



City of Dripping Springs

2021 Traffic Study Update

May 18, 2021

Prepared by HDR Engineering, Inc.

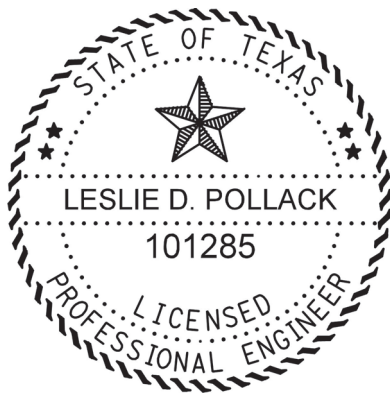
This page is intentionally left blank.

City of Dripping Springs

2021 Traffic Study Update

May 18, 2021

05/18/2021



Prepared by

HDR Engineering, Inc.

Texas P.E. Firm Registration No. F-754

504 Lavaca Street, Suite 900

Austin, Texas 78701 USA

Telephone: 512 904-3700

Website: hdrinc.com

This page is intentionally left blank.



Contents

Introduction 1

Existing Thoroughfare System 1

Traffic Analysis 8

 2018 Existing Conditions 10

 2040 Forecasted Conditions 15

 Transportation Improvements 23

 Short and Mid-Term Improvements 23

 Long-Term Improvements 35

 Summary 36

References 37

Tables

Table 1. Signalized Intersection: Level of Service Measurement and Qualitative Descriptions 9

Table 2. Unsignalized Intersection: Level of Service Measurement 10

Table 3. Summary of Daily and Peak Hour Trip Generation 19

Table 4. Short and Mid-Term Recommendations 24

Table 5. Intersection Level of Service and Delay (veh/sec) 28

Figures

Figure 1. Study Intersections Map 3

Figure 2. Area Location Map with Existing Traffic Volumes 4

Figure 3. 2018 Existing AM Level of Service 13

Figure 4. 2018 Existing PM Level of Service 14

Figure 5. Proposed Developments by 2025 17

Figure 6. Area Location Map with 2040 Forecasted Daily Traffic Volumes 21

Figure 7. 2040 Forecasted AM Level of Service without Improvements 29

Figure 8. 2040 Forecasted PM Level of Service without Improvements 30

Figure 9. 2040 Forecasted AM Level of Service with Improvements 31

Figure 10. 2040 Forecasted PM Level of Service with Improvements 32

Figure 11. Short and Mid-Term Improvements 33

This page is intentionally left blank.

Introduction

HDR Engineering, Inc. has been retained by the City of Dripping Springs to perform an update to the previous Dripping Springs Traffic Study completed in 2015. This study analyzes intersections on US 290, between West Tiger Lane and Nutty Brown Road, and intersections on RM 12, from Fitzhugh Road to FM 150. Additionally, one intersection on Sawyer Ranch Road and two intersections along RM 1826 are included in the study. The study intersections are shown in Figure 1, and existing 2018 traffic volumes for major roadways are shown in Figure 2.

Existing traffic conditions in the area are characterized by significant congestion on US 290 and RM 12. The transportation network connectivity is limited, and existing roadway infrastructure is challenged to keep up with growth in the area. The City of Dripping Springs is expected to experience significant growth by 2040, with several residential and commercial developments planned for the area. This traffic study evaluates 2018 existing traffic conditions and 2040 traffic conditions to assess the current and future operations of the roadway network. The study also recommends short and mid-term improvements, re-evaluating the previously recommended improvements from the 2015 Traffic Study and proposing new improvements, as necessary. Long-term improvements will be proposed and evaluated as part of the Dripping Springs Transportation Master Plan.

This report documents existing 2018 traffic conditions, presents future 2040 traffic conditions, and develops and prioritizes transportation improvements for the City of Dripping Springs.

Existing Thoroughfare System

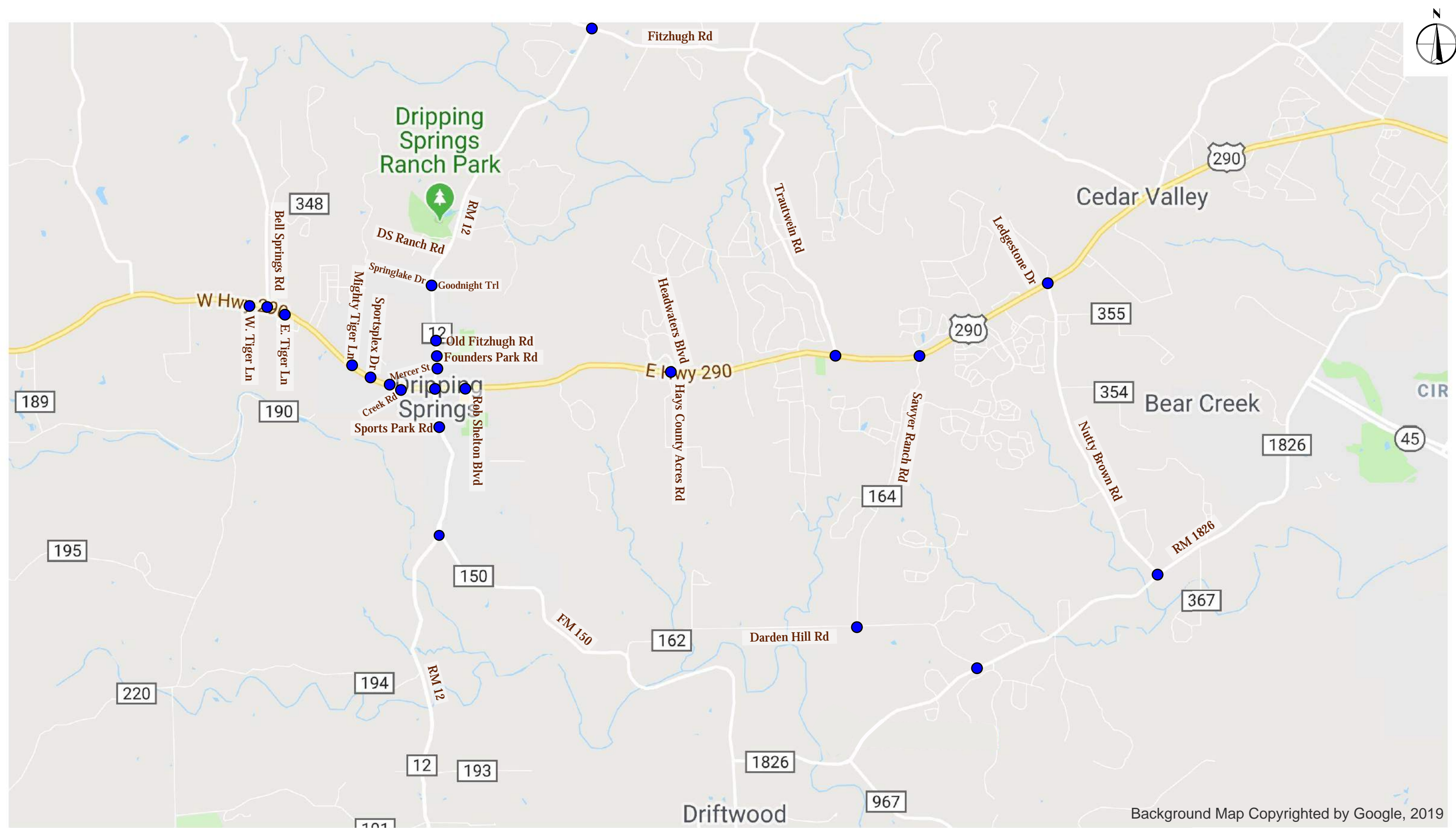
This traffic study consists of several primary thoroughfares in Dripping Springs and the surrounding area. The interrelationship of the study roadways and others in the study area are shown in Figures 1 and 2. Average daily traffic estimates for the study roadways were obtained from counts conducted by HDR in January 2018. The Hays County Transportation Plan (Ref. 1) and Capital Area Metropolitan Planning Organization (CAMPO) 2045 Plan (Ref. 2) classify these roadways and propose recommendations discussed in the following paragraphs.

US 290

US 290 is a four-lane divided roadway with a two-way center left-turn lane and posted speed limits ranging between 45 miles per hour (mph) and 60 mph within the study area. The Hays County Transportation Plan and the CAMPO 2045 Plan classify US 290 as a principal arterial. 24-hour count data collected as part of this study reported the following 2018 daily traffic volumes:

