



East Rosemary Street Parking Deck

Transportation Impact Analysis

Council Committee on Economic Sustainability
Presentation

May 8th, 2020

Presented By:

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HNTB North Carolina, PC



E. Rosemary Street Parking Deck

Transportation Impact Analysis

Today's Presentation

- Transportation Impact Analysis Process
- Analysis Methodology
- Existing Conditions Analysis
- 2022 Site Plan Analysis
- Trip Generation / Assignment
- Capacity Analysis Results
- Recommended Improvements



E. Rosemary Street Parking Deck

Transportation Impact Analysis

TIA Study Process

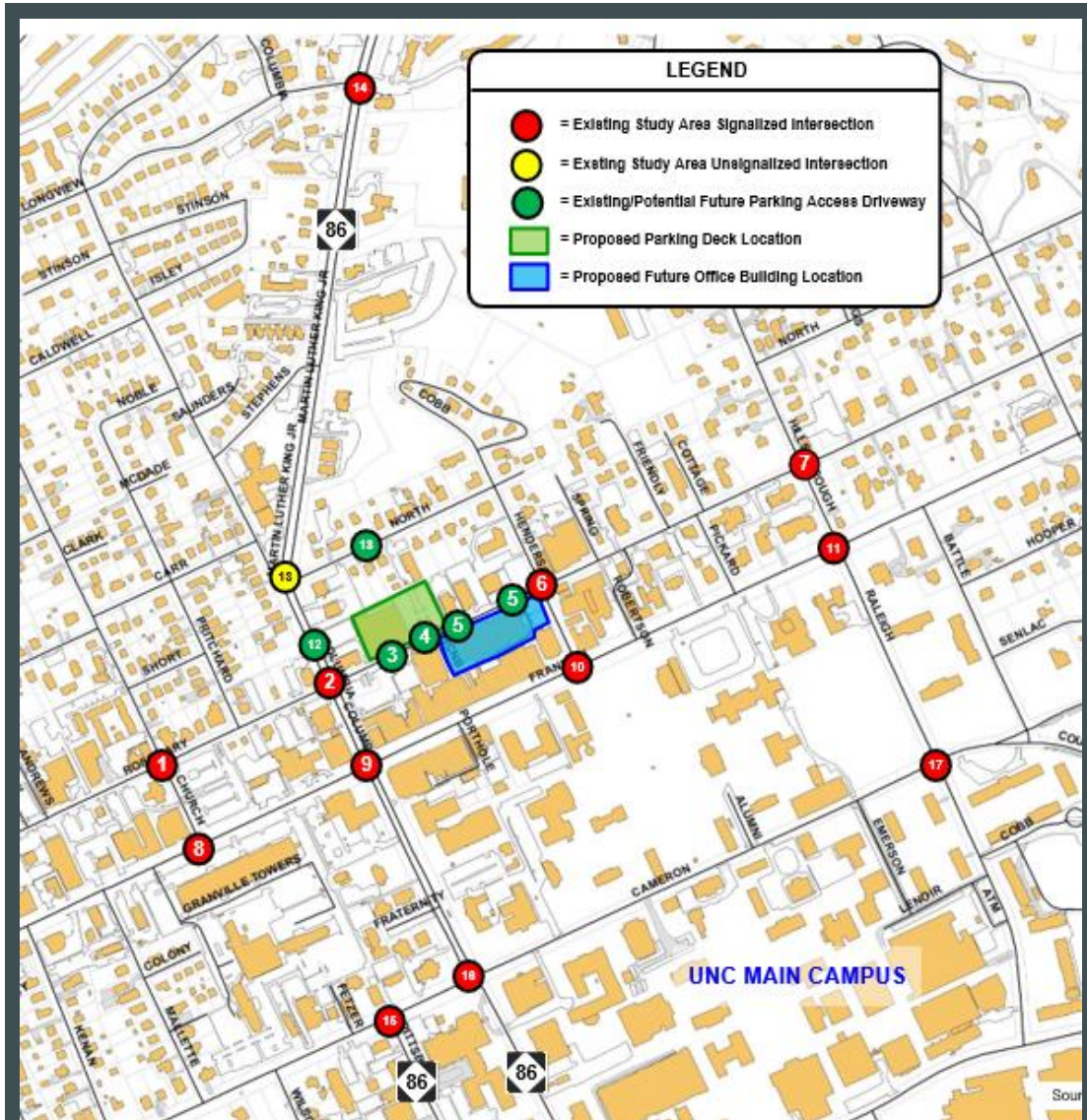
- HNTB provides on-call TIA preparation services
- Scoping Process
- Town and NCDOT Guidelines
- Prepare Draft Study
- **Receive Comments from Town/NCDOT/Stakeholders/Public**
- Finalize Study

