TRAFFIC MANAGEMENT PLAN FOR

JUNE SHELTON SCHOOL AND EVALUATION CENTER

IN DALLAS, TEXAS

DESHAZO PROJECT NO. 15113

Prepared for:

CaCo Architecture LLC

921 N. Riverfront Blvd., Suite 500

Dallas, Texas 75207

Prepared by:

Texas Registered Engineering Firm F-3199

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July 12, 2017

Traffic Management Plan for

June Shelton School and Evaluation Center

~ DeShazo Project No. 15113 ~

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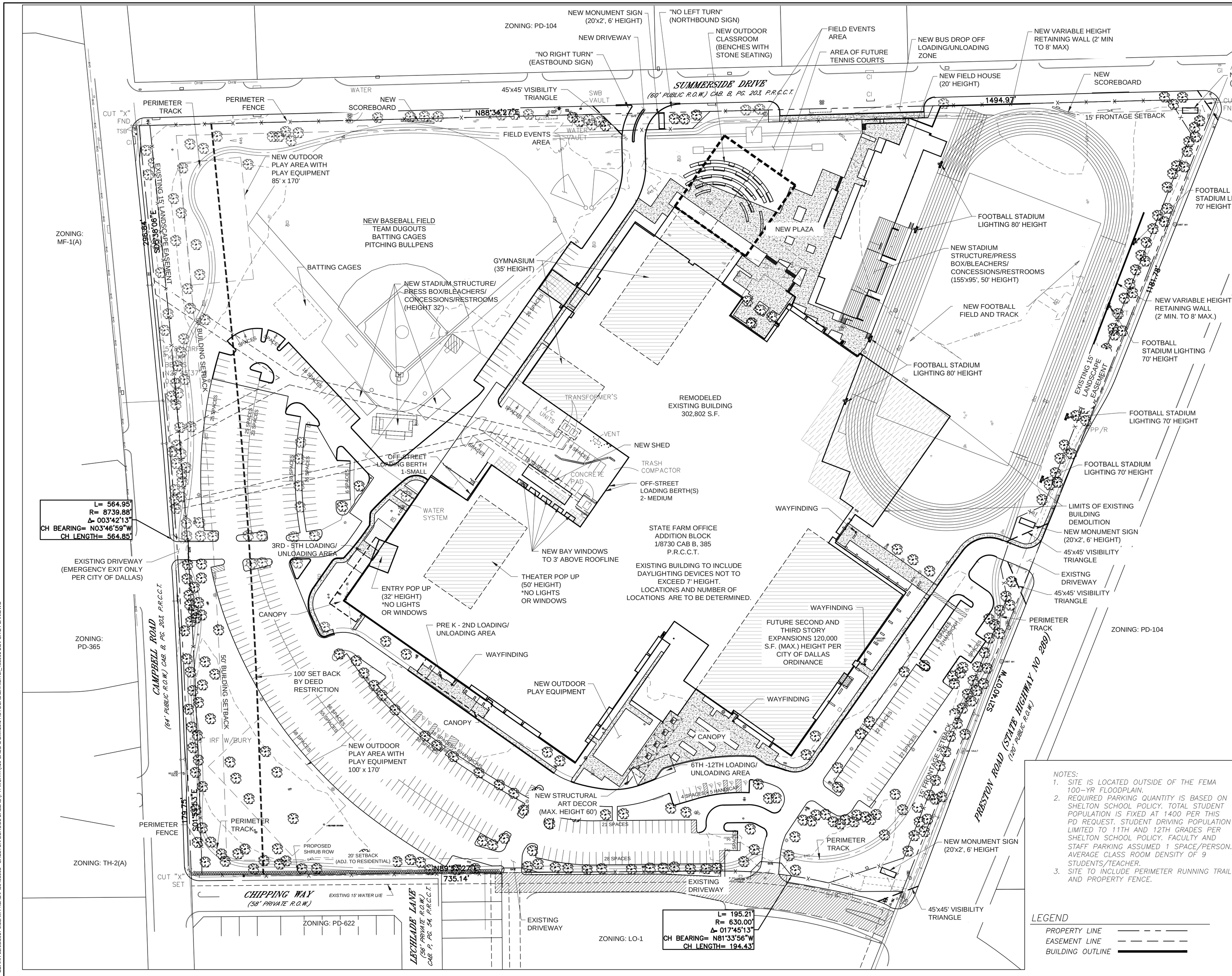

SITE DATA

PROPERTY ADDRESS	17301 PRESTON RD. DALLAS, TX 75252	
TOTAL SITE AREA	29.953 AC (1,304,731 SQ. FT.)	
	REQUIRED	PROVIDED
ZONING	LO-1	PD
LAND USE	OFFICE	PRIVATE SCHOOL
SETBACKS		
FRONT	15'	15'
SIDE/REAR	20' (ADJ. TO RESIDENTIAL, NONE OTHERWISE)	NONE OR AS SHOWN
BUILDING AREA		
SCHOOL		302,802 SQ. FT.
FIELD HOUSE		9591 SQ. FT.
TOTAL BUILDING AREA		312,393 SQ. FT.
IMPERVIOUS COVERAGE		659,180 SQ. FT. (15.13 AC) 50.5%
BUILDING HEIGHT	70' (MAX.)	60' (MAX)
FLOOR TO AREA RATIO (FAR)	1.0 : 1.0	0.24 : 1.0
LOT COVERAGE	80% MAX	24%