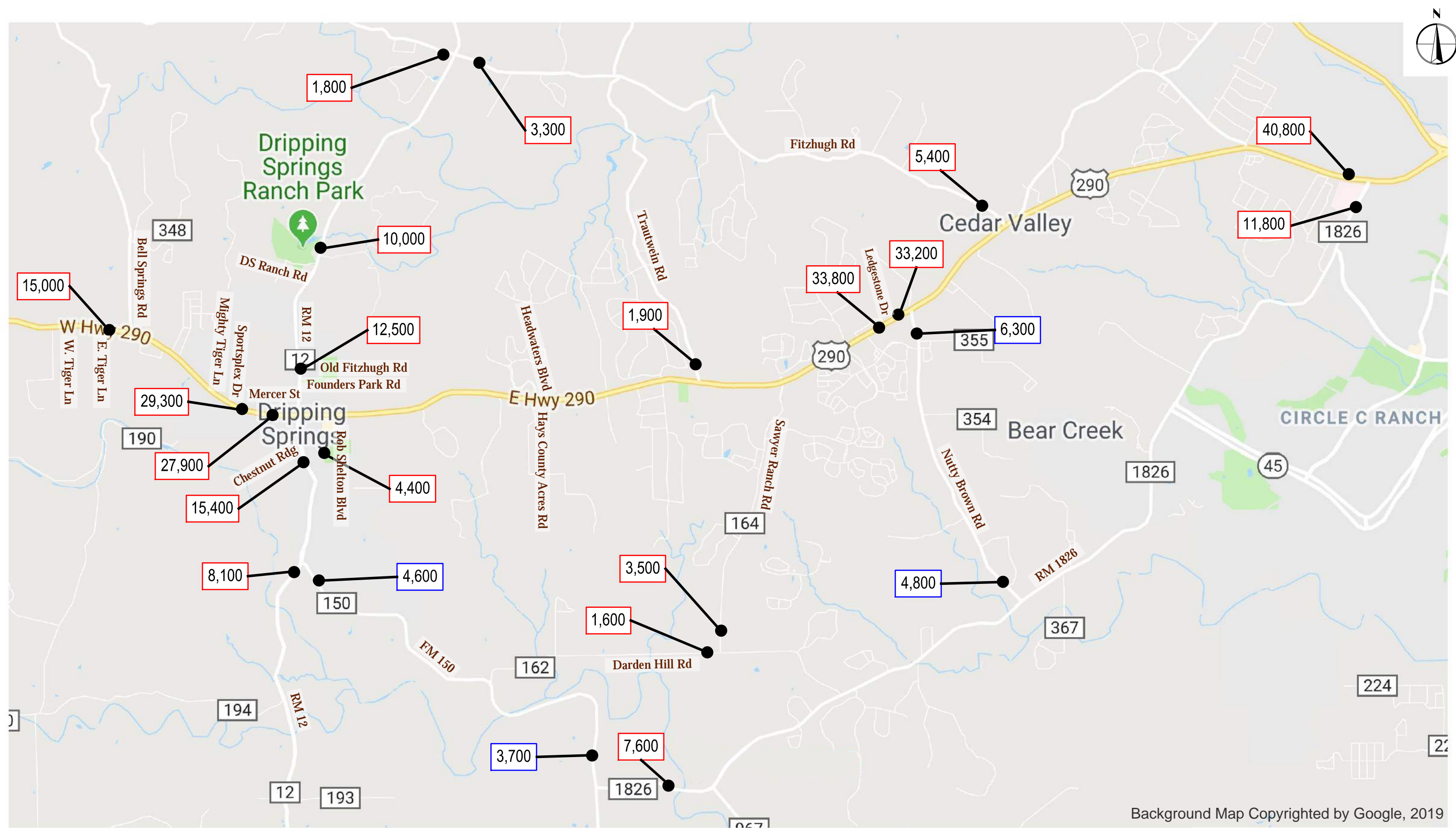
- 15,000 vehicles per day (vpd) west of Bell Springs Road
- 29,300 vpd east of Sportsplex Drive

This page is intentionally left blank.



● Study Intersection

FIGURE 1
STUDY
INTERSECTION MAP



XX,XXX 2018 Existing Daily Traffic Volumes (VPD)

XX,XXX 2017 TxDOT Daily Traffic Volumes (VPD)

FIGURE 2
AREA LOCATION MAP
WITH EXISTING
DAILY TRAFFIC VOLUMES

- 27,900 vpd west of RM 12
- 33,800 west of Ledgerstone Drive
- 33,200 vpd west of Nutty Brown Road
- 40,800 vpd west of RM 1826

The Hays County Transportation Plan recommends that US 290 from RM 12 to Nutty Brown Road be widened to a six-lane expressway. CAMPO 2045 indicates that US 290 is proposed to be widened to a 6-lane divided roadway with frontage roads between RM 1826 and RM 12. The Texas Department of Transportation (TxDOT) is conducting a planning and feasibility study for the widening of US 290 between RM 1826 and RM 12. TxDOT is currently evaluating a six-lane arterial section between Sportsplex Drive and Cannon Ranch Road and a six-lane freeway section with frontage roads east Cannon Ranch Road. TxDOT also plans to conduct a second feasibility study evaluating US 290, west of RM 12 to determine future roadway needs.

RM 12

RM 12 is a two-lane roadway with posted speed limits ranging between 45 mph and 60 mph within the study area. The majority of the roadway within the study area is undivided, with a two-way left-turn lane only present between Founders Park Road and Springlake Drive. The Hays County Transportation Plan classifies RM 12 as a principal arterial south of US 290 and a minor arterial north of US 290. The CAMPO 2045 Plan classifies RM 12 as a minor arterial. 24-hour count data collected as part of this study reported the following 2018 daily traffic volumes:

- 10,000 vpd north of DS Ranch Road
- 12,500 vpd south of Old Fitzhugh Road
- 15,400 vpd south of Chestnut Ridge Road
- 8,100 vpd south of FM 150

According to CAMPO 2040 and the Hays County Transportation Plan, RM 12 is proposed to be widened to a 4-lane divided roadway from Fitzhugh Road to FM 150.

FM 150

FM 150 is a two-lane undivided roadway with a posted speed limit of 55 mph within the study area. The Hays County Transportation Plan classifies FM 150 as a minor arterial. 24-hour 2017 count data obtained from TxDOT's Traffic County Database System (TCDS) (Ref. 3) reported the following daily traffic volumes:

- 4,600 vpd east of RM 12
- 3,700 vpd north of RM 1826

According to the Hays County Transportation Plan, FM 150 is proposed to be widened to a four-lane divided major arterial between RM 12 and RM 1826. The CAMPO 2045 Plan recommends that FM 150 be realigned and improved to a four-lane roadway. The FM 150 Character Plan (Ref. 4) completed by Hays County proposes several short-term improvements for long-term transportation planning along FM 150, including the

construction of a two-way left-turn lane and shoulders as well as intermittent curb and gutter within the study area. Hays County is undergoing further studies for nearby proposed roadways within the City of Dripping Springs' extraterritorial jurisdiction (ETJ) that may impact the recommendations for FM 150.

RM 1826

RM 1826 is a two-lane undivided roadway with a posted speed limit of 55 mph within the study area. The Hays County Transportation Plan classifies RM 1826 as a minor arterial. 24-hour count data collected as part of this study reported the following 2018 daily traffic volumes:

- 7,600 vpd east of FM 150
- 11,800 vpd south of US 290

According to the Hays County Transportation Plan, RM 1826 is proposed to be widened to a 4-lane divided major arterial from SH 45 to FM 150. The CAMPO 2045 Plan recommends that RM 1826 be widened to a six-lane divided roadway between RM 967 and SH 45.

Fitzhugh Road

Fitzhugh Road is a two-lane undivided roadway with a posted speed limit of 45 mph within the study area. The Hays County Transportation Plan classifies Fitzhugh Road as a minor arterial. 24-hour count data collected as part of this study reported the following 2018 daily traffic volumes:

- 1,800 vpd west of RM 12
- 3,300 vpd east of RM 12
- 5,400 vpd north of US 290

According to CAMPO 2045, Fitzhugh Road is proposed to be widened to a four-lane undivided roadway from RM 12 to the Hays County/Travis County Line. The Hays County Transportation Plan proposes to upgrade the roadway from a minor arterial to a two-lane major undivided arterial.

Nutty Brown Road

Nutty Brown Road is a two-lane undivided roadway with posted speed limits ranging from 35 mph to 50 mph within the study area. The Hays County Transportation Plan classifies Nutty Brown Road as a minor arterial. 24-hour 2017 count data obtained from TxDOT's TCDS reported the following daily traffic volumes:

- 6,300 vpd south of US 290
- 4,800 vpd north of RM 1826

According to the Hays County Transportation Plan, Nutty Brown Road is proposed to be widened to a 4-lane divided major arterial from US 290 to RM 1826. The CAMPO 2045 Plan recommends widening Nutty Brown Road to a four-lane divided roadway with shoulders and additional safety improvements.

Sawyer Ranch Road

Sawyer Ranch Road is a two-lane undivided roadway with posted limits ranging from 35 mph to 50 mph within the study area. The Hays County Transportation Plan classifies Sawyer Ranch Road as a minor arterial. 24-hour count data collected as part of this study reported 2018 daily traffic volumes of approximately 3,500 vpd north of Darden Hill Road. According to CAMPO 2045 and the Hays County Transportation Plan, Sawyer Ranch Road is proposed to be widened to a four-lane divided roadway between US 290 and Darden Hill Road.

Darden Hill Road

Darden Hill Road is a two-lane undivided roadway with a posted speed limit of 40 mph within the study area. The Hays County Transportation Plan classifies Darden Hill Road as a minor arterial. 24-hour count data collected as part of this study reported 2018 daily traffic volumes of approximately 1,600 vpd west of Sawyer Ranch Road. According to the CAMPO 2045 Plan, Darden Hill Road is proposed to be widened to a four-lane divided roadway from FM 150 to RM 1826. The Hays County Transportation Plan proposes to widen Darden Hill Road to a two-lane divided major arterial. Hays County proposes to realign and improve the roadway and to study the feasibility of extending the thoroughfare west to provide a bypass to US 290.

Trautwein Road

Trautwein Road is a two-lane undivided roadway with a posted speed limit of 40 mph within the study area. The Hays County Transportation Plan and CAMPO 2040 Plan classify Trautwein Road as a collector. Based on estimates from 2018 peak hour turning movement counts collected as part of this study, Trautwein Road has approximately 1,900 vpd north of US 290. CAMPO 2045 does not provide planned improvements for Trautwein Road. Hays County plans to construct intersection safety improvements, including a right-turn lane, at the intersection of US 290 and Trautwein Road.

Traffic Analysis

In order to assess the traffic impacts of the proposed development, two (2) time periods (AM and PM) and three (3) travel conditions were evaluated using Synchro 9 (Ref. 5):

- 2018 Existing Conditions
- 2040 Forecasted Conditions without Recommended Improvements
- 2040 Forecasted Conditions with Recommended Improvements

The standard used to evaluate traffic conditions at intersections is level of service (LOS), which is a qualitative measure of the effect of a number of factors such as speed, volume of traffic, geometric features, traffic interruptions, freedom to maneuver, safety, driving comfort, convenience, and operating cost.

Two types of intersections to be evaluated are signalized and unsignalized, which use different criteria for assessment of operating levels. The analysis procedures are described in the following sections.

