Appendix A: Signal Equipment Inventory Memoranda

MEMORANDUM

TO: Mike "Kaz" Kaczorowski
Regional Planning Commission of Greater Birmingham (RPCGB)

FROM: Jeff Stephenson, P.E., PTOE
Daniel Conner, E.I.

CC: City of Alabaster
City of Pelham
Alabama Department of Transportation (ALDOT)

DATE: June 23, 2020

SUBJECT: US-31 Traffic Signal Inventory – Short-Term Recommendation
Pelham & Alabaster
SA #19-0389

Purpose

Sain Associates, Inc. performed a high level traffic signal equipment inventory and operational status review along the US-31 corridor from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster in conjunction with an operations study of the US-31 corridor being performed for RPCGB. The purpose of this memorandum is to convey equipment issues that should be considered short-term priorities for the purposes of addressing operations and maintenance deficiencies.

Background Information

Sain Associates reviewed a 7.7-mile section of US-31 through the city limits of Pelham and Alabaster that includes 19 signalized intersections:

- Intersections in Pelham
  1. US-31 at Meadowview Lane
  2. US-31 at Chandalar Drive
  3. US-31 at Crosscreek Trail
  4. US-31 at Ballpark Road
  5. US-31 at CR-105
  6. US-31 at Pelham Plaza
  7. US-31 at CR-52/Word Drive
  8. US-31 at CR-52 (T-intersection)
  9. US-31 at Stonehaven Trail
  10. US-31 at Renasant Bank
- Intersections in Alabaster
  11. US-31 at CR-68
  12. US-31 at CR-66
  13. US-31 at 7th Avenue NE
  14. US-31 at 2nd Place NW
  15. US-31 at SR-119/CR-11
  16. US-31 at I-65 SB ramps
  17. US-31 at I-65 NB ramps
  18. US-31 at Colonial Promenade Parkway
  19. US-31 at South Colonial Parkway

Figure 1 illustrates the traffic signal locations included in our review.

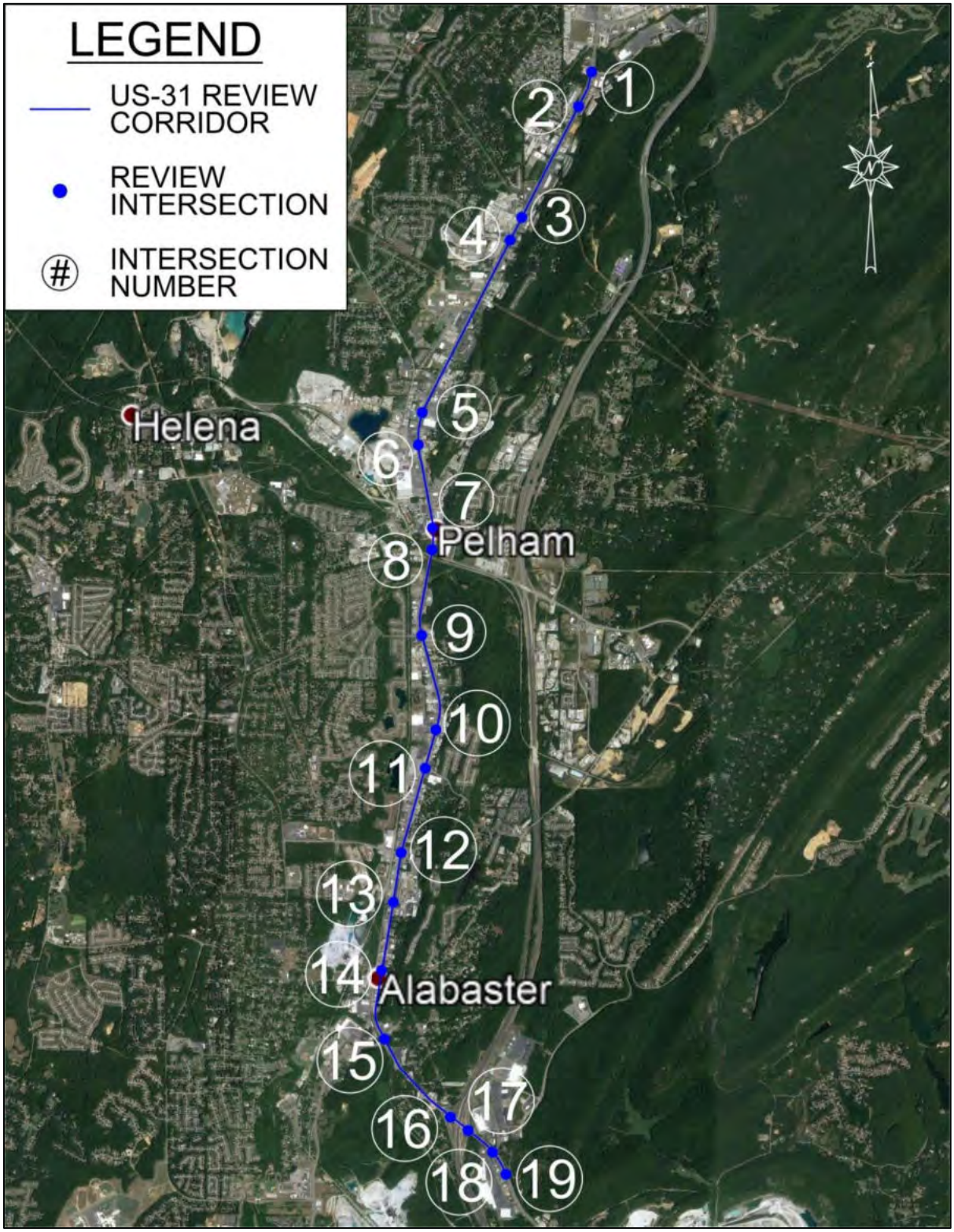

Figure 1: Review Corridor and Intersection Locations

Inventory Summary

Sain Associates collaborated with Stone Electric Company to conduct a high level inventory and operational status review of existing traffic signal equipment the week of May 4, 2020. The following data was collected at each signalized intersection:

- Terminal facility
- Phases in use
- Load bay positions
- Overlaps
- Emergency preemption phasing
- Conflict monitor
- Detection method
- Signal head types (# sections)
- Railroad preemption phasing
- Controller make and model
- SEPAC Version
- Cabinet mount type
- Field notes

The raw data from our inventory is included as an attachment to this memorandum, and is available in electronic spreadsheet format as well.

It should be noted that we did not conduct an inventory at the intersections of US-31 and the northbound and southbound I-65 ramps due to an active traffic signal switchover taking place in conjunction with a separate ALDOT improvement project. We will inventory these sites at a later date after the contractor is released from the project.

Recommendations

Based on the results of our inventory and operational status review of existing traffic signal equipment, Sain Associates offers short-term recommendations throughout the corridor as noted in Table 1 on the following page.

Table 1: Short-Term Recommendations by Intersection & Type

Intersection w/ US-31	Operations	Maintenance
Meadowview Lane (P)	**Consider SB left turn phase with opening of Campus 124**	**Re-lash loose signal cable**
Chandalar Drive (P)	No recommendations	No recommendations
Crosscreek Trail (P)	**Evaluate SB left turn operations (no existing turn lane/restriction)**	No recommendations
Ballpark Road (P)	**Adjust camera zones**	No recommendations
CR-105 (P)	No recommendations	No recommendations
Pelham Plaza (P)	No recommendations	No recommendations
CR-52/Word Drive (P)	No recommendations	No recommendations
CR-52 (T-intersection) (P)	No recommendations	**Re-lash loose drip loops; Cover PVC exposed near controller**
Stonehaven Trail (P)	**Install advance vehicle detection for US-31 approaches; Consider SB left turn phase**	**Re-lash loose drip loops**
Renasant Bank (P)	No recommendations	**Could not navigate menus or access controller screen; Repair loose R10-12 sign**
CR-68 (A)	No recommendations	No recommendations
CR-66 (A)	**Repair detection for EB approach of CR-66; phase is called with no vehicles present**	**Observe train preempt operations for issues**
7th Avenue NE (A)	No recommendations	**Re-lash loose signal cable**
2nd Place NW (A)	**Repair detection phase 8 – loop appears to protrude from road**	No recommendations
SR-119/CR-11 (A)	**Repair detection phases 2, 4, and 7; Consider converting SB left turn from protected/ permissive to protected only**	**Re-lash loose signal cable; Observe train preempt operations for issues**
I-65 SB ramps (A)	*- Not inventoried -*	*- Not inventoried -*
I-65 NB ramps (A)	*- Not inventoried -*	*- Not inventoried -*
Colonial Promenade Parkway (A)	No recommendations	**Clear shrubs around controller; Re-lash loose drip loops**
South Colonial Parkway (A)	No recommendations	**Re-lash loose drip loops**

Additional Considerations

In addition to short-term recommendations, we offer the following for additional consideration:

Upcoming Project Opportunities

- The Birmingham Area Transportation Improvement Plan (TIP) references a fiscal year 2020 resurfacing project for US-31 in Alabaster from I-65 to CR-66. Consider replacing in-ground pavement loops with non-intrusive vehicle detection as part of the resurfacing project instead of reinstalling pavement loops, preferably at an early stage of the project. In addition to long term maintenance benefits, non-intrusive vehicle detection would allow actuated traffic signal operation to be widely maintained through the resurfacing and striping effort as well as future projects.

General Maintenance Opportunities

- Upgrade traffic signal luminaire assemblies containing high pressure sodium fixtures to LED fixtures. Repair luminaire conductors as needed in conjunction with the upgrades. Implement current ALDOT requirements for photocell and shorting cap applications with the upgrades.
- Raise and/or tighten signal messenger cable as needed to provide minimum 17 foot clearance from top of pavement to bottom of backplate.
- Add backplates in conjunction with future signal head replacements. Add backplates to existing signal heads when compatible. Repair damaged/broken backplates. Apply 2" reflective borders per ALDOT standard on all signal head backplates.
- Address fiber optic traffic signal interconnect connectivity and timing coordination issues along the entire study corridor. Poor connectivity and timing coordination between traffic signals can significantly affect progression of traffic along the corridor, which usually results in increased delay and congestion.

