[redacted]

MEMORANDUM

Project: S2103 - Johnson Ferry Road at Peachtree Dunwoody Road – Intersection Scoping Study

RE: Summary of Concept Development

Date: [redacted]

To: Wesley Waters, City of Sandy Springs, CIP Project Manager
Maggie Grant – City of Sandy Springs; Project Manager

From: Andrew Antweiler, PE, PTOE, RSP1 – Project Manager

Introduction

[redacted]has prepared a concept layout and conceptual opinion of probable cost for two alternatives. This memorandum summarizes the two alternatives:

- Alternative 1: Larger project.
- Alternative 2: Removes some elements from Alternative 1.

The Medical District Roadway Safety Analysis provided recommendations for the intersection. The scoping study began with this information and expanded to consider additional alternatives. At the beginning of the scoping study the intersection project's need and purpose was identified as:

Project Need and Purpose
Address safety concerns due to high number of sideswipe and rear end collisions
Address geometric concerns regarding driver's visibility and ability to maintain proper lane
Provide improved multimodal and pedestrian infrastructure
Support the medical district: an important economic and health service area for the community and region

The elements of each alternative are annotated on the attachment titled – Project Elements Annotated. **Table 1** highlights and contrasts key features of the two alternatives. Attached are the concept layouts and the conceptual opinion of probable cost. A discussion of the concept development and cost estimate follows.

Table 1: Alternative Comparison		
Feature	Alternative 1	Alternative 2
Safety Benefits	*Reduces crashes and improves driver's ability to maintain proper lane in northbound direction of Peachtree Dunwoody Road ***Adds channelized island for northbound right-turn**	*Reduces crashes and improves driver's ability to maintain proper lane in northbound direction of Peachtree Dunwoody Road
Traffic Operations	*Adds dedicated westbound right-turn lane with channelized island *Improves AM peak hour intersection Level of Service	*Adds dedicated westbound right-turn lane with channelized island *Improves AM peak hour intersection Level of Service
Geometric Improvement	*Improved vertical profile (via leveling) along Peachtree Dunwoody Road (expected to be more improved than Alternative 2) ***Improved horizontal alignment of Peachtree Dunwoody Rd (by removing one northbound left-turn lane)** *Addition of **two channelized islands** (aids pedestrian crossings)	*Improved vertical profile (via leveling) along Peachtree Dunwoody Road *Addition of **one channelized island** (aids pedestrian crossings)
Multimodal Improvement	*Improved crosswalks conditions ***Intersection corners reconstructed to accommodate future multiuse paths; 10-foot multiuse path constructed along east side of Peachtree Dunwoody Rd to tie into existing sidewalk and ramp to bike lane** ***Reduced crosswalk length on south leg of intersection**	*Improved crosswalks conditions
Future Development in NE property	Potential for project to modify roadway prior to development occurring	Potential for project to modify roadway prior to development occurring
ROW / Easements	**Three** properties impacted; limited impact to northwest corner, will avoid impact to Northside Hospital monument sign	**One** property impacted
Utility Impact	Multiple (TBD)	Multiple (TBD)
Estimated Total Cost	[redacted]	

Concept Layout Development

The concept layout for the two alternatives was developed based on available aerial base maps, City GIS parcel data, and field observations. Considerations in preparing the concept layout include:

1. The Medical District Roadway Safety Analysis recommendations for the intersection and street network were reviewed. The MDRSA recommended multiuse paths along both sides of Johnson Ferry Road and Peachtree Dunwoody Road to accommodate the bicyclists and pedestrians in the area. A 10-foot multiuse path will be added along the east side of Peachtree Dunwoody Rd and will not replace existing bike lanes outside of the project limits. There will be a ramp to transition from the vehicle lane shared with bicycles to the multiuse path on the south side of the intersection. On the north side of the intersection there will be a ramp to transition from the multiuse path to the existing bike lane.
2. There is an average of 33 crashes per year at the intersection. The highest two crash types are rear end (49%) and sideswipe-same direction (40%). Property damage only crashes account for 84% of the total crashes.
3. The intersection capacity during peak hours is LOS D during the AM peak hour and LOS E during the PM peak hour.
4. During a 12-hour period (7am to 7pm) a total of 11 bicyclists and 215 pedestrians were recorded at the intersection. During the same period the total vehicular volume was 41,834.
5. Northside Hospital owns the currently vacant property in the NE corner of the intersection. There are two existing retaining walls in the NE corner of the intersection, along the north side of Johnson Ferry Road. The proposed concept anticipates the tapered westbound right-turn lane can be constructed without requiring modifications to the existing walls. Guardrail is proposed behind the 8-foot multiuse path.
6. Field observations were made and a field meeting with city staff was held to refine the recommendations.
7. The concept layout includes 11-foot travel lanes.
8. A new set of overhead lane signs will be installed on Johnson Ferry Rd on the eastbound approach to the intersection and existing overhead lane signs will be relocated from old power poles to new power poles. This potential “quick” project purpose is to increase driver awareness of the lane drop at the intersection.
9. Removal of the concrete crosswalks and repaving/restriping of the intersection.
10. Some elements can be further evaluated during the design phase and once topographic data is obtained. Based on team discussions, clarification of some elements include:
    a. Element B: Removal of the third northbound travel lane (north of Johnson Ferry Road): The traffic volumes (year 2019) do not require three lanes. The third lane ends 550-feet north of the intersection as a right-turn only lane at the Emory St. Joseph’s hospital driveway.
    b. Element C: Install channelized island and new WB right-turn lane (tapered)
        i. 1) The concept layout includes a westbound right-turn lane such that the westbound through lane can hold a four-vehicle queue without blocking right-turn vehicles. Based on traffic volumes the turn lane length is expected to reduce vehicle delay. While it is desirable for right turn lanes to contain longitudinal room for partial vehicle deceleration, it is not practical to achieve in this case based on the proximity of the existing tall retaining wall. The tapered design is intended to avoid impacts to the existing retaining wall.
        ii. 2) The line of sight for the right-turn will need to be analyzed during the design phase. Without database and a defined alignment, the concept is limited to state

the type of traffic control needed. The intersection sight distance for the yield control movement from the westbound right turn lane will likely be restricted by the crest vertical curve and steep grade on Peachtree Dunwoody Road immediately south of the intersection. This will be partially influenced by the amount of proposed grading on the roadway. In this scenario, the westbound right turn movements may have to be restricted with a red signal phase to not occur when there are conflicting vehicle movements (i.e. northbound through movement and eastbound left-turn movement). The westbound right-turn movement could occur during a signal overlap phase with the southbound left-turn movement.