Signalized Intersection Level of Service

Signalized intersection LOS is defined in terms of delay, which determines driver discomfort, frustration, fuel consumption, and lost travel time. The levels of service have been established based on driver acceptability of various levels of delays. The delay for each approach lane group is calculated based on a number of factors including lane geometrics, percentage of trucks, peak hour factor, number of lanes, signal progression, volume, signal green time to total cycle time ratio, roadway grades, parking conditions, and pedestrian flows.

Table 1 summarizes the levels of service that are defined for different levels of average control delay, and a qualitative description for each.

Table 1. Signalized Intersection: Level of Service Measurement and Qualitative Descriptions

Level of Service	Control Delay Per Vehicle (sec)	Qualitative Description
A	< 10	Good progression and short cycle lengths
B	≥ 10 and < 20	Good progression or short cycle lengths, more vehicle stops
C	≥ 20 and < 35	Fair progression and/or longer cycle lengths, some cycle failures
D	≥ 35 and < 55	Congestion becomes noticeable, high volume to capacity ratio
E	≥ 55 and < 80	Limit of acceptable delay, poor progression, long cycles, and/or high volume
F	> 80	Unacceptable to drivers, volume greater than capacity

Source: 2010 Highway Capacity Manual (Ref. 6)

Unsignalized Intersection Level of Service

Unsignalized intersection LOS is defined in terms of average control delay and, in some cases, v/c ratio. Control delay is the portion of total delay attributed to traffic control measures—either traffic signals or stop signs. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

Table 2 shows the relationship between average control delay and LOS. The LOS range for unsignalized intersections is different than that for signalized intersections. This difference is due to the fact that drivers expect different levels of performance from different kinds of transportation facilities. Unsignalized intersections carry less traffic volume than signalized intersections and delays at unsignalized intersections are variable. For these reasons, control delay would be less for an unsignalized intersection than for a signalized intersection. The overall approach LOS is computed as a weighted average of the vehicle delay for each movement; therefore, an approach may have an overall LOS C or D and have individual movements of LOS E or F.

**Table 2. Unsignalized
Intersection: Level of Service
Measurement**

Level of Service	Control Delay Per Vehicle (sec)
A	< 10
B	> 10 and < 15
C	> 15 and < 25
D	> 25 and < 35
E	> 35 and < 50
F	> 50

Source: 2010 Highway Capacity Manual
(Ref. 6)

2018 Existing Conditions

The analysis of existing traffic requires the collection of data on the major roadways and intersections. Turning movement counts for both the AM and PM peak hours were collected on Tuesday, January 30, 2018, while Dripping Springs ISD schools were in session.

Signalized Intersections

The following intersections within the study area are signalized:

- US 290 and Bell Springs Road
- US 290 and Mighty Tiger Trail
- US 290 and Sportsplex Drive
- US 290 and RM 12
- US 290 and Rob Shelton Boulevard
- US 290 and Hays County Acres Road/Headwaters Boulevard
- US 290 and Sawyer Ranch Road
- US 290 and Nutty Brown Road
- RM 12 and Fitzhugh Road
- RM 12 and Mercer Street
- RM 12 and Sports Park Road
- RM 1826 and Nutty Brown Road

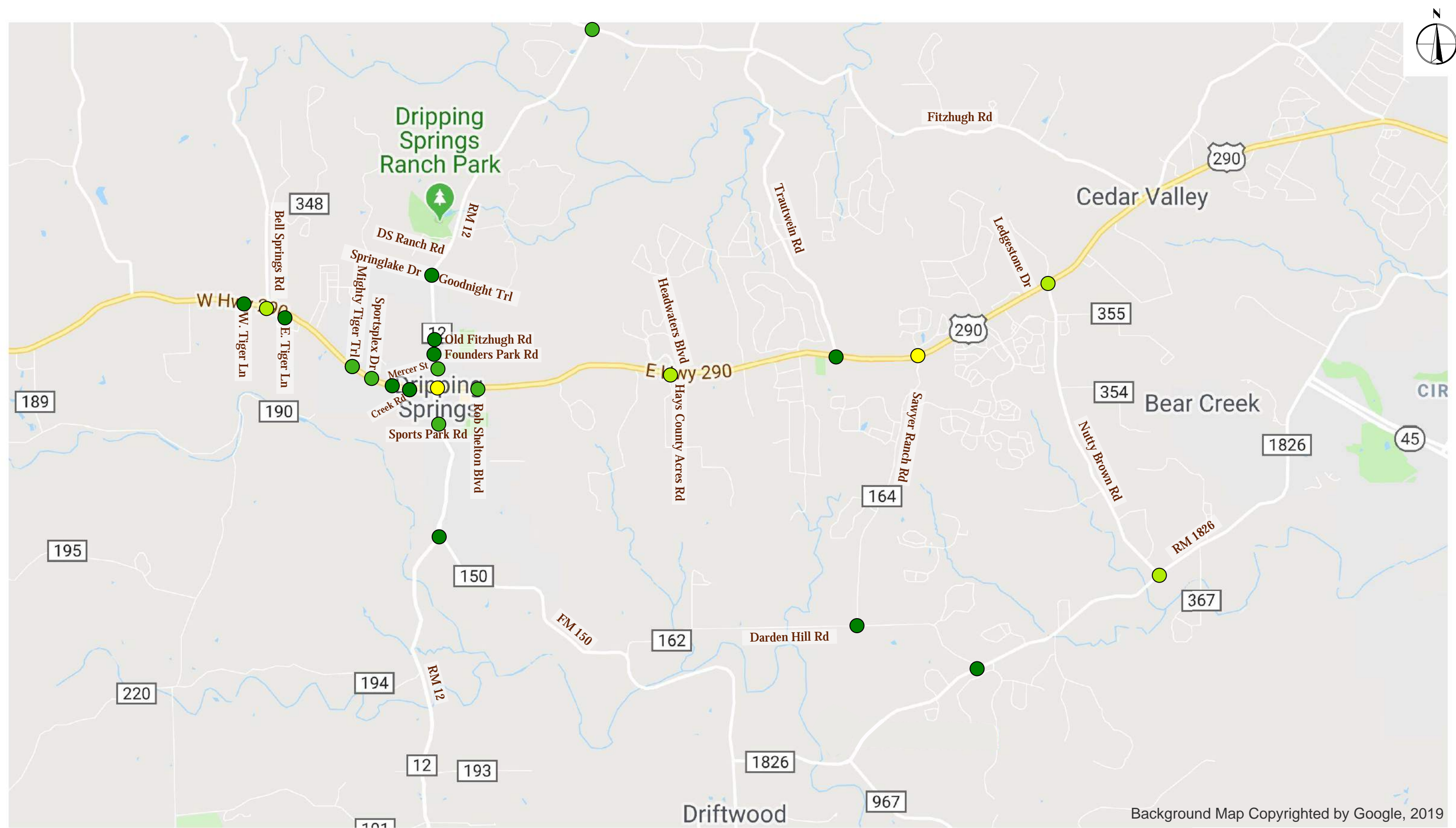
Unsignalized Intersections

The following intersections within the study area are unsignalized:

- US 290 and West Tiger Lane
- US 290 and East Tiger Lane
- US 290 and West Mercer Street
- US 290 and Creek Road
- US 290 and Trautwein Road
- RM 12 and Springlake Drive/Goodnight Trail
- RM 12 and Old Fitzhugh Road
- RM 12 and Founders Park Road
- RM 12 and FM 150
- Sawyer Ranch Road and Darden Hill Road
- RM 1826 and Darden Hill Road

Existing LOS of the study intersections are presented in Figures 3 and 4.

This page is intentionally left blank.



INTERSECTION LOS

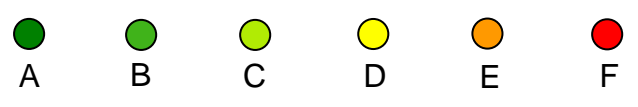
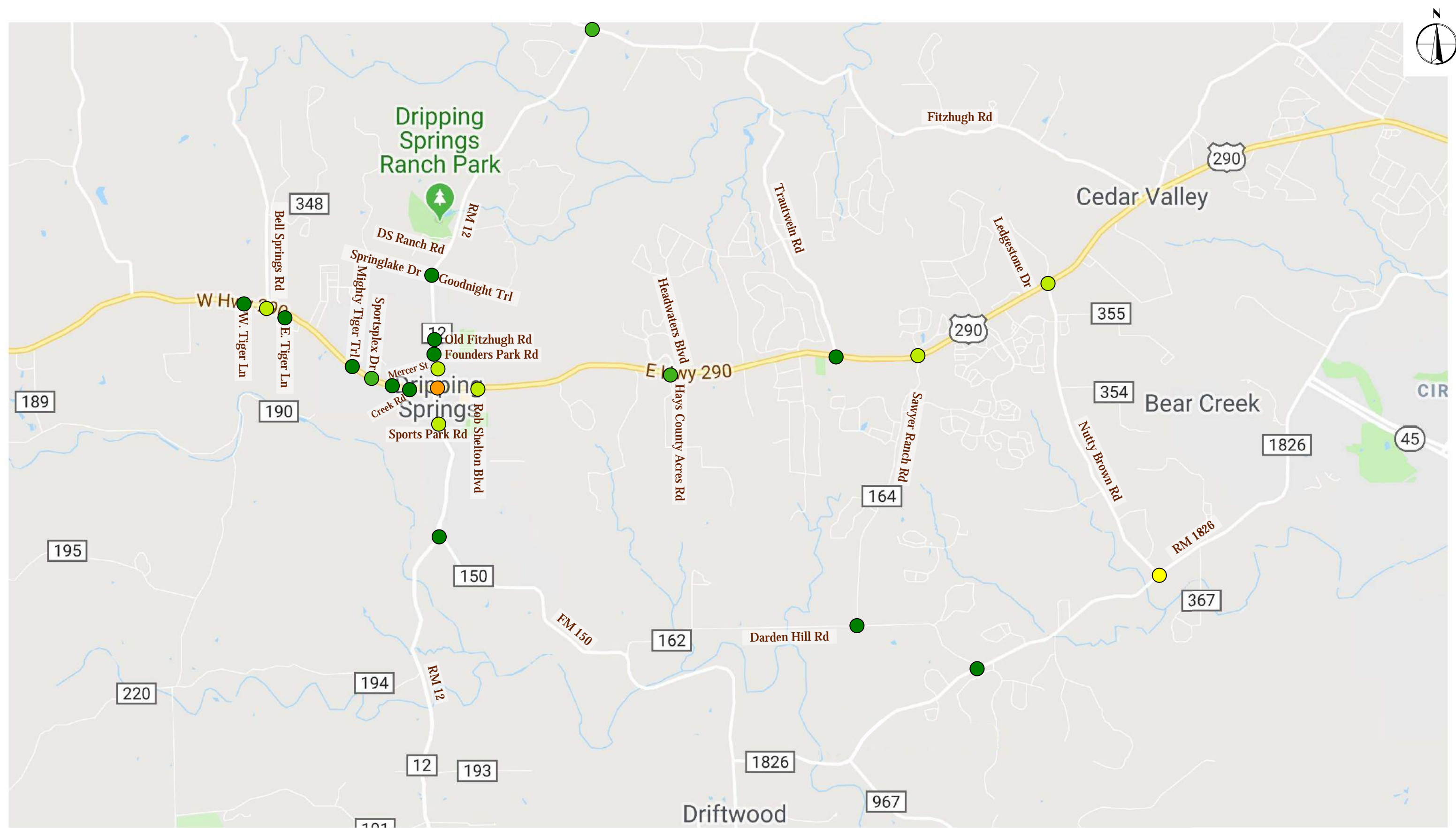