PARKING CALCULATIONS (SEE NOTE 2)

CLASS LEVEL	NO. OF CLASSROOMS	CODE RATIO	REQUIRED PER CLASS LEVEL
KINDERGARTEN/ ELEMENTARY	37	1.5	56
JUNIOR/MIDDLE	33	3.5	116
SENIOR HIGH	27	9.5	257

PARKING COUNT	
STANDARD 9' X 18'	532 (97.6%)
HANDICAP 11' X 18' w/5' AISLE (1 VAN SPACE 13' X 18' w/8' AISLE)	13 (2.4%)
OFF STREET LOADING BERTHS	3 LOCATIONS PROVIDED (3 REQUIRED)
TOTAL PARKING REQUIRED	TOTAL PARKING PROVIDED
429	545

NOTES:

1. *SITE IS LOCATED OUTSIDE OF THE FEMA 100-YR FLOODPLAIN.*
2. *REQUIRED PARKING QUANTITY IS BASED ON SHELTON SCHOOL POLICY. TOTAL STUDENT POPULATION IS FIXED AT 1400 PER THIS PD REQUEST. STUDENT DRIVING POPULATION LIMITED TO 11TH AND 12TH GRADES PER SHELTON SCHOOL POLICY. FACULTY AND STAFF PARKING ASSUMED 1 SPACE/PERSON. AVERAGE CLASS ROOM DENSITY OF 9 STUDENTS/TEACHER.*
3. *SITE TO INCLUDE PERIMETER RUNNING TRAIL AND PROPERTY FENCE.*

LEGEND

PROPERTY LINE
EASEMENT LINE
BUILDING OUTLINE

PD ZONING SUBMITTAL

DEVELOPMENT SITE PLAN

ZONING CASE NO. 2145–173

SHELTON SCHOOL

17301 Preston R.
Dallas, Tx 75252

HUITT-ZOLLARS

Huitt–Zollars, Inc. Engineering / Architecture
500 W. 7th St. Ste. 300 Fort Worth, Texas 76102
Phone (817)335–3000 Fax (817)335–1025

DESIGNED:KH	SCALE	DATE	SHEET
DRAWN:SD	1" = 60'	02/07/2017	1 OF 1
CHECKED:KH			

HUITT-ZOLLARS, INC.

R304939.01 SHELTON SCHOOL PD ZONING

SDARR 02/08/2017 8:23AM F:\CAD\P\304939\03 - SHELTON SCHOOL DALLAS (FT. WORTH)\10 CADD & BIM\10.1 AUTOCAD\EXHIBITS_439301 DEV SITE PLAN.DWG

DeShazo Group

Traffic. Transportation Planning. Parking. Design.

400 S. Houston Street, Suite 330
Dallas, TX 75202
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deshazogroup.com

Technical Memorandum

To: *Ms. Myriam E. Camargo, AIA, NCARB — CaCo Architecture LLC*

Cc: *June Shelton School and Evaluation Center*

From: *DeShazo Group, Inc.*

Date: July 12, 2017

Re: Traffic Management Plan for June Shelton School and Evaluation Center in Dallas, Texas
DeShazo Project Number 15113

INTRODUCTION

DeShazo Group, Inc. (**DeShazo**) is an engineering consulting firm providing licensed engineers skilled in the field of traffic/transportation engineering. The services of DeShazo were retained by **CaCo Architecture LLC** to prepare a traffic management plan (TMP) for the proposed relocation of **June Shelton School and Evaluation Center** ("Shelton School" or "the school").

Shelton School is an academic institution currently serving over 800 students from preschool (ages 3 years and older) through 12th grade. It is currently located at 15720 Hillcrest Road in Dallas, Texas. The school administration is planning a relocation of their facilities with the opportunity to provide additional student capacity for a maximum enrollment of 1,400 students and to provide on-site school athletic activities. The proposed new campus is located at 17301 Preston Road in Dallas, Texas. A preliminary site plan, prepared by Huitt-Zollars, is provided as reference in this report.

The proposed school site is zoned LO-1 (for Limited Office - 1). Zoning provisions permit the development of a private school under specific stipulations of a Specific Use Permit. As part of the approval process, the City of Dallas requires submittal of a TMP as a record of the preferred traffic control strategies and to ensure safe and efficient traffic operations. The plan is intended to assess anticipated traffic conditions during the morning drop-off and afternoon pick-up activities on the basis of satisfying these objectives. By consent of the TMP submittal, the school agrees to the strategies presented herein. In addition, the school is held self-accountable to enforce the plan until and unless the City of Dallas deems further mitigation measures are necessary.

