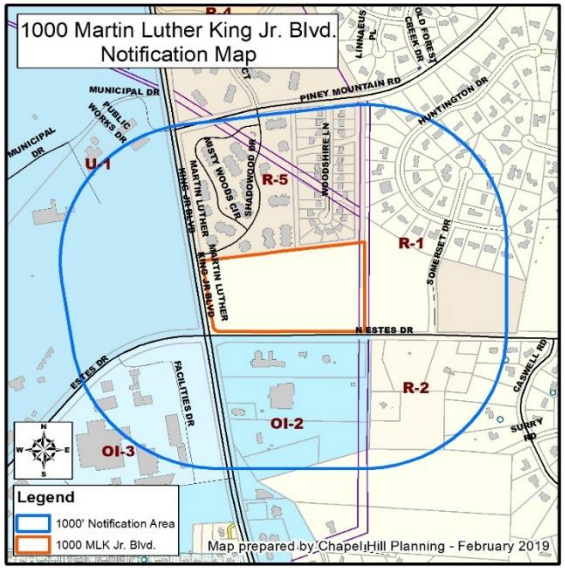
Aura Development, 1000 Martin Luther King Jr. Blvd. Conditional Zoning

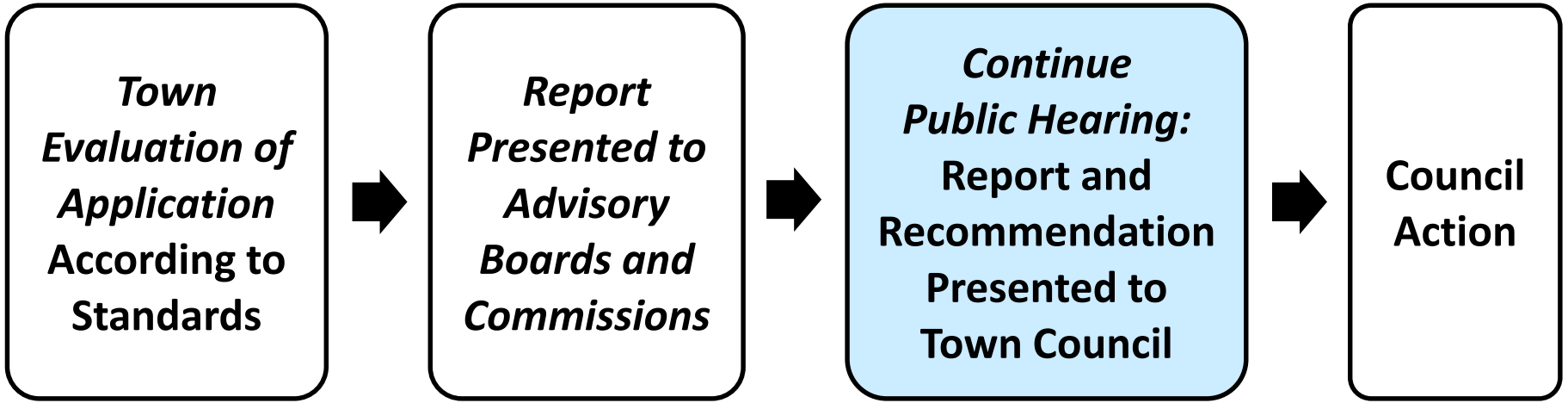


May 26, 2021

Aura– Recommendation

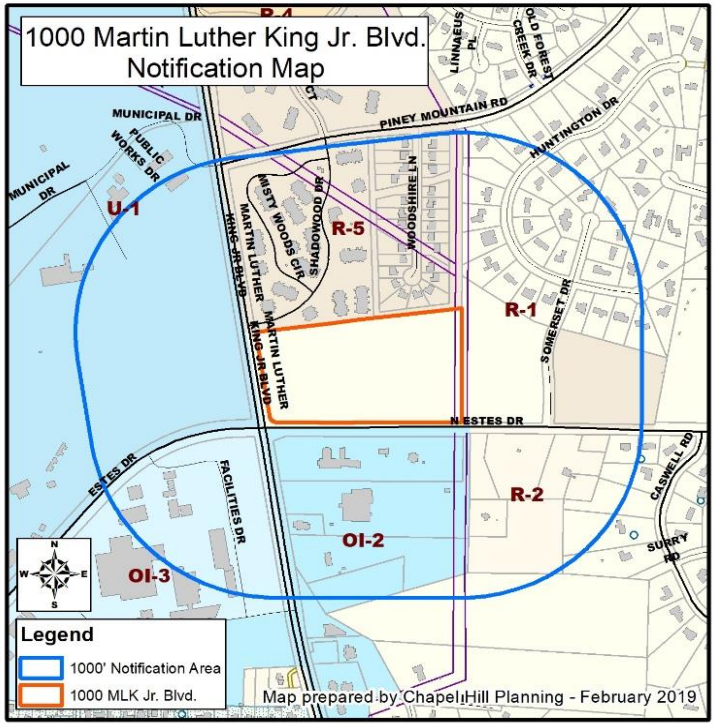
- Continue the Public Hearing, receive comments, close the public hearing and continue to receive comments for 24 hours
- Comments may also be shared with planning@townofchapelhill.org
- Motion to consider the application at the June 16, 2021 meeting.

Aura– Process



Aura– Project Summary

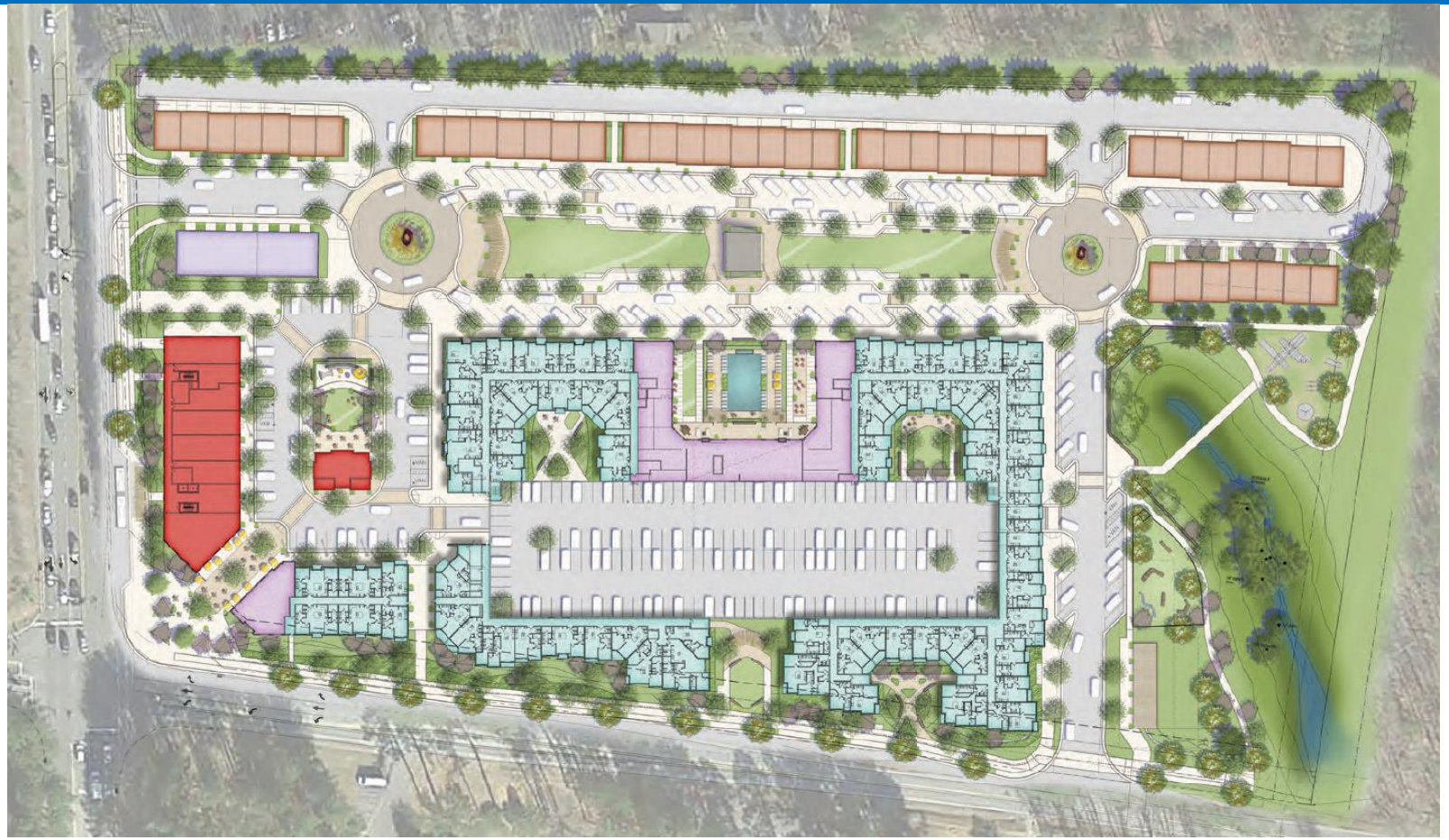
- 16.2 acre site
- Conditional Zoning
  - Currently R-1
  - Proposing Office/Institutional-3-CZD (OI-3-CZD)
- Construct
  - 418 residential units
  - 15,000 sq ft of commercial
  - 66.1% of impervious (466,092 sq. ft.)



Aura– Location

Aura Chapel Hill – Existing Conditions

Aura – Site Plan



Aura– Added Conditions

Added Conditions to Revised Ordinance A:

#8 Estes Drive/Somerset Drive traffic signal
#10 Future Bike Share Station
#17 Bus Rapid Transit Station
#20 Commercial Space
#24 Estes Drive Culvert

