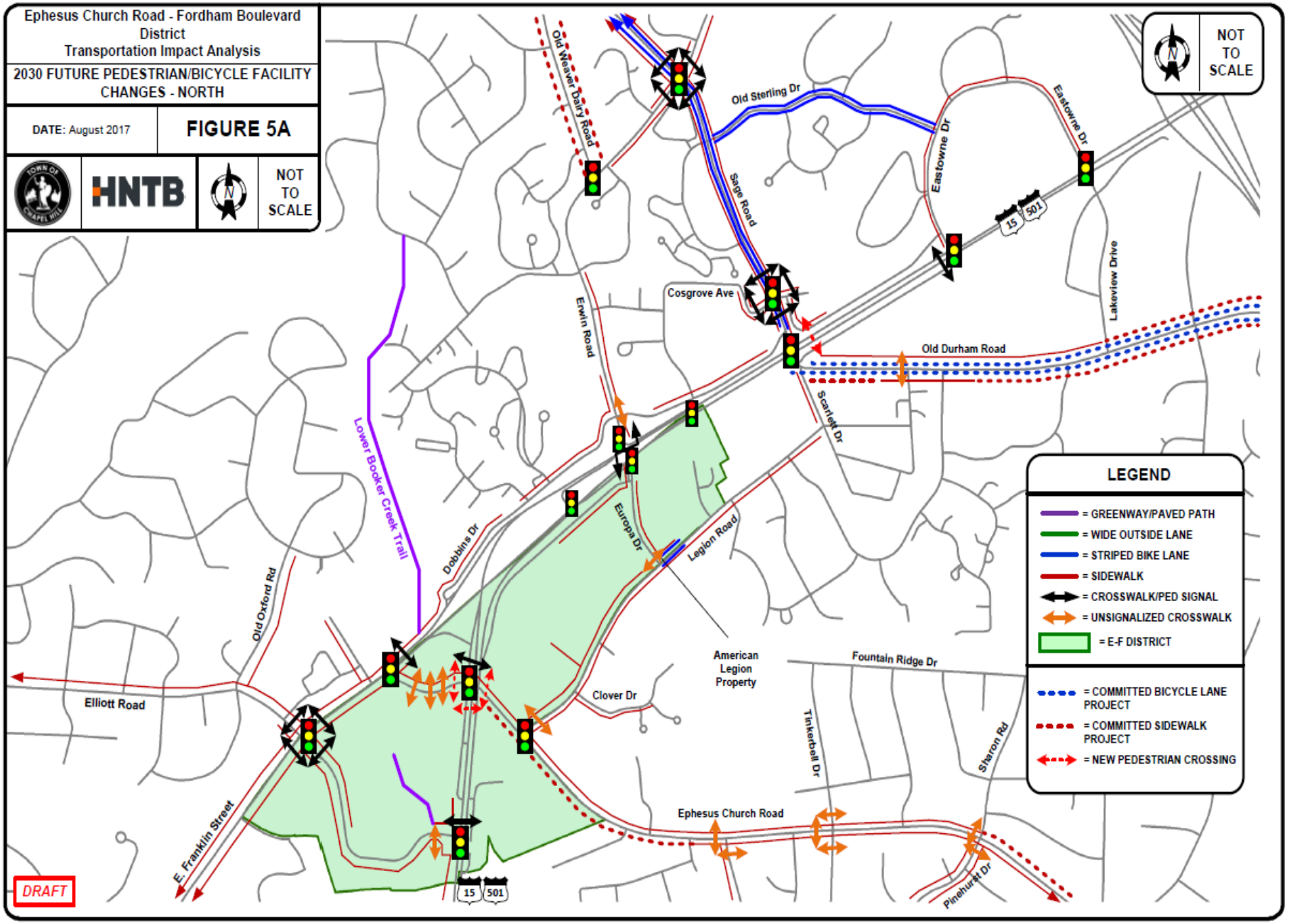
2030 FUTURE PEDESTRIAN/BICYCLE FACILITY CHANGES - NORTH

