City of Sachse, Texas

Sachse City Hall
3815-B Sachse Road
Sachse, Texas 75048

Meeting Agenda

City Council Workshop

Monday, October 5, 2015 | **6:30 PM** | **Council Chambers**

The City Council of the City of Sachse will hold a Workshop Session on Monday, October 5, 2015, at 6:30 p.m. in the Council Chambers at Sachse City Hall, 3815 Sachse Road, Building B, Sachse, Texas to discuss the following items of business:

1. Discussion Items.

Please note:These items are for discussion purposes only and no Council action will be taken. The workshop session is for City Council and staff discussion, citizen input is not permitted on this agenda.

2. Discuss any City Council meeting agenda items.

15-3049 Discuss the proposed traffic signal and pedestrian crossing improvements on Miles Road at Sachse High School.

Attachments: WK Presentation - Miles Road Traffic Discussion
Exhibit A - Location Map
Exhibit B - Sachse HS - Miles Road Traffic Study - Final

3. Adjournment.

State law prohibits the introduction or discussion of any item of business not posted at least seventy-two (72) hours prior to the meeting time.
Posted: October 1, 2015; 5:00 p.m.

_____
Michelle Lewis Sirianni, City Secretary

Legislation Details (With Text)

File #:	15-3049	**Version:**	1	**Name:**	Discuss Miles Road Traffic Signal & Pedestrian Crossing Improvements
Type:	Discussion Item			**Status:**	Agenda Ready
File created:	9/30/2015			**In control:**	City Council Workshop
On agenda:	10/5/2015			**Final action:**	
Title:	Discuss the proposed traffic signal and pedestrian crossing improvements on Miles Road at Sachse High School.				
Sponsors:					
Indexes:					
Code sections:					
Attachments:	WK Presentation - Miles Road Traffic Discussion Exhibit A - Location Map Exhibit B - Sachse HS - Miles Road Traffic Study - Final				

Date	Ver.	Action By	Action	Result

Title
Discuss the proposed traffic signal and pedestrian crossing improvements on Miles Road at Sachse High School.

Executive Summary
This item is to discuss proposed traffic signal and pedestrian crossing improvements related to Sachse High School and to also discuss a professional services agreement with Lee Engineering to begin engineering design for the project.

Background
The traffic on and across Miles Road near Sachse High School is a mix of school related and non-school related transportation activity, creating a dynamic situation during morning and evening hours of peak activity. The location map is shown in Exhibit A.

In September 2014, Lee Engineering completed a study of the pedestrian and motor vehicle movements on and across Miles Road at Hunters Ridge Drive and Haverhill Lane. The findings included recommendations for two traffic signals, pedestrian improvements, and extending the length of the existing turn lanes into Sachse High School. The study is attached as Exhibit B.

The Fiscal Year 2015-16 Budget includes funding for engineering design related to the proposed improvements, as shown in the FY 2015-2016 Capital Improvement Plan.

Policy Considerations

The project is identified in the FY 2015-2016 Capital Improvement Plan.

Budgetary Considerations
The FY 2015-2016 Budget includes $75,000.00 for engineering design. The proposed consultant fee totals $73,125.00, including $60,800.00 for basic services and $12,325.00 in additional services that may be required for the project.

Staff Recommendations
None.

Miles Road Traffic Discussion

City Council
October 5, 2015

Overview

- History and background
- Overview of the traffic study
- Findings of the study
- Recommendations in the study
- Staff Recommendations and Phasing
- Discussion and feedback

History and Background

- The enrollment at Sachse High School has been rising
  - 2005 – 2,360 students*
  - 2010 – 2,599 students*
  - 2014 – 2,800 students**
- The population of the City of Sachse has been rising
  - 2005 – 16,728 residents***
  - 2010 – 20,472 residents***
  - 2013 – 22,026 residents***