Pelham, AL
Information Gathering
Survey for Sain Associates

Main Street	Cross Street	City	Terminal Facility	Phases Used	Load Bay Position	Overlaps	EmergencyPreempt Phasing	Conflict Monitor	Detection Method	3-Section	4-Section	5-Section	Blankout	Train Preempt	Controller Unit	SEPAC Version	Mount	Notes
US-31	Meadowview Lane	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	9	-	-			EPAC3708M34	3.32e	Pad	Loose signal wire
US-31	Chandlar Drive	Pelham	TF4014	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	8	-	2			EPAC3208M34	3.34g	Pole	
US-31	Crosscreek Trail	Pelham	TF4008	Phase 1, 2, 4, 6, 8	12	1		SSM12LE	Loops	7	-	1			EPAC3208M34	3.34f	Pad	
US-31	Ballpark Road	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Cameras	8	(2) FYA	-			EPAC3708M52	3.34g	Pad	Camera zones need to be adjusted or mount needs to be tightened
US-31	Industrial Park Drive	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	6	-	2			EPAC3708M34	3.34g	Pad	
US-31	Pelham Plaza	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	10	-	-			EPAC3708M34	3.32o	Pad	
US-31	CR-52/Word Drive	Pelham	TF4008	Phase 1, 2, 3, 4, 5, 6	12	3 & 7		SSM12LE	Loops	8	-	2			EPAC3708M34	3.32o	Pad	
US-31	CR-52 (T-intersection)	Pelham	TF4008	Phase 2, 4, 5, 6	12			SSM12LE	Loops	8	-	-			EPAC3708M34	3.32o	Pad	Address drip loops/shielded pvc pipe exposed by controller
US-31	Stonehaven Trail	Pelham	TF4008	Phase 1, 2, 3, 4, 6, 8	12	1 & 5		SSM12LE	Loops	7	-	3			EPAC3708M34	3.32o	Pad	Approach loops in place of presence/Address drip loops
US-31	Renasant Bank	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	6	-	2			EPAC3708M34	**3.32**	Pad	Controller screen was locked , loose R10-12 sign
US-31	CR-68	Alabaster	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	10	-	-			EPAC3708M34	3.32n	Pad	
US-31	CR-66/Industrial Road	Alabaster	TF4008	Phase 1, 2, 3, 4, 5, 6, 7, 8	12			SSM12LE	Loops	13	-	-	1	Yes	EPAC3708M34	3.32n	Pad	Loose loop wires in controller
US-31	7th Avene NE	Alabaster	TF4008	Phase 2, 4, 5, 6, 8	12	5		SSM12LE	Loops	7	-	1			EPAC3708M34	3.32n	Pad	Loose signal wire
US-31	2nd Place NW	Alabaster	TF4008	Phase 1, 2, 4, 6, 8	12	1		SSM12LE	Loops	7	-	1			EPAC3708M34	3.32n	Pad	
US-31	SR-119/CR-11	Alabaster	TF4008	Phase 1, 2, 3, 4, 5, 6, 7, 8	12	1 & 4		SSM12LEC	Loops	12	1	1	1	Yes	EPAC300/MARC300	3.34h/3.00A	Pad	Faults on loop detector 2, 4A, & 7 - Address signal wire
US-31	I-65 SB ramps	Alabaster							Radar		(1) FYA							
US-31	I-65 NB ramps	Alabaster							Radar									
US-31	Colonial Promenade Parkway	Alabaster	TF4008	Phase 1, 2, 4, 5, 6, 9	12		2 & 6	SSM12LE	Loops	11	1	-			EPAC3708M34S	3.32o	Pad	Phase 9 being used for right turn - clear shrubs around controller - Address signal drip loops
US-31	South Colonial Parkway	Alabaster	TF4008	Phase 1, 2, 4, 6	12		2 & 6	SSM12LE	Loops	8	-	-			EPAC3708M34	3.33b	Pad	Remove old saddle/address drip loops

Yellow = M10 / M34 Controller
Blue = M52 Controller
Orange = M60 Controller
Red = Sepac Software on M52 below 3.57e
Gray = not inventoried due to active project

MEMORANDUM

TO: Mike "Kaz" Kaczorowski
Regional Planning Commission of Greater Birmingham (RPCGB)

FROM: Jeff Stephenson, P.E., PTOE
Daniel Conner, E.I.

CC: City of Alabaster
Alabama Department of Transportation (ALDOT)

DATE: February 10, 2021

SUBJECT: Supplemental US-31 Traffic Signal Inventory – Short-Term Recommendation
Pelham & Alabaster
SA #19-0389

Purpose

Sain Associates, Inc. previously performed a high-level traffic signal equipment inventory and operational status review along the US-31 corridor from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster in conjunction with an operations study of the US-31 corridor being performed for RPCGB. At that time, the intersections of US-31 and the I-65 ramps were not inventoried because of ongoing signal improvements. The purpose of this memorandum is to supplement the US-31 Traffic Signal Inventory – Short-Term Recommendation memorandum dated June 23, 2020 with equipment information specific to the US-31/I-65 intersections.

The raw data from our inventory is included as an attachment to this memorandum, and is available in electronic spreadsheet format as well.

Recommendations

Based on the results of our inventory and operational status review of existing traffic signal equipment, Sain Associates, Inc. offers no short-term maintenance recommendations for the two US-31/I-65 intersections.

Pelham, AL
Information Gathering
Survey for Sain Associates

Main Street	Cross Street	City	Terminal Facility	Phases Used	Load Bay Position	Overlaps	EmergencyPreempt Phasing	Conflict Monitor	Detection Method	3-Section	4-Section	5-Section	Blankout	Train Preempt	Controller Unit	SEPAC Version	Mount	Notes
US-31	Meadowview Lane	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	9	-	-			EPAC3708M34	3.32e	Pad	Loose signal wire
US-31	Chandlar Drive	Pelham	TF4014	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	8	-	2			EPAC3208M34	3.34g	Pole	
US-31	Crosscreek Trail	Pelham	TF4008	Phase 1, 2, 4, 6, 8	12	1		SSM12LE	Loops	7	-	1			EPAC3208M34	3.34f	Pad	
US-31	Ballpark Road	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Cameras	8	(2) FYA	-			EPAC3708M52	3.34g	Pad	Camera zones need to be adjusted or mount needs to be tightened
US-31	Industrial Park Drive	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	6	-	2			EPAC3708M34	3.34g	Pad	
US-31	Pelham Plaza	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	10	-	-			EPAC3708M34	3.32o	Pad	
US-31	CR-52/Word Drive	Pelham	TF4008	Phase 1, 2, 3, 4, 5, 6	12	3 & 7		SSM12LE	Loops	8	-	2			EPAC3708M34	3.32o	Pad	
US-31	CR-52 (T-intersection)	Pelham	TF4008	Phase 2, 4, 5, 6	12			SSM12LE	Loops	8	-	-			EPAC3708M34	3.32o	Pad	Address drip loops/shielded pvc pipe exposed by controller
US-31	Stonehaven Trail	Pelham	TF4008	Phase 1, 2, 3, 4, 6, 8	12	1 & 5		SSM12LE	Loops	7	-	3			EPAC3708M34	3.32o	Pad	Approach loops in place of presence/Address drip loops
US-31	Renasant Bank	Pelham	TF4008	Phase 1, 2, 4, 5, 6, 8	12	1 & 5		SSM12LE	Loops	6	-	2			EPAC3708M34	**3.32**	Pad	Controller screen was locked , loose R10-12 sign
US-31	CR-68	Alabaster	TF4008	Phase 1, 2, 4, 5, 6, 8	12			SSM12LE	Loops	10	-	-			EPAC3708M34	3.32n	Pad	
US-31	CR-66/Industrial Road	Alabaster	TF4008	Phase 1, 2, 3, 4, 5, 6, 7, 8	12			SSM12LE	Loops	13	-	-	1	Yes	EPAC3708M34	3.32n	Pad	Loose loop wires in controller
US-31	7th Avene NE	Alabaster	TF4008	Phase 2, 4, 5, 6, 8	12	5		SSM12LE	Loops	7	-	1			EPAC3708M34	3.32n	Pad	Loose signal wire
US-31	2nd Place NW	Alabaster	TF4008	Phase 1, 2, 4, 6, 8	12	1		SSM12LE	Loops	7	-	1			EPAC3708M34	3.32n	Pad	
US-31	SR-119/CR-11	Alabaster	TF4008	Phase 1, 2, 3, 4, 5, 6, 7, 8	12	1 & 4		SSM12LEC	Loops	12	1	1	1	Yes	EPAC300/MARC300	3.34h/3.00A	Pad	Faults on loop detector 2, 4A, & 7 - Address signal wire
US-31	I-65 SB ramps	Alabaster	TF4116	Phase 1, 2, 4, 6	16			MMU2-16LEip	Radar	8	-	-			Siemens m60	5.X	Pad	
US-31	I-65 NB ramps	Alabaster	TF4116	Phase 2, 4, 5, 6	16	15 - FYA		MMU2-16LEip	Radar	6	(1) FYA	-			Siemens m60	5.X	Pad	
US-31	Colonial Promenade Parkway	Alabaster	TF4008	Phase 1, 2, 4, 5, 6, 9	12		2 & 6	SSM12LE	Loops	11	1	-			EPAC3708M34S	3.32o	Pad	Phase 9 being used for right turn - clear shrubs around controller - Address signal drip loops
US-31	South Colonial Parkway	Alabaster	TF4008	Phase 1, 2, 4, 6	12		2 & 6	SSM12LE	Loops	8	-	-			EPAC3708M34	3.33b	Pad	Remove old saddle/address drip loops

Yellow = M10 / M34 Controller
Blue = M52 Controller
Orange = M60 Controller
Red = Sepac Software on M52 "below 3.57e
Gray = inventoried at later date (2-1-2021) due to active project

Appendix B: Maps of Identified Access Management Deficiencies

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #1	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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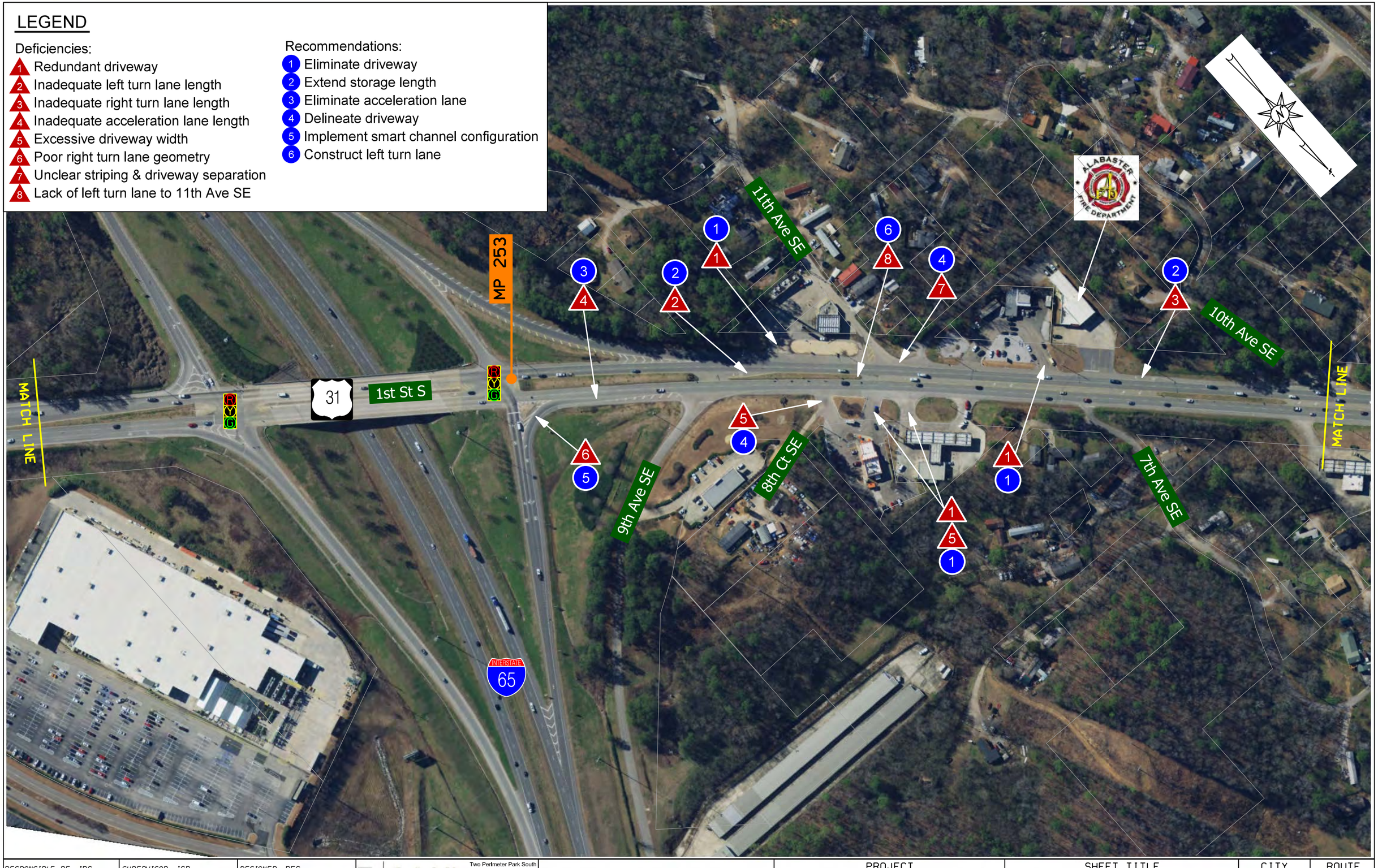
LEGEND