HNTB

E. Rosemary Street Parking Deck

Transportation Impact Analysis

Project Study Area Overview



E. Rosemary Street Parking Deck

Transportation Impact Analysis

Study Scenarios

- 2020 Base Year
 - 2022 No-Build
 - 2022 Fully Built-Out East Rosemary Parking Deck
 - 2022 Full Build + Mitigation
-
- Results and Recommendations to be Incorporated in the second TIA for the Proposed Office Building



E. Rosemary Street Parking Deck

Transportation Impact Analysis

Data Collection

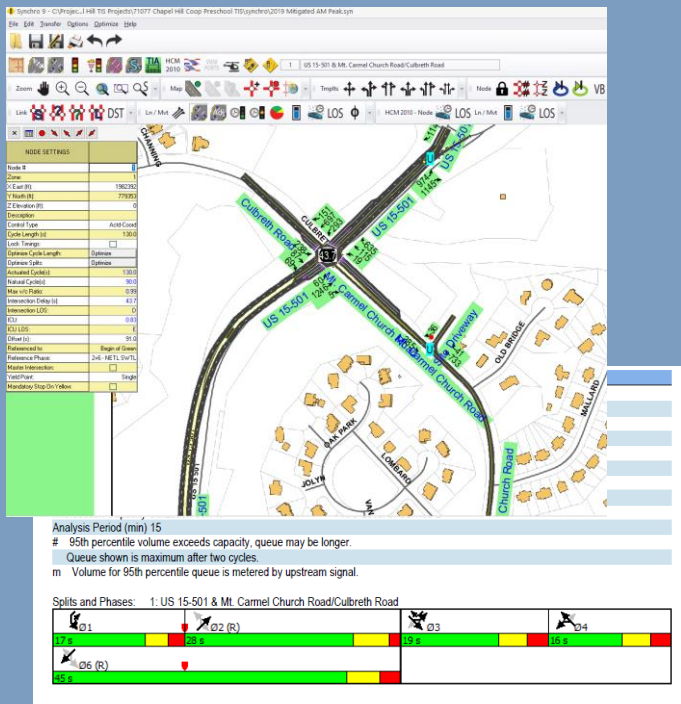
- Traffic / Pedestrian / Bicycle Counts AM, Noon, PM Peaks – **Two Weeks Prior to COVID-19 Impacts**
- Applicant Site Plan, Previous Studies and Coordination
- Town / NCDOT Projects
- Traffic Model Data (Signal Plans, Speeds, Grades)
- Field Observation of Queues and Operations



E. Rosemary Street Parking Deck

Transportation Impact Analysis

Analysis Methodology



- Weekday AM/Noon/PM Peak Hour Capacity Analysis
- **Level-of-Service (LOS) A – F**
(Threshold LOS D or E)
- Construct Analysis Models, Analyze Existing Conditions
- No-Build and Build Analyses for Site Build-out Year + 1 (2022)
- Review Results for Operational & Safety Deficiencies (Delays / Queues)
- Consider Improvements

E. Rosemary Street Parking Deck

Transportation Impact Analysis

Existing Conditions Analysis

2020 AM/Noon/PM Weekday Peak Hour LOS Results



- Provide a Baseline for Future Scenario Comparison

Intersections	Peak Hour	2020 Existing		2022 No-Build		2022 Build	
		LOS	Delay	LOS	Delay	LOS	Delay
W. Rosemary Street & Church Street	AM	B	11.3	A	9.2	A	9.2
	NOON	B	10.8	A	9.5	A	9.5
	PM	B	15.8	B	13.9	B	13.9
W. Rosemary Street & NC 86	AM	C	25.4	C	26.6	C	26.6
	NOON	C	32.4	C	29.6	C	31.8
	PM	C	34.6	D	35.9	D	46.5
E. Rosemary Street & Henderson Street	AM	A	8.0	A	8.6	A	9.1
	NOON	B	12.7	B	12.4	B	11.9
	PM	B	13.4	B	11.3	B	11.1
E. Rosemary Street & Hillsborough Street	AM	B	14.8	B	15.0	B	14.9
	NOON	B	18.9	B	15.5	B	15.4
	PM	B	17.5	B	17.4	B	17.7
W. Franklin Street & Church Street	AM	A	6.4	A	7.8	A	7.7
	NOON	B	10.7	B	11.8	B	12.6
	PM	B	15.0	B	18.3	B	18.4
Cameron Ave/Country Club Rd & Raleigh Street	AM	C	22.8	C	23.7	C	23.3
	NOON	C	20.4	C	21.0	C	20.8
	PM	C	29.6	C	30.7	C	30.4
Franklin Street & NC 86 (Columbia Street)	AM	C	33.1	C	30.5	C	30.8
	NOON	D	40.8	D	41.0	D	40.8
	PM	D	49.8	E	58.7	E	57.8
E. Franklin Street & Henderson Street	AM	A	7.4	A	7.8	A	8.0
	NOON	B	12.7	B	12.6	B	12.1
	PM	B	15.8	B	13.5	B	12.0
E. Franklin Street & Hillsborough Street / Raleigh Street	AM	C	32.0	C	22.6	C	22.6
	NOON	C	29.9	C	23.6	C	24.1
	PM	C	31.9	C	21.6	C	21.3
NC 86 (MLK Jr. Blvd) & N. Columbia Street / North Street#	AM	C	15.1	C	15.7	C	16.2
	NOON	B	14.6	C	15.3	C	15.7
	PM	F	85.5	F	119.6	F	159.1
NC 86 (MLK Jr. Blvd) & Longview Street	AM	A	9.4	A	9.5	A	9.5
	NOON	A	5.5	A	5.6	A	5.6
	PM	A	8.0	A	8.1	A	8.1
W. Cameron Avenue & NC 86 (Pittsboro Street)	AM	C	24.0	B	17.1	B	17.2
	NOON	C	21.5	B	19.9	C	20.1
	PM	C	30.8	C	21.0	C	20.4
Cameron Avenue & NC 86 (S. Columbia Street)	AM	C	32.1	C	27.9	C	28.2
	NOON	C	33.4	C	32.6	C	33.3
	PM	D	47.9	D	45.5	D	53.1