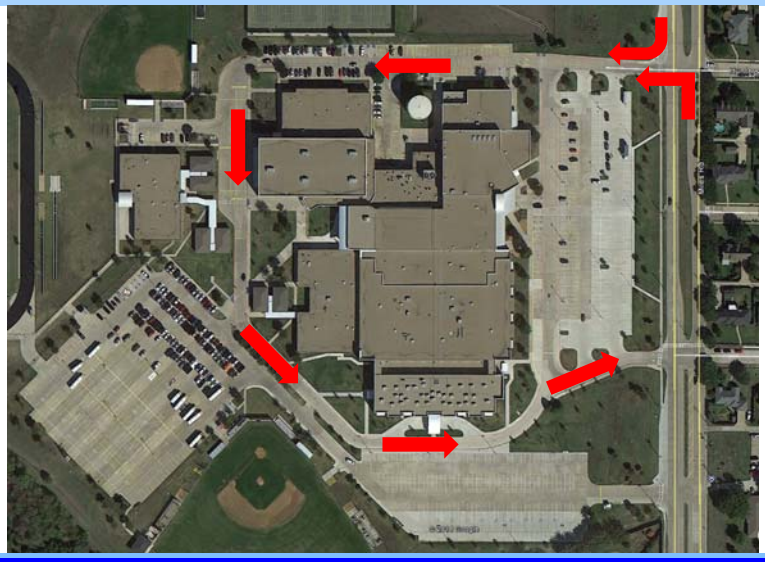
More people = more traffic

*Data from High-Schools.com
**Data from Garland ISD
***Data from US Census Bureau

History and Background

- Vehicular and pedestrian traffic congestion has been occurring regularly during the morning drop-off and afternoon dismissal times for Sachse High School. The congestion has continued to increase over time.
- In April of 2014, the City Council approved a contract with a transportation engineer to conduct a traffic study on Miles Road adjacent to Sachse High School.
- The study was completed at the end of September of 2014.
- Staff held internal meetings to review and discuss the study in October, and presented the findngs to the City Council on November 3, 2014.

On Campus Traffic Circulation



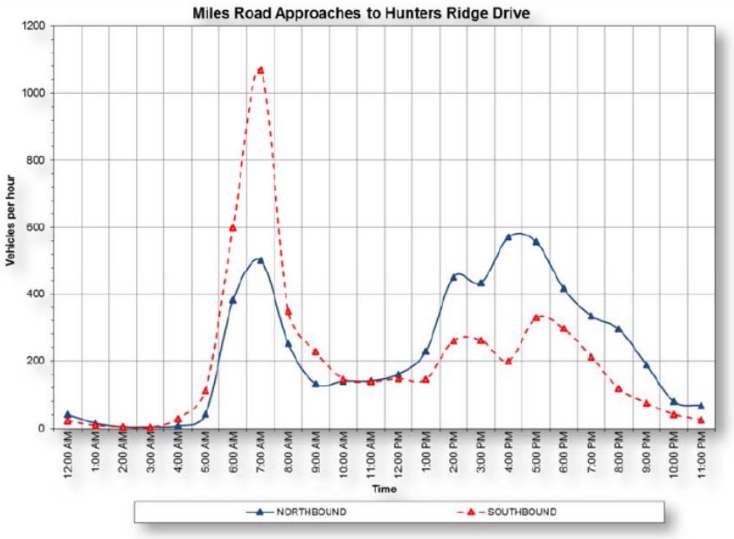
Miles Road Traffic Study - Overview

- Data
  - Automated traffic counts on Miles Road, Hunters Ridge, and Haverhill
  - Manual turning movement counts at intersections
  - Field observations during peak times
- Analysis
  - Capacity analysis for street and driveway intersections
  - Crossing analysis for pedestrian crossings on Miles Road
  - Warrant study for traffic signals on Miles Road at Hunters Ridge and Haverhill
- Findings
- Recommendations

Data – Traffic Counts

Miles Road Traffic

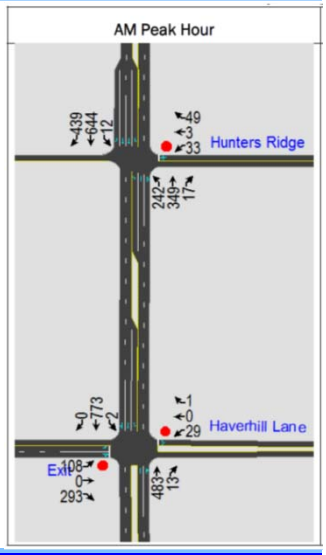
- Morning Peak (north + south)
  - 1600 vehicles per hour at 7am
- Afternoon Peak (north + south)
  - 900 vehicles per hour at 5pm
  - From 2pm to 6pm, sustained traffic flow of 600+ vehicles per hour