DATE: August 2017

FIGURE 5A

HNTB

NOT TO SCALE

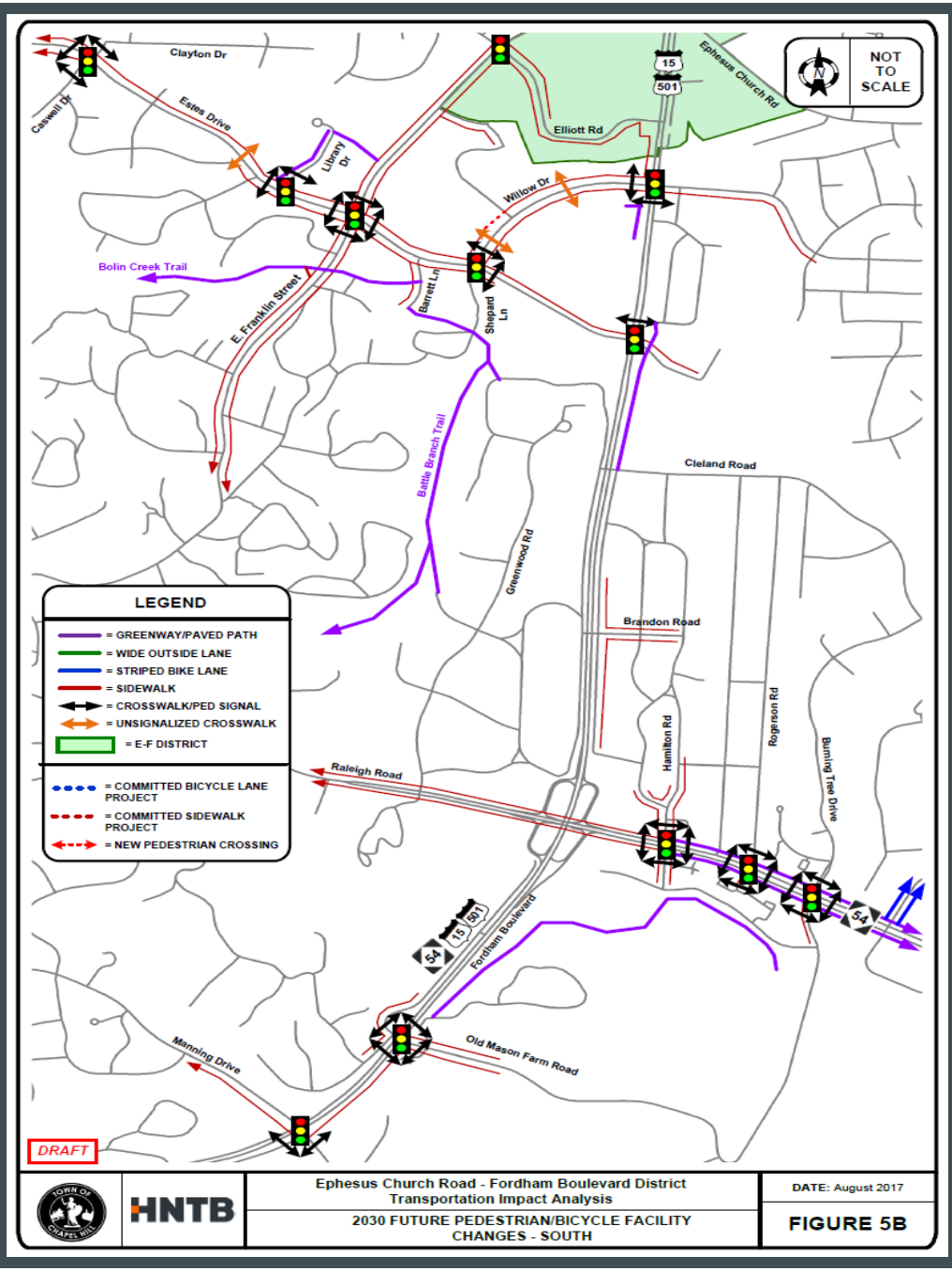


Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Pedestrian/Bicycle Improvements



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Multi-Modal Comparative Models

Pedestrian LOS

- Sidewalk Presence (Y/N)
- Sidewalk/Roadway Separation (adjacent, typical, wide)
- Sidewalk/Roadway Protective Barrier (Y/N)
- Affected by Traffic Volume/Speeds and Other Roadway Characteristics for Each Segment
- Split into Sub-Segments if Sidewalk Changes Along a Block

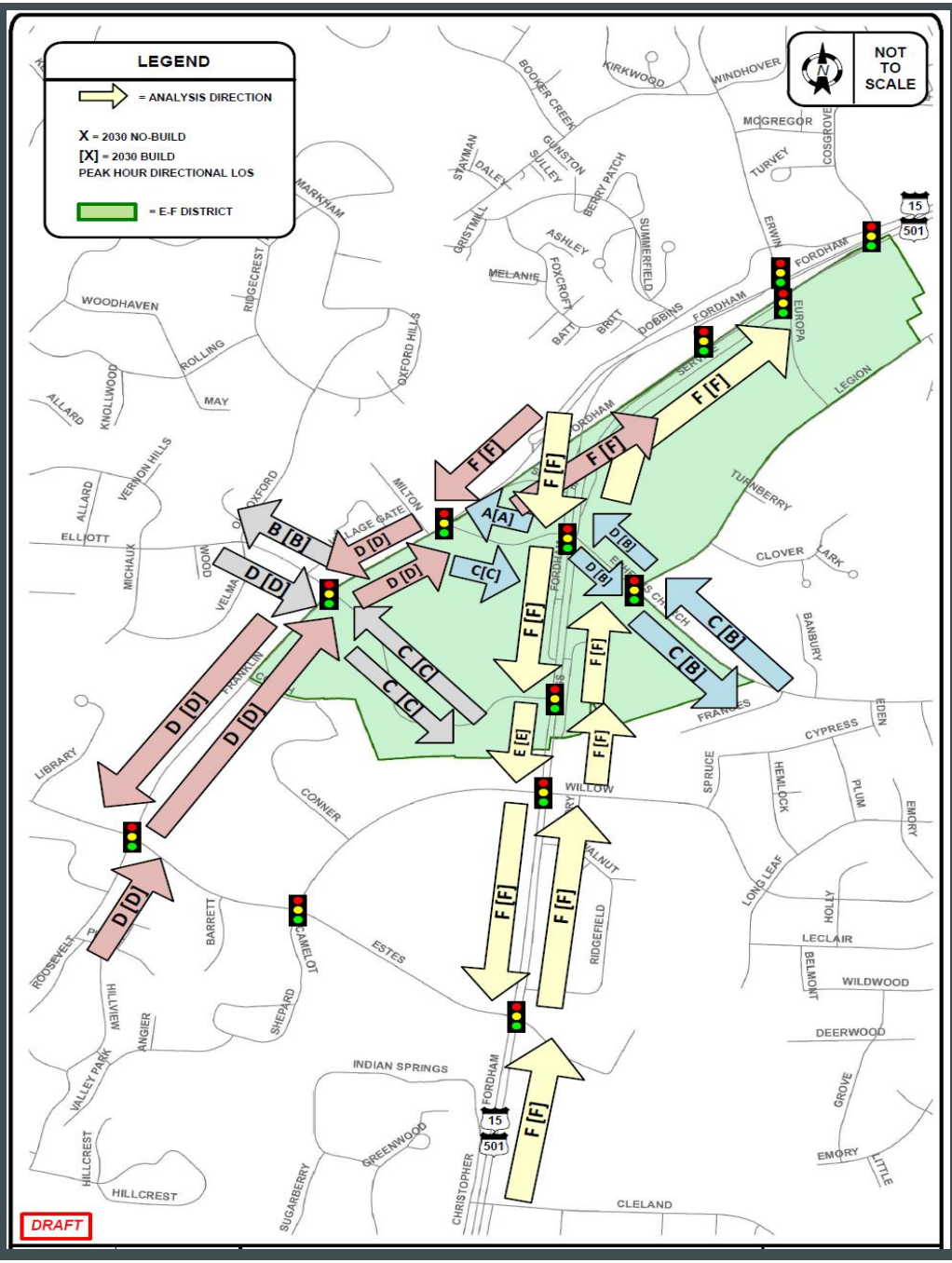
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" & "Build" Scenarios