FIGURE 3
2018 EXISTING AM
LEVEL OF SERVICE



INTERSECTION LOS

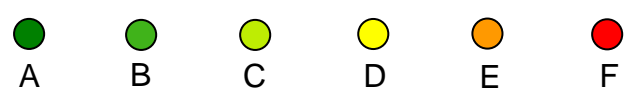


FIGURE 4
2018 EXISTING PM
LEVEL OF SERVICE

2040 Forecasted Conditions

2040 traffic conditions in the Dripping Springs area were estimated and analyzed in the traffic study. The 2040 time frame was used to evaluate future transportation network operations and to develop potential transportation improvements. The estimation of area traffic growth for the traffic analysis process involved both the use of primary data and engineering judgment. For the Dripping Springs Traffic Study Update, several sources of data were used in order to estimate expected area growth and develop future traffic models.

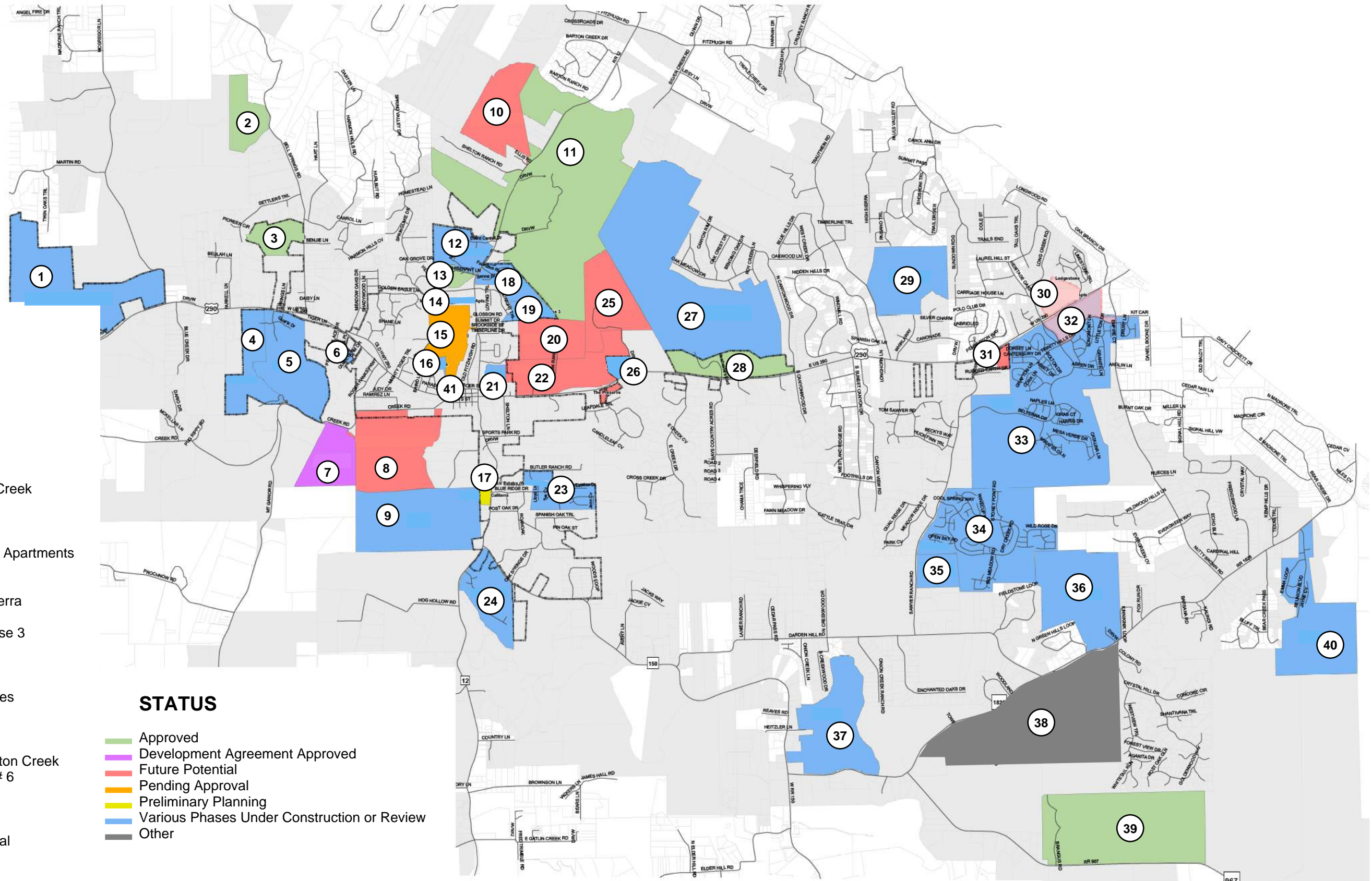
The total 2040 traffic demand is the sum of traffic generated by proposed projects and changes in existing traffic due to area growth. Traffic growth rates for the area were examined using historical counts obtained from TxDOT's TCDS in the vicinity of the project area. Based on available count data, a two (2) percent annual growth rate was assumed for this study. A separate Traffic Study Growth Memo detailing the methodology behind the growth rate determination is provided in the Technical Addendum.

In addition to background area traffic growth, the Dripping Springs area is expected to experience significant growth due to several proposed residential and commercial developments in the area. The developments anticipated to be completed by 2040 were obtained from the City of Dripping Springs and are shown in Figure 5. The 10th Edition Institute of Transportation Engineers Trip Generation Manual (Ref. 7) was used to estimate total trips generated per day for the proposed developments. Trip generation was completed for the provided land uses for the developments. Field reviews estimated the existing percentage build-out of each development to better understand future expected growth. The expected trips generated by each remaining development were then distributed throughout the network based on traffic patterns determined from traffic counts. Trip generation reductions for trip internal capture and pass-by trips were not applied, resulting in a conservative analysis. Further analysis should be done to determine and include internal capture and pass-by once the future land uses and surrounding roadway network are known with greater certainty. When built out, the proposed projects will generate approximately 190,119 daily trips. Table 3 provides a summary of traffic generation due to proposed developments, which is directly related to the assumed land uses.

A Town Center proposed to be constructed in Downtown Dripping Springs is currently under study. Although proposed land use types and sizes as well as layouts may change as the planning and development of the Town Center continues, preliminary roadway layouts and land uses were considered in the Dripping Springs 2018 Traffic Study Update. Table 3 includes the assumed preliminary Town Center land uses and the expected traffic generated from the development.

Expected background growth of existing traffic volumes combined with additional proposed developments in the area provided an estimate of 2040 traffic conditions in the Dripping Springs area. Future daily 2040 traffic volumes developed as part of the Transportation Master Plan process are provided in Figure 6. 2040 traffic volumes were then used to estimate future traffic operations and develop recommended short and mid-term transportation improvements. Long-term improvements will be evaluated as part of the Dripping Springs Transportation Master Plan.

This page is intentionally left blank.