Data – Manual Turning Movement Counts

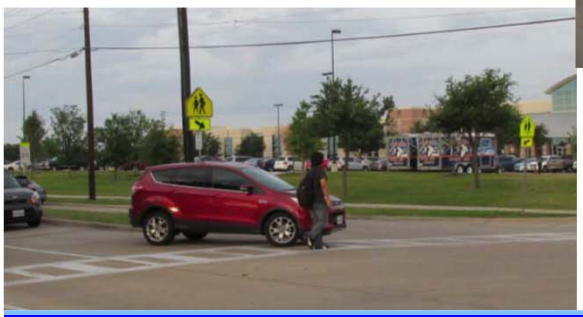
Table 1: Miles Road at Hunters Ridge Turning Movement Counts

	Miles Road (Southbound)				Hunters Ridge (Westbound)				Miles Road (Northbound)				School Entry Drive (Eastbound)				Total
Start Time	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	Left	Thru	Right	Peds	
06:30	2	87	72	2	4	0	13	13	80	44	2	0	0	0	0	0	319
06:45	3	128	127	0	3	0	11	24	84	90	3	2	0	0	0	1	476
07:00	5	217	174	6	13	1	18	89	41	116	10	0	0	0	0	0	690
07:15	2	212	66	1	13	2	7	45	37	99	2	0	0	0	0	1	487
07:30	0	199	1	0	16	0	2	1	11	66	2	0	0	0	0	0	298
07:45	2	188	2	0	6	0	1	0	9	84	2	0	0	0	0	0	294
08:00	0	106	4	2	6	0	0	0	12	71	3	1	0	0	0	0	205
08:15	0	97	1	6	5	0	1	1	15	45	0	0	0	0	0	0	171
14:00	2	36	4	0	3	0	3	0	32	44	2	0	0	0	0	0	126
14:15	4	27	14	0	1	0	0	0	39	29	4	1	0	0	0	1	120
14:30	5	55	19	0	12	2	12	1	33	102	5	61	0	0	1	115	423
14:45	1	74	12	1	6	0	5	1	30	115	2	5	0	0	0	12	264
15:00	2	53	8	0	5	1	1	0	14	45	4	1	0	1	0	1	136
15:15	3	45	5	0	4	0	2	0	10	128	6	2	0	0	0	2	207
15:30	2	50	2	0	0	0	1	0	18	60	4	6	0	0	0	2	145
15:45	5	78	6	0	1	0	2	0	20	65	3	0	0	0	1	7	188



Data – Field Observations

Field Observation #1
multiple vehicles turning at the same time



Field Observation #2
vehicle not yielding to pedestrian

Analysis – Capacity

Level of Service is a qualitative measure of capacity and operating conditions, and is defined using a scoring system of A thru F

Table 4. Level of Service Criteria for Unsignalized Intersections

Level-of-Service (LOS)	Average Control Delay (seconds/vehicle)	Description
A	≤ 10.0	No delays at intersections with continuous flow of traffic. Uncongested operations: high frequency of long gaps available for all left and right turning traffic. No observable queues.
B	10.1 to 15.0	No delays at intersections with continuous flow of traffic. Uncongested operations: high frequency of long gaps available for all left and right turning traffic. No observable queues.
C	15.1 to 25.0	Moderate delays at intersections with satisfactory to good traffic flow. Light congestion; infrequent backups on critical approaches.
D	25.1 to 35.0	Increased probability of delays along every approach. Significant congestion on critical approaches, but intersection functional. No standing long lines formed.
E	35.1 to 50.0	Heavy traffic flow condition. Heavy delays probable. No available gaps for cross-street traffic or main street turning traffic. Limit of stable flow.
F	> 50.0	Unstable traffic flow. Heavy congestion. Traffic moves in forced flow condition. Average delays greater than one minute highly probable. Total breakdown.

SOURCE: *Highway Capacity Manual, HCM2010*, Transportation Research Board, 2010.

