

County of Loudoun

Office of Transportation Services

MEMORANDUM

DATE: March 19, 2010

TO: Mike Elabarger, Project Manager
Department of Planning

FROM: Marc Lewis-DeGrace, Transportation Planner

SUBJECT: SPEX 2009-0036 — Loudoun Youth Soccer Association Lighting
First Referral

RECEIVED

MAR 19 2010

LOUDOUN COUNTY
DEPARTMENT OF PLANNING

Background

This Special Exception (SPEX) application seeks to allow lighting on soccer fields that does not meet standards set by the *Revised 1993 Zoning Ordinance*. The site is located on the east side of Sycolin Road (Route 643), adjacent to Loudoun County's Leesburg Park and Ride Lot and Philip A. Bolen Memorial Park. Access to the site is provided via an existing site driveway. A vicinity map is provided as *Attachment 1*.

In its consideration of this application, the Office of Transportation Services (OTS) reviewed materials received from the Department of Planning on January 8, 2010, including (1) a statement of justification prepared by the Applicant, (2) a special exception plat (plan set) prepared by Bohler Engineering dated November 11, 2009 revised through December 22, 2009, and (3) a Traffic Statement prepared by Wells and Associates dated November 16, 2009.

Existing, Planned and Programmed Transportation Facilities

The site is located just outside of the Town of Leesburg within the Leesburg Joint Land Management Area (JLMA). Major roadways serving the site are described below. OTS review of existing and planned transportation facilities is based on the *2001 Revised Countywide Transportation Plan (2001 Revised CTP)* and the *2003 Bicycle & Pedestrian Mobility Master Plan (2003 Bike & Ped Plan)*.

Sycolin Road (Route 643) (segment from Route 659 northwest to Battlefield Parkway) is classified by the *2001 Revised CTP* as a minor collector road. It is currently built as a two-lane (R2) road within a variable right-of-way (ROW). A recent project by the Virginia Department of Transportation (VDOT) has paved the entire road. The *2001 Revised CTP* calls for Sycolin Road to be widened to a four-lane divided (U4M) facility within a 90-foot ROW and reclassified. A segment of Sycolin Road just to the north of the site has been widened by Loudoun County, installing left- and right-turn lanes at Loudoun Center Drive and a left-turn lane at Claudia Drive, (the entrance to the Leesburg Park and Ride Lot). The Town

of Leesburg is in the process of widening Sycolin Road to four lanes within the Town Limits. According to the most recent data provided by VDOT (2008), Sycolin Road carries 3200 daily vehicle trips.

The 2003 Bike & Ped Plan classifies Sycolin Road as a “baseline connecting roadway” along which bicycle and pedestrian facilities are envisioned. There are multi-use trails on either side of Sycolin Road to the north of the site from the Leesburg Town Limits south to Claudia Drive (a distance of approximately 1500 feet). These facilities were constructed as part of the recent Loudoun County widening project.

Review of Applicant’s Submitted Traffic Statement

The Applicant’s submitted traffic statement (*Attachment 2*) reviewed the existing conditions along Sycolin Road (Route 643) at the site entrance and the impacts of the proposed use on the roadway. The traffic statement indicates that the four fields proposed on the site (i.e., two full-size lighted soccer fields and two smaller unlighted “play areas”) should be counted as three fields given the smaller size and capacity of the “play areas”. Using rates published by the Institute of Transportation Engineers (ITE) in Trip Generation (8th Edition), vehicle trips generated by the proposed fields are as follows:

Trip Generation Analysis

Land use / Time Period	ITE Code	Amount	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Soccer Complex	488	3 Fields						
Adjacent Street Peak Hour Generator			2	2	4	43	19	62
Peak Hour of Generator			5	4	9	21	44	65

Source: Wells + Associates Traffic Statement (11/16/2009)

The traffic statement notes even if the lighting of the fields moved the PM peak hour of the generator (fields) to be coincident with the adjacent street (commuter) PM peak hour, an addition of only five percent (three vehicle trips) would result. The traffic statement concludes that this is not a significant traffic increase.

The traffic statement also analyzed the need for left and right turn lanes on Sycolin Road at the site entrance, and determined that neither is warranted. Analysis of each is provided as part of *Attachment 2*.