LEGEND

- 1. Westwood PDD # 7
- 2. Bella Vista
- 3. Esperanza
- 4. Bunker Ranch
- 5. Arrowhead
- 6. Gateway 26 Doors
- 7. Carter Ranch
- 8. al-Rashid Tract
- 9. Calittera
- 10. Springs at Barton Creek
- 11. Double L Ranch
- 12. Harrison Hills
- 13. Cortaro
- 14. Hill Country Senior Apartments
- 15. Heritage
- 16. Burrows
- 17. Farmstead at Calittera
- 18. Founders Ridge
- 19. Legacy Trails, Phase 3
- 20. Scott Tract
- 21. Heritage
- 22. Cannon Tract
- 23. Butler Ranch Estates
- 24. Howard Ranch
- 25. Cynosure
- 26. Blue Blazes
- 27. Headwaters at Barton Creek
- 28. Headwaters PDD # 6
- 29. Saratoga Hills
- 30. Ledgestone
- 31. JM Assets
- 32. Belterra Commercial
- 33. Belterra
- 34. Highpoint
- 35. Burba Ranch
- 36. Parten Tract
- 37. Driftwood
- 38. Rim Rock
- 39. Rutherford Ranch
- 40. Reunion Ranch
- 41. Dripping Springs Town Center

STATUS

- Approved
- Development Agreement Approved
- Future Potential
- Pending Approval
- Preliminary Planning
- Various Phases Under Construction or Review
- Other

FIGURE 5
PROPOSED
DEVELOPMENTS BY 2040

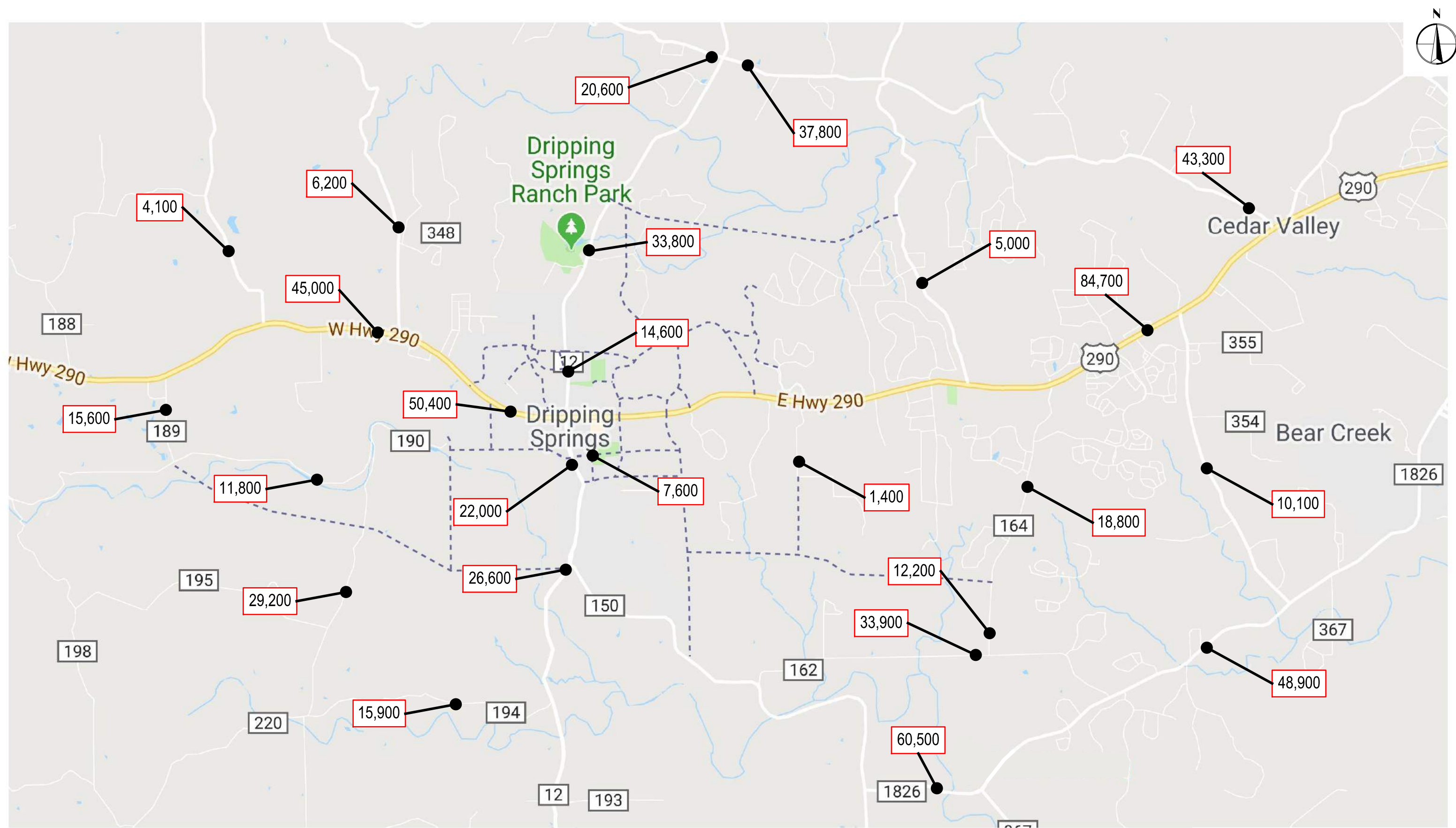
This page is intentionally left blank.

Intersection LOS results for 2018 existing and 2040 forecasted traffic conditions, with and without short-term and mid-term improvements, are provided in Table 4 as well as in Figures 7 through 10. Short-term and mid-term improvements are described in the Transportation Improvements section of the report.

Table 3. Summary of Daily and Peak Hour Trip Generation

Land Use	Size	24-Hour Two Way Volume	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
Single Family	11,904 DU	106,792	2,140	6,420	7,065	4,153
Multi-Family Housing (Low-Rise)	282 DU	2,050	30	102	101	59
Multi-Family Housing (Mid-Rise)	1,090 DU	5,119	81	231	239	152
Senior Adult Housing - Attached	340 DU	1,329	24	44	46	38
Library	34,000 SF	1,912	25	10	119	129
Government Office Building	62,500 SF	4,308	309	59	23	52
General Office Building	7,500 SF	183	21	3	15	72
Day Care Center	17,000 SF	1,259	110	97	99	111
Shopping Center	1,142,000 SF	49,256	832	510	2,263	2,453
High-Turnover (Sit-Down) Restaurant	51,075 SF	6,525	316	259	344	214
Fast Food Restaurant with Drive Thru	13,500 SF	6,358	277	266	229	212
Hotel	130 Rooms	1,474	42	30	116	121
Clinic	60,000 SF	2,290	172	49	57	140
Gas/Service Station with Convenience Market	8 Pumps	987	28	27	57	55
Mini-Warehouse	150,000 SF	277	9	6	12	14
Total		190,119	4,416	8,113	10,785	7,975

This page is intentionally left blank.



XX,XXX 2040 Forecasted Daily Traffic Volumes(VPD), from the Dripping Springs Transportation Master Plan

--- Proposed Thoroughfares

Note: Please refer to the Dripping Springs Transportation Master Plan Thoroughfare Plan for detailed information on proposed thoroughfares.

FIGURE 6
AREA LOCATION MAP
WITH 2040 FORECASTED
DAILY TRAFFIC VOLUMES

This page is intentionally left blank.

Transportation Improvements

The primary corridors and study intersections are projected to operate with significant delays in 2040 if transportation improvements are not implemented. Figures 7 and 8 depict the projected traffic conditions under this scenario. This report identifies transportation improvements to mitigate the impacts of the anticipated growth. Recommended improvements are separated into short and mid-term improvements for project prioritization purposes. Figures 9 and 10 depict the projected traffic conditions with implementation of short and mid-term recommended improvements. Though several intersections remain at LOS F, overall delay improves significantly with improvements.

Short and Mid-Term Improvements

All short and mid-term improvements are listed in Table 5 and shown by location in Figure 11. Short-term and mid-term improvements were defined by considering the traffic conditions and the scale of the identified improvement. It is assumed that intersections recommended for signalization will meet signal warrants by 2040.

The recommended typical cross section for the proposed widening of US 290 to a 6-lane section as part of this traffic study is shown in Figure 12. Coordination will be required between the City and TxDOT to determine a final recommended section for US 290 through Dripping Springs.

Dripping Springs Independent School District Coordination

As traffic volumes increase on US 290 and new school campuses open in the City, continued discussions are necessary to determine solutions that will best meet the needs of DSISD and the City of Dripping Springs.

DSISD High School and Middle School currently both start at 9:00 AM and end at 4:15 PM. Located across US 290 from each other, these schools contribute to congestion along US 290 and the surrounding network during the PM peak period. DSISD should consider staggering the start and end time of the two schools to help mitigate congestion and improve traffic operations within the City. An alternative being considered is a satellite drop-off and pick-up location east of RM 12 which would reduce vehicular traffic converging on the schools during these time periods. DSISD should consider modifying traffic circulation routes around the schools to facilitate ease of ingress/egress. School busing programs should be revisited to increase ridership and reduce the number of vehicles on the road.

DSISD and the City should continue to work together to make sure that long-term facility planning takes into account the future proposed school facilities and the surrounding transportation network. Planning for several future school sites is underway, and transportation studies should be conducted to ensure that school circulation and surrounding transportation network needs work in harmony.

Roadway Alignments and Connectivity

Along US 290 and RM 12, single outlet neighborhoods and skewed intersections contribute to congestion along the two major thoroughfares. As the City of Dripping Springs improves and expands its roadway network, careful consideration should be given to proper alignment of roadways and creating a connected network with the implementation of new roadways. When given the opportunity, existing alignments should also be corrected.

Future Development

The City's transportation network is expected to experience a significant impact from already planned projects. It is crucial that the overall network continue to be considered when approving future projects to prevent the roadway network from exceeding capacity.

Access Management

The City should implement access management to improve safety along its major corridors. Access management regulates vehicle access to businesses, public facilities and residences. Strategies for improving access management include optimal spacing between traffic signals and driveways, safe turning lanes, and median treatments. Good access management promotes safe and efficient use of the transportation network.