Multi-Modal LOS Results

Pedestrian/Bicycle/Transit



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Bicycle Operations

- Assume No Major Changes in E-F District Area
- On-going Planning Activity for Town Mobility Plan
- Assume E-F District Developments will Maintain/Improve Local Bicycle Connectivity
- Only Major Change is Adjacent Traffic Volumes

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 Multi-Modal Analyses

Multi-Modal Comparative Models

Bicycle LOS

- Outside Travel Lane Width (narrow, typical, wide)
- Bicycle Pavement Condition (desirable, typical, undesirable)
- Paved Shoulder/Bike Lane (Y/N)
- Side Path (Y/N)
- Side Path Separation (Feet)
- Affected by Traffic Volume/Speeds and Other Roadway Characteristics for Each Segment

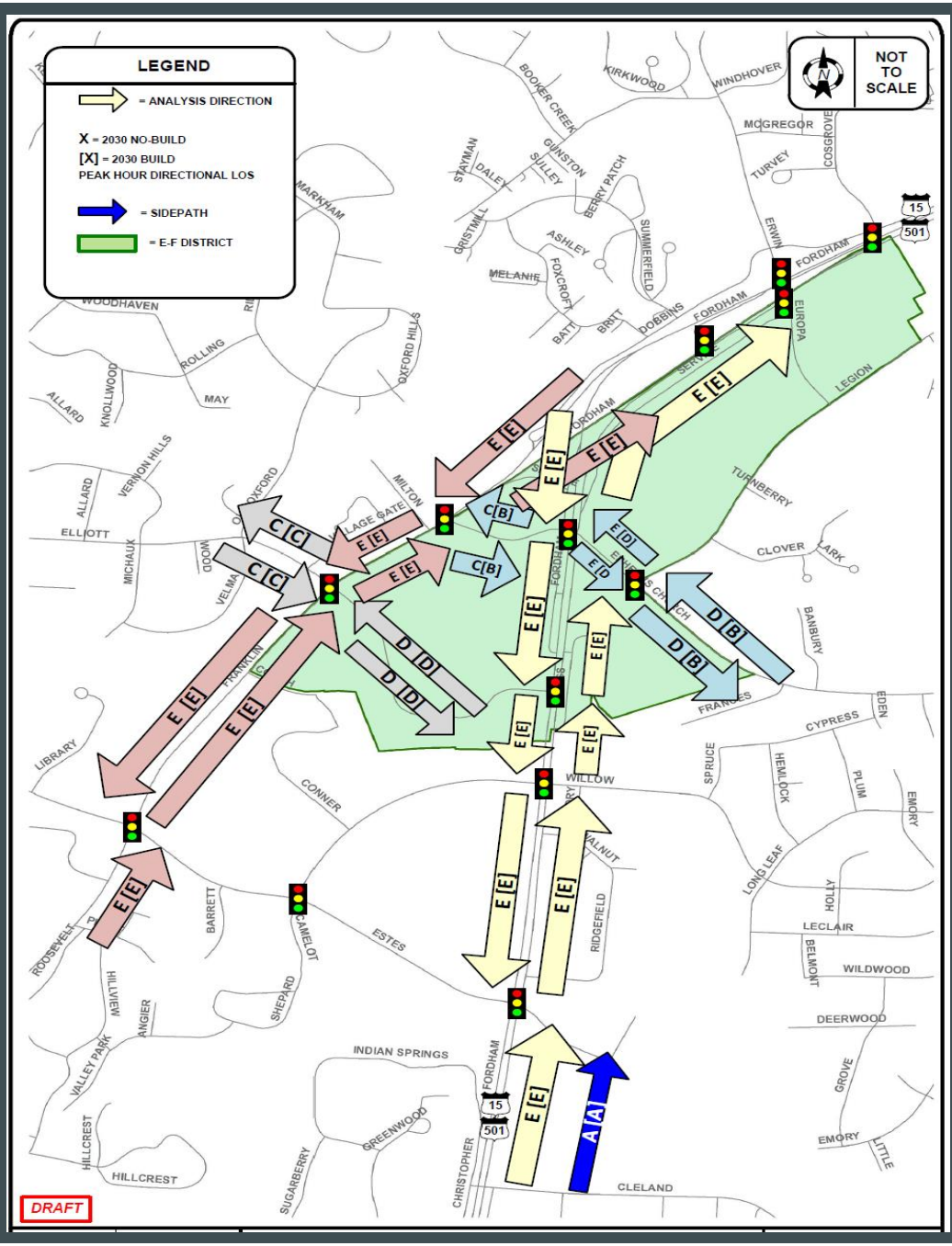
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