Aura– Public Hearing

Affordable Housing

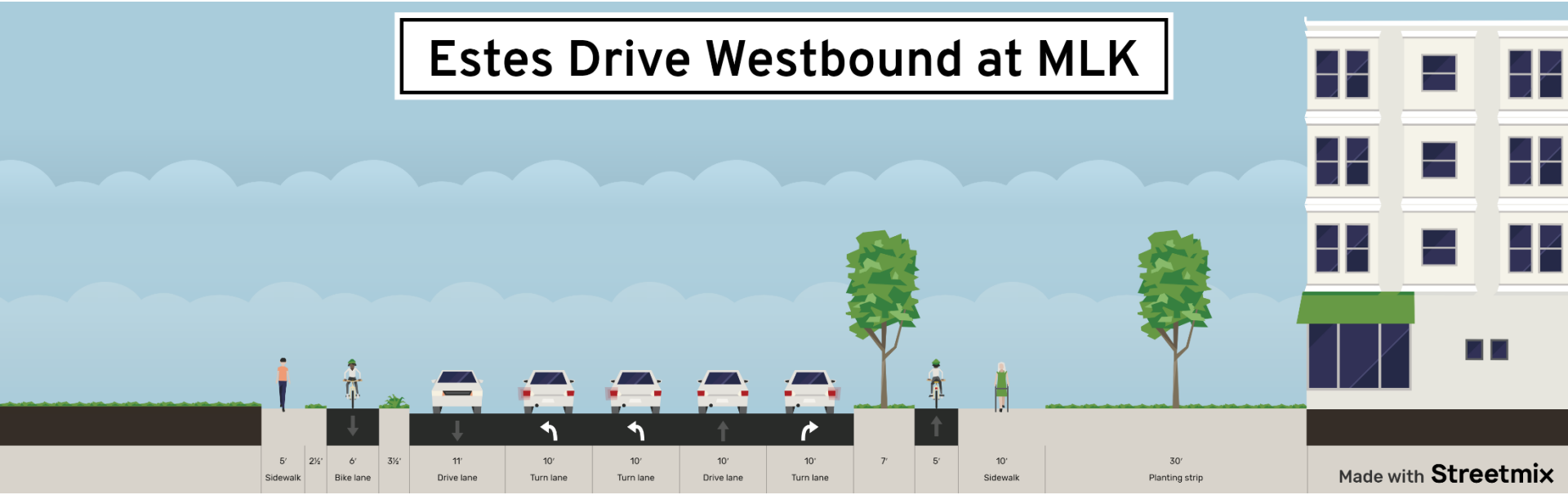
Traffic

- Bicycle & Pedestrian Safety
- Somerset Drive and Estes Drive

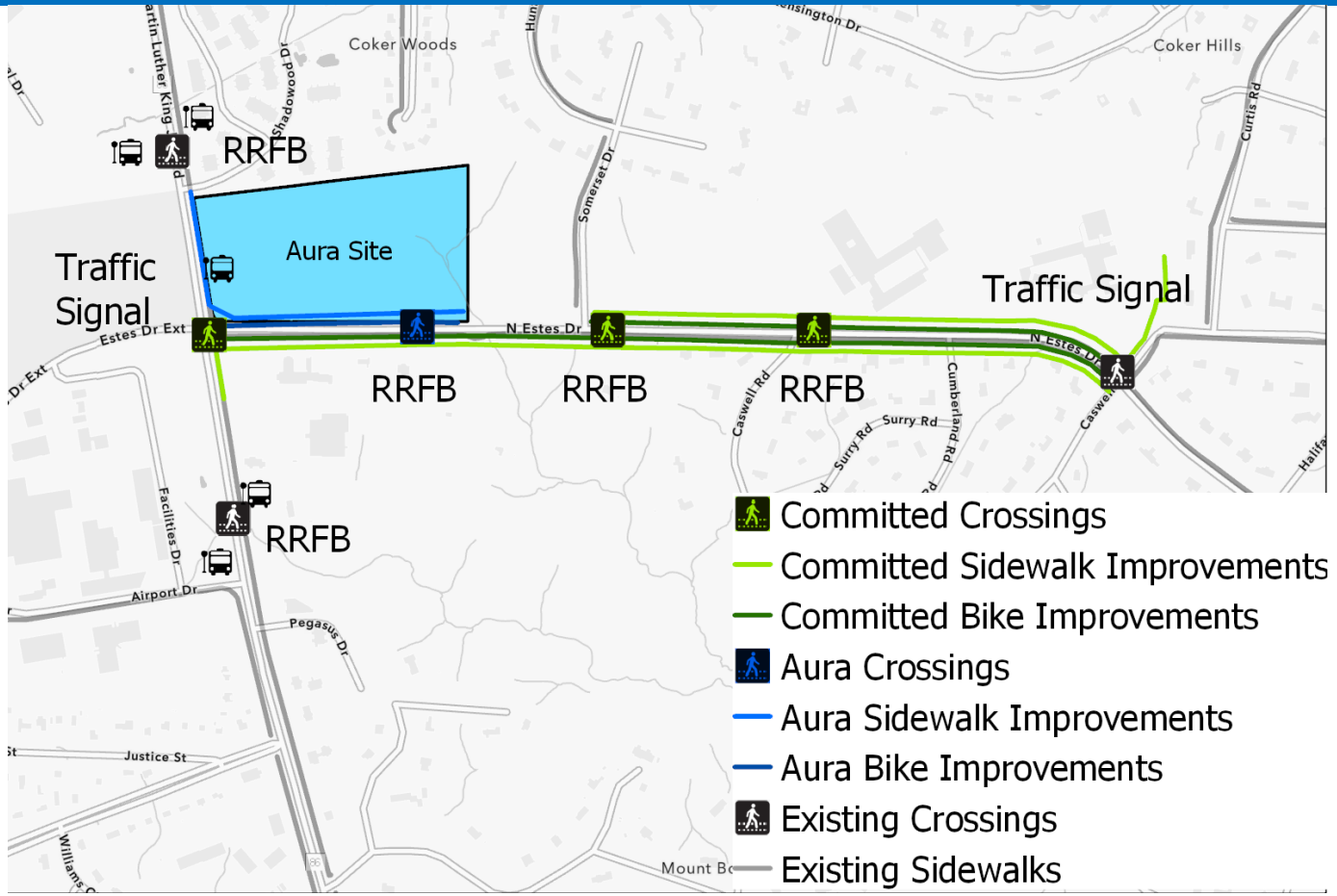
Stormwater

- Impervious Surfaces
- Stormwater storage

Estes Drive


Estes Drive Westbound at MLK
5′ Sidewalk
2½′
6′ Bike lane
3½′
11′ Drive lane
10′ Turn lane
10′ Turn lane
10′ Drive lane
10′ Turn lane
7′
5′
10′ Sidewalk
30′ Planting strip
Made with Streetmix

Estes Drive

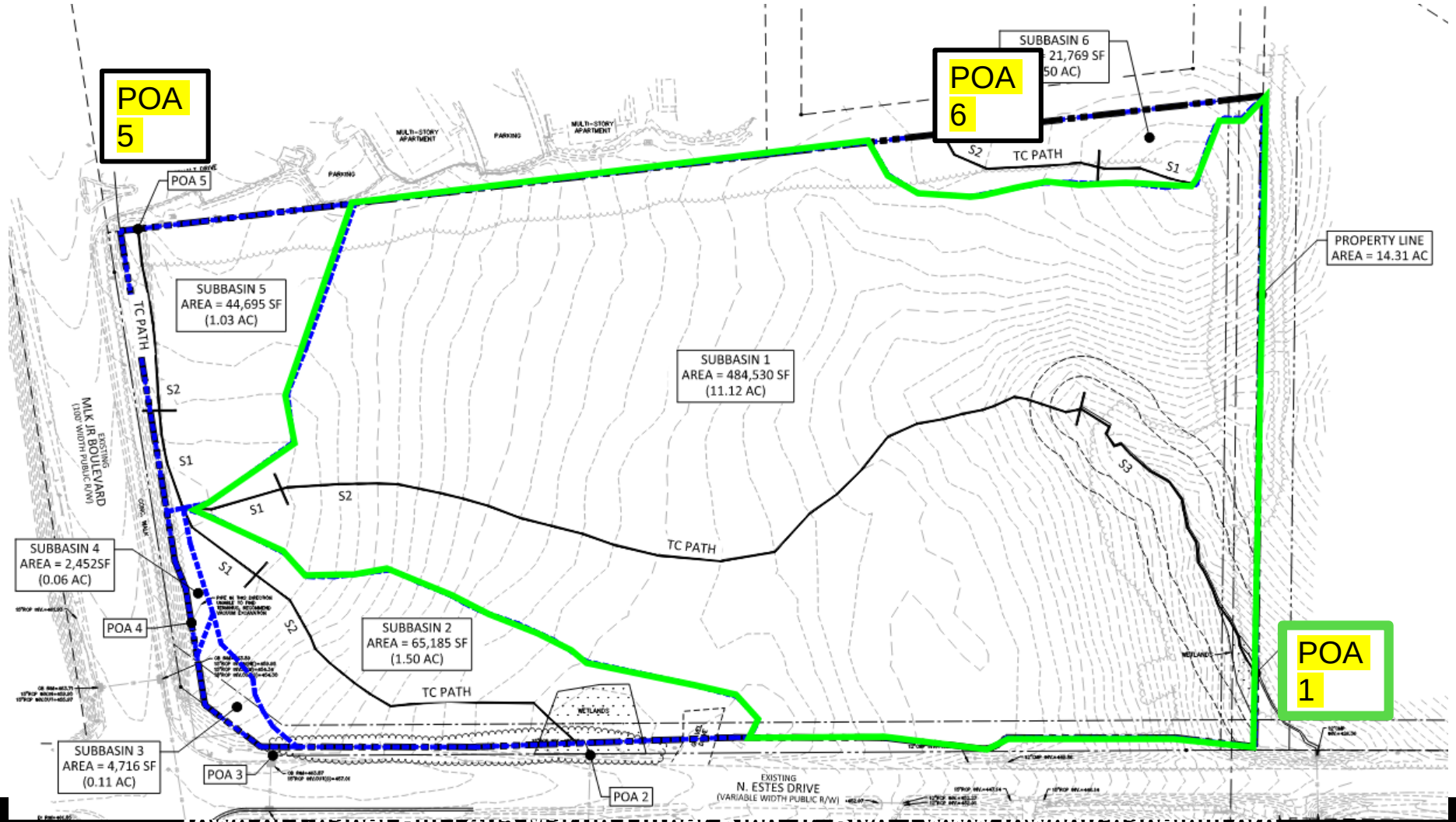

Coker Woods
Coker Hills
RRFB
Aura Site
Traffic Signal
Traffic Signal
Estes Dr Ext
N Estes Dr
RRFB
RRFB
RRFB
RRFB
Facilities Dr
Airport Dr
Pegasus Dr
Justice St
Somerset Dr
Caswell Rd
Surry Rd
Cumberland Rd
Curtis Rd
Committed Crossings
Committed Sidewalk Improvements
Committed Bike Improvements
Aura Crossings
Aura Sidewalk Improvements
Aura Bike Improvements
Existing Crossings
Existing Sidewalks