Table 4. Short and Mid-Term Recommendations

Location	Short-Term Recommendations		Mid-Term Recommendations
US 290	A	Coordinate traffic signals and optimize timings	1 Widen to a 6-lane divided roadway within the ETJ limits, with widening to the east of ETJ contingent on future developments in the area. Coordination with TxDOT to determine a final recommended section is required.
US 290 and Tiger Lane (W)		No short-term improvements	No mid-term improvements
US 290 and Bell Springs Road	B	Construct left-turn lanes to provide a left-turn lane and shared through/right-turn lane for the NB and SB approaches	No mid-term improvements
US 290 and Tiger Lane (E)		No short-term improvements	2 •Signalize when warrants are met (contingent on school revised operations and circulation) •Construct a NB right-turn lane
US 290 and Peabody Place		No short-term improvements	3 Reconfigure intersection to right-in/right-out only

Table 4. Short and Mid-Term Recommendations

Location		Short-Term Recommendations		Mid-Term Recommendations
US 290 and Meadow Oak Drive		No short-term improvements	4	<ul style="list-style-type: none"> • Realign Meadow Oaks Drive across US 290 with new roadway on south side to provide connection to middle school • Provide two lanes on NB and SB approaches
US 290 and Roger Hanks Parkway		No short-term improvements	5	<ul style="list-style-type: none"> • Construct an EB right-turn lane • Construct an additional left-turn lane to provide dual WB left-turn lanes
US 290 and Mighty Tiger Trail	C	Construct an additional lane to provide dual SB left-turn lanes and a SB right-turn lane	6	Construct a WB right-turn lane
US 290 and Sportsplex Drive	D	Construct an additional lane to provide dual SB left-turn lanes and a shared through/right-turn lane	7	Construct a WB right-turn lane
US 290 and Mercer Street		No short-term improvements	8	Re-align and modify to minor driveway with right-in/right-out operations (contingent on construction of proposed Town Center)
US 290 and Creek Road	E	Construct a NB right-turn lane	9	<p>The following mid-term improvements are contingent on the construction of the proposed Town Center and realignment of Mercer Street:</p> <ul style="list-style-type: none"> •Signalize when warrants are met •Construct an EB left-turn lane •Construct dual WB left-turn lanes (requires bridge widening) •Construct a NB right-turn lane •Construct SB approach to provide a left-turn lane, a shared left-turn/through lane, and a right-turn lane
US 290 and RM 12	F	<ul style="list-style-type: none"> • Construct additional lanes to provide dedicated dual left-turn lanes, a through lane, and a right-turn lane for both the NB and SB approaches • Construct a WB right-turn lane •Construct an EB right-turn lane •Modify signal operations to provide a protected right-turn overlap phase for the EB and WB approaches 	10	Construct additional left-turn lanes to provide dual EB and WB left-turn lanes with US 290 widening
US 290 and Rob Shelton Boulevard	G	<ul style="list-style-type: none"> •Re-construct NB approach and SB approach medians to provide dual left-turn lanes and one through/right-turn shared lane •Construct an EB right-turn lane 		No mid-term improvements

Table 4. Short and Mid-Term Recommendations

Location		Short-Term Recommendations		Mid-Term Recommendations
US 290 and Headwaters Boulevard/Hays Country Acres Road		No short-term improvements	11	Widen NB approach to provide a shared left-turn/through lane and a right-turn lane
US 290 and Trautwein Road	H	Widen SB approach to provide a left-turn and a right-turn lane	12	<ul style="list-style-type: none"> •Signalize when warrants are met •Modification of intersection to a “Florida T” with an SB left-turn acceleration lane and free-flowing EB through movement
US 290 and Sawyer Ranch Road	I	<ul style="list-style-type: none"> • Widen NB approach to provide dual left-turn lanes, a through lane, and a right-turn lane •Modify signal operations to provide protected NB and EB right-turn overlap phases 		<ul style="list-style-type: none"> • Construct an additional lane to provide dual WB left-turn lanes
US 290 and Nutty Brown Road/Oak Branch Road	J	<ul style="list-style-type: none"> • Widen NB approach to provide dual left-turn lanes, a through lane, and a right-turn lane • Modify signal operations to provide protected NB and EB right-turn overlap phases 		<ul style="list-style-type: none"> • Construct an additional lane to provide dual WB left-turn lanes
Fitzhugh Road		No short-term improvements	13	Widen to a 4-lane divided roadway east of McGregor Lane
RM 12	K	Coordinate traffic signals and optimize timings	14	Widen to a 4-lane divided roadway within ETJ limits
RM 12 and Fitzhugh Road	L	<ul style="list-style-type: none"> •Construct a NB left-turn and right-turn lane •Construct dual WB left-turn lanes •Construct a SB left-turn lane •Construct an EB left-turn lane •Modify signal operations to provide a protected NB right-turn overlap phase 	15	Widen Fitzhugh Road to a 4-lane undivided roadway within ETJ limits
RM 12 and Springlake Drive/Goodnight Trail		No short-term improvements	16	Signalize when warrants are met
RM 12 and Old Fitzhugh Road/Timberline Road	M	• Modify intersection operations to right-in/right-out		No mid-term improvements
RM 12 and Founders Park Road	N	<ul style="list-style-type: none"> •Construct a NB right-turn lane •Construct a SB left-turn lane •Construct a WB left-turn lane 	17	Signalize when warrants are met
RM 12 and Mercer Street	O	<ul style="list-style-type: none"> •Construct a NB left-turn lane •Construct a SB left-turn lane •Construct a WB channelized free-flowing right-turn lane •Construct the EB approach to provide a left-turn lane and a shared through/right-turn lane •Modify signal operations to provide split phasing for the EB and WB approaches 		No mid-term improvements

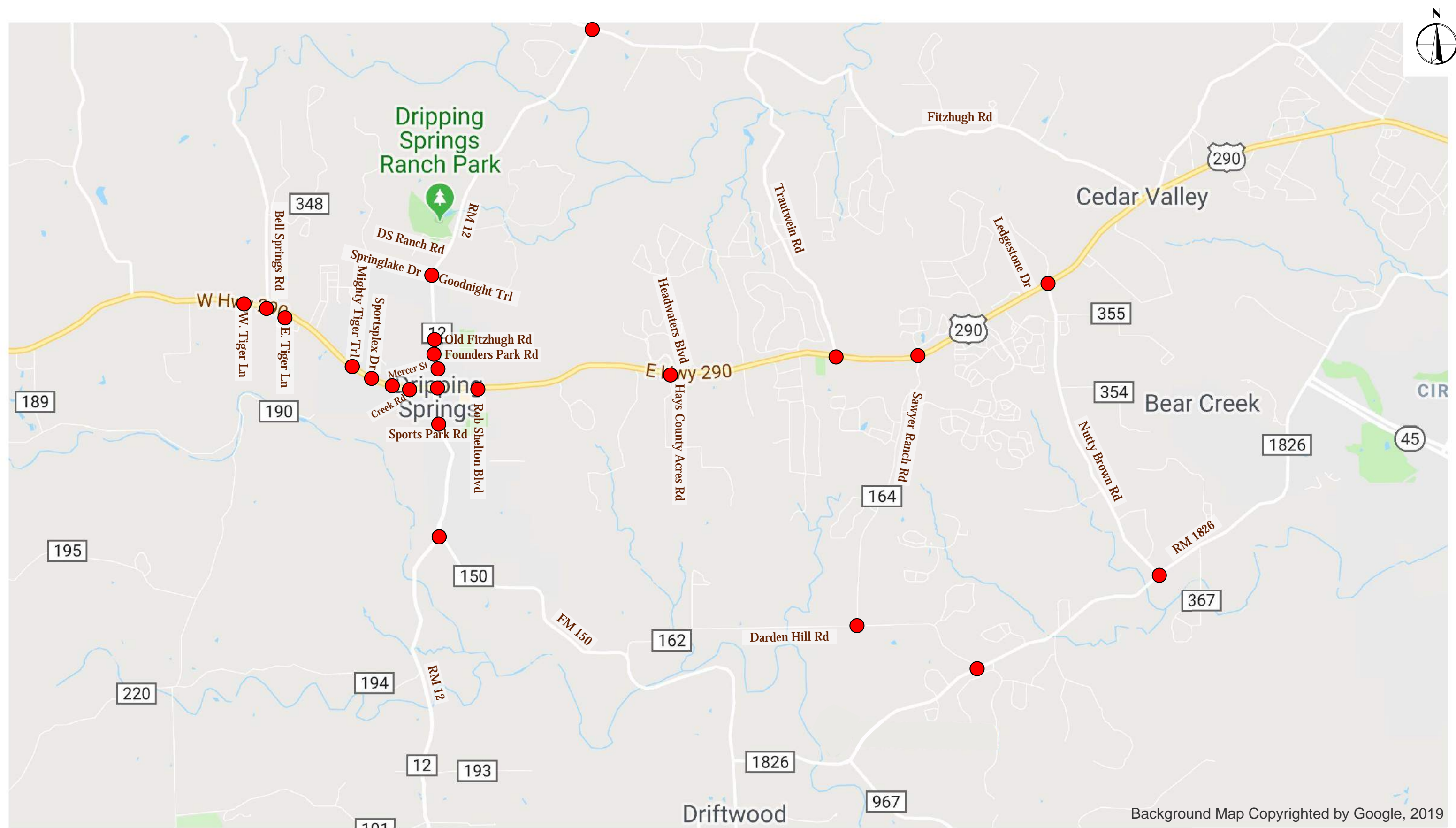
Table 4. Short and Mid-Term Recommendations

Location		Short-Term Recommendations		Mid-Term Recommendations
RM 12 and Wallace Street	P	Restrict access from Wallace Street to RM 12		No mid-term improvements
RM 12 and Sports Park Road		No short-term improvements	18	<ul style="list-style-type: none"> •Re-align Needham Road/Sports Park Drive for future roadway connection to west •Construct a WB left-turn lane •Construct a NB right-turn lane
FM 150		No short-term improvements	19	Widen to a 4-lane divided roadway between RM 12 and RM 1826
RM 12 and FM 150		No short-term improvements	20	<ul style="list-style-type: none"> •Signalize when warrants are met •Realign intersection to allow for extension of FM 150 to the west •Construct an additional lane to provide dual WB right-turn lanes •Modify signal operations to provide a protected WB right-turn overlap •Construct an additional lane to provide dual SB left-turn lanes •Construct a NB right-turn lane
Sawyer Ranch Road		No short-term improvements	21	Widen to a 4-lane divided roadway between US 290 and Darden Hill Road
Sawyer Ranch Road and Darden Hill Road	Q	<ul style="list-style-type: none"> • Construct an EB left-turn lane • Construct a WB right-turn lane 	22	<ul style="list-style-type: none"> • Signalize when warrants are met • Construct an additional lane to provide dual SB left-turn lanes
RM 1826		No short-term improvements	23	Widen to a 4-lane divided roadway within ETJ limits
RM 1826 and Darden Hill Road	R	Construct a WB right-turn lane	24	Signalize when warrants are met
Darden Hill Road		No short-term improvements	25	Widen to a 4-lane divided roadway
Nutty Brown Road		No short-term improvements	26	Widen to a 4-lane divided roadway between US 290 and RM 1826
RM 1826 and Nutty Brown Road	S	<ul style="list-style-type: none"> • Widen SB approach to provide dual left-turn lanes, a through lane, and a right-turn lane • Construct EB right-turn lane • Restripe to lengthen EB left-turn lane • Construct WB right-turn lane • Modify signal operations to provide a protected WB right-turn overlap phase and split phasing for the NB and SB approaches 		No mid-term improvements