2030 "No-Build" & "Build" Scenarios

Multi-Modal LOS Results

Pedestrian/**Bicycle**/Transit

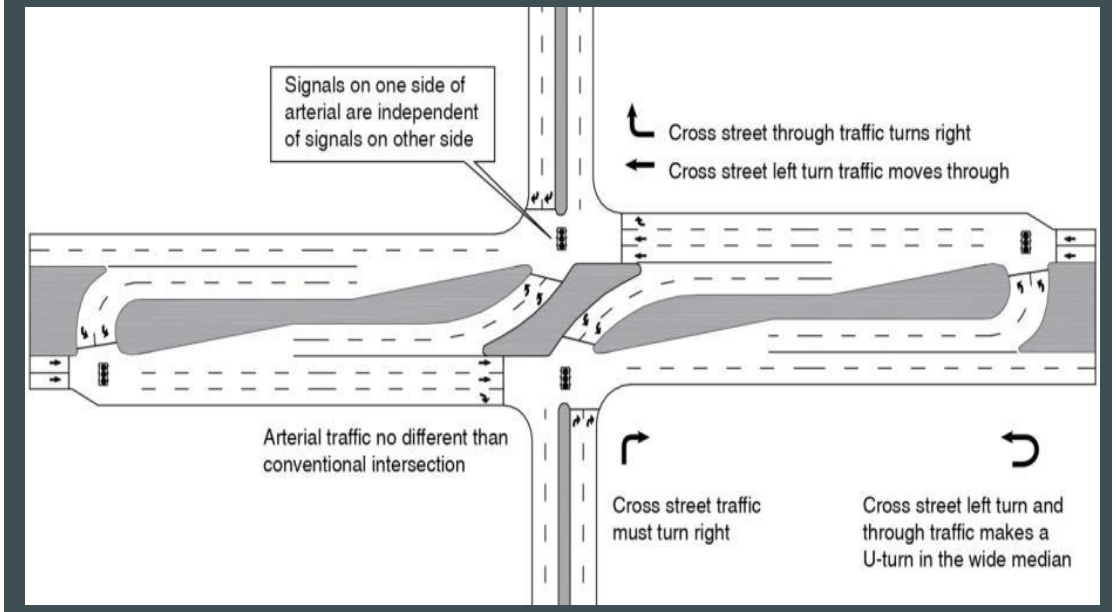


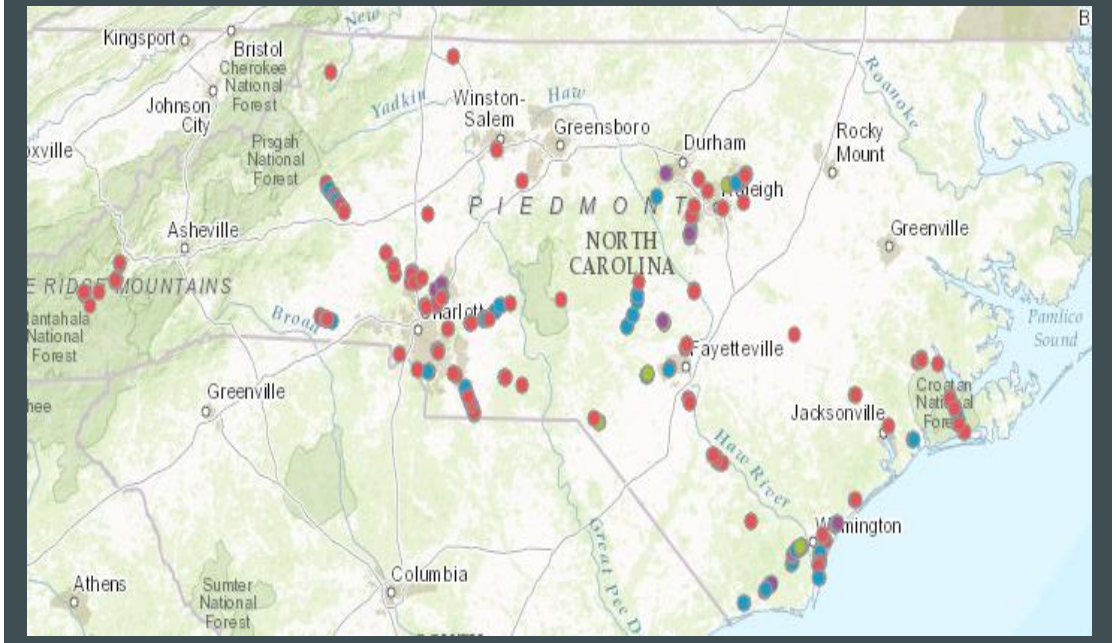
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

More About Superstreet Recommendations

What is it and why is it being considered?