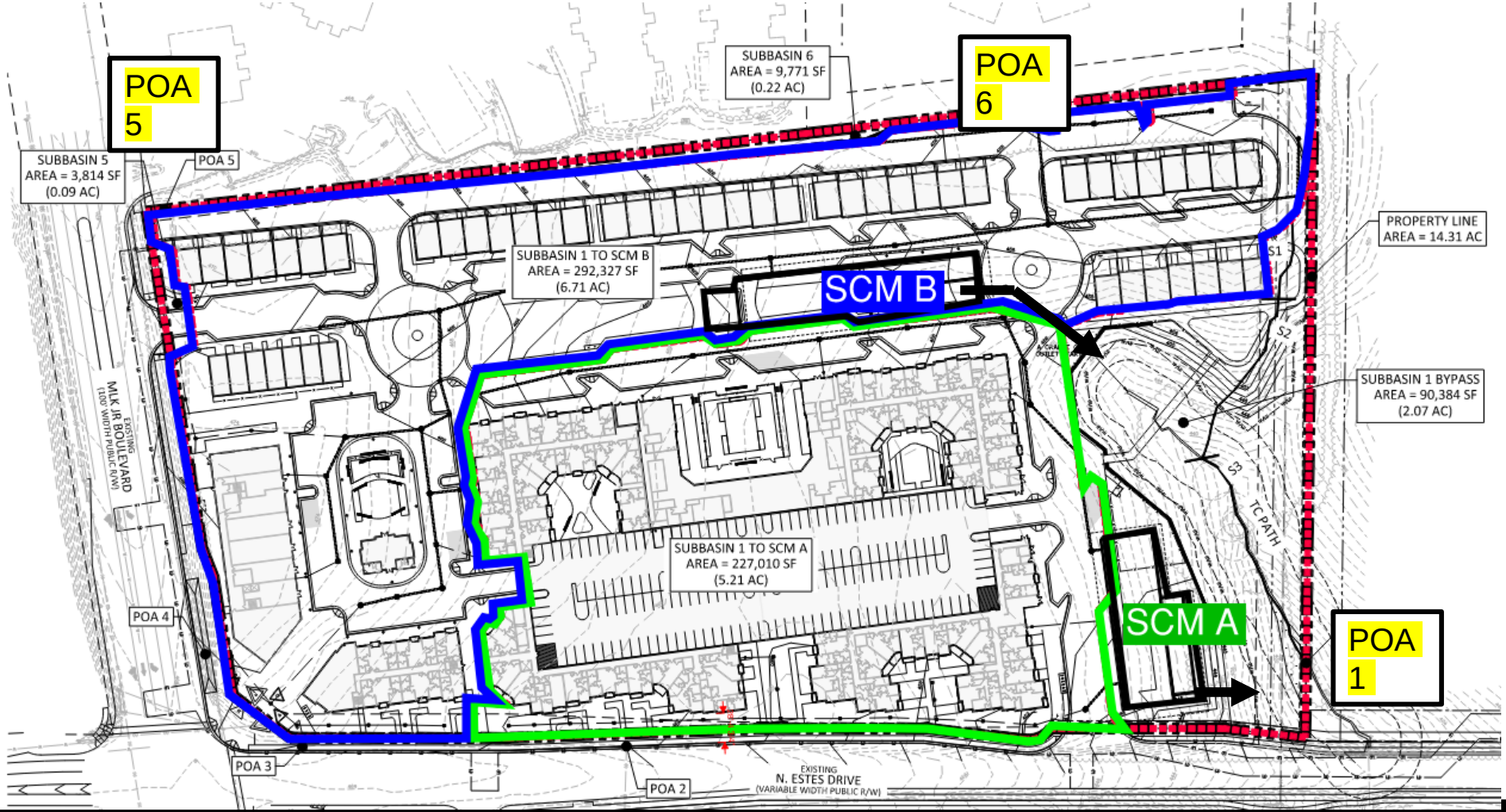
LUMO 5.4.6. General Performance Criteria for Stormwater Management

Stormwater treatment shall be designed to achieve average annual eighty-five (85) percent total suspended solids (TSS) removal and must apply to the volume of post-development runoff resulting from the first one-inch of precipitation.

The stormwater runoff volume leaving the site post-development shall not exceed the stormwater runoff volume leaving the site pre-development (existing conditions) for the local 2-year frequency, 24-hour duration storm event. This may be achieved by hydrologic abstraction, recycling and/or reuse, or any other accepted scientific method.

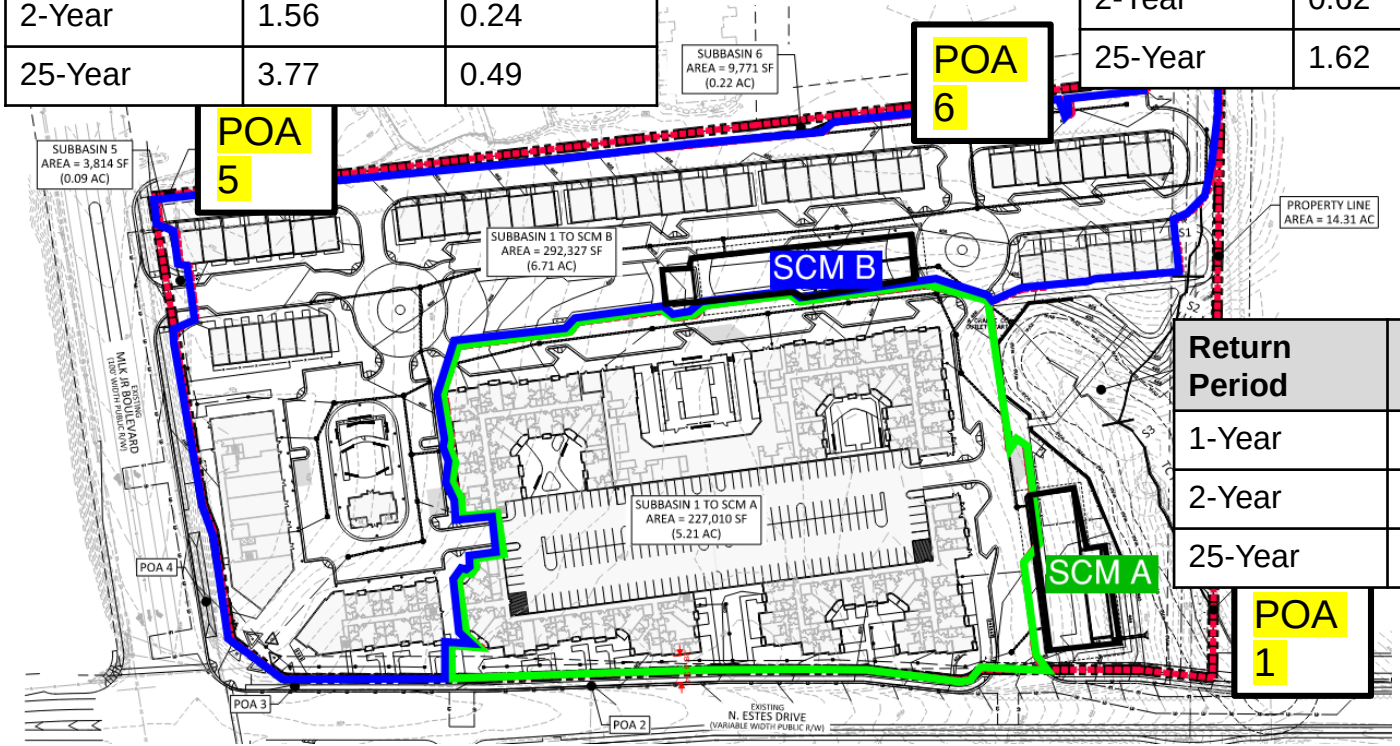
The stormwater runoff rate leaving the site post-development shall not exceed the stormwater runoff rate leaving the site pre-development (existing conditions) for the local 1-year (2.96 in), 2-year (3.58 in), and 25-year (6.11 inches) 24-hour storm events.


POA 5
POA 6
POA 1
POA 2
POA 3
POA 4
POA 5
SUBBASIN 6
21,769 SF
50 AC)
SUBBASIN 5
AREA = 44,695 SF
(1.03 AC)
SUBBASIN 1
AREA = 484,530 SF
(11.12 AC)
SUBBASIN 2
AREA = 65,185 SF
(1.50 AC)
SUBBASIN 3
AREA = 4,716 SF
(0.11 AC)
SUBBASIN 4
AREA = 2,452SF
(0.06 AC)
PROPERTY LINE
AREA = 14.31 AC
TC PATH
S1
S2
S3
MLK JR BOULEVARD
EXISTING N. ESTES DRIVE
(VARIABLE WIDTH PUBLIC R/W)
MULTI-STORY APARTMENT
PARKING
WETLANDS


POA 5
SUBBASIN 5
AREA = 3,814 SF
(0.09 AC)
POA 5
SUBBASIN 6
AREA = 9,771 SF
(0.22 AC)
POA 6
SUBBASIN 1 TO SCM B
AREA = 292,327 SF
(6.71 AC)
SCM B
PROPERTY LINE
AREA = 14.31 AC
SUBBASIN 1 BYPASS
AREA = 90,384 SF
(2.07 AC)
S1
S2
S3
TC PATH
MLK JR BOULEVARD
(100' WIDTH PUBLIC R/W)
EXISTING
SUBBASIN 1 TO SCM A
AREA = 227,010 SF
(5.21 AC)
SCM A
POA 1
POA 4
POA 3
POA 2
EXISTING
N. ESTES DRIVE
(VARIABLE WIDTH PUBLIC R/W)

Return Period	Pre-Dev (cfs)	Post-Dev (cfs)
1-Year	0.98	0.17
2-Year	1.56	0.24
25-Year	3.77	0.49

Return Period	Pre-Dev (cfs)	Post-Dev (cfs)
1-Year	0.37	0.32
2-Year	0.62	0.49
25-Year	1.62	1.10



Return Period	Pre-Dev (cfs)	Post-Dev (cfs)
1-Year	7.56	3.90
2-Year	12.12	9.67
25-Year	30.72	29.77

2-year, 24-hour Runoff Volume

	Pre-Development (ac-ft)	Post Development (ac-ft)	Post Development With SCMs (ac-ft)
Runoff to SCM A		1.364	0.641
Runoff to SCM B		1.697	0.88
Runoff bypass to POA 1		0.237	0.237
Runoff to POA 1	**1.148**	**3.298**	**1.758**
Total Runoff Volume*	**1.481**	**3.334**	**1.794**