Deficiencies:

1. Redundant driveway
2. Inadequate left turn lane length
3. Inadequate right turn lane length
4. Inadequate acceleration lane length
5. Excessive driveway width
6. Poor right turn lane geometry
7. Unclear striping & driveway separation
8. Lack of left turn lane to 11th Ave SE

Recommendations:

1. Eliminate driveway
2. Extend storage length
3. Eliminate acceleration lane
4. Delineate driveway
5. Implement smart channel configuration
6. Construct left turn lane



RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #2	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Excessive access points
4. Lack of left turn lane to Old US-31
5. Incorrect stop line striping

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Construct left turn lane
4. Replace w/ correct striping
5. Consolidate driveways

Old US-31
MP 253.5
Montevallo Rd
119
1st St SW
31
1st St S
6th Ave SE
7th Ave SE
SHELBY 11 COUNTY
Simmsville Rd
MATCH LINE
MATCH LINE

US-31 @ SR-119/CR-11
Short-term recommendations

Operations:

- Repair detection phases 2, 4, & 7
- Consider converting SB left turn from protected/permissive to protected only

Maintenance:

- Re-lash loose signal cable
- Observe train preempt operations for issues

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY / ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #3	ALABASTER / US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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LEGEND

Deficiencies:

1. Redundant driveway
2. Inadequate left turn lane length & width
3. Excessive driveway width
4. Excessive access points

Recommendations:

1. Eliminate driveway
2. Delineate driveway
3. Eliminate left turn lane

2nd Pl SW
2nd Ave SW
1st Ave W
2nd Pl NW
1st St SW
1st St NW
MP 254
31
1st St N
MATCH LINE
MATCH LINE
5th Ave NE
2nd St NE

Eliminate NB left turns onto 2nd Pl NW and direct traffic onto service road to the south

US-31 @ 2nd Place NW
Short-term recommendations

Operations:

- Repair detection phase 8 - loop appears to protrude from road

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007	NOT TO SCALE	PROJECT: US-31 OPERATIONS ANALYSIS	SHEET TITLE: ACCESS MANAGEMENT DEFICIENCIES - MAP #4	CITY: ALABASTER	ROUTE: US-31
		DATE: 08/11/2020							

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate left turn lane length
4. Inadequate right turn lane length
5. Undefined entry & exit points
6. Poorly-defined intersection approach

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Combine with adjacent turn lane
5. Extend storage length
6. Consolidate driveways

MP 254.5

MATCH LINE

31

8th Ave NW

7th Ave NE

2nd St NE

1st St N

Industrial Rd

SHELBY 66 COUNTY

Holland Dr

MP 255

MATCH LINE

12th Ave NE

US-31 @ 7th Avenue NE
Short-term recommendations

Maintenance:

- Re-lash loose signal cable

US-31 @ CR-66/Industrial Road
Short-term recommendations

Operations:

- Repair detection for EB approach of CR-66 - phase is called w/ no vehicles present

Maintenance:

- Observe train preempt operations for issues

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #5	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate left turn lane length
4. Inadequate right turn lane length
5. Excessive driveway width
6. Undefined access point
7. Excessive access points

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Extend storage length
5. Eliminate turn lane
6. Consolidate driveways

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #6	PELHAM / ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Excessive driveway width
4. Undefined access point
5. Undefined entry & exit points
6. Lack of channelization
7. Lack of left turn lane for Keystone Ct. & Oliver St.

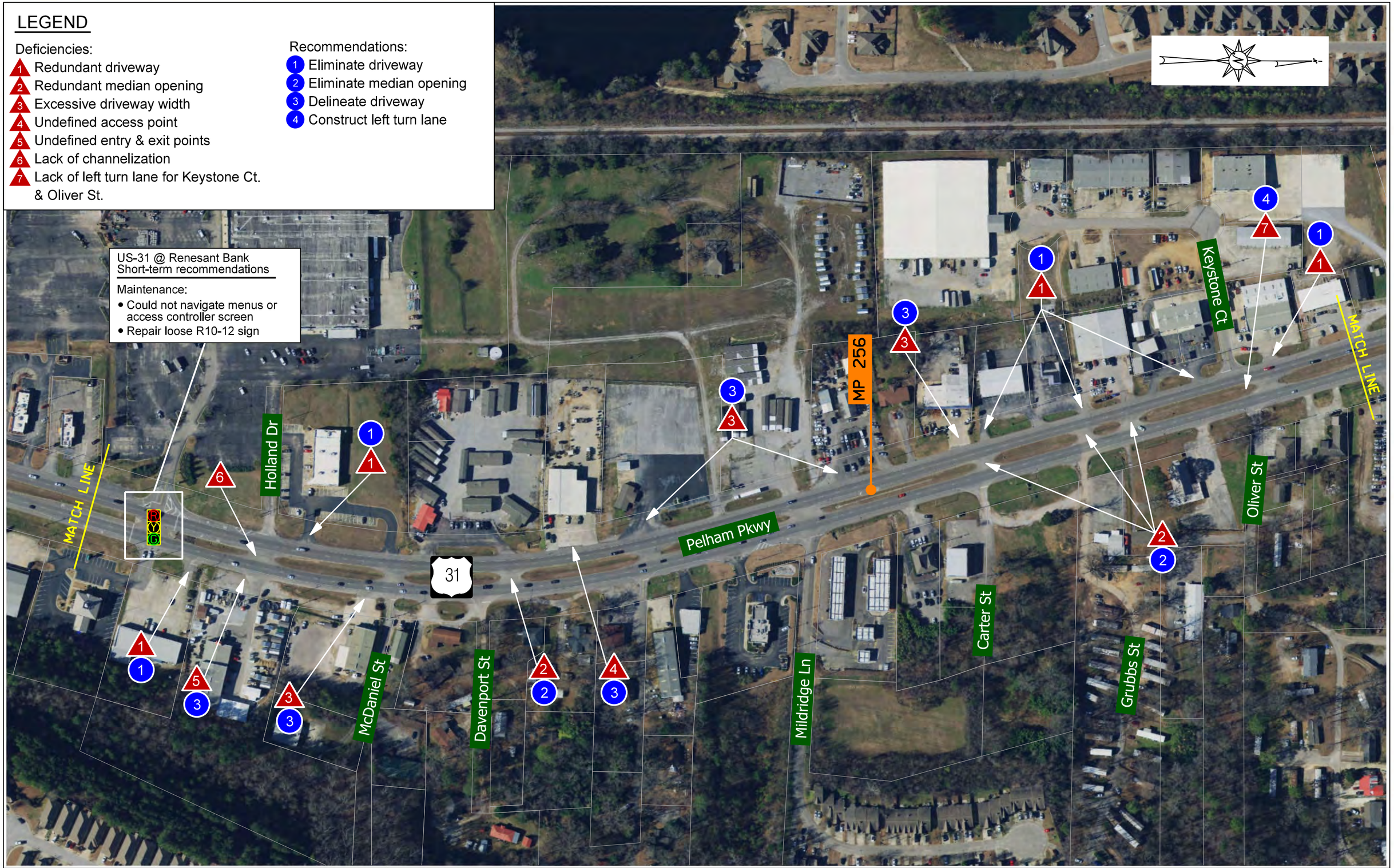
Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Construct left turn lane

US-31 @ Renesant Bank
Short-term recommendations

Maintenance:

- Could not navigate menus or access controller screen
- Repair loose R10-12 sign



RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #7	PELHAM	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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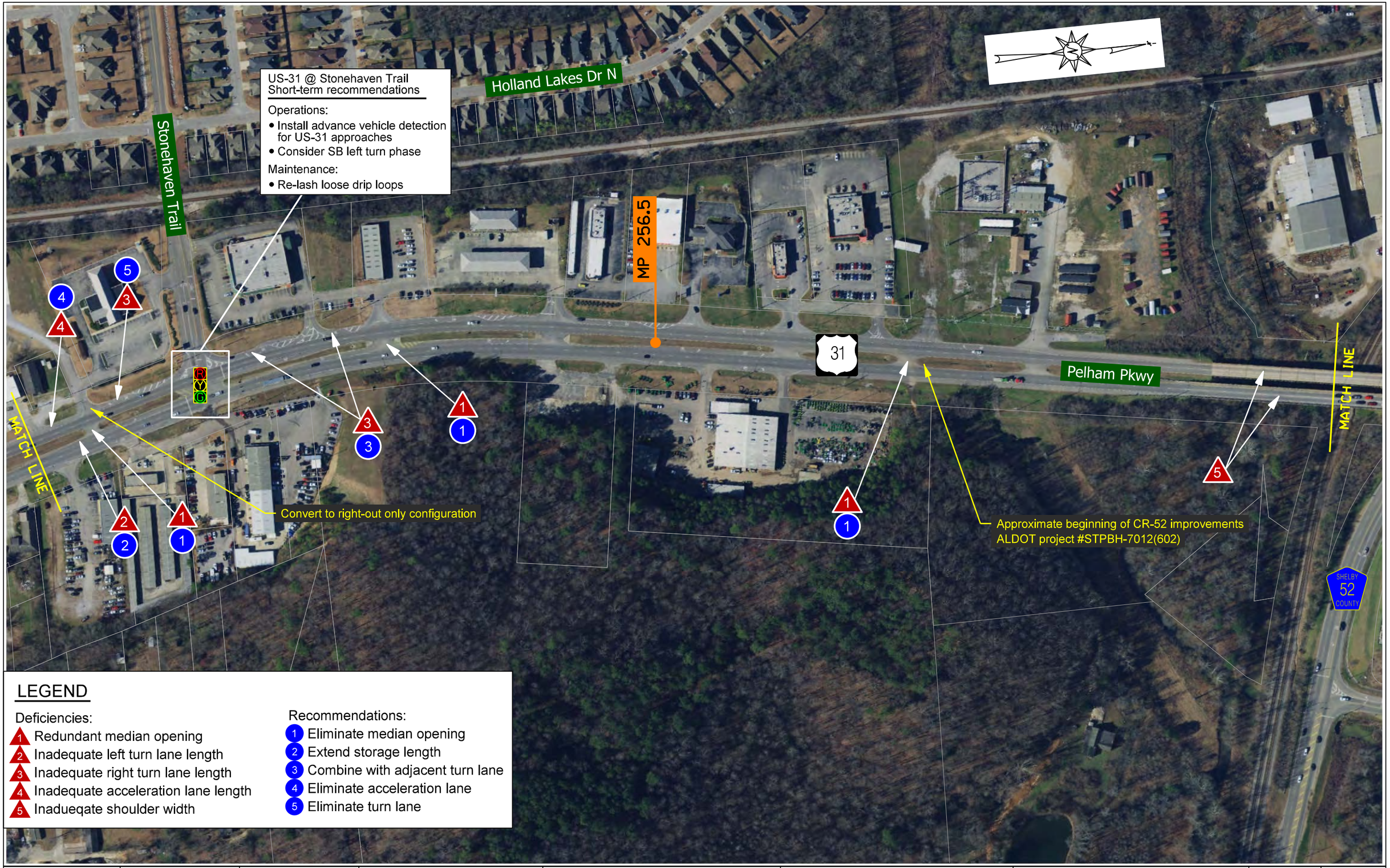