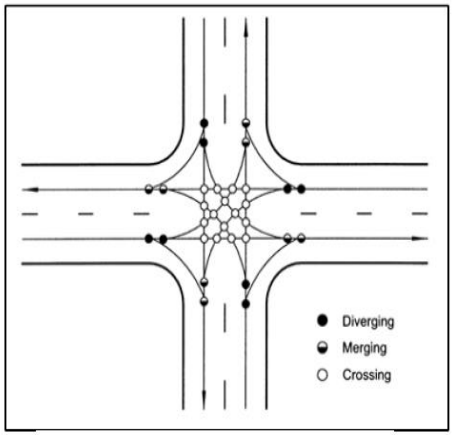
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

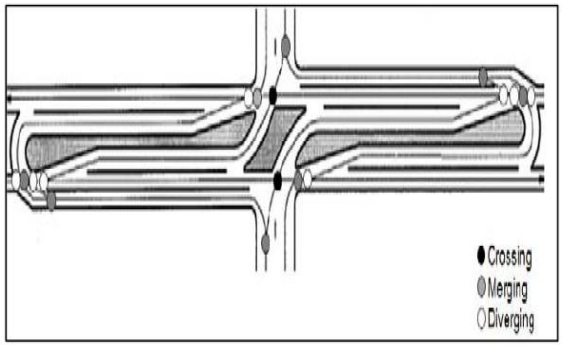
More About Superstreet Recommendations

Important Advantages

SAFETY



Full Movement Intersection – 32 Conflict Points



Superstreet Intersection – 18 Conflict Points

- 15 To 46 Percent Total Crash Reduction
- 22 To 63 Percent Injury And Fatal Crash Reduction
- Reduce Delay
- Great Progression Through Signals
- Speed Control – Less “Stop/Start”

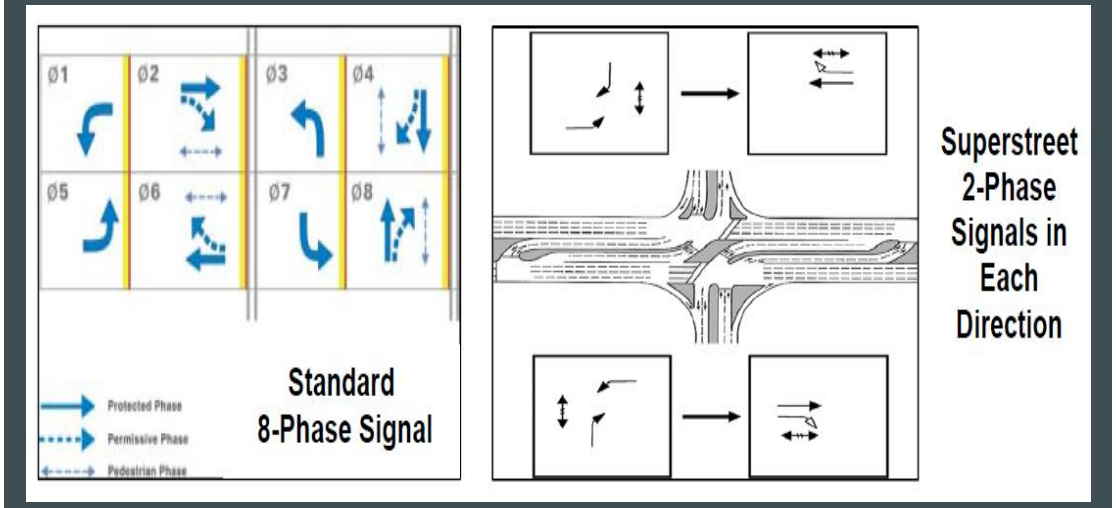
Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

More About Superstreet Recommendations

Important Advantages

Efficiency/Mobility



- Standard Intersection 8 Signal Phases, 180 Second Cycle, 30-40% Green To Main Street
- Superstreet Intersection 2 Signal Phases, 90 Second Cycle, 60-70% Green To Main Street
- Superstreet – Can Optimize Signals In BOTH Directions For Heavy Inbound/Outbound Traffic

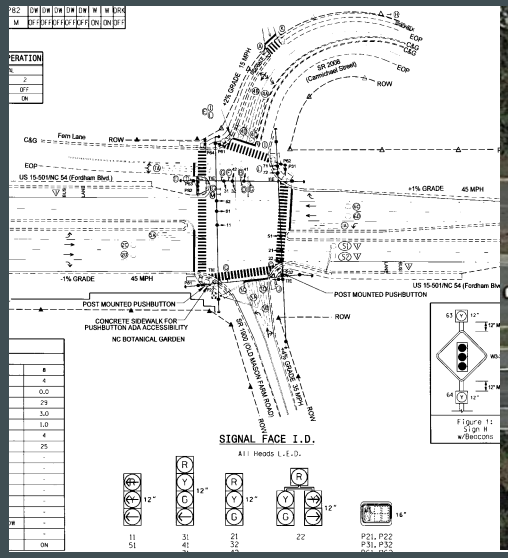
Ephesus Church Road – Fordham Boulevard Area

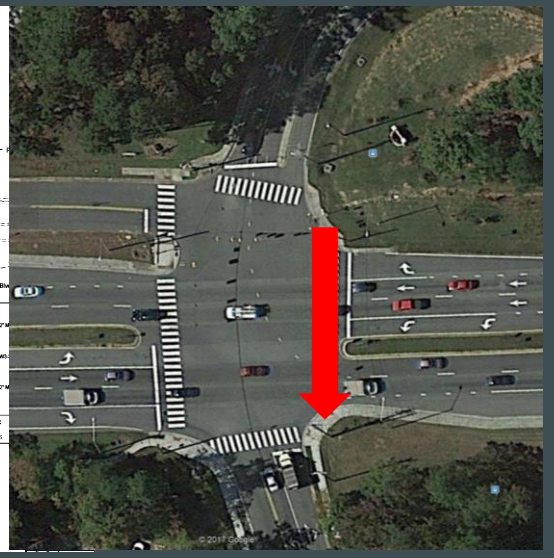
Transportation Impact Analysis

More About Superstreet Recommendations

Important Advantages

Efficiency/Mobility





- Pedestrian Crossing at Old Mason Farm = 29 seconds Walk + Flashing Don't Walk
- Equals Lost Time for 15-501 Corridor if Side Street Traffic Would Have Gapped Out
- Can Cause Progression Problems