c. Element D: Concept layout includes 8-foot sidepath to minimize required right-of-way. Consider increase width of proposed sidewalk to a minimum of 10' and add the separation (landscape buffer or barrier) to make it a sidepath. There may be space along the east side of Peachtree Dunwoody Road.
d. Element I: The channelized island for northbound right-turn lane is recommended to provide channelization for the right-turn vehicle and stop vehicles from using the lane to travel straight (observation during field visit).
e. The concept layout indicates a gored area along the northbound travel lanes on Peachtree Dunwoody Road, next to the existing wall. This area could be reconfigured with a wider urban border area and rebuilding the curb line.

11. Roadway Profiles/Proposed Grade Modifications
    a. The concept layouts were based on an aerial base map without the benefit of topographic data. KCI obtained and created a DTM (digital terrain model) from the aerial Lidar from the Nearmap service. This was available data deemed suitable for an initial analysis; however, field run data will likely be different. KCI established a rough profile to better understand the amount of leveling which may be needed.
    b. Attached is a profile at the centerline of both streets. Both streets are currently posted at 35 mph. The profile for Peachtree Dunwoody Road illustrates the existing ground, a profile for a 30-mph design speed, and a profile for a 35-mph design speed. Based on this review, a vertical curve to provide a 30-mph speed design is more feasible than a 35-mph speed design along Peachtree Dunwoody Road. The amount of leveling required at the centerline for a 30-mph design speed is approximately 18 to 24 inches. Constructing this with leveling is feasible (could be installed in 4-inch lifts) and favorable considering the need to maintain traffic on the road during construction and the adjacent hospital uses. A 35-mph design speed vertical curve requires a major grade change. Additional issues could include: leveling may not feasible, higher cost, and driveway tie-in modifications would be greater.
    c. It is difficult to determine the existing vertical curve and design speed along Peachtree Dunwoody Road without field-run topography. During the design phase the city would need to decide if providing a 30-mph design speed is acceptable at this location. A vertical curve with 30-mph design speed would be an improvement compared to existing conditions.

Project Cost Estimate

A conceptual opinion of probable costs for the two alternatives was prepared based on the concept layouts. The itemized cost estimates are attached. The opinion of probable cost summary is provided below:

Table 2: Opinion of Probable Cost Summary		
	Alternative 1	Alternative 2
PE	[redacted]	
ROW		
CST		
Contingency		
Total Cost Estimate		

The opinion of probable cost includes many assumptions at this phase of concept development. The Preliminary Engineering (PE) fee estimate assumes this is a locally funded project. The required right of way (ROW) square footage is estimated. Note that the City provided parcel/ROW will require verification to provide an improved estimate of required ROW. The ROW cost estimate was based on [redacted]'SF (from another PCID intersection concept study). The utility impact cost (included in the CST cost) is a placeholder; the scoping study did not include utility investigation. The opinion of probable cost includes preliminary amounts for additional items that may be included in the project, such as landscaping and hardscape enhancements.

It is worth noting both project alternatives have some elements which can be added/deleted to allow the project to be designed and constructed to pre-determined budget. The project has some flexibility.

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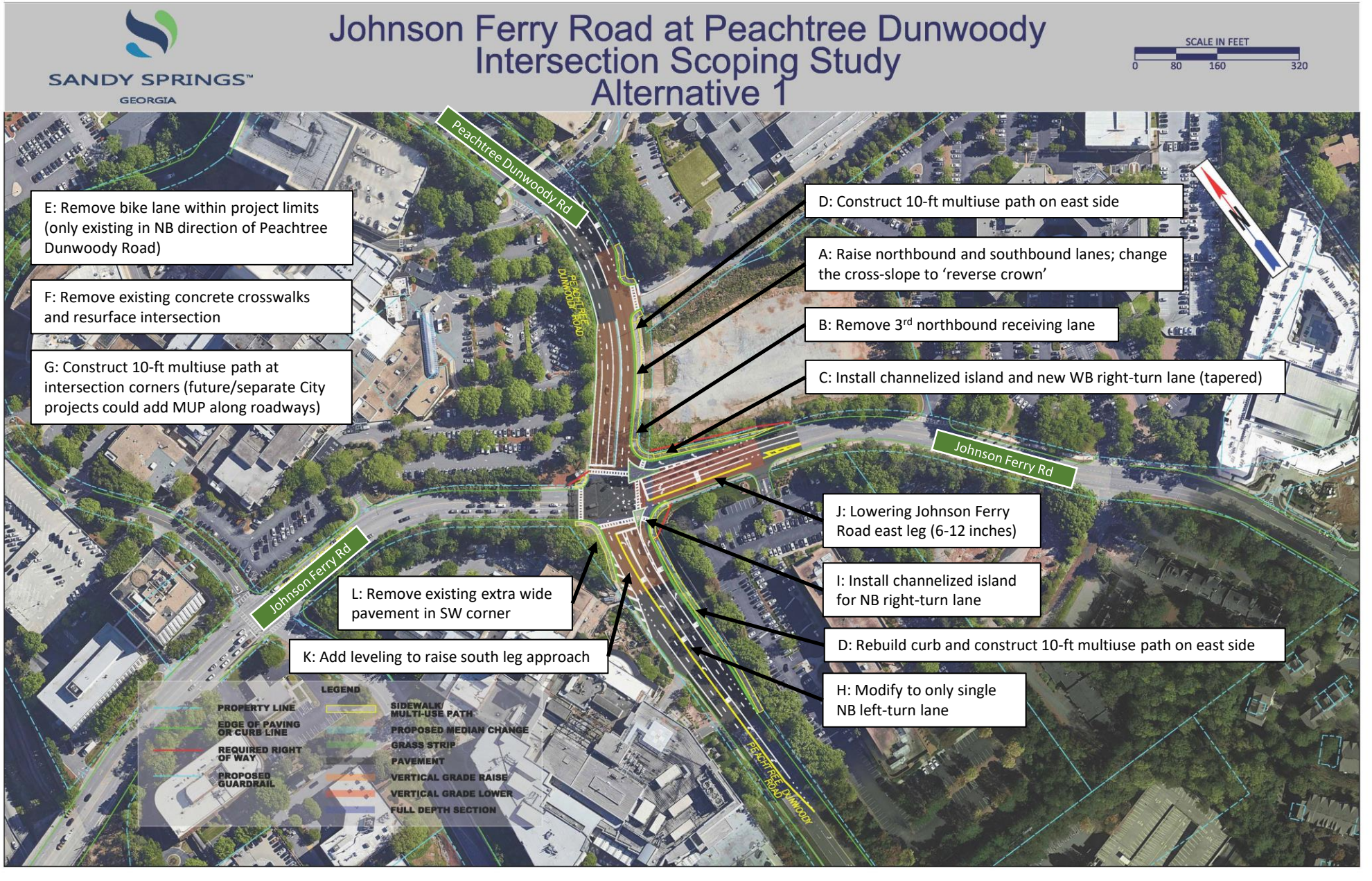
Please contact me if you have any questions at [redacted]