Transportation Comments

1. The Leesburg Executive Airport Master Plan and Capital Improvement Plan calls for an extension of the airport runway in the future. The runway extension will require a realignment of Sycolin Road (Route 643), which is anticipated to impact the Applicant’s property generally as indicated on *Attachment 3*. This realignment is also shown on the Town of Leesburg’s Transportation Plan and noted in the draft 2010 Loudoun County

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CTP. It is recommended that the Applicant contact both Leesburg Executive Airport and the Town of Leesburg to coordinate development of this site with respect to this road realignment.

2. Loudoun County is currently in the process of selecting an engineering firm to design Crosstrail Boulevard, a segment of which is proposed to pass through Phil Bolen Park just east of this site. Please be aware that the ultimate location of Crosstrail Boulevard may deviate from the alignment depicted on the Applicant's special exception plat and impact the Applicant's lot/proposed fields.
3. Please ensure that the lighting for the soccer fields is not directed toward existing or future planned roads.

Conclusion

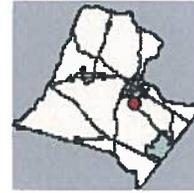
Subject to resolution of the issues identified in this referral, OTS would have no objection to the approval of this application.

ATTACHMENTS

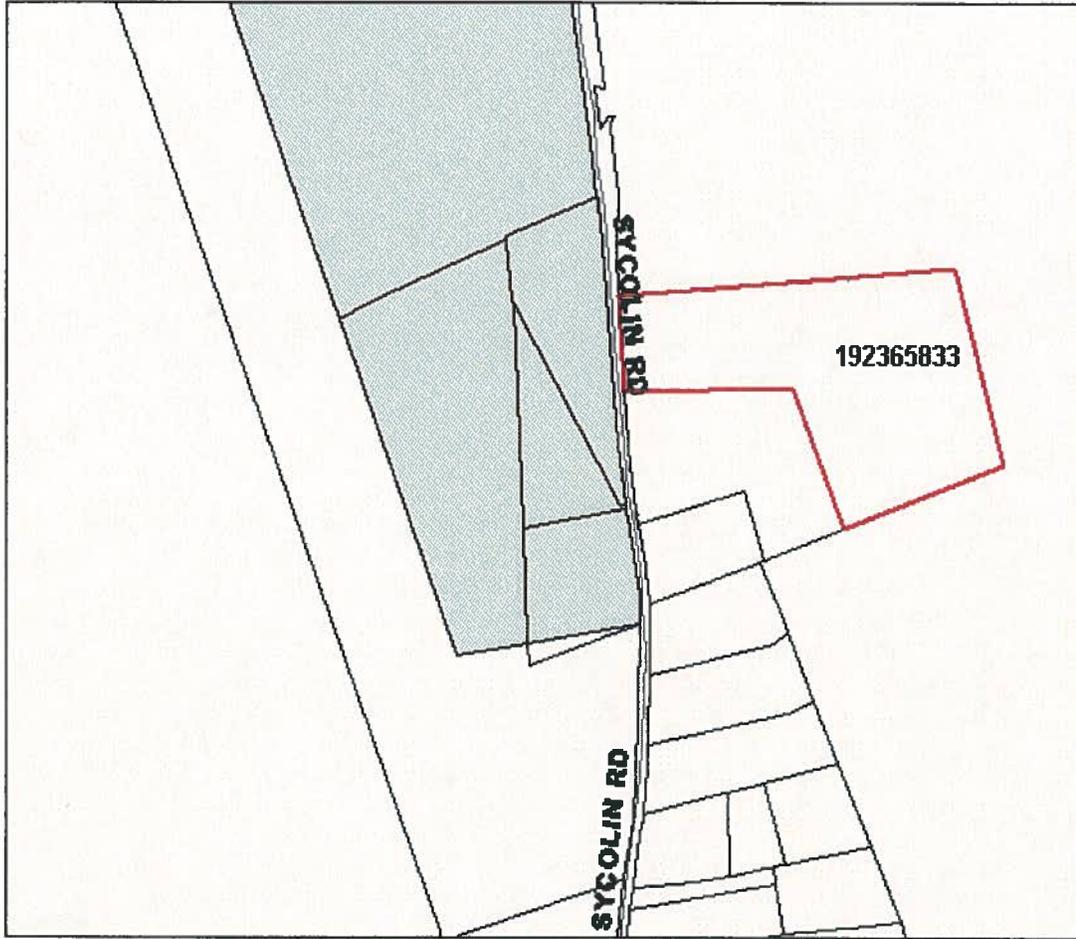
1. Site Vicinity Map
2. Traffic Statement (November 16, 2009)
3. Leesburg Executive Airport Master Plan (Portion of Airport Layout Plan, March 2007; Sheet 9 of 9)