TRAFFIC MANAGEMENT PLAN

A school TMP is important to safely achieve an optimum level of traffic flow and circulation during peak traffic periods associated with student drop-off and pick-up operations. By properly managing the vehicular traffic generated during critical periods, the safety and efficiency of school carpool operations will also inherently improve. This TMP should not be considered a comprehensive set of instructions to ensure adequate safety; however, it is a tool that aims to facilitate a safer and more efficient environment.

The analysis summarized below identifies the projected vehicle demand—including parking and queuing space (i.e. vehicle stacking)—needed on site to accommodate projected school traffic demands during peak periods. A concerted effort and full participation by the school administration, staff, students and parents are essential to maintain safe and efficient traffic operations. The use of designated parking and queuing areas is necessary to minimize the operational impact on adjacent properties and the public street system.

School Operational Characteristics

Table *1* summarizes the proposed operational characteristics for Shelton School:

Table 1. Proposed School Operational Characteristics

Student Enrollment:	Preschool–2nd ..... 220 Grades 3–5th ..... 280 Grades 6–8th ..... 450 Grades 9–12th ..... 450 *Total (all grades): 1,400*
School Staff:	270 staff members
Daily Arrival Schedule:	Preschool–2nd ..... 8:30 AM Grades 3–8th ..... 8:35 AM Grades 9–12th ..... 8:30 AM
Daily Departure Schedule (Monday-Thursday):	Preschool .....2:50 PM Preprimary–2nd .....3:10 PM Grades 3–8th .....3:35 PM Grades 9–12th .....4:05 PM
Students Travelling by Modes Other Than Drop-off/Pick-up:	School/Public Bus, Walk ..... 0% Student Drivers(225) ..... 15% Parent Pick-up 85%

NOTE #1: All grades are dismissed an hour earlier on Friday. In addition, the school may hold occasional events that generate traffic outside of traditional peak periods. While some measures presented in this report may apply to such cases, this analysis evaluates traffic characteristics associated only with traditional school peak periods.

NOTE #2: Up to 150 students (approximately 10% of the total student population) are anticipated to drive themselves to school. Only students from 10th through 12th grade are currently permitted to park on campus; this policy will remain in effect in the future.

NOTE #3: To the highest degree practical, accounts of existing conditions in this report are based upon information provided by the Client and supplemented by actual on-site observations conducted by DeShazo on Wednesday, July 15, 2015, during the Summer School peak-hour periods and from personal interviews of school representatives. The analysis and recommendations presented in this report as proposed conditions are based upon evaluation of this information and supported by DeShazo's professional judgment and experience with other similar projects. Proposed conditions are intended to reflect the anticipated day-to-day conditions at full-occupancy.

Site Access and Circulation

As shown in **Exhibit 1**, a total of three driveways will serve the proposed site. Each driveway provides both inbound and outbound access; however, the school's front driveway on Preston Road will remain closed to inbound traffic during drop-off/pick-up school periods. The driveway on Summerside Drive will serve traffic generated by Preschool through 5th grade students (a combined total of 500 students). A southern driveway on McCallum Boulevard will serve traffic for 6th through 8th grade (450 students) and 9th through 12th grade (450 students). As part of the school's efforts to minimize the anticipated impact of school traffic through the adjacent residential neighborhood, the school driveway on Summerside Drive is intentionally designed at an angle to limit vehicle access. The proposed plan will restrict right in and left out movements and effectively force traffic to arrive from and depart toward Preston Road.

Passenger vehicles will enter their respective access driveway and directly proceed to form a queue towards the loading/unloading area along the designated route. Traffic circulation may be demarcated by either pavement markings or signs. Once in queue, traffic will operate as a single line of vehicles with the opportunity to exit and park before reaching the loading/unloading area. Based upon actual on-site observations of existing traffic operations, vehicles should have no problem exiting sequentially upon leaving the loading/unloading area. Exiting traffic will drive back towards the egress driveway along the designated route. As indicated in Exhibit 1, the school driveway on Summerside Drive will allow right turns only for exiting traffic and left turns only for entering traffic. There will be permanent "not right turn" and "no left turn" signs, as applicable, in place at the driveway on Summerside Drive.

Passenger Unloading/Loading

During morning drop-off periods, vehicular traffic will enter the school site to unload students directly at their designated unloading areas. Alternatively, parents may also be permitted to proceed toward the visitor-designated parking area and walk students to the building. During pick-up periods, vehicular traffic will again drive into the parking lot and either enter the queue line to load passengers or park in a designated visitor parking space to wait for the student(s) to arrive. Parents who have parked may choose to walk to the building to greet their child.

However, as evident from observations of existing operations, school staff carefully patrols traffic activities and coordinate traffic in a timely and organized manner. The school currently enforces a managed loading protocol during the afternoon pick-up periods whereby vehicles enter and circulate through a prescribed route and form a systematic queue. Similar operations are anticipated to remain in place in the future. Students will be released from school at specified dismissal times and wait inside the school building for school staff to pair them with their parents' vehicles by actively managing the loading process. School staff will also be positioned at strategic locations ahead of the pick-up areas to relay the sequence of parents' arrival back to the loading zone. School will potentially load several vehicles simultaneously with the assistance of staff stationed at the loading area. Once loaded, vehicles are cleared by school staff to carefully egress along the designated route.