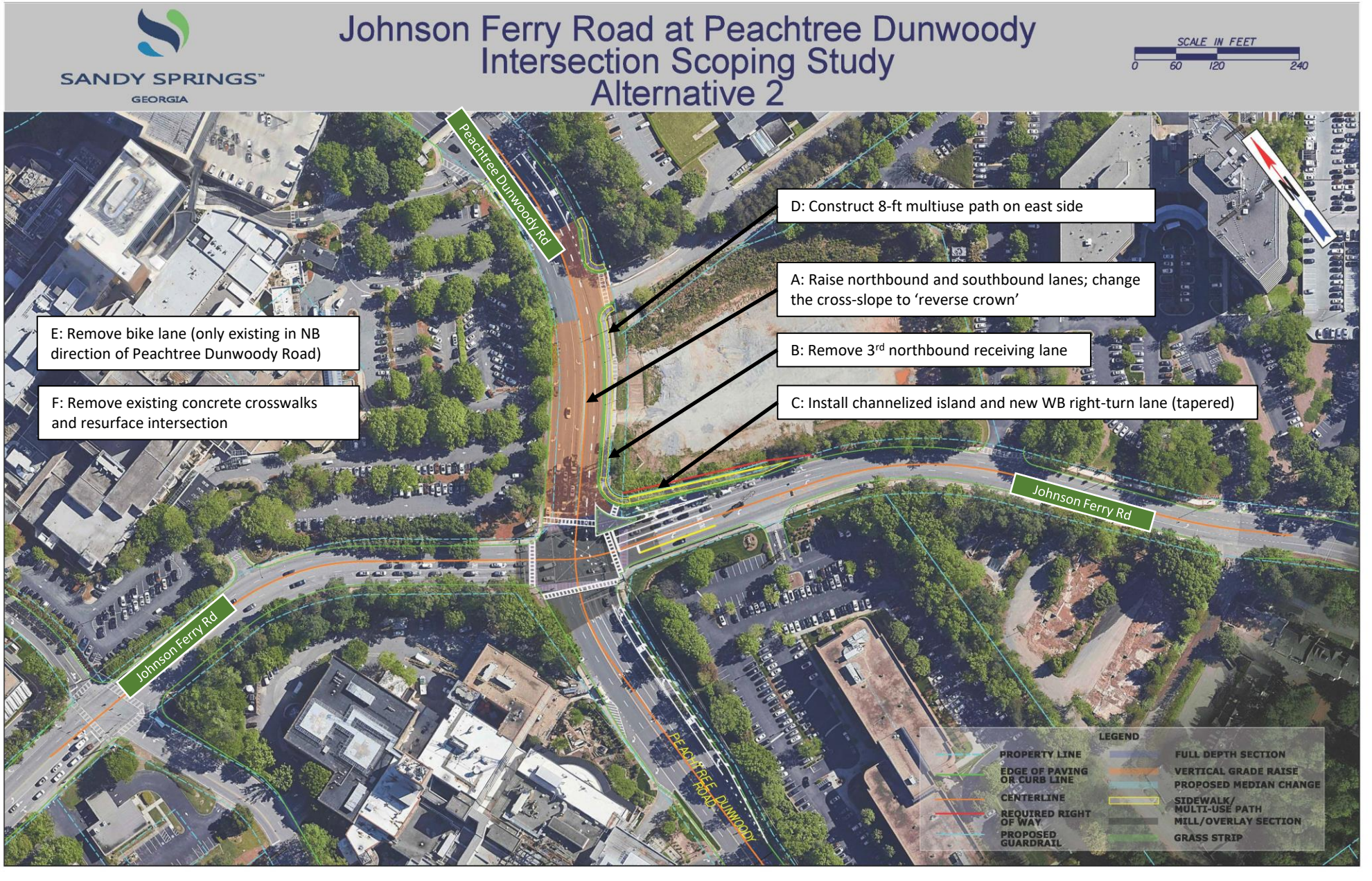
Attachments:

- Concept Layouts – Project Elements Annotated
- Concept Layout Alternative 1 – Rendering of final improvements
- Concept Layout Alternative 1 – (3/8/2024)
- Concept Layout Alternative 2 – (7/26/2023)
- Itemized Conceptual Opinion of Probable Construction Cost – (3/8/2024)
- Proposed profile based on limited Lidar Data