cc: Andrew Beacher, Assistant Director, OTS
Lou Mosurak, Senior Coordinator, OTS

Loudoun County Mapping System



7,075,166



7,072,416

11,750,255

Map Width=3,144 feet

11,753,399

Created on 1/26/2010 2:17:06 PM

PIN	Address
192365833	19798 Sycolin Rd Leesburg 20175

* General Parcel Information *

PIN: 192365833
 Tax Map #: /60/////////16/
 Parcel Address: 19798 SYCOLIN RD LEESBURG 20175
 Owner Name: HOGAN, JAMES JR & M SCHENK & D PAUL
 Primary Zoning: JLMA20
 GIS Parcel Type: P

ATTACHMENT 1

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WELLS + ASSOCIATES

MEMORANDUM

TO: George R. Phillips, AICP
Loudoun County Office of Transportation Services

FROM: Kevin D. Sitzman, P.E.

DATE: November 16, 2009

RE: Loudoun Youth Soccer Association, Inc.
Sycolin Road Soccer Fields
Traffic Statement

RECEIVED
LAND DEVELOPMENT COUNTER

NOV 20 2009

LOUDOUN COUNTY
BUILDING & DEVELOPMENT

Introduction

This memorandum presents a traffic statement for the proposed lighted soccer fields to be located along the east side of Sycolin Road, south of the Park'n'Ride lot and north of Cochran Mill Road. While soccer fields are a permitted use on the subject site, the lights (proposed to permit the extension of practice and game times into the evening hours) would require special exception approval. Access would be provided at an existing driveway location along Sycolin Road.

Existing Conditions

In the vicinity of the subject site, Sycolin Road is a two-lane rural highway with a posted speed limit of 35 mph. Parcels fronting Sycolin Road are served by individual driveways, thus resulting in left turn conflicts that are common on two-lane facilities.

According to the most recent information published by the Virginia Department of Transportation (VDOT), the Annual Average Daily Traffic (AADT) volume for the segment of Sycolin Road between the Town of Leesburg limits and Shreve Mill Road was 3,200 vehicles per day. The data further indicate that approximately 12.6 percent of these vehicles (or 403 vehicles) utilize the road during the peak hour. The Highway Capacity Manual identifies the capacity of a two-lane highway as 3,200 passenger cars per hour. Thus, the current traffic volume is well within the capacity of the roadway.

Site Trip Generation

The number of vehicle-trips that would be expected with the soccer fields was determined based on the standard trip generation rates published by the Institute of Transportation Engineers (ITE) in Trip Generation, 8th Edition. Table I indicates the numbers of trips generated during the AM and PM peak hours, both for the typical commuter peaks and the peak hours of the use. The trip generation

estimates were based on three athletic fields, as the concept plan indicates two full fields and two "play areas." The play areas will likely be used for practices, but without lights would not be used to the same extent as the fields, and thus were each included as "1/2 of a field."

Table I
Trip Generation Analysis

Land Use/ Time Period	ITE Code	Amount	Units	AM Peak Hour			PM Peak Hour		
				In	Out	Total	In	Out	Total
<u>Soccer Complex</u>	488		3 fields						
Adjacent Street Peak Hour				2	2	4	43	19	62
Peak Hour of Generator				5	4	9	21	44	65

Note: Based on Trip Generation, 8th Edition, Institute of Transportation Engineers.

It is noted that the critical PM peak hour of generator volume is only five percent (or three trips) more than during the commuter peak hour. Thus, even if the addition of lights to the proposed fields moved the overall afternoon/evening peak hour to be coincident with the commuter peak hour, an increase of no more than three total trips (or five percent) during the street peak hour would result from the special exception.