* Total Runoff Volume includes flow to other Point of Analyses

Traditional "Grey" Infrastructure

- Provides large storage
- Long duration of discharge flow

"Green" Infrastructure

- Adds redundancy
- Attenuates peak flow
- Improves climate resiliency

Detention vault

Sand Filter

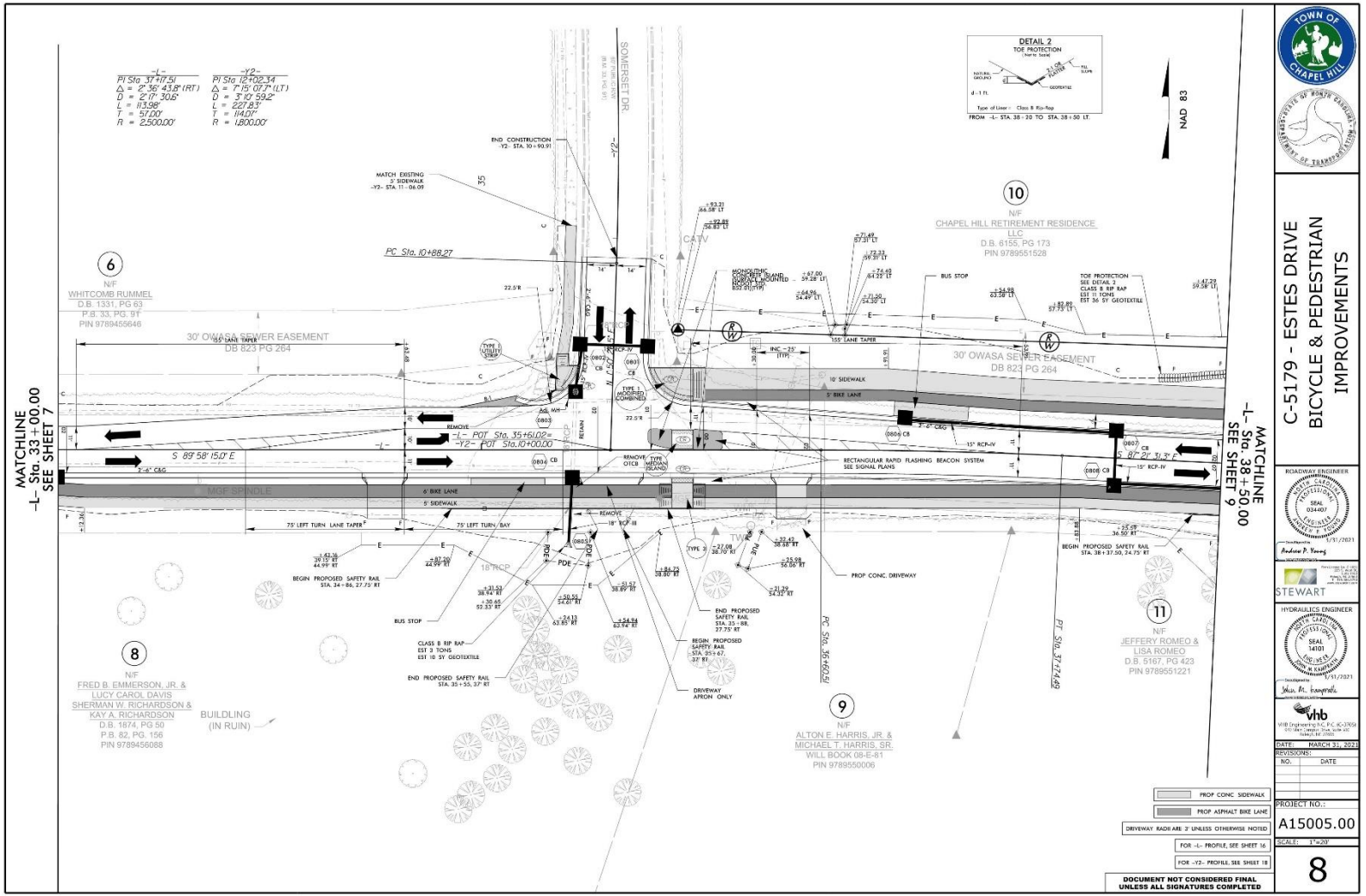
Bioretention basin

Pervious pavement

Aura– Recommendation

- Continue the Public Hearing, receive comments, close the public hearing and continue to receive comments for 24 hours
- Comments may also be shared with planning@townofchapelhill.org
- Motion to consider the application at the June 16, 2021 meeting.

Extra Slides



TOWN OF CHAPEL HILL

C-5179 - ESTES DRIVE
BICYCLE & PEDESTRIAN
IMPROVEMENTS

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 034407
ANDREW P. YOUNG
3/31/2021
Andrew P. Young

STEWART

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 14101
JOHN M. CAMPBELL
3/31/2021
John M. Campbell

vhb
VHB Engineering N.C. P.C. (C-3705)
DATE: MARCH 31, 2021

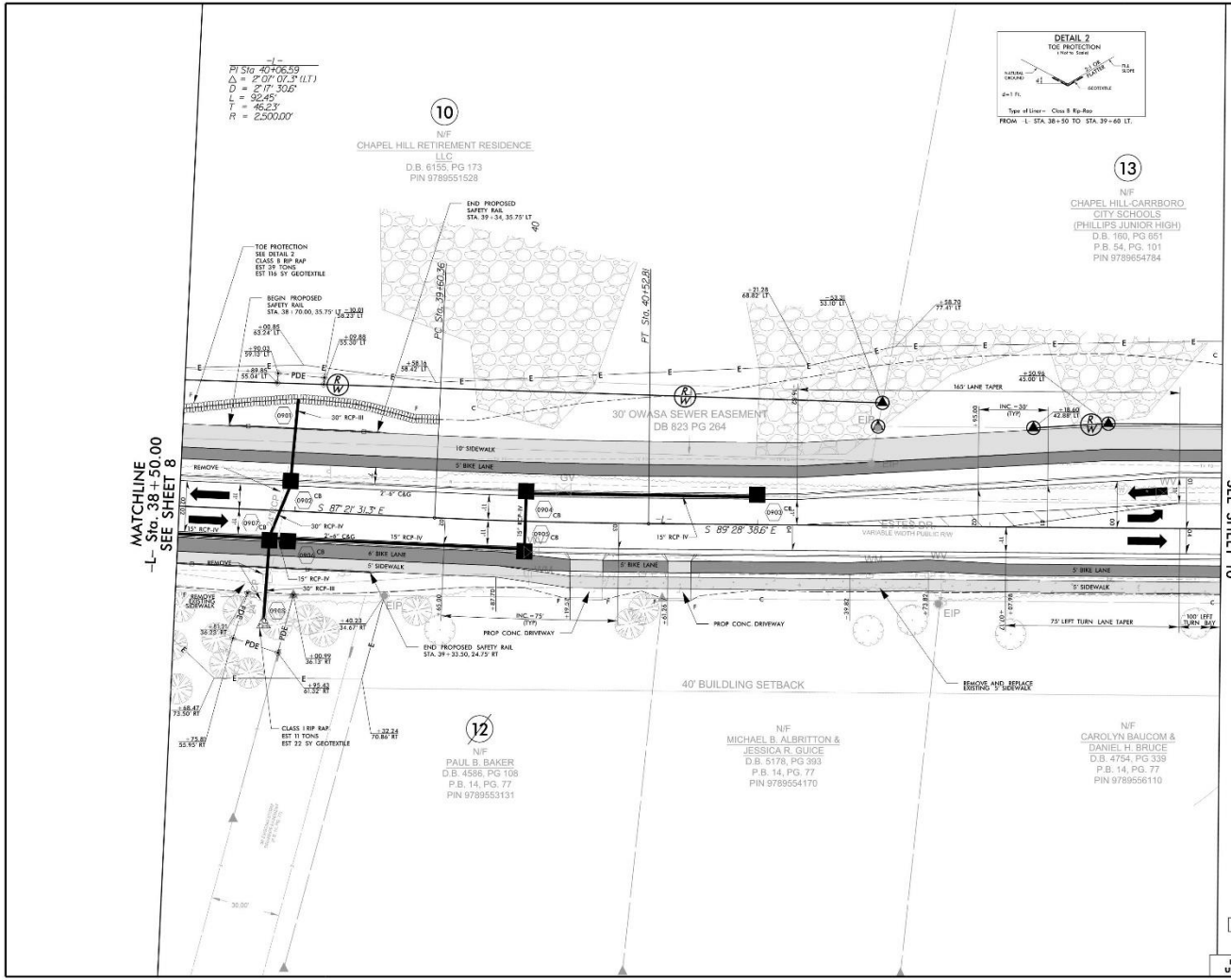
REVISIONS:

NO.	DATE

PROJECT NO.:
A15005.00

SCALE: 1"=20'

8



TOWN OF CHAPEL HILL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

C-5179 - ESTES DRIVE BICYCLE & PEDESTRIAN IMPROVEMENTS

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 034407
ANDREW P. YOUNG
5/31/2021

STEWART

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER
SEAL 14101
JOHN M. HAMPSTEAD
5/31/2021

vhb
VHB Engineering N.C., P.C. (C-3705)
101 Glen Lennox Drive, Suite 300
Chapel Hill, NC 27517

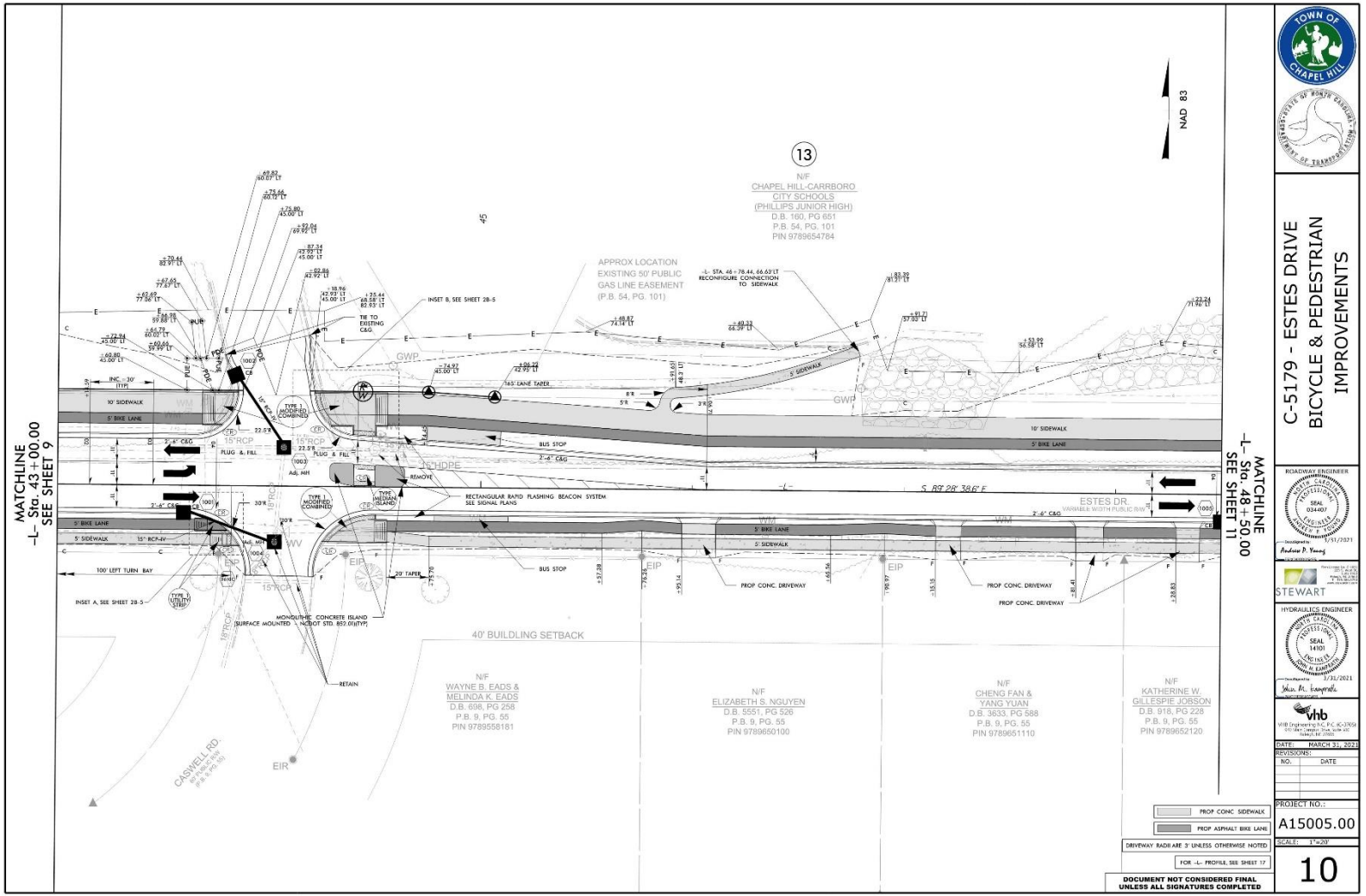
DATE: MARCH 31, 2021

REVISIONS:

NO.	DATE

PROJECT NO.: A15005.00

SCALE: 1"=20'



TOWN OF CHAPEL HILL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

C-5179 - ESTES DRIVE BICYCLE & PEDESTRIAN IMPROVEMENTS

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034407 ANDREW P. YOUNG
Designed by: Andrew P. Young 3/31/2021

STEWART

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101 JOHN M. CAMPBELL
John M. Campbell 3/31/2021

vhb
VHB Engineering N.C. P.C. (C-3705)
DATE: MARCH 31, 2021

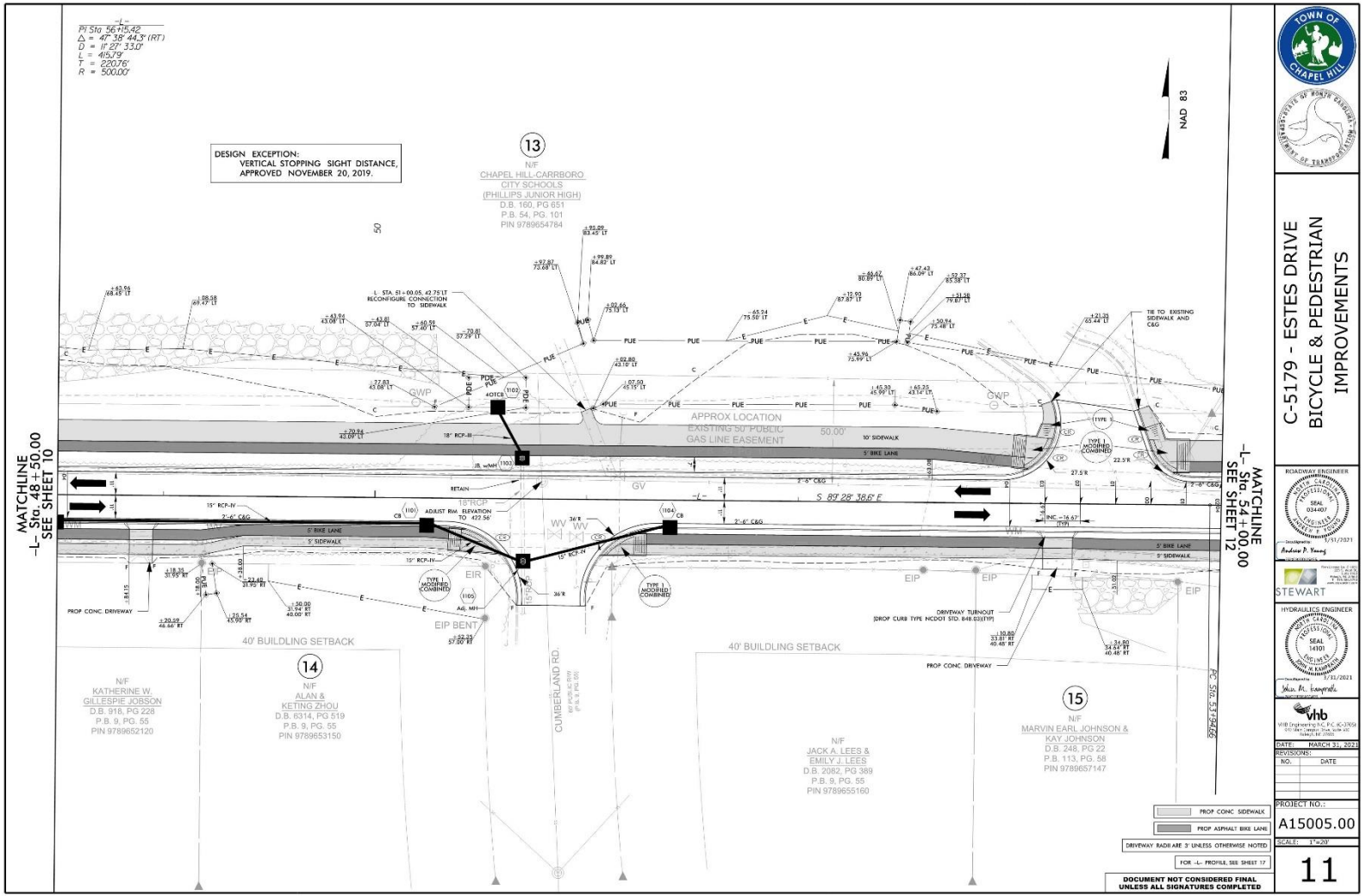
REVISIONS:

NO.	DATE

PROJECT NO.: A15005.00

SCALE: 1"=20'

10



TOWN OF CHAPEL HILL

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

C-5179 - ESTES DRIVE BICYCLE & PEDESTRIAN IMPROVEMENTS

ROADWAY ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 034407 ANDREW P. YOUNG
5/31/2021
Andrew P. Young

STEWART

HYDRAULICS ENGINEER
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 14101 JOHN M. CAMPBELL
5/31/2021
John M. Campbell

vhb
VHB Engineering N.C. P.C. (C-3705)
DATE: MARCH 31, 2021

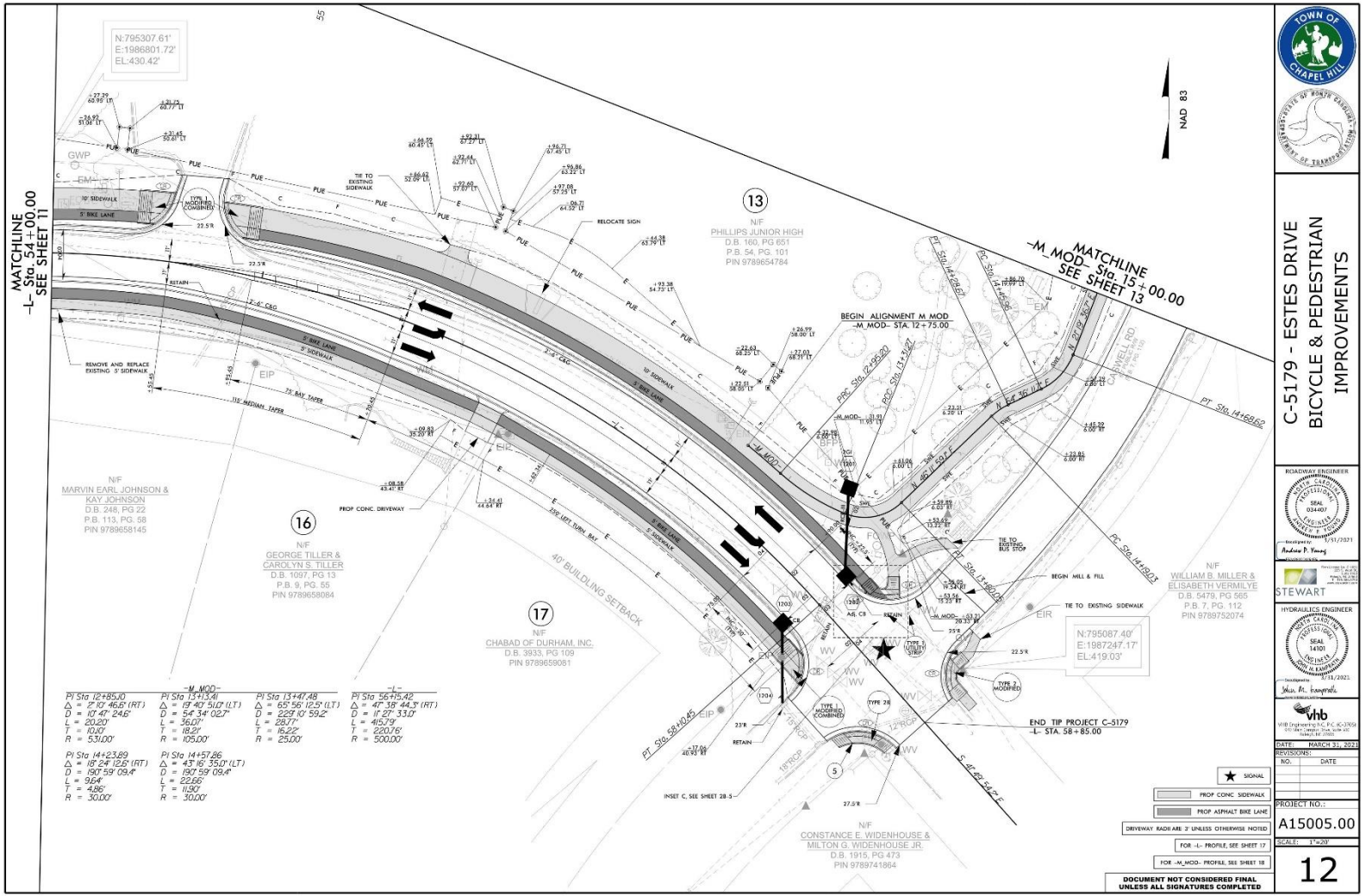
REVISIONS:

NO.	DATE

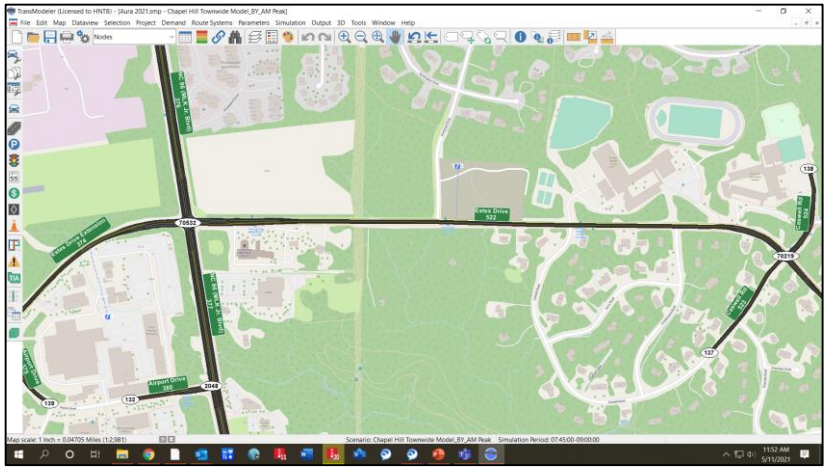
PROJECT NO.: A15005.00

SCALE: 1"=20'