Project Elements Annotated



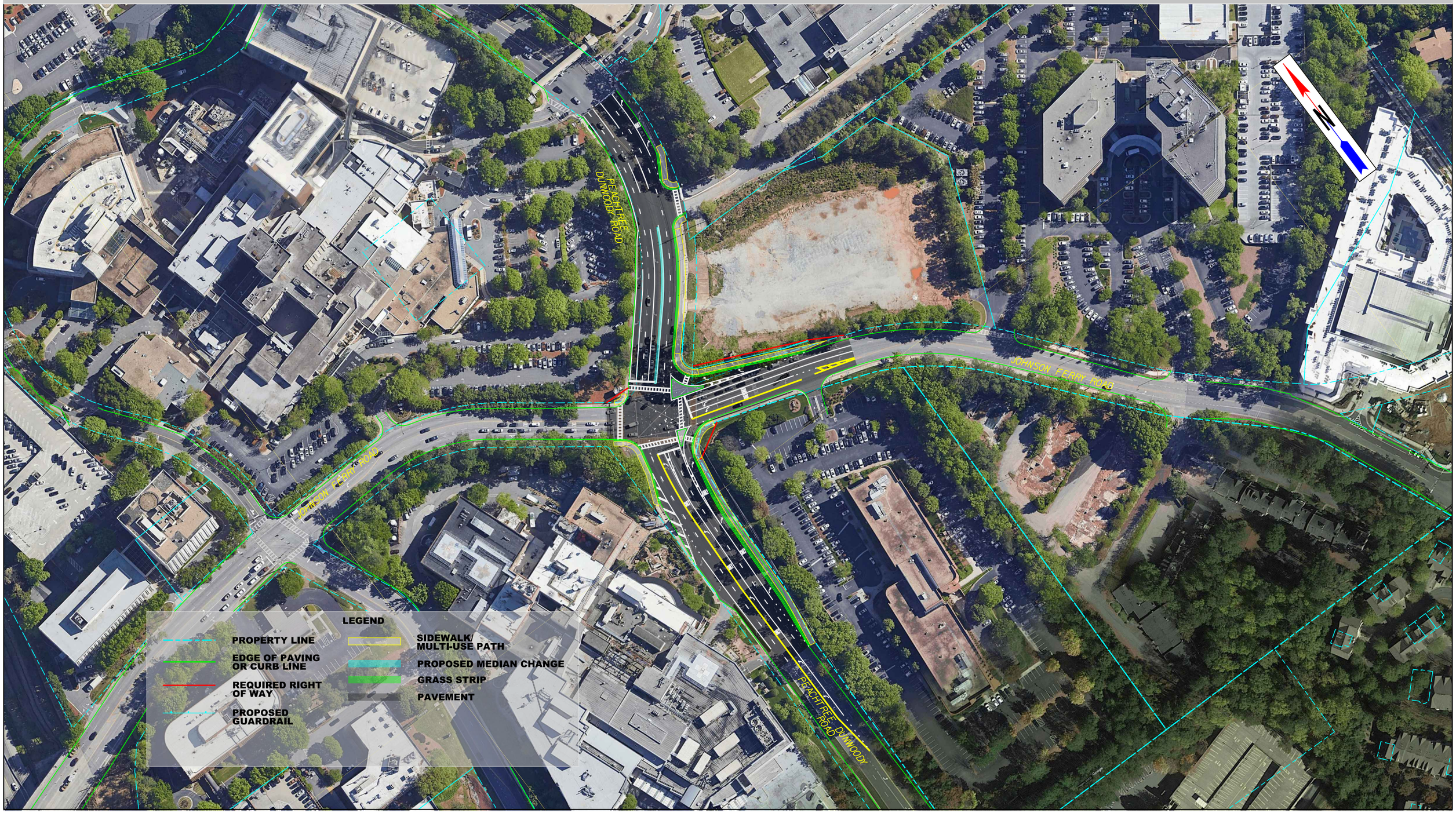
Project Elements Annotated



SANDY SPRINGS™
GEORGIA

Johnson Ferry Road at Peachtree Dunwoody
Intersection Scoping Study
Alternative 1

SCALE IN FEET
0 80 160 320



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GEORGIA

Johnson Ferry Road at Peachtree Dunwoody
Intersection Scoping Study
Alternative 1