E. Rosemary Street Parking Deck

Transportation Impact Analysis

2022 Background Traffic Analysis

- Reviewed Historical NCDOT Traffic Data (Tube Counts)
- Reviewed Previous TIA Growth Estimates & Long-Range Models
- Historic Data Shows Variable and Sometimes Negligible Growth
- Future Area-wide Growth Estimated at 1.0% per year
- Reviewed Locations of Current & Planned Development Projects – Union Chapel Hill Apartments



E. Rosemary Street Parking Deck

Transportation Impact Analysis

2022 Site Plan Analysis

Trip Generation –
Distribution –
Assignment



- Use Existing Count Data as a basis
– No ITE Trip Generation Method
- No Trip Generation Adjustments
- Focus on “Net” Trip Increases Tied to Parking Supply Data
- Remove Existing Trips and Driveways
- Distribute Total Vehicle Trips by Existing Trip Patterns & Proposed Access Locations
- Assign Trips and Add to 2022 Traffic Volumes

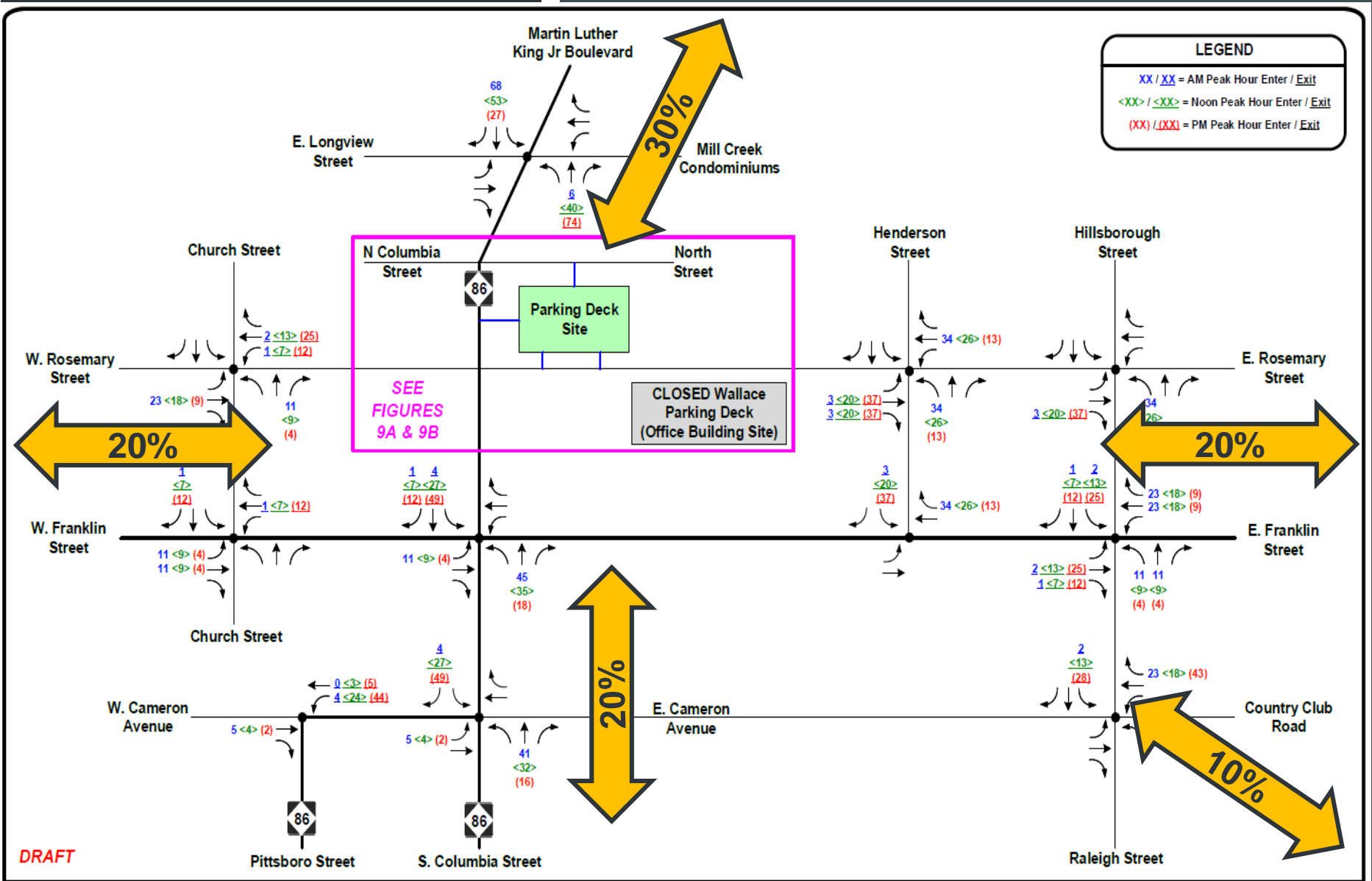
E. Rosemary Street Parking Deck

Transportation Impact Analysis

- Trip Generation Results

Facility	Units	Daily Estimate [@]			AM Peak Hour			Noon Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total
Rosemary Deck Counts	285	310	310	620	40	2	42	62	29	91	12	50	62
Private Lot Counts	109	110	110	220	22	0	22	5	1	6	1	18	19
Wallace Deck/Alley Counts	306	945	945	1890	121	14	135	75	78	153	59	130	189
Existing Total Parking Trips (Reallocated to new deck)	700	1365	1365	2730	183	16	199	142	108	250	72	198	270
Proposed Lot Ratio (1100 / 842) – “Net” New Trips	0.235	321	321	643	43	4	47	33	25	58	17	47	64
Total Trips To/From New Deck		1686	1686	3373	226	20	246	175	133	308	89	245	334

@ - No Daily Count Information Available, Estimate is a Factor of 10X the Highest Total Peak Hour Count



DRAFT

		<p>NOT TO SCALE</p>	<p>East Rosemary Street Parking Deck Traffic Impact Study</p>	<p>DATE: April 2020</p>
			<p>2022 SITE TRAFFIC ASSIGNMENT – ALL ACCESS SCENARIOS</p>	<p>FIGURE 9</p>