Hazardous Locations

Based on a field reconnaissance, no hazardous locations or constraints were identified. Due to the presence of multiple driveways along this segment of Sycolin Road, drivers would generally expect vehicles turning from the through lanes of the mainline. Thus, access to the subject site via an unsignalized driveway on the relatively straight, flat segment of Sycolin Road would not present a hazard.

Turn Lanes

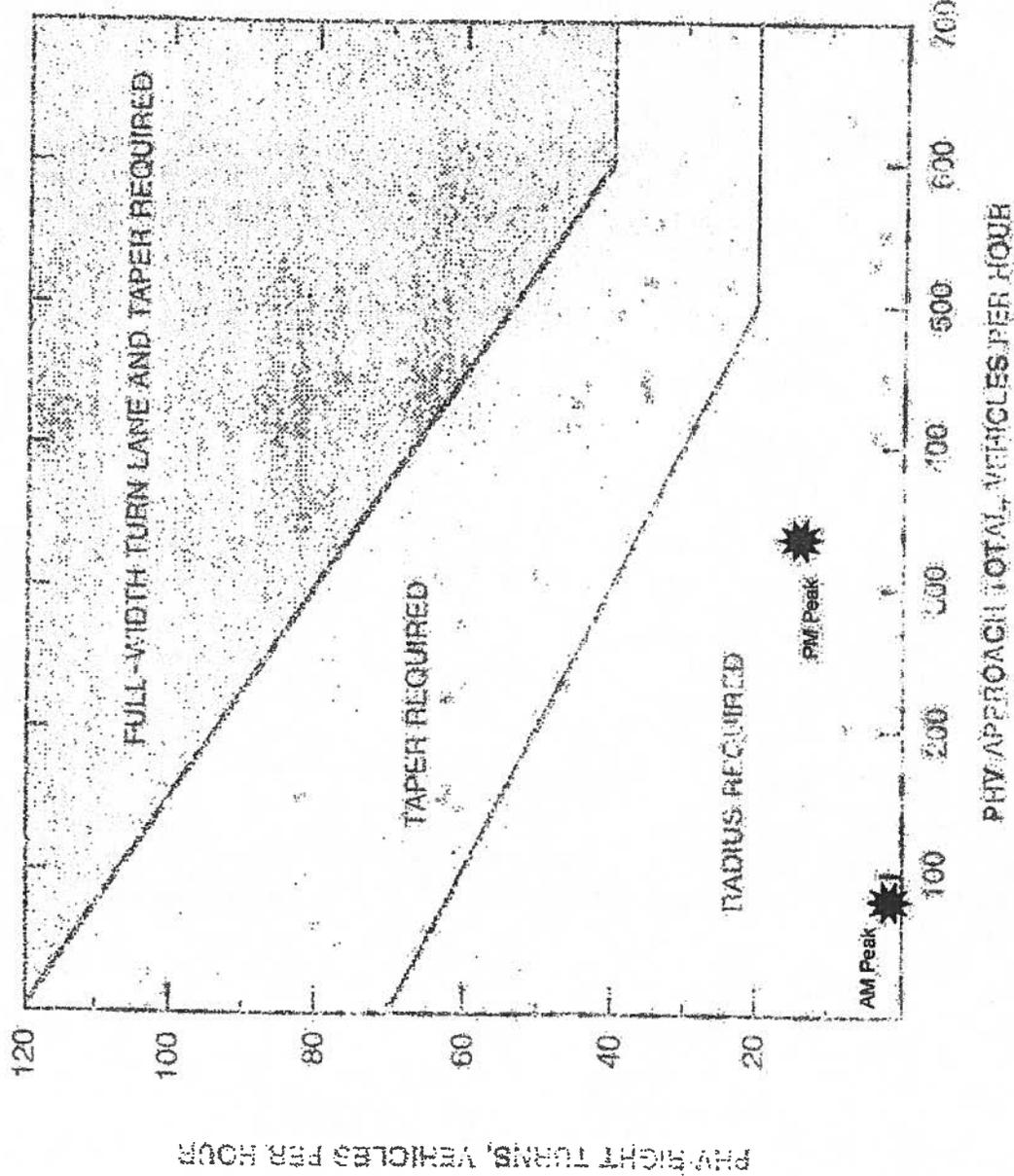
Loudoun County staff requested an analysis of the need for left and right turn lanes to serve the proposed soccer fields. Traffic volumes for Sycolin Road were based on published VDOT counts and K-factors, the trip generation estimates shown in Table 1, and an anticipated directional distribution of 70 percent from the north/30 percent from the south. The warrants for right turn lanes from Figure C-1-8 of the VDOT Road Design Manual and Exhibit 9-75 of the AASHTO Green Book. The results are attached to this traffic statement and indicate that neither a right nor a left turn lane would be required at the proposed entrance to the soccer fields.