Table 5. Intersection Level of Service and Delay (veh/sec)

Location	2018 Existing		2040 Forecasted w/o Recommended Improvements		2040 Forecasted w/ Recommended Improvements	
	AM	PM	AM	PM	AM	PM
US 290 and Tiger Lane (W)	A* (1.7)	A* (0.8)	F* (+)	F* (+)	F* (+)	F* (139.8)
US 290 and Bell Springs Road	C (24.2)	C (20.4)	F (131.6)	F (322.4)	C (28.1)	F (99.5)
US 290 and Tiger Lane (E)	A* (6.6)	A* (1.5)	F* (+)	F* (+)	D (40.2)	D (39.4)
US 290 and Mighty Tiger Trail	B (12.5)	A (5.7)	F (244.5)	F (181.8)	C (20.6)	B (17.0)
US 290 and Sportsplex Drive	B (12.6)	B (11.9)	F (324.5)	F (364.1)	E (58.2)	F (121.0)
US 290 and Mercer Street (W)	A* (2.2)	A* (2.2)	F* (+)	F* (+)	-	-
US 290 and Creek Road	A* (0.7)	A* (2.0)	F* (491.2)	F* (+)	F (217.6)	F (340.8)
US 290 and RM 12	D (51.9)	E (63.0)	F (805.8)	F (1036.4)	F (258.2)	F (370.5)
US 290 and Rob Shelton Boulevard	B (13.6)	C (32.7)	F (385.8)	F (642.7)	F (189.8)	F (329.8)
US 290 and Hays Country Acres Road/Headwaters Boulevard	C (21.3)	B (15.9)	F (686.4)	F (993.0)	F (335.6)	F (534.3)
US 290 and Trautwein Road	A* (7.1)	A* (3.0)	F* (119.1)	F* (527.2)	E (66.7)	F (226.9)
US 290 and Sawyer Ranch Road	D (37.7)	C (32.8)	F (746.5)	F (1114.8)	F (275.7)	F (364.9)
US 290 and Nutty Brown Road	C (23.6)	C (27.7)	F (537.1)	F (940.1)	F (267.9)	F (491.7)
RM 12 and Fitzhugh Road	B (12.5)	B (15.4)	F (443.7)	F (654.7)	C (28.1)	E (64.2)
RM 12 and Springlake Drive/Goodnight Trail	A* (3.2)	A* (3.1)	F* (+)	F* (+)	B (19.7)	C (31.6)
RM 12 and Old Fitzhugh Road/Timberline Road	A* (2.4)	A* (6.8)	F* (+)	F* (+)	A* (0.1)	A* (0.2)
RM 12 and Founders Park Road	A* (0.8)	A* (2.5)	F* (123.5)	F* (100.7)	B (11.5)	F (31.9)
RM 12 and Mercer Street	B (13.4)	C (20.3)	F (496.1)	F (507.1)	F (92.6)	F (126.5)
RM 12 and Sports Park Road	B (16.9)	C (24.4)	F (679.0)	F (1582.3)	B (16.1)	F (89.2)
RM 12 and FM 150	A* (8.0)	A* (7.9)	F* (+)	F* (+)	D (40.5)	F (89.8)
Sawyer Ranch Road and Darden Hill Road	A* (4.0)	A* (5.7)	F* (82.7)	F* (179.4)	B (11.4)	B (11.9)
Darden Hill Road and RM 1826	A* (7.7)	A* (5.5)	F* (2656.6)	F* (+)	C (21.3)	F (177.6)
RM 1826 and Nutty Brown Road	C (20.3)	D (38.3)	F (363.2)	F (817.5)	D (49.6)	F (102.1)

*Unsignalized



INTERSECTION LOS

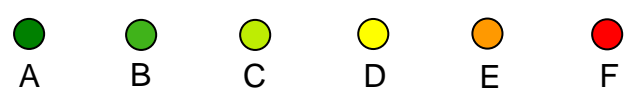
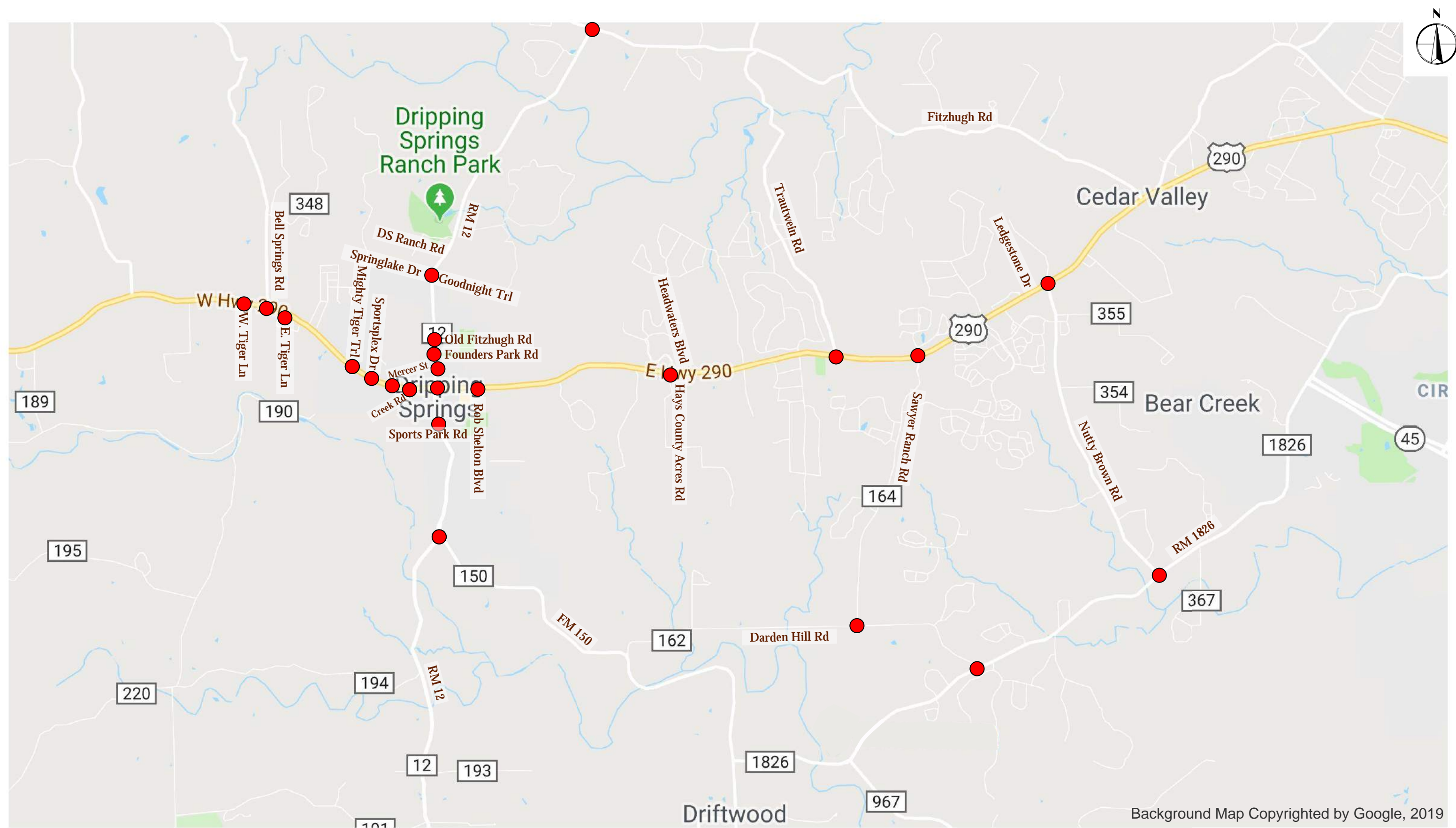