11


MATCHLINE -L- Sta. 54+00.00 SEE SHEET 11
MATCHLINE -M_MOD- Sta. 15+00.00 SEE SHEET 13
N:795307.61' E:1986801.72' EL:430.42'
NAD 83
BEGIN ALIGNMENT M_MOD -M_MOD- STA. 12+75.00
END TIP PROJECT C-5179 -L- STA. 58+85.00
BEGIN MILL & FILL
TIE TO EXISTING SIDEWALK
TIE TO EXISTING BUS STOP
RELOCATE SIGN
REMOVE AND REPLACE EXISTING 5' SIDEWALK
10' SIDEWALK
5' BIKE LANE
5' SIDEWALK
75' BAY TAPER
115' MEDIAN TAPER
250' LEFT TURN BAY
PROP CONC. DRIVEWAY
40' BUILDING SETBACK
INSET C, SEE SHEET 28.5
13
N/F PHILLIPS JUNIOR HIGH D.B. 160, PG 651 P.B. 54, PG. 101 PIN 9789654784
16
N/F MARVIN EARL JOHNSON & KAY JOHNSON D.B. 248, PG 22 P.B. 113, PG. 58 PIN 9789658145
17
N/F GEORGE TILLER & CAROLYN S. TILLER D.B. 1097, PG 13 P.B. 9, PG. 55 PIN 9789658084
N/F CHABAD OF DURHAM, INC. D.B. 3933, PG 109 PIN 9789659081
N/F WILLIAM B. MILLER & ELISABETH VERMILYE D.B. 5479, PG 565 P.B. 7, PG. 112 PIN 9789752074
N/F CONSTANCE E. WIDENHOUSE & MILTON G. WIDENHOUSE JR. D.B. 1915, PG 473 PIN 9789741864
N:795087.40' E:1987247.17' EL:419.03'
-M_MOD-
PI Sta 12+85.10 Δ = 2° 02' 46.2" (RT) D = 10° 47' 24.6" L = 20.20' T = 10.10' R = 531.00'
PI Sta 13+13.41 Δ = 19° 40' 51.7" (LT) D = 54° 34' 02.7" L = 36.07' T = 18.21' R = 105.00'
PI Sta 13+41.48 Δ = 65° 56' 12.5" (LT) D = 229° 10' 59.2" L = 28.77' T = 16.22' R = 25.00'
-L-
PI Sta 56+15.42 Δ = 47° 18' 44.3" (RT) D = 11° 27' 33.0" L = 415.79' T = 220.76' R = 500.00'
PI Sta 14+23.89 Δ = 18° 24' 12.5" (RT) D = 190° 59' 09.4" L = 9.64' T = 4.86' R = 30.00'
PI Sta 14+57.86 Δ = 43° 16' 35.0" (LT) D = 190° 59' 09.4" L = 22.66' T = 11.90' R = 30.00'
SIGNAL
PROP CONC SIDEWALK
PROP ASPHALT BIKE LANE
DRIVEWAY RADII ARE 3' UNLESS OTHERWISE NOTED
FOR -L- PROFILE, SEE SHEET 17
FOR -M_MOD- PROFILE, SEE SHEET 18
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED
TOWN OF CHAPEL HILL
C-5179 - ESTES DRIVE BICYCLE & PEDESTRIAN IMPROVEMENTS
ROADWAY ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 034407 ENGINEER ANDREW P. YOUNG
STEWART
HYDRAULICS ENGINEER NORTH CAROLINA PROFESSIONAL SEAL 14101 ENGINEER JOHN M. CAMPBELL
vhb
DATE: MARCH 31, 2021
REVISIONS:
NO. DATE
PROJECT NO.: A15005.00
SCALE: 1"=20'
12

Town of Chapel Hill
Town-wide Transportation Model
Estes Drive Scenario Test



- Weekday AM and PM Peak Hours
- 2021 “Base Year”
- 2024 “No-Build Aura”
- 2024 “Build Aura”
- 2024 “Build Aura + Recommended TIA Improvements”
  - Somerset Stop Control
  - Somerset Signal Control

2021 EXISTING CONDITIONS

2021 Base Model		AM Peak Hour						
Intersection and Approach	Traffic Control	LOS	Average Delay (Sec/Veh)	Maximum Delay (Sec/Veh)	Minimum Delay (Sec/Veh)	Average Max Queue (ft)	Maximum Queue (ft)	Minimum Queue (ft)
NC 86 (MLK Blvd) and Estes Drive	Signal	**D**	**47.3**	**52.1**	**43.4**			
Eastbound		E	76.3	92.1	56.7	900	1075	650
Westbound		D	46.8	50.9	42.2	350	375	275
Northbound		C	33.5	36.3	30.9	400	525	350
Southbound		C	34.6	38.1	33.0	450	600	400
Estes Drive and Somerset Drive	Two-Way Stop	-	-	-	-	-	-	-
Southbound		A	5.4	7.9	2.5	25	25	25
Estes Drive and E. Franklin Street	Signal	**C**	**28.7**	**29.8**	**26.7**			
Eastbound		C	33.5	35.9	28.6	425	500	350
Westbound		C	33.0	34.7	29.9	225	250	150
Northbound		C	24.0	26.1	20.7	200	225	125
Southbound		C	25.3	27.5	22.3	375	425	300

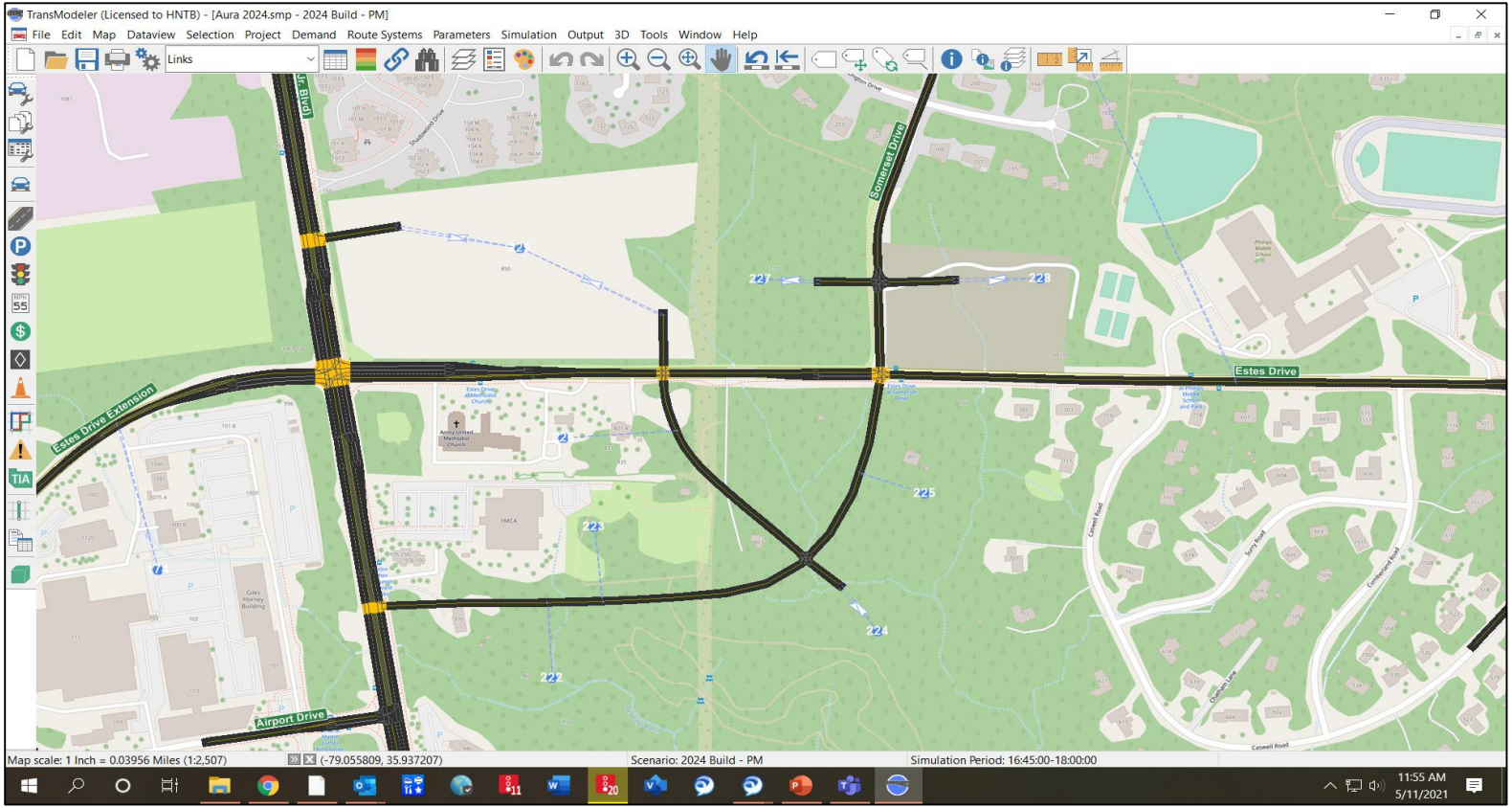
2021 Base Model		PM Peak Hour						
Intersection and Approach	Traffic Control	LOS	Average Delay (Sec/Veh)	Maximum Delay (Sec/Veh)	Minimum Delay (Sec/Veh)	Average Max Queue (ft)	Maximum Queue (ft)	Minimum Queue (ft)
NC 86 (MLK Blvd) and Estes Drive	Signal	***E***	***58.5***	***62.6***	***56.0***			
Eastbound		E	70.1	83.6	63.3	650	725	450
Westbound		E	63.0	78.1	50.8	850	1500	375
Northbound		E	59.6	61.8	55.9	625	675	550
Southbound		D	45.6	48.9	42.7	475	600	450
Estes Drive and Somerset Drive	Two-Way Stop	-	-	-	-	-	-	-
Southbound		C	16.0	20.6	12.5	125	100	150
Estes Drive and E. Franklin Street	Signal	**D**	**47.9**	**50.5**	**46.1**			
Eastbound		E	58.0	68.1	51.7	625	700	500
Westbound		D	54.8	56.4	51.0	525	550	450
Northbound		D	41.8	42.5	40.5	475	500	425
Southbound		D	43.2	47.0	38.7	500	550	475

2024 BACKGROUND DEVELOPMENTS

- **Blue Hill District (4 Parcels)**
- **University Place Phase 1**
- **Central West Area Plan**
- **Town Municipal Services Center**
- **E. Rosemary Street Parking Deck & Office Building**
- **W. Rosemary Street Hotel**
- **Union Chapel Hill Apartments**