SCALE IN FEET
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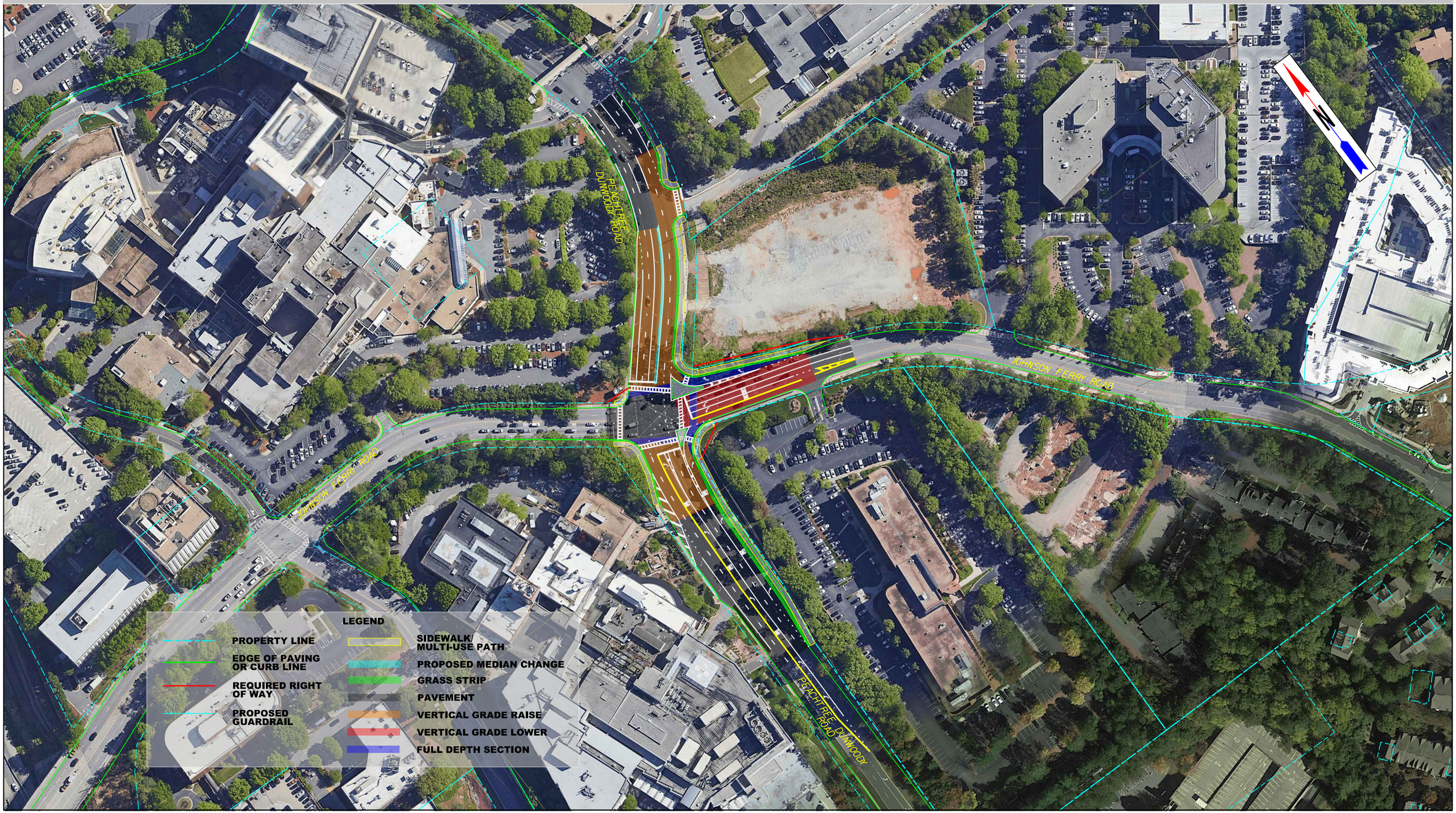

SANDY SPRINGS™
GEORGIA

Johnson Ferry Road at Peachtree Dunwoody
Intersection Scoping Study
Alternative 2

SCALE IN FEET
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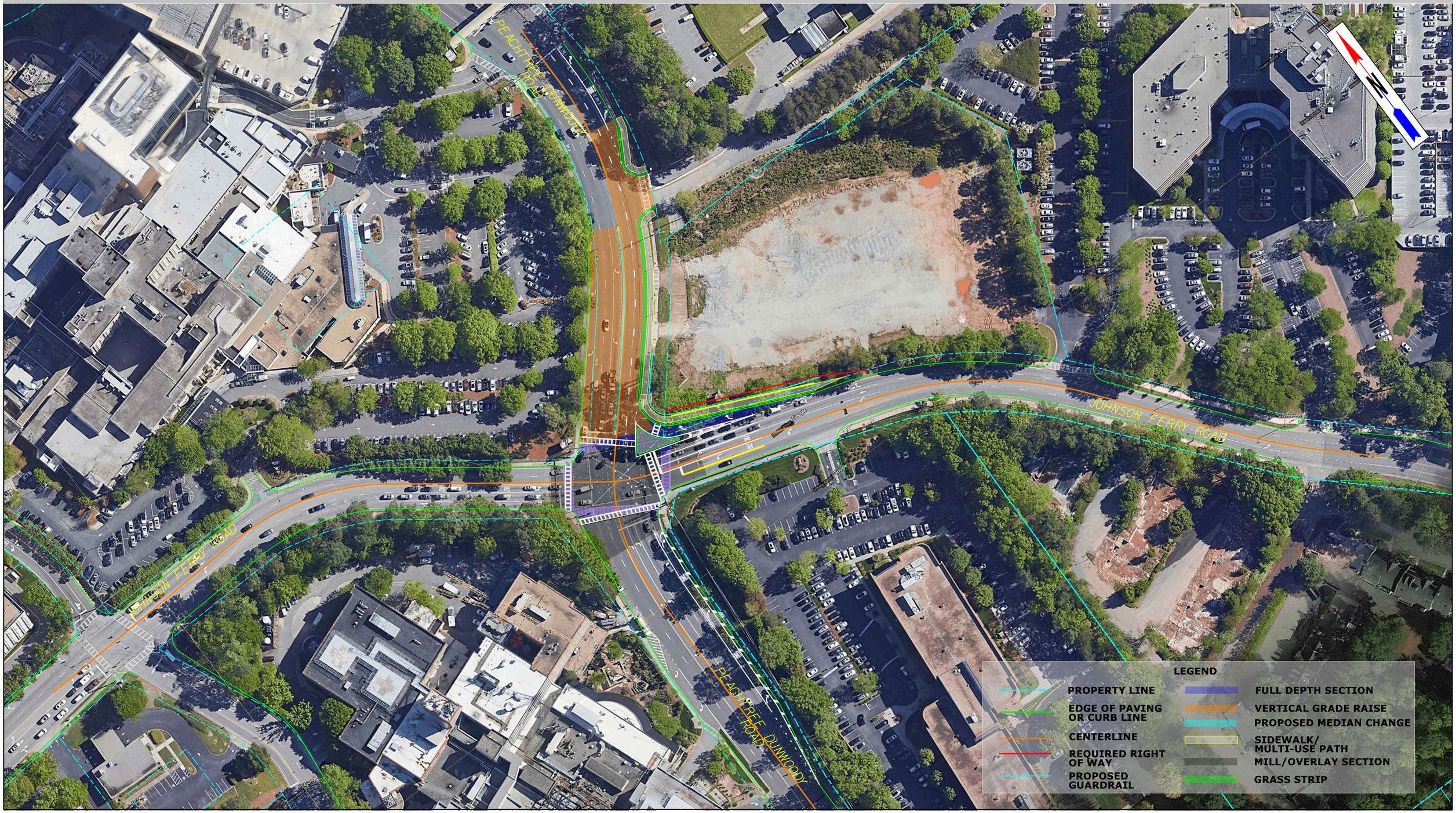