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY / ROUTE
		DATE: 08/11/2020	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007		US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #8	PELHAM / US-31

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LEGEND

Deficiencies:

1. Redundant driveway
2. Excessive driveway width
3. Undefined access point
4. Lack of channelization

Recommendations:

1. Eliminate driveway
2. Delineate driveway

US-31 @ CR-52
Short-term recommendations

Maintenance:

- Re-lash loose drip loops
- Cover PVC exposed near controller

MATCH LINE

SHELBY 52 COUNTY

MP 257

Church St

Philip Davis St

Cummings St

Pelham Pkwy

31

Martin St

Word Dr

Yeager Pkwy

Emergency signal should be considered due to proximity to both the Pelham Fire Station & signalized intersection

Approximate end of CR-52 Improvements
ALDOT project #STPBH-7012(602)

MATCH LINE

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY / ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #9	PELHAM / US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
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f (205) 728-2007

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate left turn lane length
4. Inadequate right turn lane length
5. Excessive driveway width
6. Poor access geometry
7. Median opening too close to signalized intersection

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Extend storage length

Lee St
Industrial Park Dr
Bearden Rd
Tony Holmes Dr
Pelham Pkwy
MP 257.5
31
Business Cir
Vance St
Court Pl
MATCH LINE
MATCH LINE
SHELBY 105 COUNTY
SHELBY 105 COUNTY

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007	NOT TO SCALE	PROJECT: US-31 OPERATIONS ANALYSIS	SHEET TITLE: ACCESS MANAGEMENT DEFICIENCIES - MAP #10
		DATE: 08/11/2020					CITY: PELHAM / ROUTE: US-31

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate right turn lane length
4. Excessive driveway width
5. Undefined access point
6. Poor access geometry

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Extend storage length

Old Asheville Rd

Village Pl

Village Dr

Court Way

Ball Park Rd

Pelham Pkwy

31

Canyon Park Dr

MP 258

MATCH LINE

MATCH LINE

US-31 @ Ball Park Road
Short-term recommendations

Operations:

- Adjust camera zones

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020				US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #11	PELHAM	US-31

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate left turn lane length
4. Inadequate right turn lane length
5. Excessive driveway width
6. Poor median geometry
7. Lack of channelization

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Delineate driveway
4. Extend storage length
5. Combine with adjacent turn lane

PPMS Rear Access

Crosscreek Trail

Chandalar Pl Dr

MP 258.5

MP 259

MATCH LINE

MATCH LINE

31

Pelham Pkwy

Ridge Dr

US-31 @ Crosscreek Trail
Short-term recommendations

Operations:

- Evaluate SB left turn operations (No existing turn lane/restriction)

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007	NOT TO SCALE	PROJECT: US-31 OPERATIONS ANALYSIS	SHEET TITLE: ACCESS MANAGEMENT DEFICIENCIES - MAP #12	CITY: PELHAM	ROUTE: US-31
		DATE: 08/11/2020							

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LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate right turn lane length
4. Excessive driveway width
5. Poor median geometry

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Extend storage length

Corporate Way

Chandalar Dr

Belcher Dr

MP 259.5

31

Pelham Pkwy

MATCH LINE

MATCH LINE

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	Two Perimeter Park South Suite 500 East Birmingham, Alabama 35243 p (205) 263-2191 f (205) 728-2007	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020				US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #13	PELHAM	US-31

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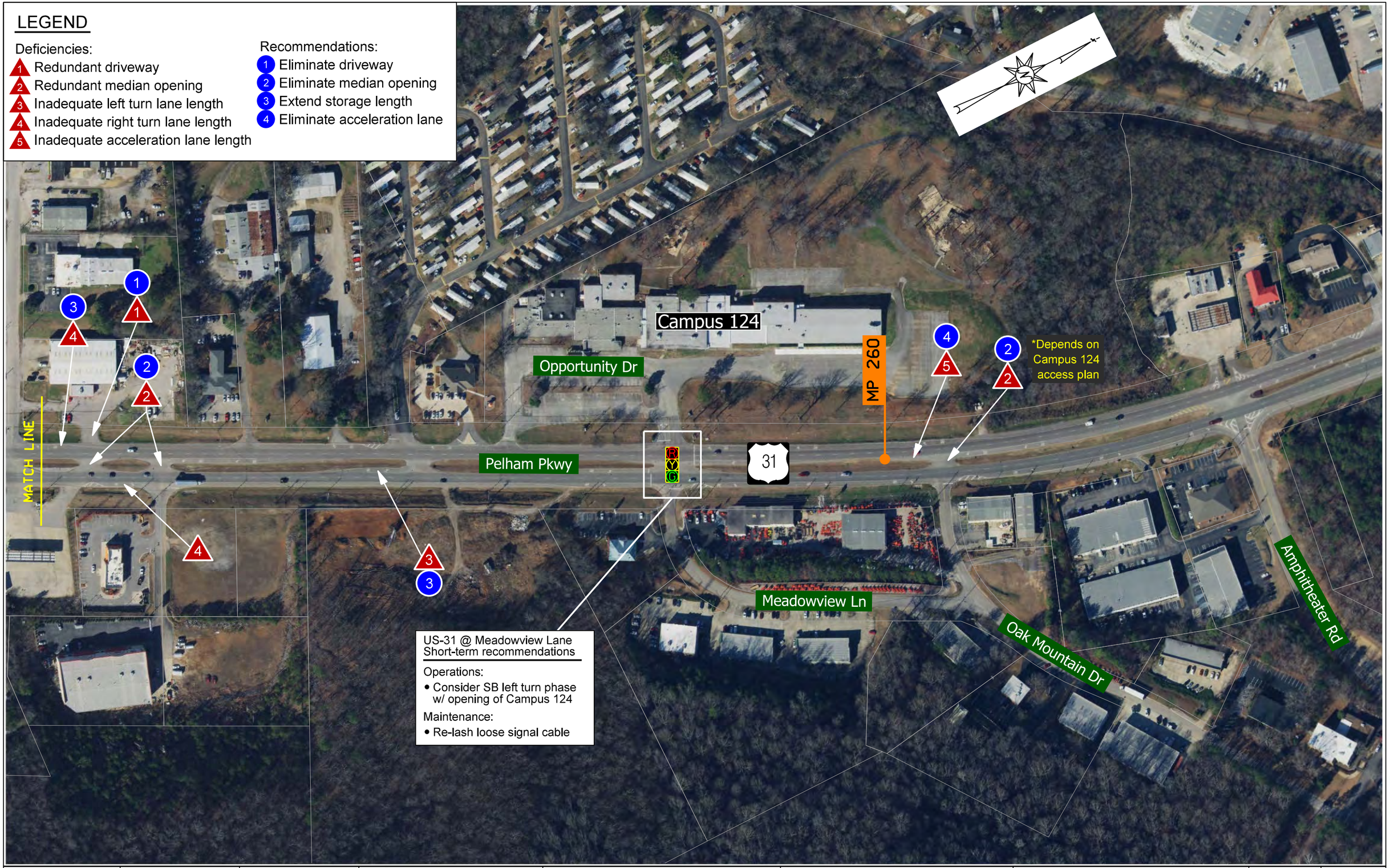
LEGEND

Deficiencies:

1. Redundant driveway
2. Redundant median opening
3. Inadequate left turn lane length
4. Inadequate right turn lane length
5. Inadequate acceleration lane length

Recommendations:

1. Eliminate driveway
2. Eliminate median opening
3. Extend storage length
4. Eliminate acceleration lane



RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DEC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 08/11/2020			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT DEFICIENCIES - MAP #14	PELHAM	US-31

Two Perimeter Park South
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f (205) 728-2007

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Appendix C: Concept Maps of Proposed Improvements