- **0.5%/Year Regional Growth**

2024 ASSUMED STREET NETWORK



Background Developments List for 2024 Aura/Estes Drive Scenario Testing

ID	Development Name	Area	Land Use	ITE LUC Density Change	AM Peak Trips			PM Peak Trips		
					IN	OUT	TOTAL	IN	OUT	TOTAL
1	Fordham Apartments	Blue Hill	Multi-Family Residential	273 Units - 50 Hotel units	11	89	100	85	40	125
2	Hillstone	Blue Hill	Multi-Family Residential	220 Units	29	115	144	112	60	172
3	Quality Inn	Blue Hill	Multi-Family Residential	236 Units + 125 Hotel Units	55	110	165	89	56	145
4	Park at Chapel Hill	Blue Hill	Multi-Family Residential	+500 Net Units	49	197	246	94	44	138
5	University Place - Phase 1	Mall Area	Commercial	Mixed Uses	367	291	658	704	632	1,336
6	Town Municipal Services Campus	NC 86	Institutional - Office	48k Office + 24k Police Station Net	126	16	142	38	150	188
7	E. Rosemary Parking Deck & Office	Downtown	Public Parking/General Office	Net Parking Incr + 200K Office	327	40	367	82	305	387
8	W. Rosemary St Hotel	Downtown	Hotel	125 Unit Hotel - 90 Existing Parking	17	26	43	36	19	55
9	Union Chapel Hill Apartments	Downtown	Multi-Family Residential	350 Condos - 111 Apartments	24	97	121	148	80	228
A	Aura	Central West	Mixed-Use	Mixed Uses	81	129	210	120	86	206
B	Rummel Property	Central West	Multi-Family Residential	175 units	14	42	57	45	66	111
C	Azalea	Central West	Senior Assisted Living	100 Units	18	9	27	23	28	51
D	Amity UMC	Central West	Institutional - Church	N/A	0	0	0	0	0	0
E		Central West	Multi-Family Residential	36 units	4	9	13	9	14	23
F	YMCA Expansion	Central West	Recreational	30K SF	35	18	53	46	52	98
G	Saw Mill	Central West	Multi-Family Residential	112 units	10	27	37	30	42	72
H	Richardson Property	Central West	Multi-Family Residential	117 units	10	29	39	31	45	76
I	Office Park	Central West	General Office	N/A	0	0	0	0	0	0
J	Peace Property	Central West	Multi-Family Residential	65 units	5	16	22	17	25	42
					1,182	1,260	2,443	1,708	1,745	3,453

-2024 Build Scenario Only

2024 NO-BUILD PM PEAK CONDITIONS

2024 No-Build Model	Traffic Control	PM Peak Hour						
Intersection and Approach		LOS	Average Delay (Sec/Veh)	Maximum Delay (Sec/Veh)	Minimum Delay (Sec/Veh)	Average Max Queue (ft)	Maximum Queue (ft)	Minimum Queue (ft)
NC 86 (MLK Blvd) and Estes Drive	Signal	***E***	***55.1***	***64.1***	**49.2**			
Eastbound		D	54.3	63.2	50.1	550	675	325
Westbound		D	43.0	50.2	38.1	725	800	475
Northbound		E	65.7	79.2	57.5	675	700	650
Southbound		D	53.8	68.6	46.6	375	400	325
Estes Drive and Somerset Drive	Two-Way Stop	-	-	-	-	-	-	-
Northbound		***F***	***122.8***	***130.9***	42.1	275	325	100
Southbound		***F***	***155.7***	***166.4***	***70.3***	250	275	225
Estes Drive and E. Franklin Street	Signal	***F***	***119.3***	***138.4***	***98.4***			
Eastbound		F	91.4	118.1	77.6	750	1000	625
Westbound		F	160.6	172.2	92.7	1275	1500	875
Northbound		F	166.8	305.5	89.8	1600	2600	950
Southbound		E	69.5	67.7	57.5	700	875	575
NC 86 (MLK Blvd) and Local Road Connection (RIRO)	Two-Way Stop	-	-	-	-	-	-	-
Westbound		C	18.0	30.1	8.6	50	100	25

2024 BUILD WITH AURA CONDITIONS (PM PEAK)

2024 Build-Aura Model		PM Peak Hour						
Intersection and Approach	Traffic Control	LOS	Average Delay (Sec/Veh)	Maximum Delay (Sec/Veh)	Minimum Delay (Sec/Veh)	Average Max Queue (ft)	Maximum Queue (ft)	Minimum Queue (ft)
NC 86 (MLK Blvd) and Estes Drive	Signal	**D**	**51.6**	**53.1**	**49.9**			
Eastbound		E	57.1	63.0	49.5	575	650	425
Westbound		D	44.0	50.2	38.5	575	875	350
Northbound		E	59.8	62.7	57.9	675	700	625
Southbound		D	45.8	48.4	42.7	375	475	350
Estes Drive and Somerset Drive	Two-Way Stop	-	-	-	-	-	-	-
Northbound		***F***	***76.4***	***113.7***	46.6	200	275	125
Southbound		***F***	***103.0***	***141.1***	***74.1***	250	350	200
Estes Drive and E. Franklin Street	Signal	***F***	***123.8***	***134.1***	***96.5***			
Eastbound		F	88.0	93.5	78.7	775	1300	650
Westbound		F	146.5	168.6	115.0	1275	1450	1150
Northbound		F	193.8	227.5	133.4	1950	2400	1150
Southbound		E	72.1	78.0	63.7	850	875	750
MLK Blvd and Future Aura Access #1	Two-Way Stop	-	-	-	-	-	-	-
Westbound		A	5.4	6.4	4.2	25	25	25
Estes Dr and Future Aura Access #2	Two-Way Stop	-	-	-	-	-	-	-
Southbound		E	42.9	***77.4***	26.0	100	125	75
NC 86 (MLK Blvd) and Local Rd Access (RIRO)	Two-Way Stop	-	-	-	-	-	-	-
Westbound		C	21.3	30.1	14.5	50	100	25

2024 BUILD WITH IMPROVEMENTS (PM PEAK)

2024 Build-Aura Model - With Improvements		PM Peak Hour						
Intersection and Approach	Traffic Control	LOS	Average Delay (Sec/Veh)	Maximum Delay (Sec/Veh)	Minimum Delay (Sec/Veh)	Average Max Queue (ft)	Maximum Queue (ft)	Minimum Queue (ft)
NC 86 (MLK Blvd) and Estes Drive	Signal	**D**	**47.4**	**51.2**	**45.6**			
Eastbound		E	55.1	58.5	51.5	475	600	300
Westbound		D	38.1	40.6	36.5	425	500	325
Northbound		D	53.1	59.8	50.0	625	900	550
Southbound		D	45.1	49.8	41.8	375	525	325
Estes Drive and Somerset Drive	Two-Way Stop	-	-	-	-	-	-	-
Eastbound		-	-	-	-	-	-	-
Westbound		-	-	-	-	-	-	-
Northbound		*F*	*56.9*	*74.6*	45.6	150	250	100
Southbound		*F*	*87.2*	*128.2*	*62.9*	250	300	200
Estes Drive and E. Franklin Street	Signal	*F*	*102.3*	*113.2*	*92.6*			
Eastbound		F	88.8	95.6	83.4	750	1250	600
Westbound		F	144.2	191.1	113.3	1275	1325	1150
Northbound		F	135.7	189.6	86.3	1100	1525	700
Southbound		D	53.9	60.3	49.5	675	725	500
MLK Blvd and Future Aura Access #1	Two-Way Stop	-	-	-	-	-	-	-
Westbound		A	6.2	7.1	3.4	25	25	25
Estes Dr and Future Aura Access #2	Two-Way Stop	-	-	-	-	-	-	-
Southbound		D	31.1	41.3	25.6	75	100	50
NC 86 (MLK Blvd) and Local Rd Access (RIRO)	Two-Way Stop	-	-	-	-	-	-	-
Westbound		B	12.2	14.6	8.9	50	100	25

Average Maximum Queue Lengths

The table below summarizes the afternoon average maximum queue lengths at the intersection of Martin Luther King Jr. Blvd. and Estes Drive:

	2021 Base Model	2024 No-Build	2024 Build	2024 Build with Improvements
	Ave. Max Queue	Ave. Max Queue	Ave. Max Queue	Ave. Max Queue
Eastbound	650	550	575	475
Westbound	850	725	575	425
Northbound	625	675	675	625
Southbound	475	375	375	375

The technical memorandum provides details for each of the four scenarios.

Storm Event Depths from NOAA

PF tabular

NOAA Atlas 14, Volume 2, Version 3
Location name: Chapel Hill, North Carolina, USA*
Latitude: 35.9361°, Longitude: -79.0547°
Elevation: 463.18 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
12-hr	2.54 (2.34-2.77)	3.06 (2.82-3.34)	3.79 (3.49-4.13)	4.43 (4.06-4.82)	5.27 (4.79-5.71)	5.99 (5.40-6.47)	6.72 (5.99-7.25)	7.48 (6.60-8.07)	8.55 (7.40-9.22)	9.47 (8.07-10.2)
24-hr	2.96 (2.78-3.17)	3.58 (3.36-3.82)	4.47 (4.19-4.77)	5.17 (4.83-5.51)	6.11 (5.69-6.53)	6.85 (6.37-7.33)	7.61 (7.05-8.16)	8.40 (7.75-9.01)	9.48 (8.70-10.2)	10.3 (9.43-11.1)
2-day	3.47 (3.25-3.71)	4.18 (3.92-4.47)	5.18 (4.85-5.53)	5.95 (5.56-6.35)	6.98 (6.50-7.46)	7.79 (7.24-8.34)	8.62 (7.98-9.24)	9.46 (8.72-10.2)	10.6 (9.74-11.4)	11.5 (10.5-12.4)
3-day	3.67 (3.44-3.92)	4.41 (4.14-4.71)	5.44 (5.10-5.81)	6.24 (5.84-6.67)	7.32 (6.82-7.83)	8.18 (7.59-8.75)	9.04 (8.37-9.70)	9.93 (9.15-10.7)	11.2 (10.2-12.0)	12.1 (11.1-13.1)
4-day	3.87 (3.63-4.14)	4.64 (4.35-4.96)	5.70 (5.35-6.09)	6.54 (6.12-6.99)	7.67 (7.14-8.21)	8.56 (7.94-9.17)	9.47 (8.75-10.2)	10.4 (9.58-11.2)	11.7 (10.7-12.6)	12.7 (11.6-13.8)
7-day	4.44 (4.19-4.73)	5.30 (5.00-5.64)	6.43 (6.07-6.86)	7.33 (6.90-7.81)	8.55 (8.02-9.12)	9.52 (8.90-10.2)	10.5 (9.79-11.2)	11.5 (10.7-12.3)	12.9 (11.9-13.9)	14.0 (12.8-15.1)
10-day	5.05 (4.77-5.37)	6.00 (5.67-6.38)	7.20 (6.79-7.66)	8.14 (7.67-8.65)	9.41 (8.84-10.0)	10.4 (9.74-11.1)	11.4 (10.7-12.2)	12.5 (11.6-13.3)	13.9 (12.8-14.9)	15.0 (13.8-16.1)
20-day	6.75 (6.38-7.14)	7.96 (7.53-8.42)	9.40 (8.88-9.94)	10.5 (9.95-11.2)	12.1 (11.4-12.8)	13.3 (12.5-14.1)	14.6 (13.6-15.5)	15.8 (14.7-16.9)	17.6 (16.2-18.7)	18.9 (17.4-20.2)
30-day	8.39 (7.95-8.87)	9.87 (9.35-10.4)	11.5 (10.8-12.1)	12.7 (12.0-13.4)	14.3 (13.5-15.1)	15.6 (14.7-16.5)	16.8 (15.8-17.8)	18.1 (16.9-19.2)	19.8 (18.4-21.0)	21.1 (19.5-22.5)
45-day	10.7 (10.2-11.2)	12.5 (11.9-13.1)	14.3 (13.6-15.0)	15.7 (14.9-16.5)	17.5 (16.6-18.4)	18.9 (17.9-19.9)	20.3 (19.2-21.4)	21.7 (20.4-22.9)	23.5 (22.0-24.9)	24.9 (23.2-26.4)
60-day	12.8 (12.3-13.4)	15.0 (14.3-15.7)	16.9 (16.1-17.7)	18.4 (17.5-19.2)	20.3 (19.3-21.2)	21.7 (20.6-22.8)	23.1 (21.9-24.3)	24.4 (23.1-25.7)	26.2 (24.7-27.6)	27.5 (25.9-29.0)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