Planning Level Preliminary Estimate of Probable Construction Cost

City of Sandy Spring

Project: Johnson Ferry Rd @ Peachtree Dunwoody Rd - Intersection Scoping Study

Description: Alternative 1

Date prepared: 03/08/2024

Construction Costs

	Measurement		DESCRIPTION	Estimate			
	UNIT	Quantity		Quantity	UNIT	Unit Pric	
	LS	1	Traffic Control	1	LS	[redacted]	
	LS	1	Staging Traffic Control	1	LS		
	LS	1	Miscellaneous Erosion Control	1	LS		
	LF	700	Erosion Control (silt fence) Type C	700	LF		
Grading							
	LS	1	Grading (including removal, fill, prep)	1	LS		
	CY	0	Gravity Retaining Wall	0	CY		
	LF	0	Retaining Walls	0	LF		
	LF	197	Guardrail	197	LF		
	EA	2	Guardrail anchorage	2	EA		
Pavement							
	TN	900	GAB - GR AGGR Base CRS, Incl Matl	900	TN		
	TN	3550	Recycled Asph Conc Leveling, Incl Bitum Matl & H Lime	3550	TN		
	TN	590	Recycled Asph Conc 12.5MM Superpave, GP 2 Only, Incl Polymer-Modifie	590	TN		
	TN	100	Recycled Asph Conc 19MM Superpave, GP 1 or 2	100	TN		
	TN	350	Recycled Asph Conc 25MM Superpave, GP 1 or 2	350	TN		
	GAL	50	Tack Coat	50	GAL		
	SY	1300	Mill Asph Conc Pvmt, Variable Depth	1300	SY		
Concrete							
	CY	12	Class B Conc, Base or Pvmt Widening	12	CY		
	SY	0	Residential Concrete Driveway	0	SY		
	SY	0	Commercial Concrete Driveway	0	SY		
	LF	0	Concrete Curb & Gutter (8 x 30)	0	LF		
	LF	1291	Concrete Curb & Gutter (8 x 24)	1291	LF		
	LF	818	Concrete Header Curb	818	LF		
	SF	1205	Concrete Island/Median	134	SY		
	SF	2990	Concrete Sidewalk, 4 in	332	SY		
	SF	8790	10-foot Concrete Shared Use Path, 4 in	977	SY		
	EA	14	ADA Crosswalk Ramps	14	EA		
Drainage							
	LF	325	Pipe - 18in	325	LF		
	LF	0	Pipe - 24in	0	LF		
	EA	0	Manhole	0	EA		
	EA	4	Drop Inlet	4	EA		
	EA	0	Catch Basin	0	EA		
	EA	0	Flared End	0	EA		
	LS	0	Culvert crossing	0	LS		
Features							
	LS		Signing and Marking	0	LS		
	LF	1400	Signing and Marking	1400	LF		
	SF	2760	Crosswalk Striping (PCID Red Standard Type)	2760	SF		
	EA	0	Overhead Span Wire Sign	0	EA		
	LS	1	Traffic Signal (new, modification)	1	LS		
	EA	5	Lighting (mix roadway and pedestrian poles)	5	EA		
	LS	1	Landscaping - minor improvement	1	LS		
	LS	0	Landscaping - major improvement	0	LS		
	LS	1	Hardscape Improvememt at intersection corners	1	LS		

Construction Costs

Subtotal Construction Cost	[redacted]
Inflation Rate	[redacted]
[redacted]	
Contingency	[redacted]
TOTAL CONSTRUCTION COST	

Additional Costs

Engineering Design	[redacted]
Right Of Way Cost - Commercial ($72/SF)	
Right Of Way C	[redacted]
[redacted]	
Utilities	[redacted]
Su	
GRAND TOTAL	

Right-of-Way Areas:

SF	6400
SF	0
[redacted]	

KCI Technologies does not have control over the cost or availability of labor, materials, equipment, or over the Contractor's method of costing in the marketplace, the opinion of probable cost as herein stated is made on the basis of our experience and professional judgment as a design professional familiar with the construction industry. However, KCI does not make any gurantee as to cost, and makes no warranty, express or implied, that bids or the construction cost will not vary from these probable cost opinions. If the Owner desires assurance of the cost of construction, it is recommended he employ an independent cost estimator.