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #1	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #2	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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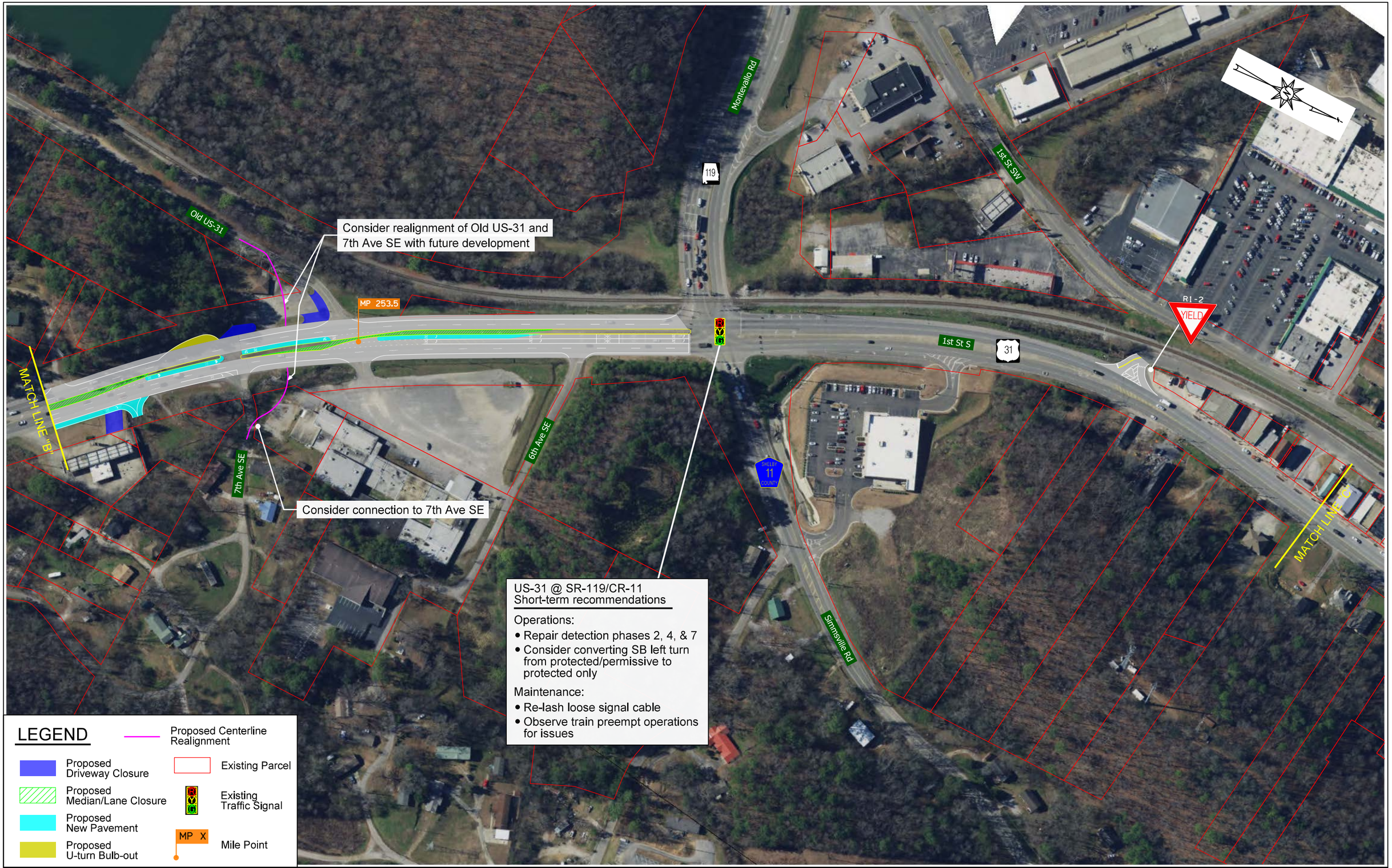

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #3	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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Proposed northbound turn lane extension achieved through restriping of existing pavement; may require removal of some parallel parking spaces

Potential future public parking

Backage road to provide access to businesses without direct access to US-31

2nd Pl SW

2nd Ave SW

1st Ave W

2nd Pl NW

1st St SW

1st St NW

MP 254

MATCH LINE "C"

1st St N

31

MATCH LINE "D"

5th Ave NE

2nd St NE

US-31 @ 2nd Place NW
Short-term recommendations

Operations:

- Repair detection phase 8 - loop appears to protrude from road

LEGEND

- Proposed Driveway Closure
- Existing Parcel
- MP X — Mile Point
- Existing Traffic Signal

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #4	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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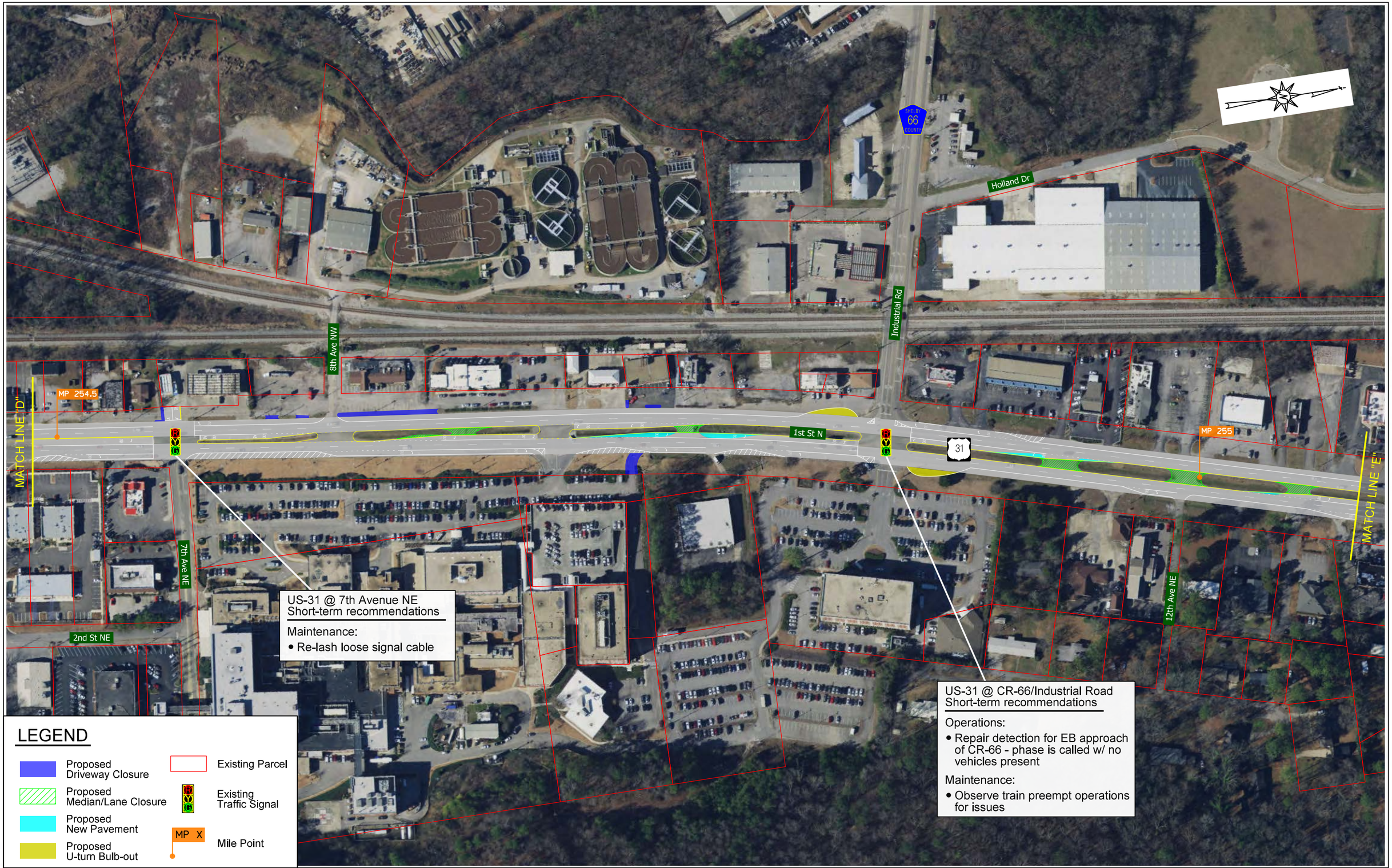

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #5	ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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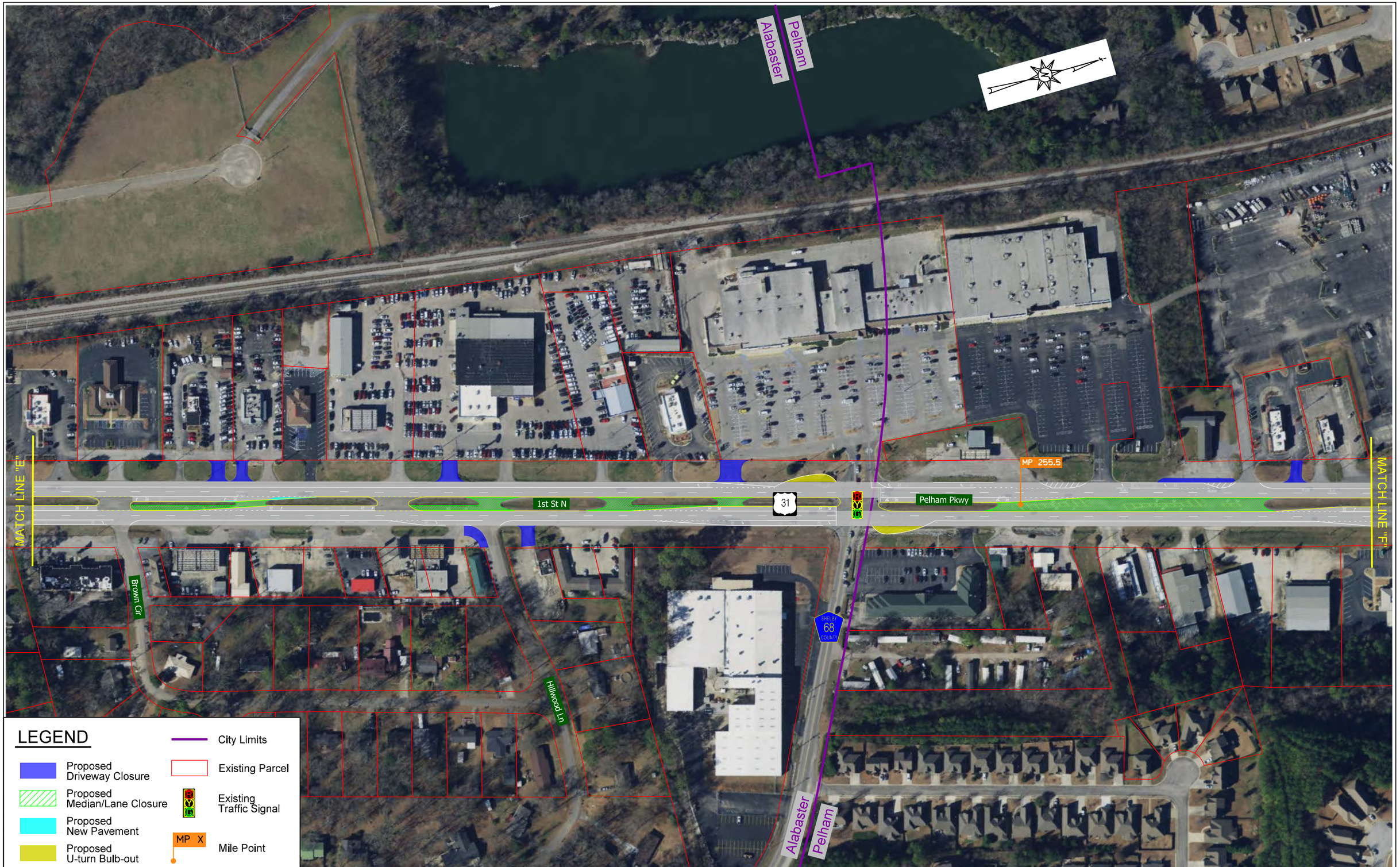

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #6	PELHAM / ALABASTER	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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US-31 @ Renesant Bank
Short-term recommendations

Maintenance:

- Could not navigate menus or access controller screen
- Repair loose R10-12 sign

MATCH LINE "F"

MATCH LINE "G"

Holland Dr

Keystone Ct

Pelham Pkwy

31

MP 256

Oliver St

Carter St

Grubbs St

Mildridge Ln

Carroll St

Davenport St

McDaniel St

LEGEND

- Existing Parcel
- Proposed Driveway Closure
- Existing Traffic Signal
- Proposed Median/Lane Closure
- Proposed New Pavement
- MP X — Mile Point

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC		NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021	SAIN ASSOCIATES		US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #7	PELHAM	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
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f (205) 728-2007

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RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #8	PELHAM	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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US-31 @ CR-52
Short-term recommendations

Maintenance:
- Re-lash loose drip loops
- Cover PVC exposed near controller

Consider eliminating side street split phasing in conjunction with striping modifications

Install actuated flashing warning devices for emergency vehicle egress. Restrict left turn movements onto & from Philip Davis Street except for emergency vehicles.