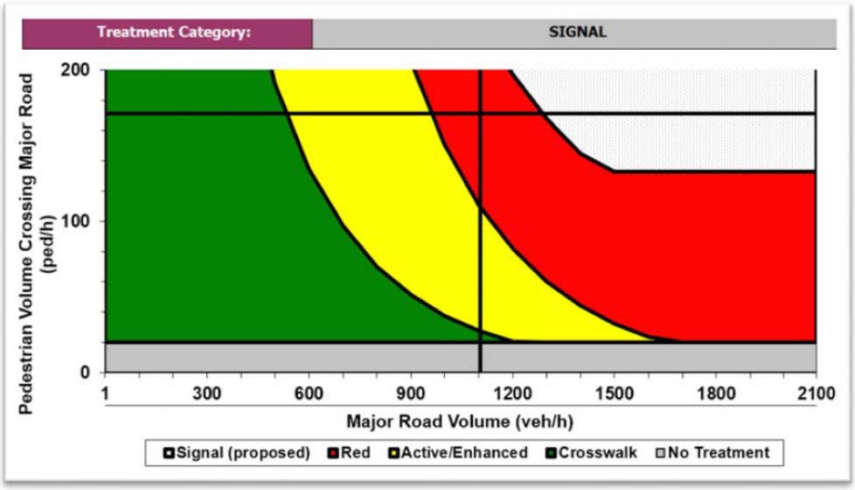
Analysis – Capacity

Miles Road at Hunters Ridge Drive / Sachse HS Entrance Driveway (TWSC)[1]				
	EB	WB	NBL	SBL
AM Arrival Peak	---	Error[2]	40.9 (E)	8.5 (A)
PM Dismissal Peak	---	29.5 (D)	8.5 (A)	0.4 (A)
Miles Road at Haverhill Lane / Sachse HS Exit Driveway (TWSC)				
	EB	WB	NBL	SBL
AM Arrival Peak	37.6 (E)	147.4 (F)	---	8.6 (A)
PM Dismissal Peak	18.4 (C)	109.1 (F)	---	8.9 (A)

[1] Delay in seconds / vehicle (LOS)
[2] Delay was too high, model error.

Analysis – Pedestrian Crossing

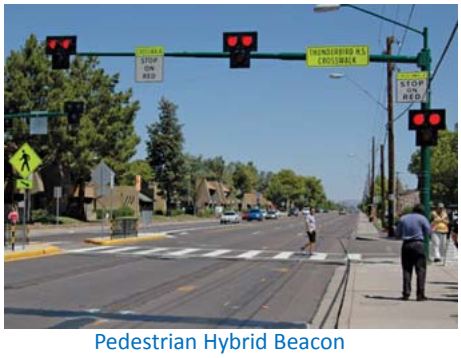
Figure 9: Crosswalk Analysis Output - Hunters Ridge (7:00 AM, 20 MPH)



Analysis – Pedestrian Crossing

- The study contemplated simple crosswalks, crosswalks enhanced with flashing yellow lights, pedestrian hybrid beacons, and traffic signals.
- The analysis determined that a red light is needed in order to properly stop and start pedestrian movements and vehicular movements.

Enhanced Crosswalk



Pedestrian Hybrid Beacon

Analysis – Traffic Signals

- Traffic Signal Warrants (Per MUTCD)
  - Warrant 1 – 8-hour vehicular volume
  - Warrant 2 – 4-hour vehicular volume
  - Warrant 3 – Peak Hour
  - Warrant 4 – Pedestrian Volume
  - Warrant 5 – School Crossing
  - Warrant 6 – Coordinated Signal System
  - Warrant 7 – Crash Experience
  - Warrant 8 – Roadway Network
  - Warrant 9 – Intersections Near a Grade Crossing