Vehicle Queuing

The goal for any school is to accommodate all vehicular queuing and drop-off/pick-up procedures on private property. In lieu of any published, standardized technique for projecting necessary queue lengths, DeShazo developed a proprietary methodology for estimating peak vehicular queue based upon historical studies conducted at various school sites.

School observations consistently indicate that maximum queues occur during the afternoon peak period when students are being picked-up—the morning period is typically not a significant traffic issue since drop-off activities are more temporally distributed and occurs much more quickly than student pick-up. The projected peak number of vehicles during each dismissal time is provided in **Table *2***. A summary of these calculations is provided in the **Appendix**.

Table 2. Peak On-Site Vehicle Demand during Afternoon Pick-Up Period

	LOADING ZONE A	LOADING ZONE B	LOADING ZONE C	
	Pre-2nd Grade **3:10 PM** **220 students** ***(16% of total enrollment)***	**3rd-5th Grade** **3:35 PM** **280 students** ***(20% of total enrollment)***	**6th-8th Grade** **3:35 PM** **450 students** ***(32% of total enrollment)***	**9th-12th Grade** **4:05 PM** **450 students** ***(32% of total enrollment)***
Approx. Peak Number of Vehicles	28 vehicles	36 vehicles	58 vehicles	40 vehicles

School Stadium Traffic

The proposed athletic facilities include a baseball field and a track and football field stadium. The school's Athletic Department coordinates various activities throughout the year. Top traffic-generating events include baseball and football games in addition to track meets where attendance is expected to include school participants, parents and visiting teams. Baseball games take place throughout the week. According to school officials, attendance at baseball games is approximately 50 spectators. Track teams meet on Saturday mornings with fewer than 100 total participants and spectators. Junior varsity football games are scheduled on Thursday evenings with an anticipated attendance of approximately 100 spectators per game. The trend for varsity football game attendance on Friday nights indicates a maximum of 600 spectators. The proposed baseball and football stadiums will have a maximum capacity of 500 and 1,500 seats, respectively.

The assessment of all school athletic activities indicates that no two major events will coincide to generate the respective traffic generation from both events. With reasonable certainty, a football game on a Friday night will be the most significant traffic generator scenario. Although current attendance trends are far below the proposed stadium's maximum capacity, the traffic impact from the proposed athletic facilities was analyzed during a typical Friday night football game with 1,500 spectators. However, unless otherwise indicated in this report, all technical assumptions made in the original analysis remain unchanged in the evaluation of the school athletic facilities.

A published, technical methodology to calculate the projected trip generation for high school football stadiums is not available. Instead of an established equation or rate, DeShazo evaluated the traffic characteristics for such events. A trip generation rate of *0.30 trip-ends per seat* was determined based upon the following considerations.

- The average parking demand ratio observed at three high school football events and published in the *Shared Parking* (2nd Edition) by the Urban Land Institute is 0.26 parked vehicles per attendee. Although parking ratios are not directly related to trip-ends, the published rate is indicative of a number of vehicles per unit ratio.
- DeShazo also studied the trip generation characteristics of other land uses provided in the Institute of Transportation Engineers (ITE) *Trip Generation* manual (9th Edition). A similar trip generation

description is related to church activities based upon seats with concurrent entering and exiting traffic. The rate of 0.61 per seat is recommended for continuous church services with 50% inbound for one service and 50% outbound traffic from a previous service.

The trip generation rate is considered appropriate for this analysis based upon factors that accurately reflect specific traffic conditions at high school football stadiums.

The distribution and assignment of game-generated trip ends to the surrounding roadway system was determined by proportionally estimating the orientation of travel via various travel routes. A concerted effort was devoted to developing a recommended traffic management plan in conjunction with this analysis. In doing so, all outbound traffic will be directed towards Preston Road at the end of any major game.

SUMMARY & RECOMMENDATIONS

School traffic delays and congestion during the afternoon pick-up period is notably greater than the traffic generated during the morning drop-off period due to timing and concentration characteristics. In most instances, achieving efficiency during the afternoon period is most critical, while the morning traffic operations require nominal active management. The following recommendations are provided by DeShazo to the school for the management of traffic specifically generated by the school during the afternoon periods.

DeShazo recommends implementation of the traffic circulation plan depicted in **Exhibit 1** based upon a review of the proposed site and the anticipated needs of traffic during peak conditions. This plan was designated to optimize the on-site vehicular circulation and retention of queued vehicles in a manner that promotes safety and operational efficiency. The recommended plan provides a designated route for each queue and its respective loading zone.