Conclusion

The special exception to add lights to the permitted soccer fields along Sycolin Road would not significantly increase the number of trips generated by the site during critical peak hours. The application would have a minimal impact on the traffic safety and operations along Sycolin Road and would not result in the need for turn lanes.

Please feel free to contact me with any questions you may have regarding this matter.

Guidelines for Right Turn Treatments - Two Lane Highway Sycolin Road/Site Entrance



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PHV - Peak Hour Volume (also Design Hourly Volume equivalent)

Adjustment for Right Turns

For posted speeds at or under 45 mph (72 km/hr.), PHV right turns > 40, and PHV total < 300

Adjusted PHV Right Turns = PHV Right Turns - 20

If PHV is not known use formula: PHV = ADT x K x D

K = the percent of ADT occurring in the peak hour

D = the percent of traffic in the peak direction of flow

Note: An average of 11% for K x D will suffice.

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Table 1
 Sycolin Soccer Fields
 Loudoun, VA

AM Peak Hour

Left Turn Lane Warrant Analysis - 2 Lane Roadway

Sycolin Road/
 Site Entrance

Left Turn Lane Warrant

AM Peak Hour
 Site Buildout

1. Enter operating speed of 40, 50, or 60 mph > 40 mph

2. Enter advancing volumes

Lefts	>	<u>1 vph</u>
Throughs	>	<u>310 vph</u>
Rights	>	<u>0 vph</u>
Total	>	<u>311 vph</u>

Percent left turns= 0%

3. Enter opposing volume > 94 vph

The maximum allowable advancing volume = > 480 vph
 A left turn lane is not warranted.

Exhibit 9-75

A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2001. (AASHTO)

Opposing Volume	Advancing Volume/Hour			
	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
<u>40-mph Operating Speed (60 km/h)</u>				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
<u>50-mph Operating Speed (80 km/h)</u>				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
<u>60-mph Operating Speed (100 km/h)</u>				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