Summary

PE	[redacted]
ROW	
CST	
Cont	
Total	

Planning Level Preliminary Estimate of Probable Construction Cost

City of Sandy Spring

Project: Johnson Ferry Rd @ Peachtree Dunwoody Rd - Intersection Scoping Study

Description: Alternative 2

Date prepared: 07/26/2023

Construction Costs

	Measurement			Estimate			
	UNIT	Quantity	DESCRIPTION	Quantity	UNIT	Unit Price	Total Cost
	LS	1	Traffic Control	1	LS	[redacted]	
	LS	1	Staging Traffic Control	1	LS		
	LS	1	Miscellaneous Erosion Control	1	LS		
	LF	700	Erosion Control (silt fence) Type C	700	LF		
Grading							
	LS	1	Grading (including removal, fill, prep)	1	LS		
	CY	0	Gravity Retaining Wall	0	CY		
	LF	0	Retaining Walls	0	LF		
	LF	200	Guardrail	200	LF		
	EA	2	Guardrail anchorage	2	EA		
Pavement							
	TN	700	GAB - GR AGGR Base CRS, Incl Matl	700	TN		
	TN	2770	Recycled Asph Conc Leveling, Incl Bitum Matl & H Lime	2770	TN		
	TN	570	Recycled Asph Conc 12.5MM Superpave, GP 2 Only, Incl Polymer-Modifie	570	TN		
	TN	100	Recycled Asph Conc 19MM Superpave, GP 1 or 2	100	TN		
	TN	300	Recycled Asph Conc 25MM Superpave, GP 1 or 2	300	TN		
	GAL	40	Tack Coat	40	GAL		
	SY	2600	Mill Asph Conc Pvmt, Variable Depth	2600	SY		
Concrete							
	CY	3	Class B Conc, Base or Pvmt Widening	3	CY		
	SY	0	Residential Concrete Driveway	0	SY		
	SY	0	Commercial Concrete Driveway	0	SY		
	LF	0	Concrete Curb & Gutter (8 x 30)	0	LF		
	LF	640	Concrete Curb & Gutter (8 x 24)	640	LF		
	LF	739	Concrete Header Curb	739	LF		
	SF	1250	Concrete Island/Median	139	SY		
	SY	214	Concrete Sidewalk, 4 in	214	SY		
	SY	4547	8-foot Concrete Shared Use Path, 4 in	4547	SY		
	EA	12	ADA Crosswalk Ramps	12	EA		
Drainage							
	LF	325	Pipe - 18in	325	LF		
	LF	0	Pipe - 24in	0	LF		
	EA	0	Manhole	0	EA		
	EA	4	Drop Inlet	4	EA		
	EA	0	Catch Basin	0	EA		
	EA	0	Flared End	0	EA		
	LS	0	Culvert crossing	0	LS		
Features							
	LS	0	Signing and Marking	0	LS		
	LF	1400	Signing and Marking	1400	LF		
	SF	3030	Crosswalk Striping (PCID Red Standard Type)	3030	SF		
	EA	0	Overhead Span Wire Sign	0	EA		
	LS	1	Traffic Signal (new, modification)	1	LS		
	EA	5	Lighting (mix roadway and pedestrian poles)	5	EA		
	LS	1	Landscaping - minor improvement	1	LS		
	LS	0	Landscaping - major improvement	0	LS		
	LS	1	Hardscape Improvememt at intersection corners	1	LS		

Construction Costs

Subtotal Construction Cost	[redacted]
Inflation Rate [redacted]	
Sub Total	
Contingency [redacted]	
TOTAL CONSTRUCTION COST	

Additional Costs

Engineering Design [redacted]	
Right Of Way Cost - Commercial [redacted]	
Right Of Way Cost - Residential [redacted]	
Easement Cost [redacted]	
Utilities [redacted]	
Subtotal	
GRAND TOTAL	

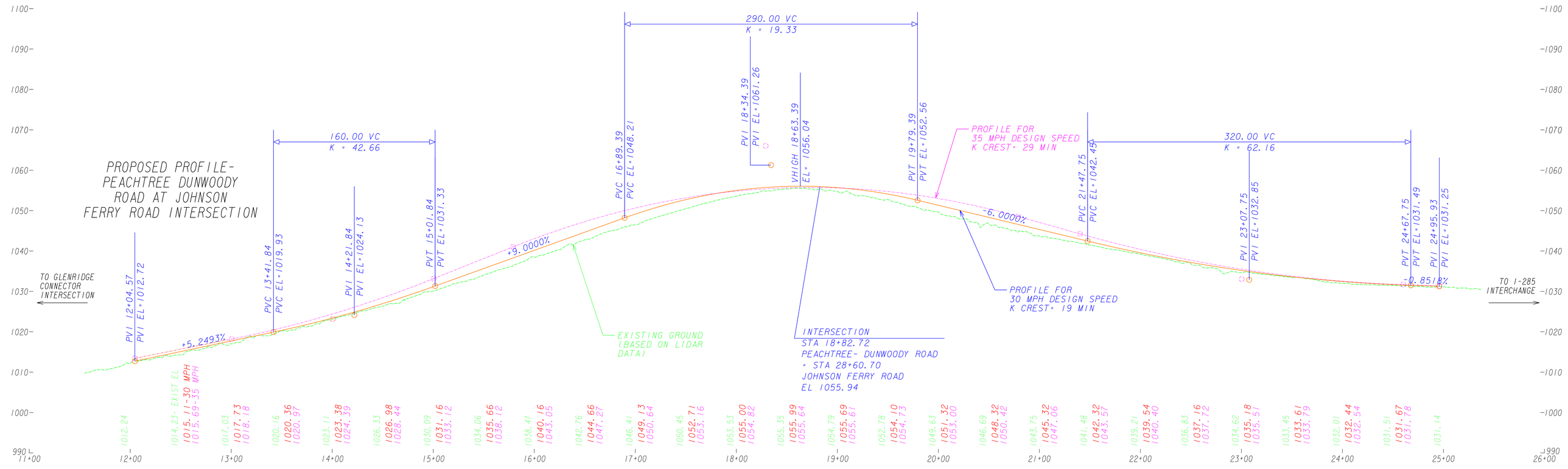
Right-of-Way Areas:

SF	4850
SF	0
SF	5500

KCI Technologies does not have control over the cost or availability of labor, materials, equipment, or over the Contractor's method of costing in the marketplace, the opinion of probable cost as herein stated is made on the basis of our experience and professional judgment as a design professional familiar with the construction industry. However, KCI does not make any gurantee as to cost, and makes no warranty, express or implied, that bids or the construction cost will not vary from these probable cost opinions. If the Owner desires assurance of the cost of construction, it is recommended he employ an independent cost estimator.