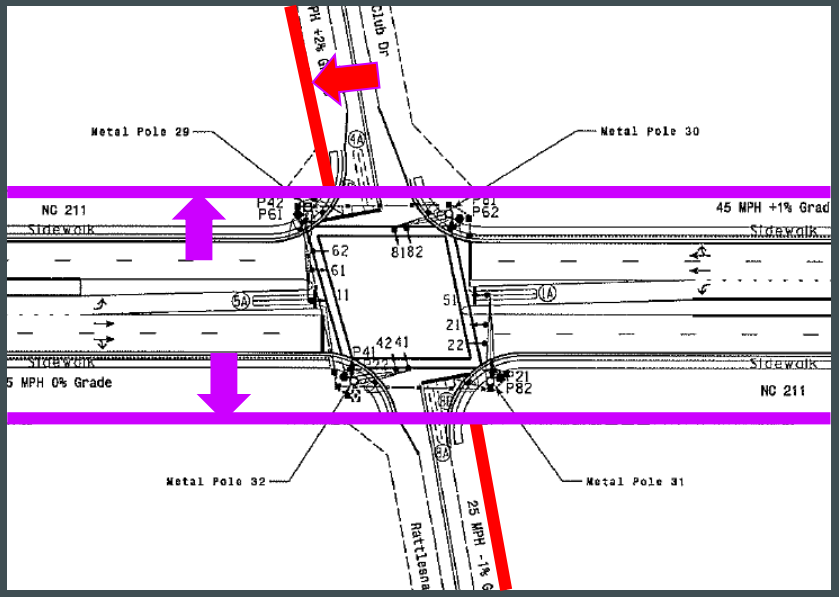
Ephesus Church Road – Fordham Boulevard Area