Table J-2
 Sycolin Soccer Fields
 Loudoun, VA

PM Peak Hour

Left Turn Lane Warrant Analysis - 2 Lane Roadway

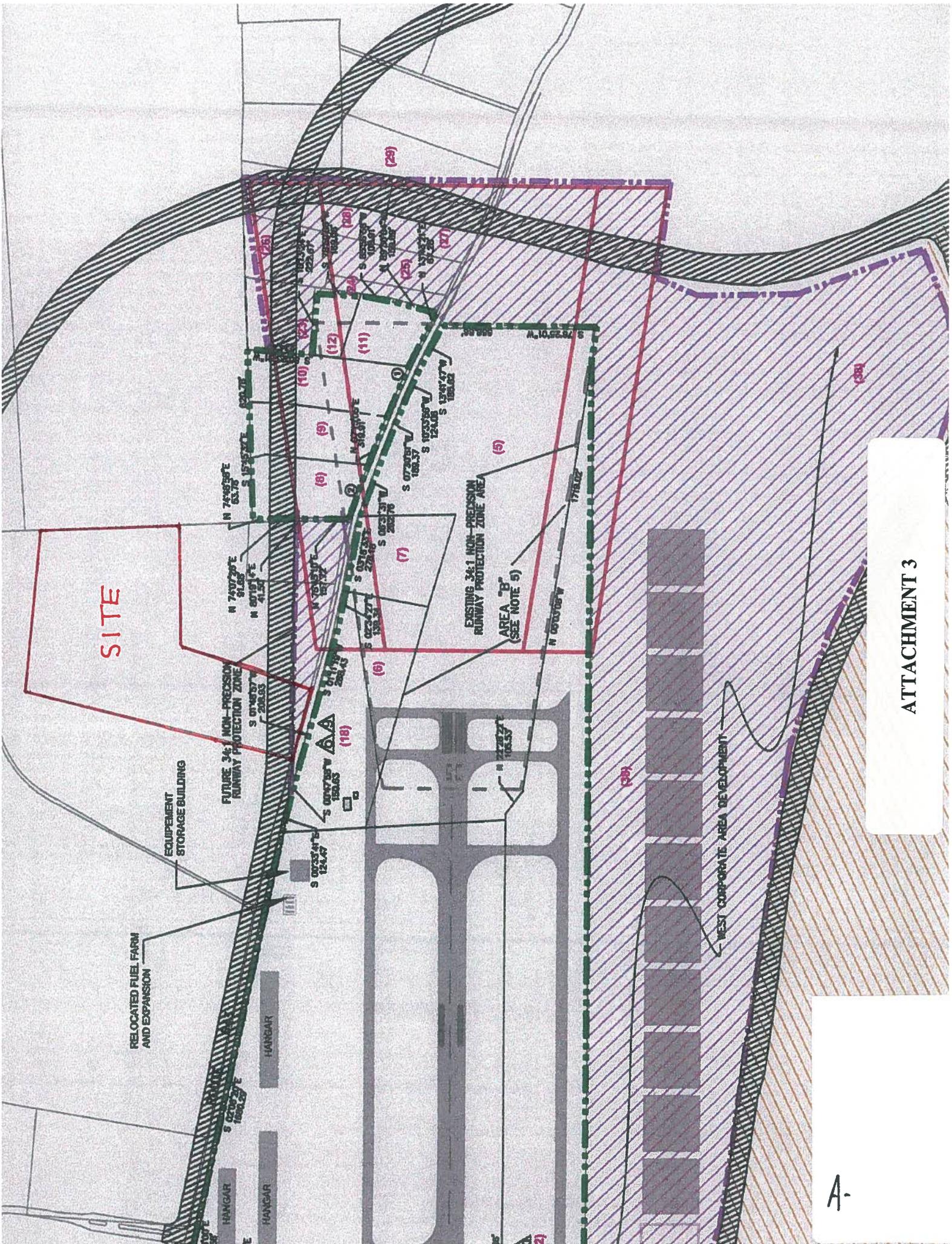
<u>Sycolin Road/ Site Entrance</u>	<u>Left Turn Lane Warrant</u>	<u>PM Peak Hour Site Buildout</u>
1. Enter operating speed of 40, 50, or 60 mph >		_____ 40 mph
2. Enter advancing volumes		
Percent left turns=	24%	
	Lefts	> _____ 30 vph
	Throughs	> _____ 93 vph
	Rights	> _____ 0 vph
	Total	> _____ 123 vph
3. Enter opposing volume		> _____ 323 vph
The maximum allowable advancing volume =		> _____ 288 vph
A left turn lane is	<u>not warranted.</u>	

Exhibit 9-75

A POLICY ON GEOMETRIC DESIGN OF HIGHWAYS AND STREETS, 2001. (AASHTO)

Opposing Volume	Advancing Volume/Hour			
	5% Left Turns	10% Left Turns	20% Left Turns	30% Left Turns
<u>40-mph Operating Speed (60 km/h)</u>				
800	330	240	180	160
600	410	305	225	200
400	510	380	275	245
200	640	470	350	305
100	720	515	390	340
<u>50-mph Operating Speed (80 km/h)</u>				
800	280	210	165	135
600	350	260	195	170
400	430	320	240	210
200	550	400	300	270
100	615	445	335	295
<u>60-mph Operating Speed (100 km/h)</u>				
800	230	170	125	115
600	290	210	160	140
400	365	270	200	175
200	450	330	250	215
100	505	370	275	240

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SITE

RELOCATED FUEL FARM AND EXPANSION

EQUIPMENT STORAGE BUILDING

FUTURE 34:1 NON-PRECISION RUNWAY PROTECTION ZONE

EXISTING 34:1 NON-PRECISION RUNWAY PROTECTION ZONE AREA

AREA "B" (SEE NOTE 5)

WEST CORPORATE AREA DEVELOPMENT

HANGAR

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ATTACHMENT 3

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