E. Rosemary Street Parking Deck

Transportation Impact Analysis

2022 Future Conditions Analyses

AM/Noon/PM Weekday Peak Hour LOS Results

Assess Traffic Growth
Impacts by 2022

Assess Development
Impacts



Assess Mitigation Benefits

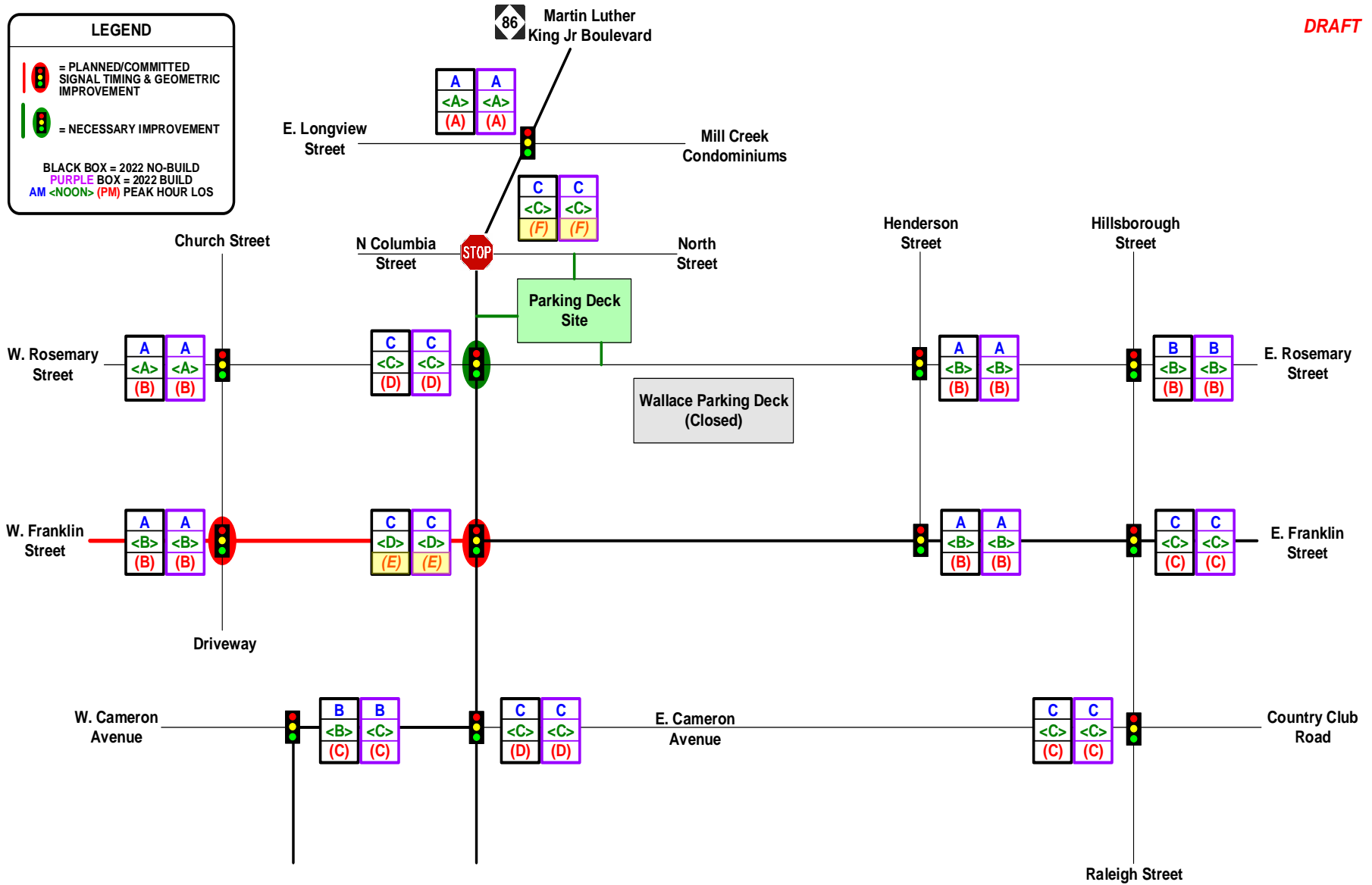


Intersections	Peak Hour	2022 No-Build		2022 Build		2022 Build – Modified Access	
		LOS	Delay	LOS	Delay	LOS	Delay
		W. Rosemary Street & Church Street	AM	A	9.2	A	9.2
	NOON	A	9.5	A	9.5		
	PM	B	13.9	B	13.9		
W. Rosemary Street & NC 86	AM	C	26.6	C	26.6	C	26.5
	NOON	C	29.6	C	31.8	C	29.3
	PM	D	35.9	D	46.5	D	36.1
E. Rosemary Street & Henderson Street	AM	A	8.6	A	9.1		
	NOON	B	12.4	B	11.9		
	PM	B	11.3	B	11.1		
E. Rosemary Street & Hillsborough Street	AM	B	15.0	B	14.9		
	NOON	B	15.5	B	15.4		
	PM	B	17.4	B	17.7		
W. Franklin Street & Church Street	AM	A	7.8	A	7.7		
	NOON	B	11.8	B	12.6		
	PM	B	18.3	B	18.4		
Cameron Ave/Country Club Rd & Raleigh Street	AM	C	23.7	C	23.3		
	NOON	C	21.0	C	20.8		
	PM	C	30.7	C	30.4		