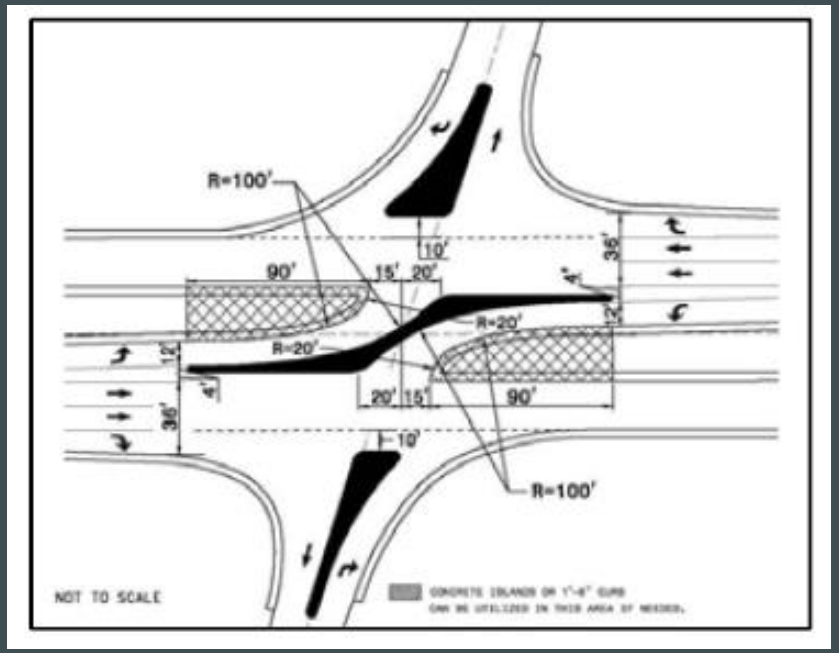
Transportation Impact Analysis

More About Superstreet Recommendations

ROW/Cost Advantages

Smaller Intersection Footprint – More Turn Lanes = More ROW Cost





Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

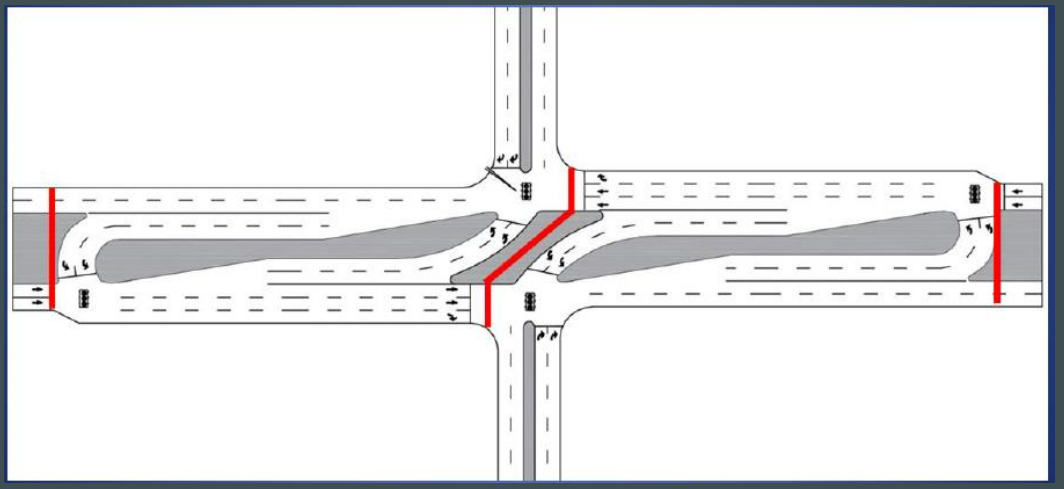
More About Superstreet Recommendations

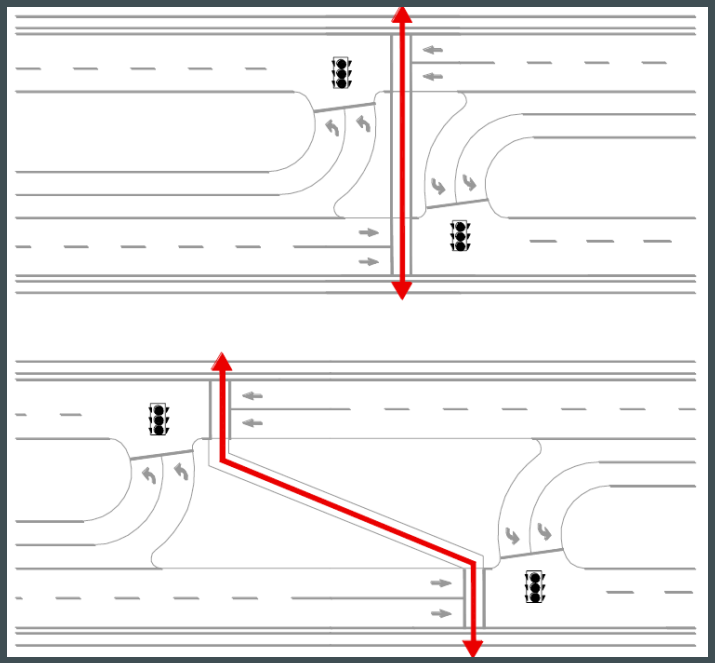
Pedestrian Advantages

Flexible Places for Arterial Crossing

Shorter Wait Times (60 sec versus 120 sec)

Shorter Walk + Flashing Don't Walk Times





Ephesus Church Road – Fordham Boulevard Area

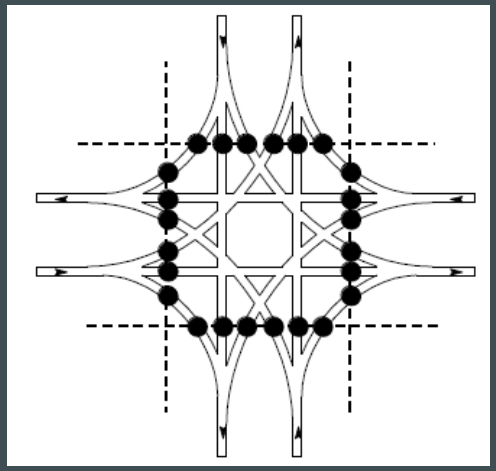
Transportation Impact Analysis

More About Superstreet Recommendations

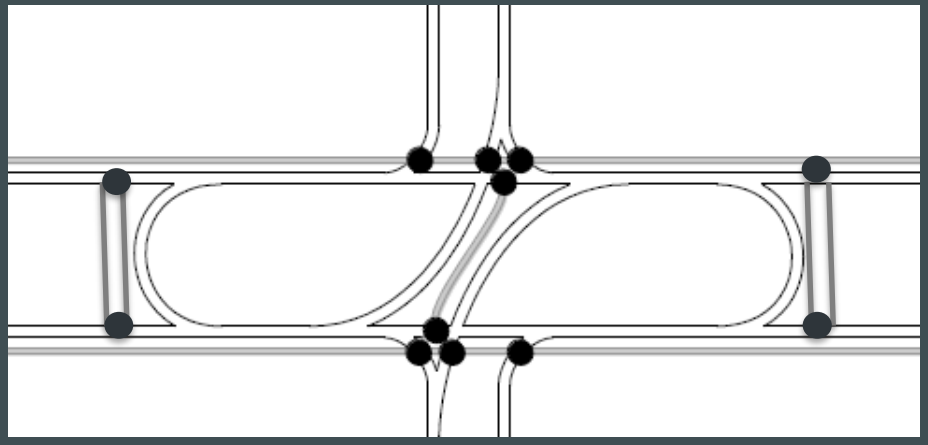
Pedestrian Advantages

- Less Conflicts
- Only Looking at One Direction Crossing Main Street
- Median Refuge

Conflict Points



Conventional intersection
24 points
(32 including u-turns)



Superstreet intersection
12 points
Including u-turns

Ephesus Church Road – Fordham Boulevard Area

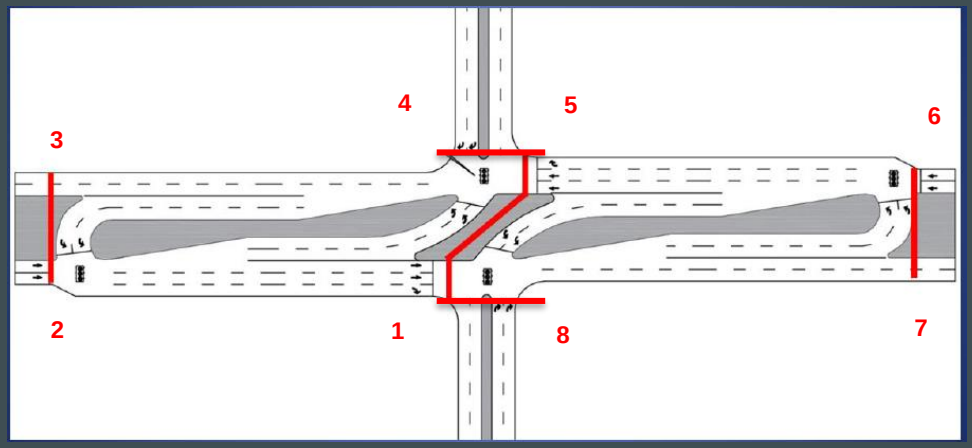
Transportation Impact Analysis

More About Superstreet Recommendations

Pedestrian Advantages

Pedestrian Routes

- Of 48 Possible Pedestrian Routes…
  - 34 Better With Superstreet
  - 8 Same With Superstreet
  - Only 6 Worse With Superstreet (1 To 4, 4 To 1, 4 To 8, 5 To 8, 8 To 4, And 8 To 5)



Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

More About Superstreet Recommendations

Bicycle Advantages

- Conflict Point Reductions
- Smoother Traffic Flow/Less Congestion
- Opportunity to Cross at More Points at Signalized Crosswalk Connections with Refuges

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

More About Superstreet Recommendations

Transit Advantages

- Less Congestion = More Reliable Service and Headway Maintenance
- U-Turn Bulb Design Can Accommodate Truck/Bus
- No Significant Disadvantages

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

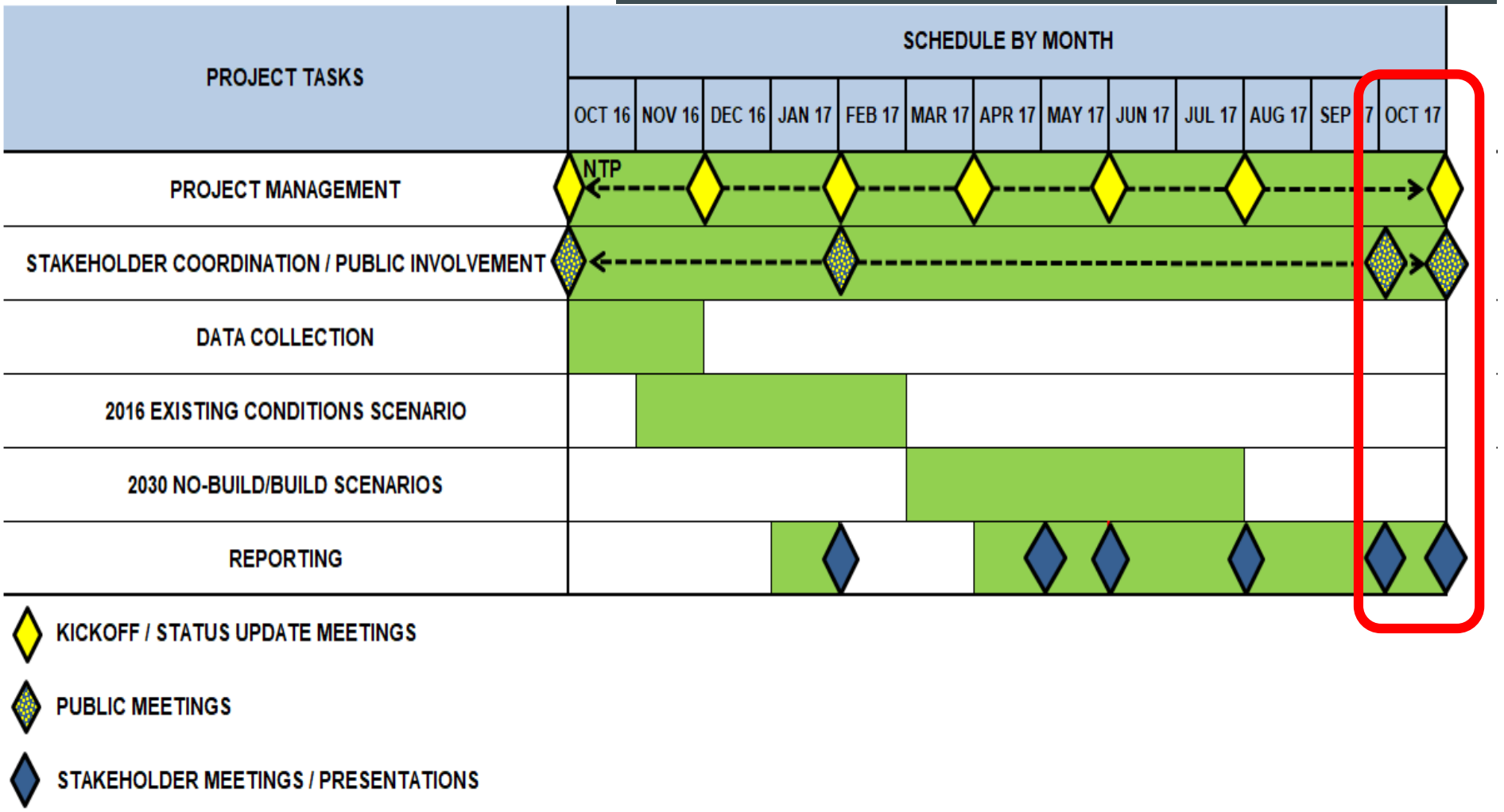
Next Steps

- Public & Stakeholder Input from Meeting and Draft Documentation
- Revisions to Documentation and Recommendations
- Transportation Adequacy Summaries for Individual E-F Development Projects
- Final Presentation to Town Council

Ephesus Church Road – Fordham Boulevard Area

Transportation Impact Analysis

Project Schedule – Next Steps



Ephesus Church Road – Fordham Boulevard Area Transportation Impact Analysis

QUESTIONS AND DISCUSSION

TOWN OF CHAPEL HILL

HNTB