- Loading Zone A provides 2,229 linear feet of on-site vehicular queuing or storage for up to 95 vehicles at 23.5 feet per vehicle. This capacity is expected to accommodate the projected vehicle demand for preschool-2nd grade students of 28 vehicles and provide a surplus of 1,575 linear feet.
- Loading Zone B provides 2,587 linear feet of on-site vehicular queuing or storage for up to 110 vehicles at 23.5 feet per vehicle. This capacity is expected to accommodate the projected vehicle demand of 36 vehicles and provide a surplus of 1,739 linear feet.
- Loading Zone C provides 1,481 linear feet of on-site vehicular queuing or storage for up to 63 vehicles at 23.5 feet per vehicle. This capacity is expected to accommodate the projected middle school demand of 58 vehicles at 3:35 PM and provide a surplus of 118 linear feet as well as the projected high school demand of 40 vehicles at 4:05 PM and provide a surplus of 541 linear feet.

  NOTE: Studies of student pick-up operations consistently show that vehicular traffic typically clears after 10-15 minutes following the student dismissal time. Although parents of 9th-12th graders are expected to arrive while the previous queue is still in progress, the parents of 6th-8th grader queue will have cleared in time for the 9 th-12th grade group to start lining up. As needed, a secondary lane may be designated for early arrivals as depicted in Exhibit 1.

The plan also includes a recommended configuration of temporary traffic control devices (such as traffic cones, etc.) that shall be installed on a daily basis when typical traffic conditions are expected. An appropriate number of school staff should be assigned to fulfill the duties of student supervision, traffic control, and other related duties as generally depicted on the plan.

Staff directing traffic at the intersecting point of two queue lanes (and other areas, where appropriate) should, in lieu of simple hand gestures, procure and use reversible hand-paddle signs with the messages (and symbols) for STOP and for SLOW (i.e., proceed slowly). Optional additional equipment used by staff may include whistles (for audible warnings) and flashlights (for visual warnings) in order to better-gain the attention of motorists.

The full cooperation of all school staff members, students, and parents is crucial for the success of any traffic management plan. Proper training of school staff on duties and expectations pertaining to the plan is recommended. Sufficient communications at the beginning of each school term (and otherwise, as needed) with students and parents on their duties and expectations is also recommended. Observations of the existing traffic management and a cursory review of the carpool procedures indicate that current operations are optimal and should remain in practice in the future. In general, the following practices should be enforced.

- Passenger loading and unloading within public right-of-way should be avoided at all times to maximize personal safety. All queuing and parking should be accommodated within the school site boundaries.
- No person(s) other than deputized officers of the law should engage or attempt to influence traffic operations in public right-of-way to minimize liabilities.
- Reserved parking areas should be clearly marked for parents and visitors to identify staff and student parking to optimize traffic operations. The recommended parking assignment shown in **Exhibit 1** is meant to assign school staff (i.e., reserved) to spaces that may potentially be blocked by ingress queue under the assumption that those school staff do not arrive/depart the campus during student pick-up period(s). Likewise, the proposed student parking is intended to be located outside of the queue operations during the 9th-12th grade dismissal time.
- The driveway on Summerside Drive should have a mountable curb with yellow, flexstake delineator posts between the ingress/egress lanes, as shown in Exhibit 1A. This is designed to:
    - prevent eastbound, right-turning vehicles entering the site,
    - prevent left-turning vehicles leaving the site, and
    - allow emergency vehicle access into the site from east and west directions.

Additional recommendations are also depicted in **Exhibit 2**. This second graphic presents an assessment of the projected traffic during peak stadium traffic. The following practices should be enforced during this peak period:

- Egress traffic onto Summerside Drive should be directed to turn right towards Preston Road. Ingres traffic from Summerside Drive should be allowed only for vehicles westbound on Summerside Drive. A permanent traffic sign should clearly inform and direct traffic. Further, an off-duty police officer should direct egress traffic at this location. However, to minimize liabilities, no person(s) other than deputized officers should engage or attempt to influence traffic operations in public right-of-way.
- All driveways connecting to Summerside Drive, Preston Road and South Drive should remain open and provide both inbound and outbound access prior to, during and post-game traffic activities.

This TMP is to be used by the Shelton School to provide safe and efficient transportation of students, staff, and faculty to and from the site. The plan was developed with the intent of optimizing safety and efficiency and the goal of accommodating within the site vehicular traffic generated by the school at peak traffic periods. The details of the TMP shall be reviewed by the school on a regular basis to confirm its effectiveness.