Franklin Street & NC 86 (Columbia Street)	AM	C	30.5	C	30.8		
	NOON	D	41.0	D	40.8		
	PM	E	58.7	E	57.8		
E. Franklin Street & Henderson Street	AM	A	7.8	A	8.0		
	NOON	B	12.6	B	12.1		
	PM	B	13.5	B	12.0		
E. Franklin Street & Hillsborough Street / Raleigh Street	AM	C	22.6	C	22.6		
	NOON	C	23.6	C	24.1		
	PM	C	21.6	C	21.3		
NC 86 (MLK Jr. Blvd) & N. Columbia Street / North Street#	AM	C	15.7	C	16.2	C	16.6
	NOON	C	15.3	C	15.7	C	17.0
	PM	F	119.6	F	159.1	F	189.5
NC 86 (MLK Jr. Blvd) & Longview Street	AM	A	9.5	A	9.5		
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	NOON	B	19.9	C	20.1		
	PM	C	21.0	C	20.4		
Cameron Avenue & NC 86 (S. Columbia Street)	AM	C	27.9	C	28.2		
	NOON	C	32.6	C	33.3		
	PM	D	45.5	D	53.1		
E. Rosemary St & Recommended Parking Deck Primary Driveway#	AM	N/A	N/A	N/A	N/A	B	14.2
	NOON	N/A	N/A	N/A	N/A	C	15.7
	PM	N/A	N/A	N/A	N/A	C	15.5
NC 86 (N. Columbia Street) & Proposed Access (Right-Turn Exit Only) #	AM	N/A	N/A	N/A	N/A	A	9.9
	NOON	N/A	N/A	N/A	N/A	B	10.3
	PM	N/A	N/A	N/A	N/A	B	12.6