- Miles at Hunters Ridge Intersection
  - Satisfies Warrant 3 and 4

- Miles at Haverhill Intersection
  - Satisfies Warrant 2 and 3

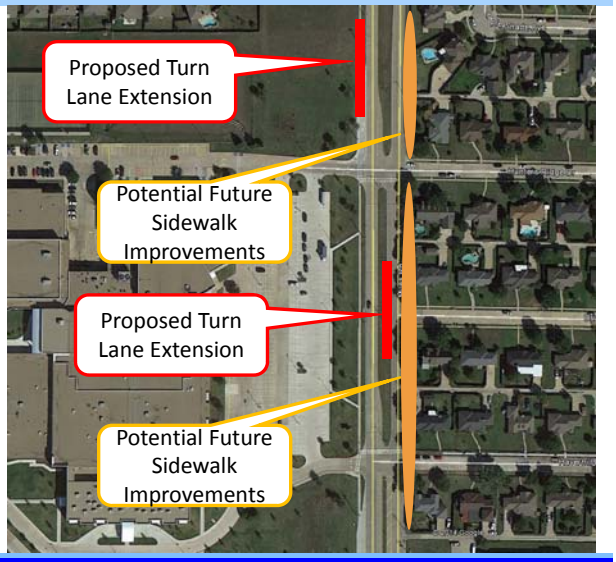
Miles Road Traffic Study - Findings

- There are operational problems along Miles Road
  - Pedestrians movements have overtaken the intersections during peak morning traffic, causing insufficient vehicular operations
  - Regulation of pedestrian movements is necessary
    - Flashing yellow lights are not sufficient to regulate pedestrian traffic
    - Use of Walk/Don't Walk signals is needed
- Traffic signals are warranted
  - Miles Road at Hunters Ridge Drive
  - Miles Road at Haverhill Lane
  - Installing a signal only in one location is unlikely to provide sufficient relief
  - Traffic signals should be linked with existing signals on Miles Road to minimize stops

Miles Road Traffic Study – Recommendations

- The study made the following recommendations:
  - Traffic Signals
    - Install traffic signals on Miles Road at Haverhill and at Hunters Ridge
    - Link the signals to existing signals at Hudson and Bunker Hill
  - Street Improvements
    - Extend northbound left turn lane at Hunters Ridge
    - Extend southbound right turn lane at Hunters Ridge
    - Connection to the High School from Hudson or Rosewood (east)
  - Pedestrian Improvements
    - Upgrade sidewalks and curb ramps along Miles Road, particularly at the Hunters Ridge and Haverhill intersections

Miles Road Traffic Study - Recommendations



Miles Road Traffic Study – Recommendations

West side of Miles Road looking North from Haverhill Lane

West side of Miles Road looking North from Hunters Ridge Dr.

Miles Road Traffic Study – Recommendations

Critical Improvements – Proposed Design in FY 15-16

- Critical Improvements - Staff has identified the critical improvements based upon need and feasibility, which include:
  - Traffic signals on Miles Road at Hunters Ridge and Haverhill, linked with other signals on Miles Road by communication radio
  - Extension of the northbound left turn lane on Miles Road at Hunters Ridge
- The project has been added to the Capital Improvement Plan for this year, with $75,000 in funding for engineering design.

Critical Improvements – Proposed Design in FY 15-16

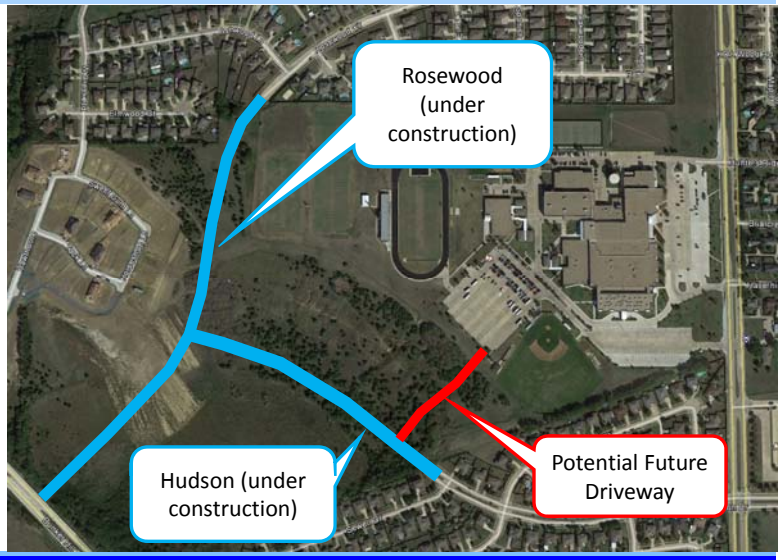
Design Budget:
$75,000.00

Potential Construction in FY 2015-2016

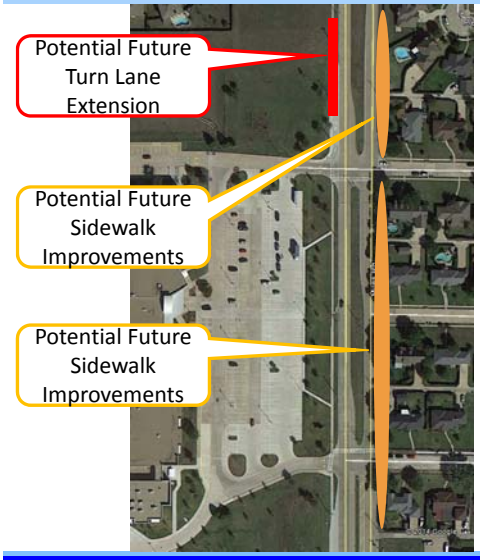
Potential Construction Funding Partners:
- Garland ISD
- Dallas County

Future Private Improvements

- Potential Future Private Improvements:
  - Future driveway connecting Hudson to the High School parking lot.