Approximate end of CR-52 Improvements
ALDOT project #STPBH-7012(602)

MATCH LINE "H"

MATCH LINE "I"

Church St

Philip Davis St

Cummings St

Pelham Pkwy

Martin St

Yeager Pkwy

Word Dr

MP 257

R3-2

AHEAD

31

SHELBY 52 COUNTY

LEGEND

- Existing Parcel
- Proposed Driveway Closure
- Existing Traffic Signal
- Proposed Median/Lane Closure
- Proposed New Pavement
- MP X — Mile Point

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC				
		DATE: 04/06/2021	SAIN ASSOCIATES	NOT TO SCALE	US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #9	PELHAM	US-31

Two Perimeter Park South
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p (205) 263-2191
f (205) 728-2007

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RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY / ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #10	PELHAM / US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY / ROUTE
		DATE: 04/06/2021	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007		US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #11	PELHAM / US-31

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RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021			US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #12	PELHAM	US-31

Two Perimeter Park South
Suite 500 East
Birmingham, Alabama 35243
p (205) 263-2191
f (205) 728-2007

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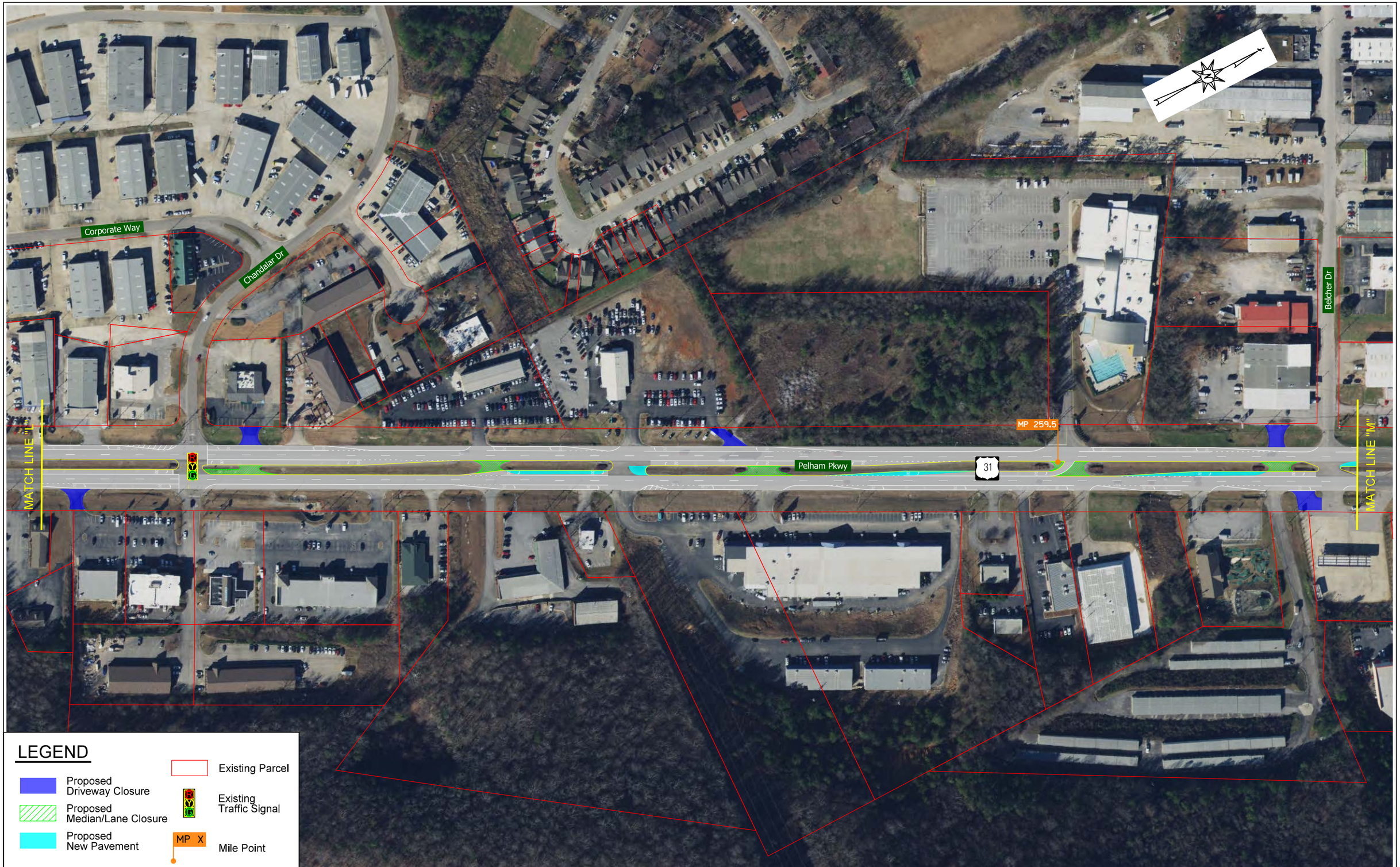

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021	Two Perimeter Park South, Suite 500 East, Birmingham, Alabama 35243, p (205) 263-2191, f (205) 728-2007		US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #13	PELHAM	US-31

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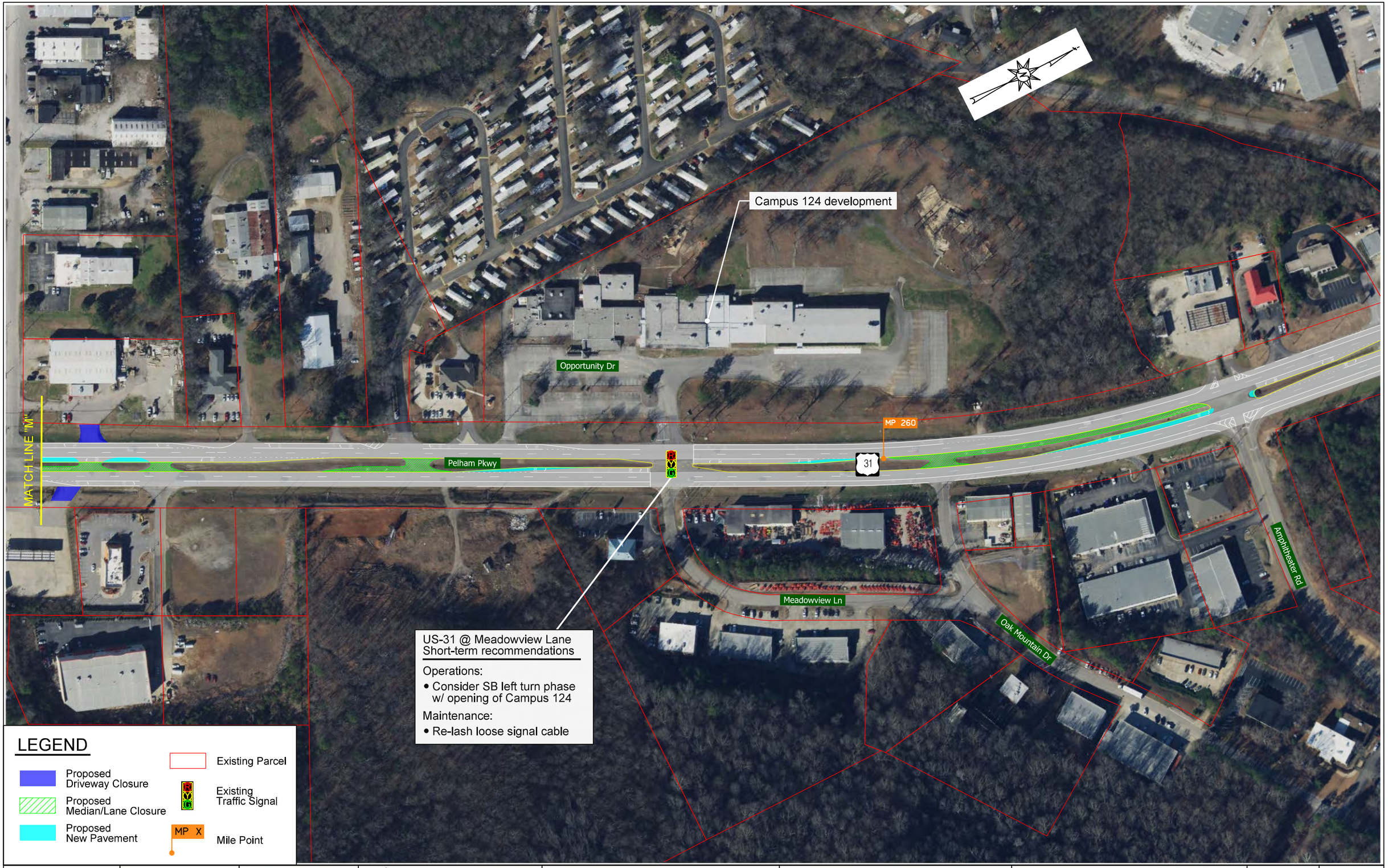

RESPONSIBLE PE: JDS	SUPERVISOR: JGB	DESIGNER: DJC	SAIN ASSOCIATES	Two Perimeter Park South Suite 500 East Birmingham, Alabama 35243 p (205) 263-2191 f (205) 728-2007	NOT TO SCALE	PROJECT	SHEET TITLE	CITY	ROUTE
		DATE: 04/06/2021				US-31 OPERATIONS ANALYSIS	ACCESS MANAGEMENT IMPROVEMENTS - MAP #14	PELHAM	US-31

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Appendix D: Stakeholder Involvement Meeting Minutes

SAIN ASSOCIATES

MEETING NOTES

PROJECT #:	**PL-0011(034); RPC Task 5.6; SA#19-0389**
PROJECT NAME:	**US-31 Operations Analysis from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster**
PROJECT LOCATION:	**Pelham and Alabaster, Shelby County, Alabama**
MEETING DATE:	**5.19.2020**
MEETING LOCATION:	**Zoom Virtual Meeting**
MEETING PURPOSE:	**Project Stakeholder Kickoff Meeting**

ATTENDEES:

(NAME)	(FIRM/AGENCY)	(EMAIL)
Andre Bittas	City of Pelham	abittas@pelhamalabama.gov
Chris Nickolson	City of Pelham	cnickolson@pelhamalabama.gov
Chris Cousins	City of Pelham	ccousins@municipalconsultants.org
Fred Hawkins	City of Alabaster	fhawkins@cityofalabaster.com
DeJarvis Leonard	ALDOT-ECR, Region Engineer	leonardd@dot.state.al.us
Steve Haynes	ALDOT-ECR, Asst. Region Eng.	hayness@dot.state.al.us
Audrey Perine	ALDOT-ECR, TSMO Eng.	perinea@dot.state.al.us
Alaycia Hall	ALDOT-ECR-BA, Traffic Eng.	hallal@dot.state.al.us
Todd Connell	ALDOT-ECR-BA-Shelby Co.	connellw@dot.state.al.us
Chris Hilyer	ALDOT-Maintenance Bureau	hileryc@dot.state.al.us
Brett Sellers	ALDOT-TSMO	sellersb@dot.state.al.us
Scott Tillman	RPCGB	stillman@rpcgb.org
Mike Kaczorowski	RPCGB	kaz@rpcgb.org
Jim Meads	Sain Associates	jimmeads@sain.com
Jeff Stephenson	Sain Associates	jstephenson@sain.com
Jennifer Brown	Sain Associates	jbrown@sain.com
David Coggin	Sain Associates	dcoggin@sain.com

The purpose of the meeting is to formally kickoff the study by discussing the scope the study, gathering input from stakeholders, and defining expectations for the final deliverable.