END OF MEMO

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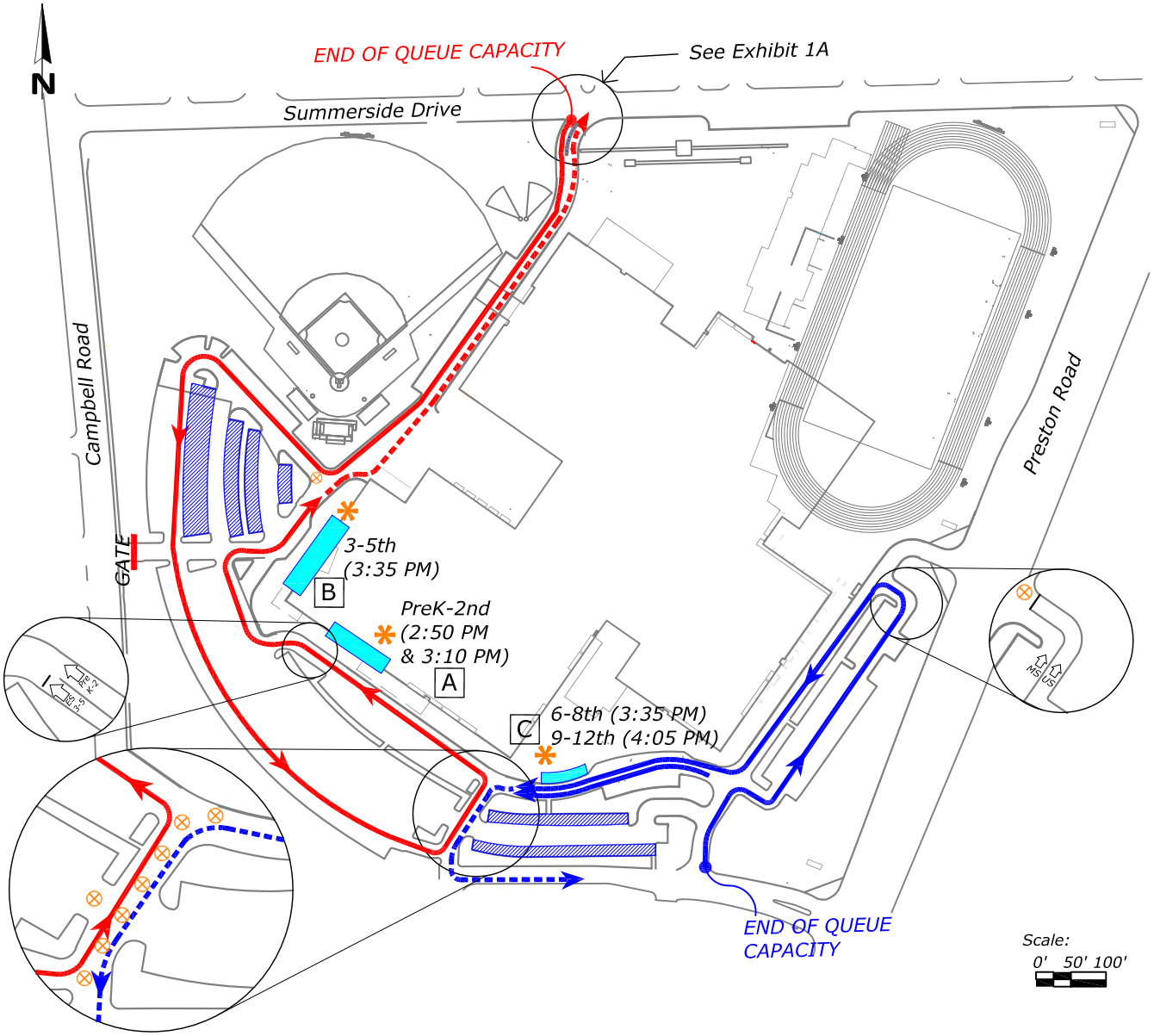


Projected Queue

- Preschool-2nd (2:50 PM & 3:10 PM)
  - Provided 2,229 LF (95 veh)
  - Required 665 LF (28 veh)
  - Surplus 1,575 LF (67 veh)
- Grades 3-5th (3:35 PM)
  - Provided 2,587 LF (110 veh)
  - Required 848 LF (36 veh)
  - Surplus 1,739 LF (74 veh)
- Grades 6-8th (3:35 PM)
  - Provided 1,481 LF (63 veh)
  - Required 1,363 LF (58 veh)
  - Surplus 118 LF (5 veh)
- Grades 9-12th (4:05 PM)
  - Provided 1,481 LF (63 veh)
  - Required 940 LF (40 veh)
  - Surplus 541 LF (23 veh)

Legend

- School Staff Observed
- Loading/Unloading Area
- Provided Queue
- Outbound Route
- Student Parking
- Traffic Cones
- Yellow Flexstake Delineator Post *(See Exhibit 1A)*

The purpose of this Traffic Management Plan (TMP) is to evaluate traffic operations that promote safety and efficient vehicle circulation. This TMP was developed to prevent queuing of drop-off/pick-up related vehicles within the city rights-of-way. The school administration should adhere to this TMP. Any deficiency due to spillover of queuing into undesignated areas of the city rights-of-way, including roadway travel lanes, should be corrected by the school immediately.

I, Christy Lambeth, P.E. #91036, certify that the results of the queuing analysis–upon complete enforcement of this Traffic Management Plan–indicate that no queuing of vehicles will extend into City of Dallas rights-of-way as a result of internal queuing constraints during the study peak hours of school operation.

**All grades are dismissed an hour earlier on Friday*
***Vehicle queue calculated at 23.5 ft/pc based on field observations*

EXHIBIT 1

Traffic Management Plan

Shelton School, Dallas, Texas.