Staff Recommendations – Future Public Improvements

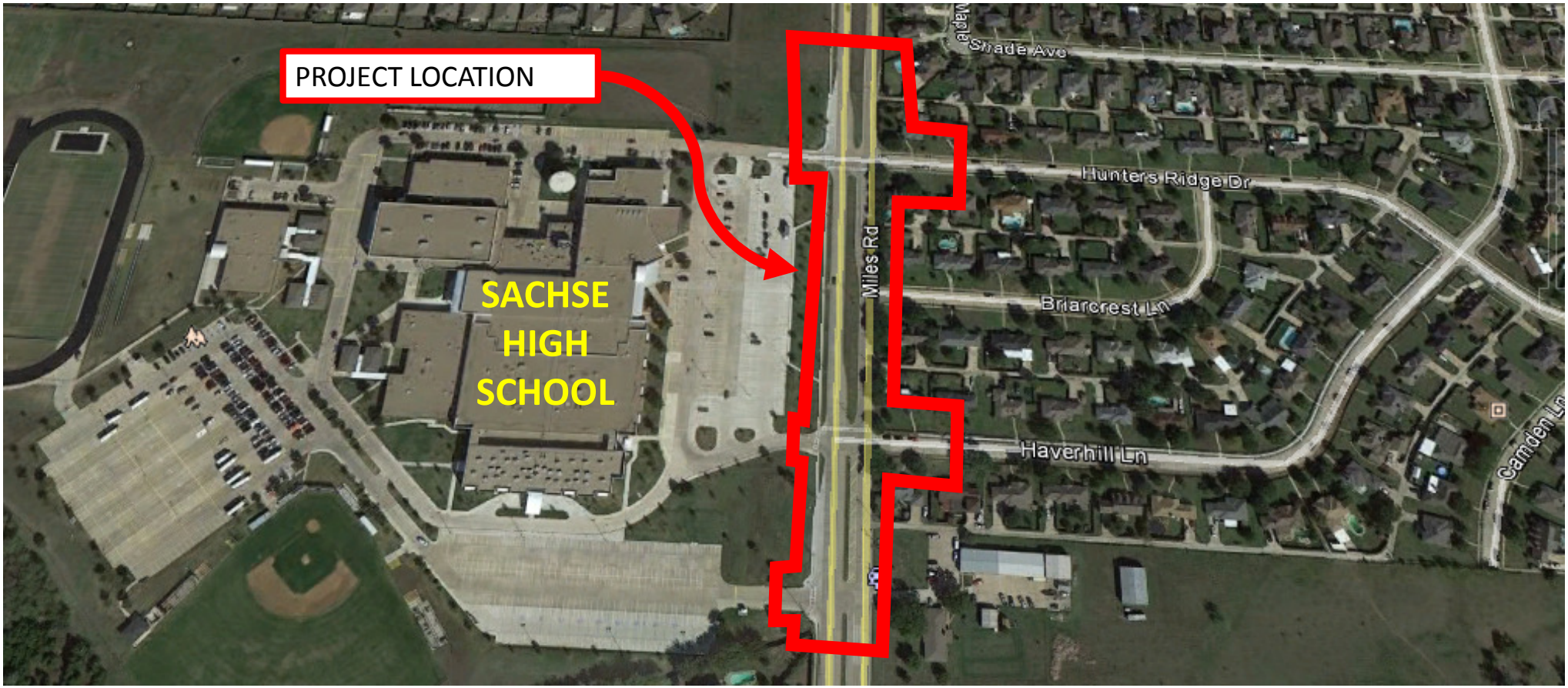


- Potential Future Public Improvements – these projects would require additional right-of-way from adjacent properties:
  - Extending the southbound right turn lane at the north school entrance
  - Sidewalk improvements along the west side of Miles Road

Discussion Items

- Critical Improvements
  - Engineering Design in FY 2015-2016
  - Potential Construction in FY 2016-2017
- Future Improvements
  - To be re-evaluated after the critical improvements are in place and functioning

PROJECT LOCATION



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