Discussion

- RPC discussed background for the study. The intent of the study is to provide engineering analysis to determine operational improvements. The study will initially focus on access management improvements and identify short term action item items that can be addressed presently. The study will seek concurrence from all stakeholders. The study approach and schedule will take into account existing and planned construction as well as the changes to traffic patterns as a result of COVID-19.
- The following tasks have been completed by Sain Associates:

- Signal Equipment Inventory – this inventory focused on operational deficiencies and did not include detailed inventory. Data collected will be compared to ALDOT's signal database.
- Signal Timings Collection
- Windshield Review
- Geometry Configuration Confirmation
- Crash Analysis – the crash analysis revealed over 1300 crashes along the corridor for years 2016-2018. Thirteen hotspots were identified along the corridor. All of these but one are signalized intersections. The collision type for the majority of crashes was rear end and 85% of all crashes resulted in property damage only.

- Input from stakeholders concerning planned or current projects along the corridor was discussed.
  - City of Pelham
    - Campus 124 – the site is a former elementary school but is being repurposed to include commercial use; ingress and egress will stay as is. Sain has requested a site plan with land uses.
    - Canopy development – this development is on Amphitheater Road and includes mixed use. The development also includes the potential widening of Amphitheater Road. Sain has requested any available site plan and traffic impact study, if available.
    - The area in front of the library is undeveloped but there has been interest in developing it for commercial use.
    - City working with ALDOT to make improvements at the US-31/CR-52 intersection that will impact more than just the intersection itself. Improvements include: replacing US-31 bridges over the railroad; installing dual northbound right turn lanes from US-31 onto CR-52; installing southbound dual left turn lanes (Michigan lefts) are planned on US-31 south of the railroad bridges; implementing signal modifications and eliminating northbound lefts at US-31/CR-52/Word Drive; widening on US-31 between CR-52 and Yeager Parkway; dual U-turns at Yeager Parkway (Summer Classics).
    - The City of Pelham desires that this study focus on reducing median openings, driveway consolidation.
  - City of Alabaster
    - District 31 – there is no timeframe for this development but preliminary drawings show dual lefts into the development. This area is located on the other side of the interstate from the existing big development.
    - City working with ALDOT to close a median opening and add a right turn lane at Industrial Drive.
    - City working with RPC to develop an APPLE study to do a detailed study of potential improvements at the intersection of US-31/SR-119/Railroad.

        - Streetscape project is planned for medical mile that will include sidewalks and landscaping, no real changes to travel lanes.
        - Developers interested in developing mountain area; there is potential that development could change the intersection at Old US-31.
        - City of Alabaster desires that this study focus on reducing median openings, driveway consolidation.
    - ALDOT
        - RTOP program will include the US-31 corridor. This program will focus solely on signal operations. No access management assessment will be included.
        - Project for I-65 new lane work will let end of May.
        - Resurfacing on US-31 is planned for Alabaster portion of US-31. ALDOT would like to include access management improvements in this resurfacing project.
- A schedule for the study was provided; however, it was discussed that this schedule is flexible and dependent upon how traffic patterns recover from COVID-19 impacts.
- Sain's plan of action includes identifying access management related deficiencies and meeting with appropriate stakeholders to discuss those deficiencies as well as our recommendations for improvement. Stakeholders will provide input and concurrence on recommendations prior to finalizing said improvements. Since a resurfacing project is planned for the near future for the Alabaster segment of US-31, the study will begin with a focus in that area.
- All parties agreed that a duplication of effort is not the intent of the study and Sain will work with ALDOT to provide data gathered with this study for inclusion in ALDOT's signal database and RTOP program.

Action Items

- Sain Associates will prepare a technical memo that documents short term action items identified as a result of field inventory. Sain will provide the memo to Alaycia Hall and Brett Sellers for their input prior to distributing to cities.
- Sain will identify access management deficiencies along the corridor and meet with each respective City to discuss deficiencies and recommendations for improvements associated with access management.
- City of Pelham will provide information related to Canopy development and Campus 124 land uses.
- ALDOT to provide schedule for US-31 resurfacing project in Alabaster.

In a follow up conversation with RPCGB, Sain was asked to clarify the roles and responsibilities for key members of the Sain team for this project:

- Jim Meads is serving as Principal in Charge for the project. His duties are to provide additional quality control/quality assurance of the project's recommendations and

deliverables; he will also provide additional Stakeholder engagement support and coordination throughout the project.

- Jeff Stephenson is serving as technical director and will be the Project Leader. He will oversee all engineering and recommendations for the project, will engage Stakeholders in the process and will lead future stakeholder meetings.
- Jennifer Brown is serving as Project Manager for the project. Her duties are to maintain coordination among team members and manage all administrative aspects of the project including scope, schedule and budget.
- David Coggin is serving as the primary Analyst for the project. His focus is analysis and production of engineering recommendations under the direction of Jeff Stephenson.

SAIN ASSOCIATES

MEETING NOTES

PROJECT #:	**PL-0011(034); RPC Task 5.6; SA#19-0389**
PROJECT NAME:	**US-31 Operations Analysis from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster**
PROJECT LOCATION:	**Pelham and Alabaster, Shelby County, Alabama**
MEETING DATE:	**8.24.2020**
MEETING LOCATION:	**Zoom Virtual Meeting**
MEETING PURPOSE:	**Work Session-Deficiencies/Potential Improvements for Pelham Portion of US-31 Corridor**

ATTENDEES:

(NAME)	(FIRM/AGENCY)	(EMAIL)
Chris Nickolson	City of Pelham	cnickolson@pelhamalabama.gov
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David Coggin	Sain Associates	dcoggin@sain.com

Prior to the meeting Sain evaluated the corridor and prepared mapping displaying the identified deficiencies and potential improvements. The mapping was submitted to meeting attendees on August 18, 2020. The purpose of the meeting was to discuss these deficiencies and potential improvements and solicit feedback and concurrence from stakeholders.

Discussion

- RPC gave a brief overview of the study. The study is similar to the APPLE program but was initiated using planning funds awarded by ALDOT and has a larger scope than what is typical of ALDOT.
- Although the study corridor stretches across Pelham and Alabaster (Amphitheater Road to South Colonial Parkway), only the Pelham section was discussed in this meeting.
- Discussion of the mapping began at the northern terminus and continued south:
    - Currently, the intersection of Meadowview Lane and the existing northernmost access for the Campus 124 development is signalized. The median opening for Oak Mountain Drive is in close proximity to this signal and Sain recommended closing it. Per the City, access to Oak Mountain Drive from southbound US-31 is difficult for large trucks and often times they will block the roadway when turning onto Oak Mountain Drive. The City agreed that the median closure would

benefit this area of US-31; however, the wooded area located north of the Campus 124 development is included in the overall development.

- Portions of the Campus 124 development are underway. The exact land uses for the Campus 124 development are not known as the developer is pursuing individual permits but residential is now included in the plans.
- The existing southernmost access for the Campus 124 development is located very close to the right-in/right-out access for the dental office. Shifting this access for Campus 124 to the area across from Oak Mountain Drive should be considered.
- There are locations along the corridor where there are redundant driveways and access management can be improved by closing these driveways; however, doing so may eliminate direct access for some individual parcels to US-31. The City concurred that not having direct access for each parcel would not be an issue.
- Just north of Chandalar Drive there is a left turn lane that accesses Nino's Italian Restaurant. Sain recommended removing this left turn lane since it is located so close to the signal, noted crash trend, and the fact that Nino's can be easily accessed via the signal.
- For the development on the east side of US-31 at Chandalar Drive, consider making the south access a right in only and then north access a right out only.
- The signals at CrosscreekTrail and Chandalar Drive are relatively closely spaced but as long as they remain coordinated operation should be sufficient. The geometric improvements identified on the mapping like adding a left turn protected phase to the Crosscreek Trail (into development) and closing the median opening at Chandalar Place will also benefit the operations in this area.
- The median opening width at Ridge Drive is excessive and should be reduced and better delineated. Per the City, a new roadway connection US-31 and CR-33 is being considered. One alternative under consideration utilizes Ridge Drive. If modifications are made along US-31 in the area of the Ridge Drive intersection, consideration should be given to the future roadway. Currently, the Fiscal Year 2021 budget does not include this new roadway.
- The City is not aware of any issues associated with the Pelham Park Middle School rear access; however, they will need to check with the school to see how buses are accessing. Most people use the main access but buses will use the rear access to exit onto US-31. The right turn for the main access could be lengthened to accommodate longer queues.
- The right-in/right-out access just south of Ball Park Road is too close to the intersection and could be converted to a right-out only.
- People use Court Way as a cut through. The possibility of consolidating the median openings in this area and creating full access at Court Way was

discussed; however, this may not work due to the existing median opening and access for the First Baptist Church.

- There is excessive median openings and median widths on US-31 at Tony Holmes Drive, Regions Bank, and the Post Office. The Post Office parking lot used to see a lot of cut through traffic; however, since a gate was installed this has not been an issue. This area has been looked at but an ultimate solution has not been identified. Sain will take a closer look at this area during the next steps of this study.
- The access for Court Place should be converted to a right-in/right-out since motorists can make a u-turn at the signal to travel southbound and residential developments can be accessed via Canyon Park Drive
- The City is not aware of any planned development south of Vance Street.
- There are plans for a higher end service station on the southwest corner of Industrial Drive.
- Emergency Vehicles access US-31 via Philip Davis Street. During peak hours this access can be blocked. Sain will take a closer look at potential improvements for this area.
- Per ALDOT, the environmental document for the CR-52 portion of the existing design project has been approved. ALDOT has created a separate project for the bridge section of US-31. The design will be done by a consultant but they are not under contract yet. The City will provide with a summary of the status of the CR-52 project.
- The businesses located north of Stonehaven Trail on the west side of US-31 have access that functions like a service road but this "road" is not located on US-31 right-of-way. The median opening just north of the signal at Stonehaven Trail can be closed.
- There is no known development planned for the old Wal-Mart.
- Sain should review the left turn lane area located north of CR-68 (map number 6). Of the crash data evaluated for this area, approximately 77% of crashes involved southbound vehicles.
- Per ALDOT maintenance agreement, Pelham is responsible for the signal at US-31/CR-68.
- Resurfacing of US-31 in Pelham city limits happened two to three years ago and will most likely not be included in the resurfacing program for another four to seven years. ALDOT and the City should consider incorporating applicable recommendations included in the outcome of this study in those resurfacing plans.
- An option for implementation of recommendations is for the City to pursue an ATRIP project. This year's cycle deadline is October 30th.