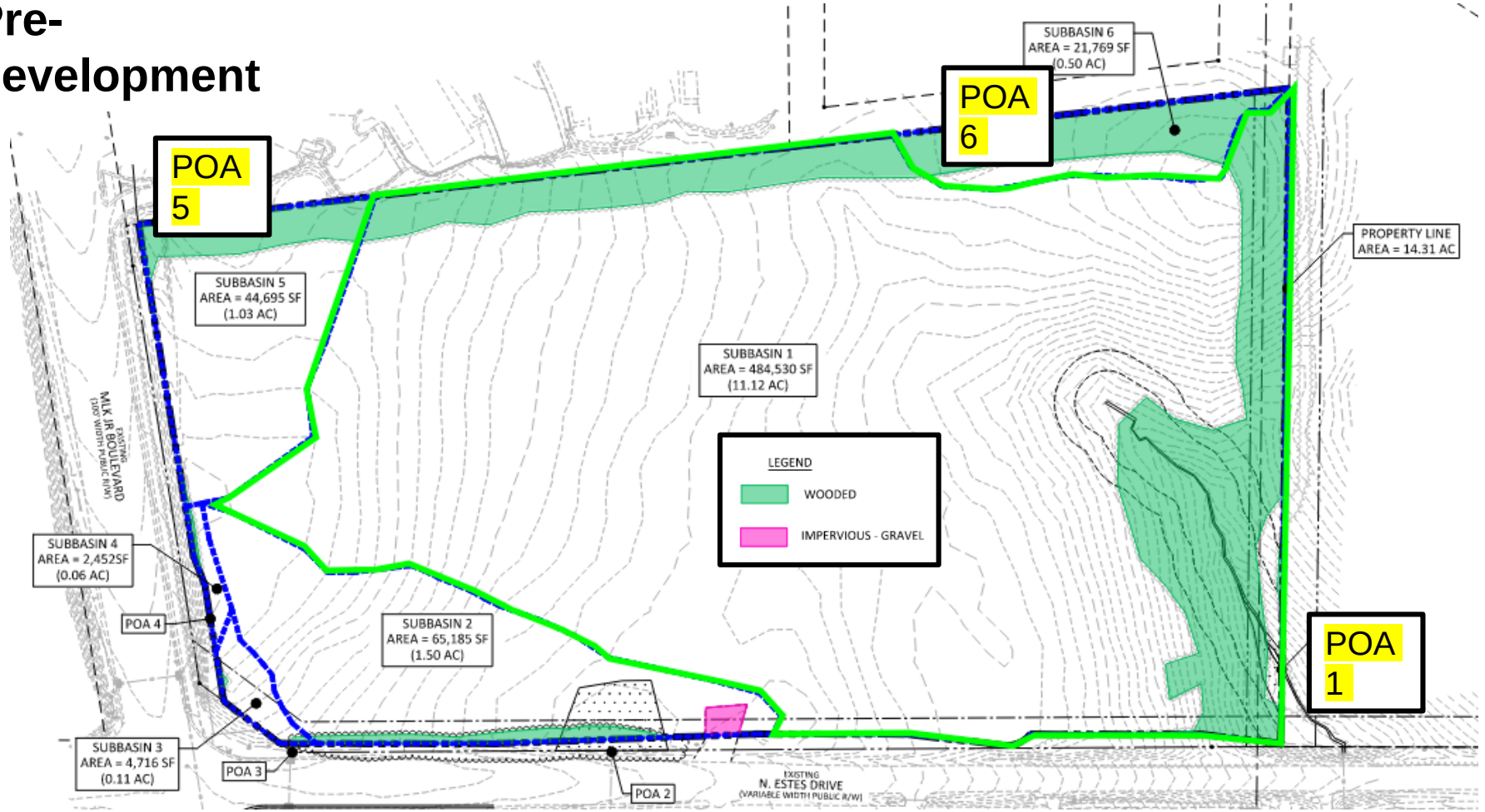
Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

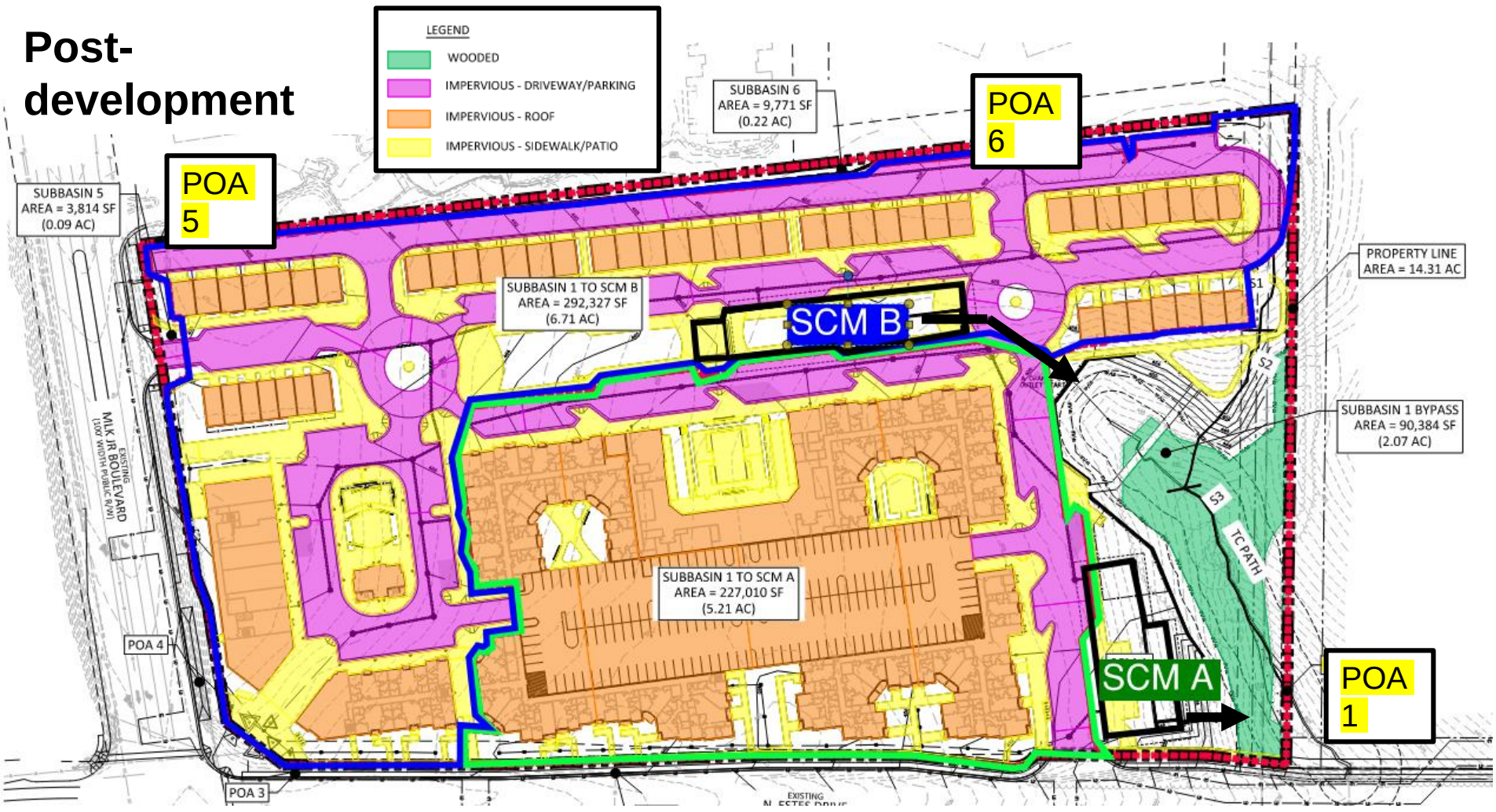
Yellow values are regulated by Town LUMO

Blue values are the 50-year and 100-year design events

Pre-development



Post-development



Land Use Area Across Project Area

Pre-development

Sub-basin ID	Onsite Area [acres]				
	Impervious	Open	Wooded	Pond	Total
1	0.00	9.51	1.61	0.00	11.12
2	0.02	1.40	0.08	0.00	1.50
3	0.00	0.10	0.00	0.00	0.11
4	0.00	0.05	0.01	0.00	0.06
5	0.00	0.83	0.20	0.00	1.03
6	0.00	0.14	0.36	0.00	0.50
Totals =	0.02	12.03	2.26	0.00	**14.31**

Post-development

Sub-basin ID	Onsite Area [acres]				
	Impervious	Open	Wooded	Pond	Total
1 to SCM A	4.74	0.47	0.00	0.00	5.21
1 to SCM B	5.81	0.90	0.00	0.00	6.71
1 Bypass	0.22	1.20	0.66	0.00	2.07
5	0.02	0.07	0.00	0.00	0.09
6	0.00	0.22	0.00	0.00	0.22
Totals =	10.79	2.86	0.66	0.00	**14.31**

Peak Runoff Rates

POINT OF ANALYSIS #1			
Return Period	Pre-Dev [cfs]	Post-Dev [cfs]	% Increase [%]
1-Year	7.56	3.90	-48%
2-Year	12.12	9.67	-20%
25-Year	30.72	29.77	-3%

POINT OF ANALYSIS #5			
Return Period	Pre-Dev [cfs]	Post-Dev [cfs]	% Increase [%]
1-Year	0.98	0.17	-83%
2-Year	1.56	0.24	-85%
25-Year	3.77	0.49	-87%

POINT OF ANALYSIS #6			
Return Period	Pre-Dev [cfs]	Post-Dev [cfs]	% Increase [%]
1-Year	0.37	0.32	-14%
2-Year	0.62	0.49	-21%
25-Year	1.62	1.10	-32%

Aura– Proposed Conditions and Modifications

The applicant is requesting the following modifications to regulations:

- Reduced foundation landscaping standards
- Modified perimeter buffer standard

Aura Development– Recommendations

Boards/Commissions	Recommendation	Conditions/Comments
Community Design Commission	Approval with Conditions	Elevation approval, northern buffer, building elevations
Transportation and Connectivity Board	Denial	Parking spaces, traffic impacts, goals of Central West Plan
Housing Advisory Board	Approval	
Environmental Stewardship Advisory Board	Approval with Conditions	Stormwater and traffic concerns
Planning Commission	Approval with Conditions	Affordable housing, tree canopy coverage, impervious surface, increase in commercial