No change to projected traffic volumes – Little to Marginal Change in Operations Expected Compared to the 2022 Build – Original Access Scenario

LEGEND

-  = PLANNED/COMMITTED SIGNAL TIMING & GEOMETRIC IMPROVEMENT
-  = NECESSARY IMPROVEMENT
- BLACK BOX = 2022 NO-BUILD
- PURPLE BOX = 2022 BUILD
- AM <NOON> (PM) PEAK HOUR LOS



NOT TO SCALE

East Rosemary Street Parking Deck Transportation Impact Analysis

2022 LEVEL OF SERVICE SUMMARY

DATE: April 2020

FIGURE 1

E. Rosemary Street Parking Deck

Transportation Impact Analysis

Other TIA Components

- Site Access/Driveway Analysis
- Signal Warrant Analysis
- Sight Distance Analysis
- Crash Analysis
- Pedestrian/Bicycle/Transit Analyses

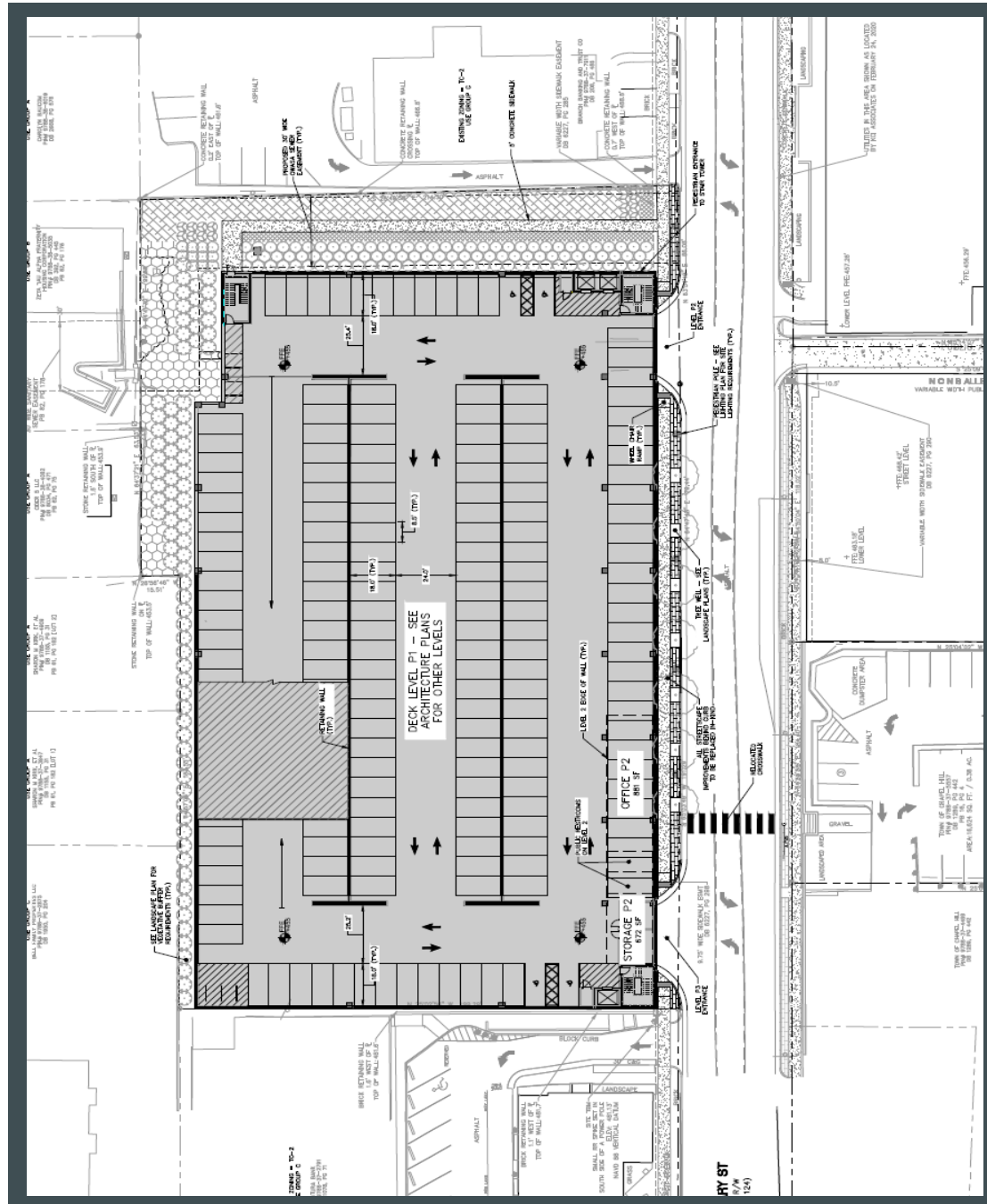


E. Rosemary Street Parking Deck

Transportation Impact Analysis

Other TIA Components

Access Analysis



E. Rosemary Street Parking Deck

Transportation Impact Analysis



2022 Site Plan Analysis

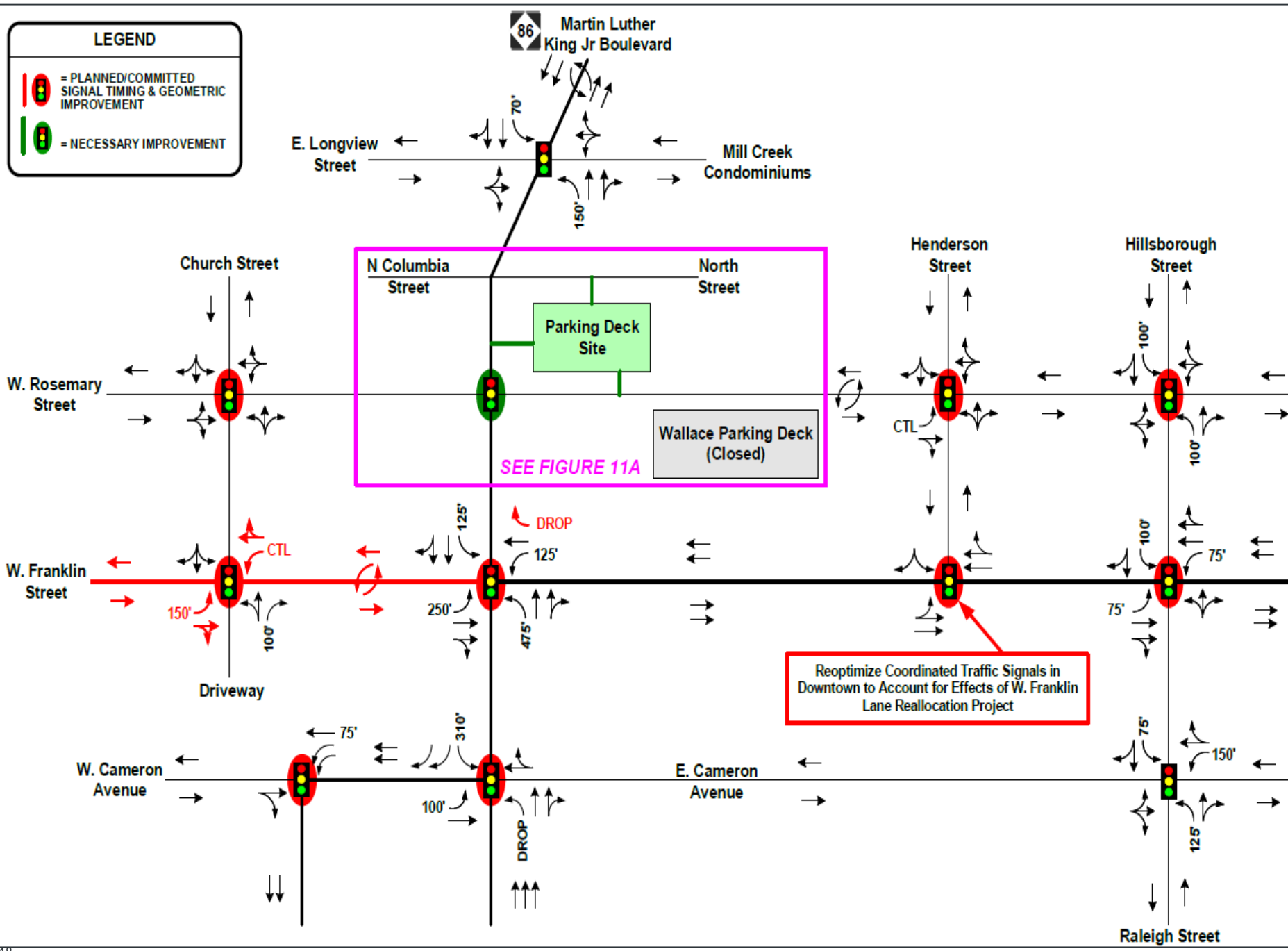
Recommended Improvements

- A. Background Improvements (Town & NCDOT)
- B. Developer Committed Improvements (Site Plan)
- C. Necessary Improvements (Beyond A & B)