- Overall, median closures and consolidations should be prioritized over driveway closures. The plan that this study will produce will help the City and ALDOT to manage new and re-development.

Areas for Further Study

During the meeting, a few areas were identified for further study. For these areas, Sain will pursue collecting traffic counts and perform additional analysis. Locations include:

- US-31 at Tony Holmes Drive, Regions Bank, and the Post Office
- US-31 at Philip Davis Street
- Left turn lane area located north of CR-68 (map number 6).

Action Items

- RPCGB, City, and ALDOT concur on the areas to receive further study.
- The City will provide a summary of the CR-52 project status.
- Sain initiate traffic counts associated with areas needing additional study.
- Sain perform additional study.
- Sain develop concept mapping showing improvements called out on presented mapping.

SAIN ASSOCIATES

MEETING NOTES

PROJECT #:	**PL-0011(034); RPC Task 5.6; SA#19-0389**
PROJECT NAME:	**US-31 Operations Analysis from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster**
PROJECT LOCATION:	**Pelham and Alabaster, Shelby County, Alabama**
MEETING DATE:	**8.24.2020**
MEETING LOCATION:	**Zoom Virtual Meeting**
MEETING PURPOSE:	**Work Session-Deficiencies/Potential Improvements for Alabaster Portion of US-31 Corridor**

ATTENDEES:

(NAME)	(FIRM/AGENCY)	(EMAIL)
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David Coggin	Sain Associates	dcoggin@sain.com

Prior to the meeting Sain evaluated the corridor and prepared mapping displaying the identified deficiencies and potential improvements. The mapping was submitted to meeting attendees on August 18, 2020. The purpose of the meeting was to discuss these deficiencies and potential improvements and solicit feedback and concurrence from stakeholders.

Discussion

- RPC gave a brief overview of the study. The study is similar to the APPLE program but was initiated using planning funds awarded by ALDOT and has a larger scope than what is typical of ALDOT.
- Although the study corridor stretches across Pelham and Alabaster (Amphitheater Road to South Colonial Parkway), only the Alabaster portion was discussed in this meeting.
- ALDOT has an upcoming resurfacing project that includes this section of US-31.
- Discussion of the mapping began at the southern terminus and continued north:
    - Good access management principles have been implemented at South Colonial Parkway and South Colonial Drive.
    - A short term improvement identified by Sain includes to "re-lash loose drip loops". This refers to the span wire and not detection. The City expressed their desire for

incorporating radar or video detection with the planned resurfacing project or prior to the resurfacing project. Sain will include the recommendation to upgrade the detection, throughout the corridor, to camera or radar.

- Sain suggested to consider converting the southbound I-65 ramp turn lane to a smart channel configuration. The City raised concerns about this due to many using this lane a free-flow right turn to access US-31 northbound and the conversion could cause back up to the I-65 mainline. Sain will further evaluate this recommendation.
- There is a large development, District 31, planned for the northeast quadrant of I-65 and US-31. Developer plans to break ground this fall on US-31 frontage parcels. The City will provide plans to Sain.
- At the intersection of US-31 and SR-119, Sain's short term recommendations memo included to add a protected left turn phase (from US-31 onto CR-11). Timing adjustments will be needed to accommodate this phase. The City has discussed pursuing an APPLE study for this intersection. Sain will perform further study at this intersection and provide a conceptual drawing; however, the level of analysis will not be as detailed as what could be done with an APPLE Study.
- ALDOT concerned about eliminating the northbound left turn phase from the 2nd Place intersection since trucks use this intersection to access the quarry. The existing left turn lane is very short and does not allow for storage of more than one large truck.
- The ownership of the alley behind the Police Department is unknown. The City will investigate.
- On US-31 at Industrial Road, the City has previously discussed with ALDOT the closure of the median in order to lengthen the northbound left turn lane onto Industrial Road. This is currently on hold. Sain suggested the possibility of implementing an RCUT style intersection at this location. Sain will perform further study.
- The City would like to see sidewalk/greenway along US-31, especially in the "medical mile" section of US-31.
- The car dealership shown on map #6 has an excessive number of driveways. If some of these driveways are eliminated, improving the remaining driveways with better radii would be beneficial.
- There are excessive driveways off US-31 (across from Brown Circle). These businesses are currently connected via a functional access road. These driveways should be consolidated so that each parcel only has one driveway and the spacing maximized.
- Per the City, the lunch peak hour is heavier than the typical commuter peaks seen prior to the pandemic.
- Per ALDOT maintenance agreement, Pelham is responsible for the signal at US-31/CR-68.

- An option for implementation of recommendations is for the City to pursue an ATRIP project during this year's or next year's cycle.
- Overall, median closures and consolidations should be prioritized over driveway closures. The plan that this study will produce will help the City and ALDOT to manage new and re-development.

Areas for Further Study

During the meeting, a few areas were identified for further study. For these areas, Sain will pursue collecting traffic counts and perform additional analysis. Locations include:

- I-65 southbound ramp right turn onto US-31 northbound
- US-31 at 2nd Place
- US-31 at SR-119
- US-31 at Industrial Drive
- Car dealership driveways

Action Items

- RPCGB, City, and ALDOT concur on the areas to receive further study.
- The City will provide information including schedule and planned access related to the District 31 development. ***The City provided to Sain 9.2.2020.***
- The City will investigate the ownership of the alley located behind the police department.
- Sain initiate traffic counts associated with areas needing additional study.
- Sain perform additional study.
- Sain develop concept mapping showing improvements called out on presented mapping.

SAIN ASSOCIATES

MEETING NOTES

PROJECT #:	**PL-0011(034); RPC Task 5.6; SA#19-0389**
PROJECT NAME:	**US-31 Operations Analysis from Amphitheater Road in Pelham to South Colonial Parkway in Alabaster**
PROJECT LOCATION:	**Pelham and Alabaster, Shelby County, Alabama**
MEETING DATE:	**9.9.2020**
MEETING LOCATION:	**Zoom Virtual Meeting**
MEETING PURPOSE:	**Work Session-Deficiencies/Potential Improvements**

ATTENDEES:

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Jennifer Brown	Sain Associates	jbrown@sain.com

Prior to the meeting Sain evaluated the corridor and prepared mapping displaying the identified deficiencies and potential improvements. The purpose of the meeting was to discuss these deficiencies and potential improvements and solicit feedback and concurrence from ALDOT. These same deficiencies and improvements were discussed during meetings with the City of Pelham and the City of Alabaster on August 24, 2020.

Discussion

- RPC gave a brief overview of the study. The study is similar to the APPLE program but was initiated using planning funds awarded by ALDOT and has a larger scope than what is typical of ALDOT.
- The ALDOT resurfacing project that includes the Alabaster section of US-31 is planned to let in fiscal year 2022.
- Discussion of the mapping began at the southern terminus and continued north:
    - Good access management principles have been implemented at South Colonial Parkway and South Colonial Drive.
    - A short term improvement identified by Sain includes to "re-lash loose drip loops". This refers to the span wire and not detection.
    - There is a large development, District 31, planned for the northeast quadrant of I-65 and US-31. Developer plans to break ground this fall on US-31 frontage parcels. Alabaster provided concept plans to Sain. ALDOT is familiar with this project. Sain raised concern about creating a potential weave movement

associated with the proposed 9th Avenue access. ALDOT confirmed that the intent is to not allow access to 9th Avenue from northbound US-31.

- At the intersection of US-31 and SR-119, Sain's short term recommendations memo included to add a protected left turn phase (from US-31 onto CR-11). Timing adjustments will be needed to accommodate this phase. Some of the detection loops need repair as the detector is faulting and giving full green time to every cycle. Alabaster has discussed pursuing an APPLE study for this intersection but that is on hold for now.
- In the August 24, 2020 meeting, ALDOT representative expressed concern over removal of the northbound left turn lane at 2nd Place due to the route being used by trucks to access the quarry. The existing parallel parking on US-31 could be removed along with the in place planter in order to lengthen the left turn lane. The City of Alabaster is currently in process of relocating the police station located on the corner of US-31 and 2nd Place. A potential parking solution could be to utilize that property for public parking. Additionally, this area could be used to widen 2nd Place.
- On US-31 at Industrial Road, ALDOT and Alabaster have coordinated the closure of the median in order to lengthen the northbound left turn lane onto Industrial Road. Sain suggested the possibility of implementing an RCUT style intersection at this location. Sain will perform further study.
- The car dealership shown on map #6 has an excessive number of driveways. If some of these driveways are eliminated, improving the remaining driveways with better radii would be beneficial.
- There is potential to better coordinate the signals at the intersections of US-31/7th Avenue, US-31/Industrial Road, and US-31/CR-68 to improve progression in this section of the corridor.
- Sain will perform further study for the striped median area with opposing left turn lanes located north of CR-68. ALDOT will consider extending the US-31 resurfacing limits to include this area.
- ALDOT was not able to provide an estimated letting date for the CR-52 project and suggested Sain include short term improvements for this section of US-31. These short term improvements should not interfere with the CR-52 project.
- Sain will perform additional study for the Philip Davis Street intersection.
- Sain will perform additional study for the Tony Holmes Drive intersection.
- The signals at Crosscreek Trail and Chandalar Drive are relatively closely spaced but as long as they remain coordinated operation should be sufficient. The geometric improvements identified on the mapping like adding a left turn protected phase to the Crosscreek Trail (into development) and closing the median opening at Chandalar Place will also benefit the operations in this area. As a short term improvement, ALDOT suggested installing a No Left/No U-Turn sign for southbound US-31at Crosscreek Trail.

- Currently, the intersection of Meadowview Lane and the existing northernmost access for the Campus 124 development is signalized. The median opening for Oak Mountain Drive is in close proximity to this signal and Sain recommended closing it. Per Pelham, access to Oak Mountain Drive from southbound US-31 is difficult for large trucks and often times they will block the roadway when turning onto Oak Mountain Drive. The City agreed that the median closure would benefit this area of US-31.
- Overall, median closures and consolidations should be prioritized over driveway closures. The plan that this study will produce will help Alabaster, Pelham, and ALDOT to manage new and re-development.
- For the areas identified for further study, the group agreed that 2016 traffic volumes could be used with an applied growth rate.

Areas for Further Study

During the meetings with Alabaster and Pelham, several areas were identified for further study. For these areas, Sain will perform additional analysis. Locations include:

- Alabaster Section
  - I-65 southbound ramp right turn onto US-31 northbound
  - US-31 at 2nd Place
  - US-31 at Industrial Drive
  - Car dealership driveways

- Pelham Section
  - US-31 at Tony Holmes Drive, Regions Bank, and the Post Office
  - US-31 at Philip Davis Street
  - Left turn lane area located north of CR-68 (map number 6)

Action Items

- RPCGB, Cities, and ALDOT concur on the areas to receive further study
- Sain perform additional study
- Sain develop concept mapping showing improvements called out on presented mapping