FIGURE 7
2040 FORECASTED AM
LEVEL OF SERVICE
WITHOUT IMPROVEMENTS



INTERSECTION LOS

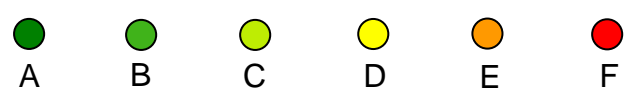
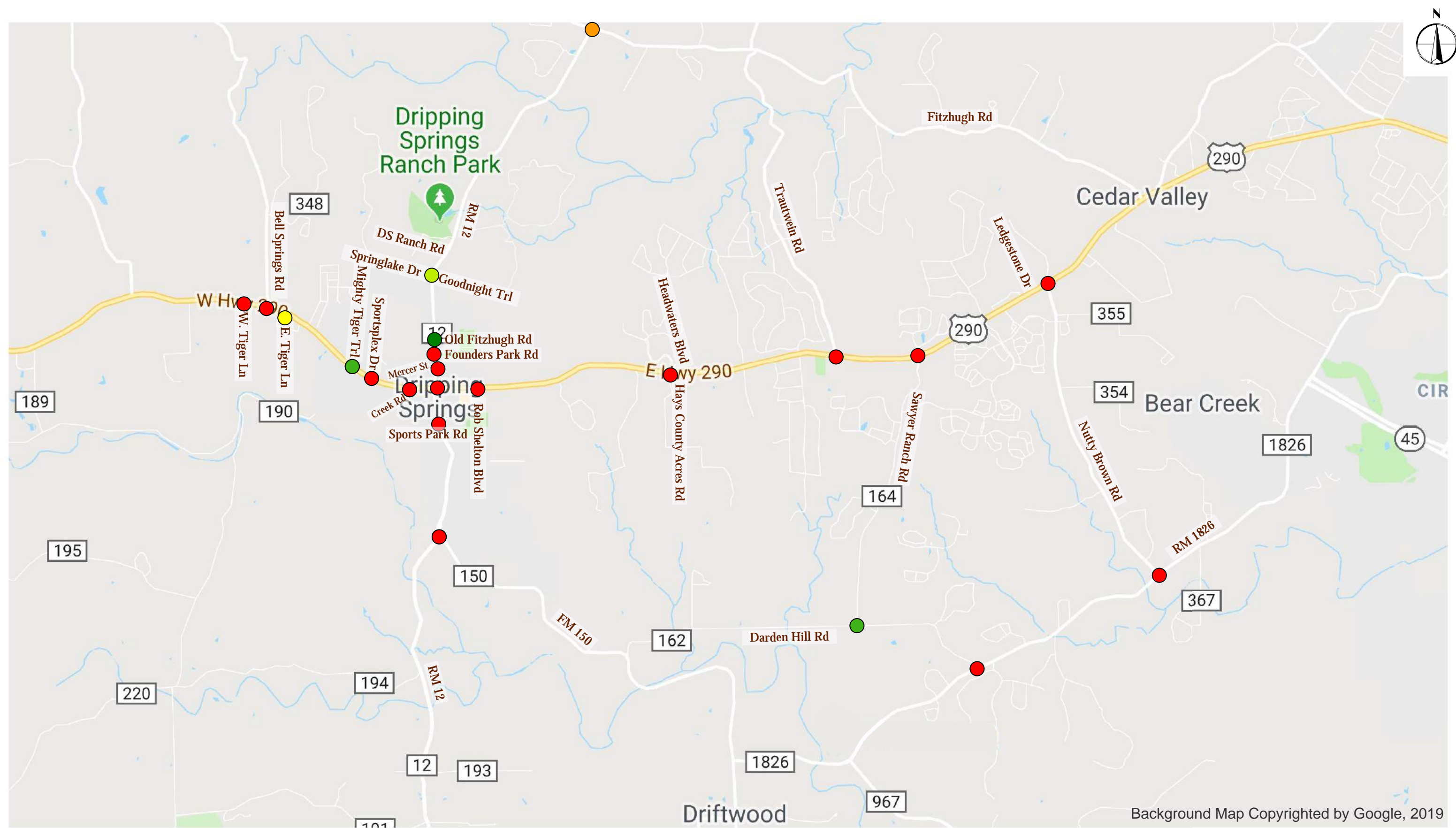


FIGURE 8
2040 FORECASTED PM
LEVEL OF SERVICE
WITHOUT IMPROVEMENTS



INTERSECTION LOS

- A
- B
- C
- D
- E
- F

FIGURE 10
2040 FORECASTED PM
LEVEL OF SERVICE
WITH IMPROVEMENTS

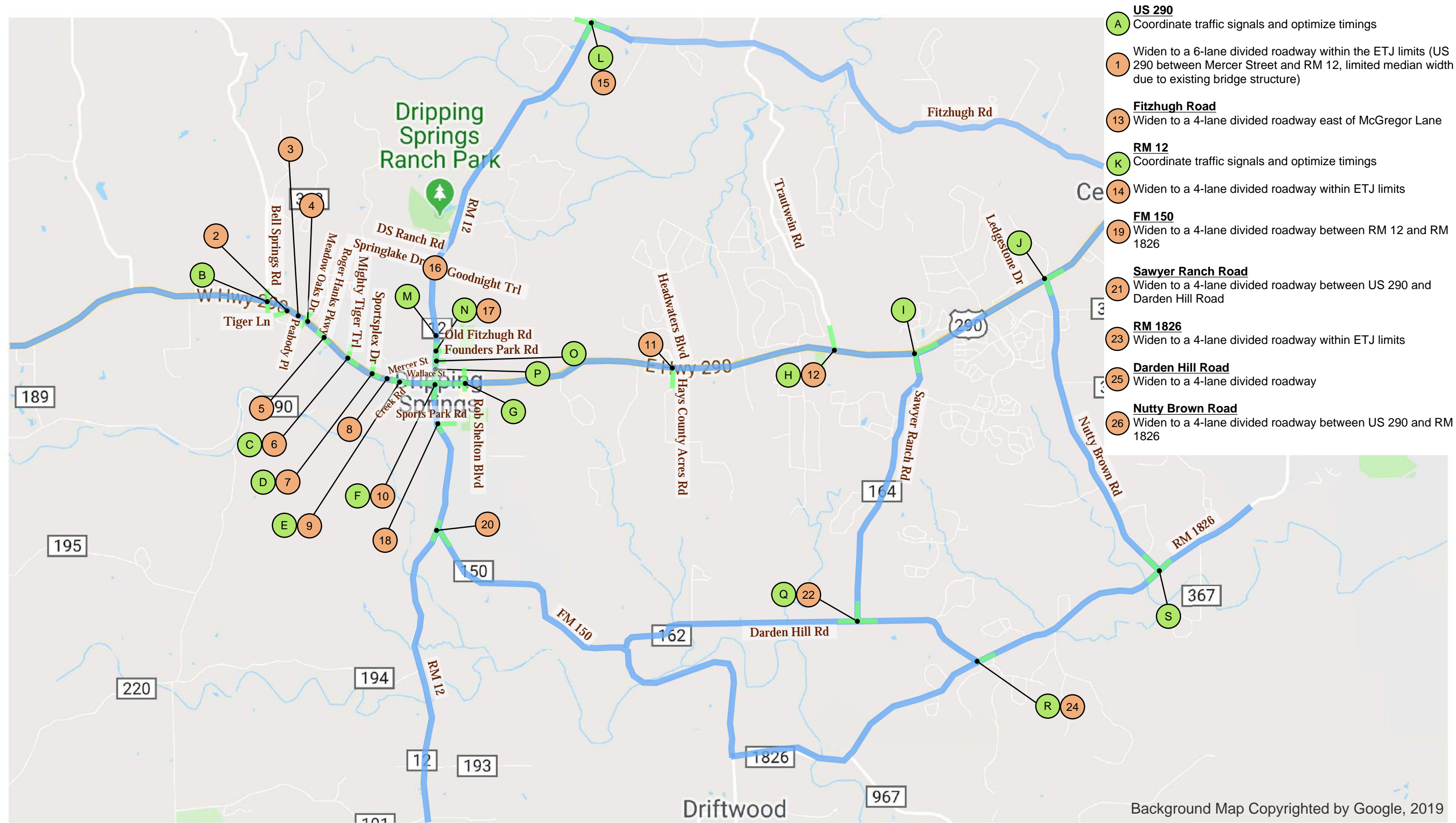


FIGURE 11
SHORT AND MID-TERM
IMPROVEMENTS

This page is intentionally left blank.

Long-Term Improvements

To meet the long-term needs of the City of Dripping Springs, a more robust roadway network is necessary. A well-coordinated network of north/south and east/west roadways will help facilitate and redistribute long term traffic demand expected from the additional development projects rather than solely utilizing US 290 as ingress/egress. Long-term improvements are proposed in the Hays County Transportation Plan and the CAMPO 2045 Plan. The Dripping Springs Transportation Master Plan evaluated previously proposed thoroughfares and transportation improvements and proposed new routes throughout the Dripping Springs area. The Transportation Master Plan provides guidance for long-term transportation planning and aims to improve future traffic operations in Dripping Springs. As part of the Transportation Master Plan, the proposed Thoroughfare Plan recommends roadway enhancements and proposed roadways to improve the roadway network, including recommendations that intend to reduce congestion on US 290 and RM 12. The City of Dripping Springs should coordinate with Hays County, TxDOT, and CAMPO to initiate feasibility analyses and development of these routes and connections. The City should also work closely with the developers to establish a roadway network aligned with the Transportation Master Plan to enhance safety and mobility in the future.

Summary

As the City of Dripping Springs continues to grow at a rapid pace over the next decade, it is important that the City plans ahead and develops strategies to mitigate the impacts of the large-scale growth. Strategies should be comprised of a variety of improvements for implementation in the short, mid, and long-term. This traffic study recommends the following:

- Short-term improvements should be implemented immediately while mid-term improvements should be coordinated with TxDOT and Hays County.
- The City should work with DSISD to develop plans to reduce peak period traffic demand on US 290 and to manage traffic for future school sites.
- Access management guidelines along US 290 and RM 12 should be developed with TxDOT to reduce conflict points and enhance safety in heavily developed areas.
- As development occurs, improvements to the roadway network should work towards a well-coordinated roadway network to redistribute traffic away from US 290.

To meet the long-term needs of the City of Dripping Springs, a more robust roadway network is necessary. The City should work with Hays County, TxDOT, CAMPO, and developers to ensure that future transportation plans in the Dripping Springs area are informed by the long-term goals and recommendations in the Transportation Master Plan.

References

1. Hays County
2013 Hays County Transportation Plan, Hays County, Texas
2. Capital Area Metropolitan Planning Organization
2020 CAMPO 2045 Regional Transportation Plan, Travis County
3. Texas Department of Transportation
2018 Traffic Count Database System, Austin, Texas
4. Hays County
2017 The FM 150 West Character Plan, Hays County, Texas
5. Trafficware Ltd
2017 Synchro 10, Sugar Land, Texas
6. Transportation Research Board
2010 Highway Capacity Manual, Washington, D.C.
7. Institute of Transportation Engineers
2017 Trip Generation Manual, An Informational Report, 10th Edition, Washington D.C.