Summary

PE	[redacted]
ROW	
CST	
Cont	
Total	


PROPOSED PROFILE-
PEACHTREE DUNWOODY
ROAD AT JOHNSON
FERRY ROAD INTERSECTION
TO GLENRIDGE
CONNECTOR
INTERSECTION
TO I-285
INTERCHANGE
PVI 12+04.57
PVI EL=1012.72
PVC 13+41.84
PVC EL=1019.93
160.00 VC
K = 42.66
PVI 14+21.84
PVI EL=1024.13
PVT 15+01.84
PVT EL=1031.33
PVC 16+89.39
PVC EL=1048.21
290.00 VC
K = 19.33
PVI 18+34.39
PVI EL=1061.26
VHIGH 18+63.39
EL= 1056.04
PVT 19+79.39
PVT EL=1052.56
PVC 21+47.75
PVC EL=1042.45
320.00 VC
K = 62.16
PVI 23+07.75
PVI EL=1032.85
PVT 24+67.75
PVT EL=1031.49
PVI 24+95.93
PVI EL=1031.25
+5.2493%
+9.0000%
-6.0000%
-0.8518%
EXISTING GROUND
(BASED ON LIDAR
DATA)
PROFILE FOR
35 MPH DESIGN SPEED
K CREST= 29 MIN
PROFILE FOR
30 MPH DESIGN SPEED
K CREST= 19 MIN
INTERSECTION
STA 18+82.72
PEACHTREE- DUNWOODY ROAD
= STA 28+60.70
JOHNSON FERRY ROAD
EL 1055.94
1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
1000
990
11+00
12+00
13+00
14+00
15+00
16+00
17+00
18+00
19+00
20+00
21+00
22+00
23+00
24+00
25+00
26+00
1012.24
1014.23- EXIST EL
1015.11-30 MPH
1015.69-35 MPH
1017.03
1017.73
1018.18
1020.16
1020.36
1020.97
1023.11
1023.38
1024.39
1026.33
1026.98
1028.44
1030.09
1031.16
1033.12
1034.06
1035.66
1038.12
1038.47
1040.16
1043.05
1042.76
1044.66
1047.27
1046.41
1049.13
1050.64
1050.45
1052.71
1053.16
1053.53
1055.00
1054.82
1055.35
1055.99
1055.64
1054.79
1055.69
1055.61
1052.78
1054.10
1054.73
1049.63
1051.32
1053.00
1046.69
1048.32
1050.42
1043.75
1045.32
1047.06
1041.48
1042.32
1043.57
1039.21
1039.54
1040.40
1036.83
1037.16
1037.72
1034.62
1035.18
1035.51
1033.45
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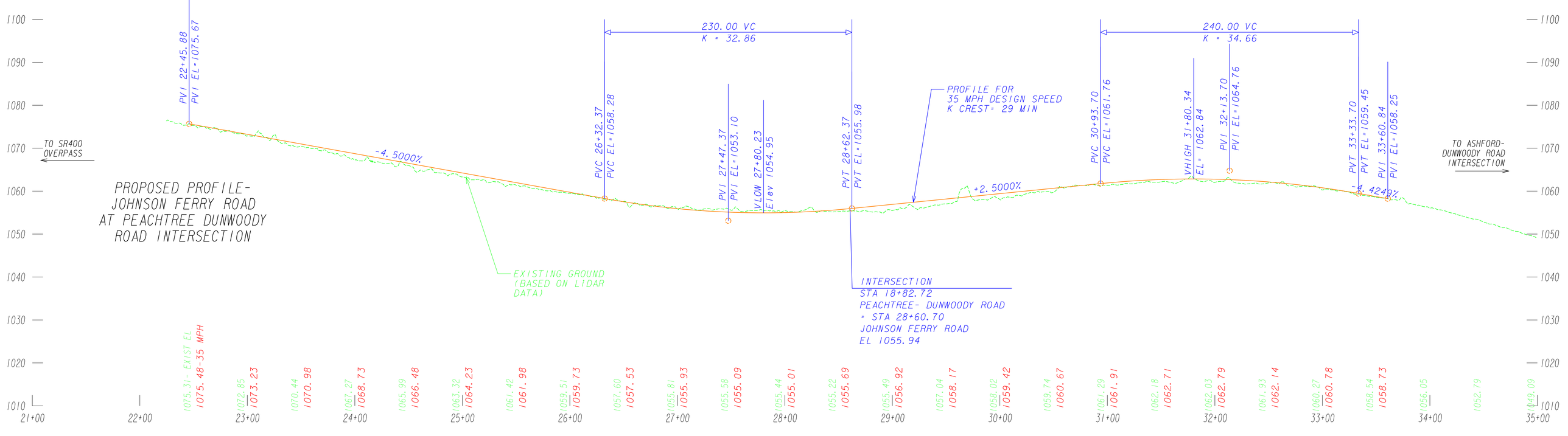
1031.67
1031.78
1031.14


PROPOSED PROFILE-
JOHNSON FERRY ROAD
AT PEACHTREE DUNWOODY
ROAD INTERSECTION
TO SR400
OVERPASS
TO ASHFORD-
DUNWOODY ROAD
INTERSECTION
PVI 22+45.88
PVI EL=1075.67
-4.5000%
230.00 VC
K = 32.86
PVC 26+32.37
PVC EL=1058.28
PVI 27+47.37
PVI EL=1053.10
VLOW 27+80.23
Elev 1054.95
PVT 28+62.37
PVT EL=1055.98
PROFILE FOR
35 MPH DESIGN SPEED
K CREST= 29 MIN
+2.5000%
240.00 VC
K = 34.66
PVC 30+93.70
PVC EL=1061.76
VHIGH 31+80.34
EL= 1062.84
PVI 32+13.70
PVI EL=1064.76
PVT 33+33.70
PVT EL=1059.45
-4.4249%
PVI 33+60.84
PVI EL=1058.25
EXISTING GROUND
(BASED ON LIDAR
DATA)
INTERSECTION
STA 18+82.72
PEACHTREE- DUNWOODY ROAD
= STA 28+60.70
JOHNSON FERRY ROAD
EL 1055.94
1100
1090
1080
1070
1060
1050
1040
1030
1020
1010
21+00
22+00
23+00
24+00
25+00
26+00
27+00
28+00
29+00
30+00
31+00
32+00
33+00
34+00
35+00
1075.31- EXIST EL
1075.48-35 MPH
1072.85
1073.23
1070.44
1070.98
1067.27
1068.73
1065.99
1066.48
1063.32
1064.23
1061.42
1061.98
1059.51
1059.73
1057.60
1057.53
1055.81
1055.93
1055.58
1055.09
1055.44
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1062.79
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1062.14
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1060.78
1058.54
1058.73
1056.05
1052.79
1049.09