LEGEND

-  = PLANNED/COMMITTED SIGNAL TIMING & GEOMETRIC IMPROVEMENT
-  = NECESSARY IMPROVEMENT



DECK ENTRY ONLY – LOCATION TBD
NORTH STREET REMAINS TWO-WAY STREET

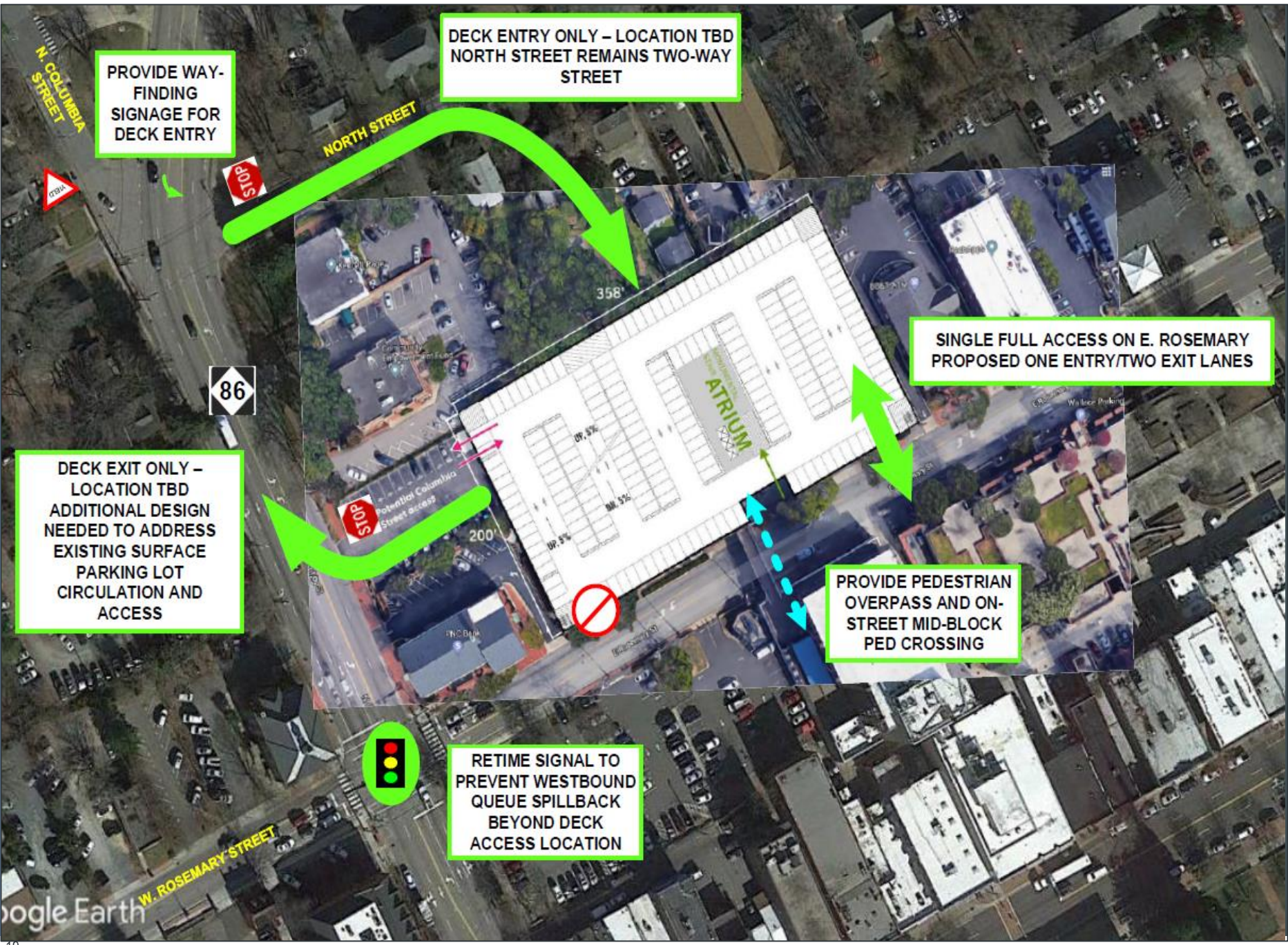
PROVIDE WAY-FINDING
SIGNAGE FOR
DECK ENTRY

SINGLE FULL ACCESS ON E. ROSEMARY
PROPOSED ONE ENTRY/TWO EXIT LANES

DECK EXIT ONLY –
LOCATION TBD
ADDITIONAL DESIGN
NEEDED TO ADDRESS
EXISTING SURFACE
PARKING LOT
CIRCULATION AND
ACCESS

PROVIDE PEDESTRIAN
OVERPASS AND ON-
STREET MID-BLOCK
PED CROSSING

RETIME SIGNAL TO
PREVENT WESTBOUND
QUEUE SPILLBACK
BEYOND DECK
ACCESS LOCATION





East Rosemary Street Parking Deck

Transportation Impact Analysis

QUESTIONS AND DISCUSSION