DeShazo Group, Inc.
Texas Registered Engineering Firm F-3199
400 S. Houston St. Suite 330
Dallas, Texas 75202
(214) 748.6740

DeShazo Group, Inc. Job No. 15113 Exhibit Created on 10-10-2016; Revised on 07-07-2017

DeShazo Group

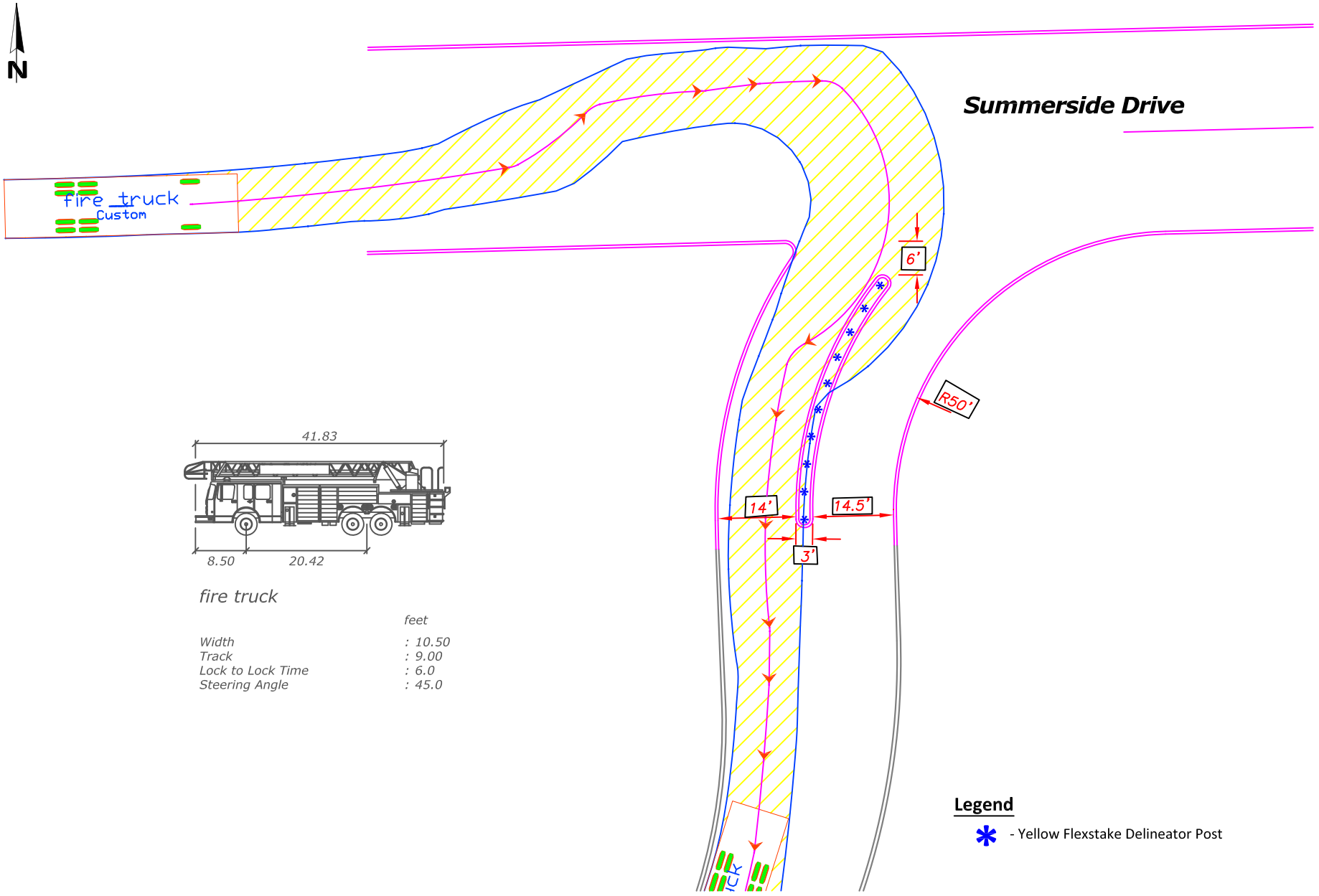


EXHIBIT 1A

Traffic Management Plan

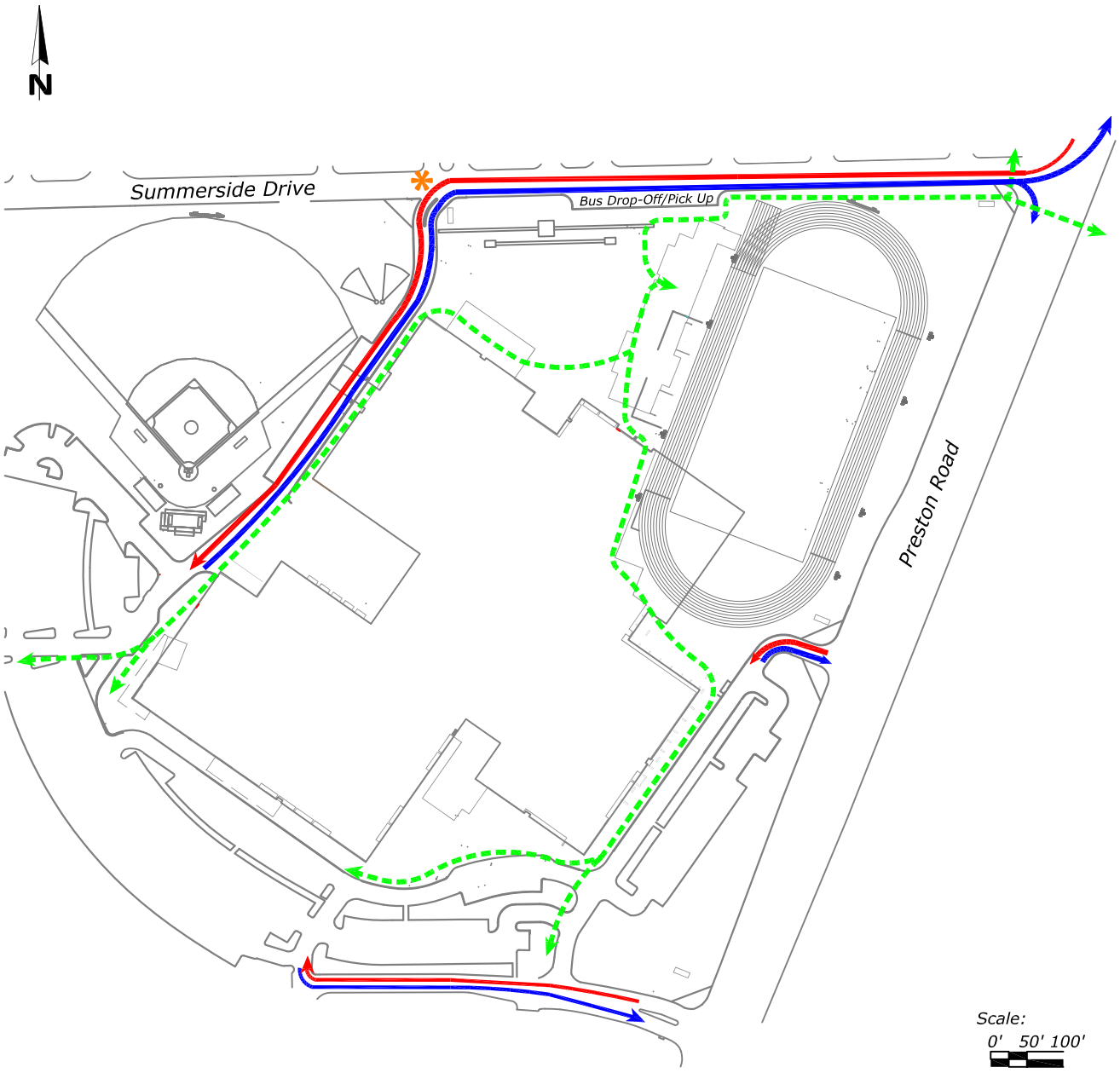
Shelton School, Dallas, Texas.

DeShazo Group, Inc.
Texas Registered Engineering Firm F-3199
400 S. Houston St. Suite 330
Dallas, Texas 75202
(214) 748.6740

DeShazo Group

Z145-173

DeShazo Group, Inc. Job No. 15113 Exhibit Created on 10-10-2016



School Stadium Traffic:

The proposed athletic facilities include a baseball field and a track and football field. The proposed baseball and football stadiums will have a maximum capacity of 500 and 1,500 seats, respectively. Assessment of all school athletic activities indicates that no two major events will coincide to generate a combined traffic generation from both events. With reasonable certainty, a football game on a Friday night will be the most significant traffic scenario generating *0.30 trip-ends per seat*, with all resulting 500 trips exiting at the end of a game.

A concerted effort was devoted to develop a recommended traffic management plan in conjunction with the school stadium traffic. The following practices should be enforced during this peak period:

- All egress traffic onto Summerside Drive should be directed towards Preston Road. A temporary "A-stand" sign would clearly direct traffic. Alternatively, an off-duty police officer may direct egress traffic at this location. However, no person(s) other than deputized officers should engage or attempt to influence traffic operations in public right-of-way.
- All driveways connecting to Summerside Drive, Preston Road and McCallum Boulevard should remain open and provide both inbound and outbound access prior to, during and post-game traffic activities.

Legend:

- * - Off-Duty Officer
- → - Inbound Traffic
- → - Outbound Traffic
- ⇢ - Pedestrian Access

The purpose of this Traffic Management Plan (TMP) is to evaluate traffic operations that promote safety and efficient vehicle circulation. This TMP was developed to prevent queuing of drop-off/pick-up related vehicles within the city rights-of-way. The school administration should adhere to this TMP. Any deficiency due to spillover of queuing into undesignated areas of the city rights-of-way, including roadway travel lanes, should be corrected by the school immediately.

I, David Nevarez, P.E. #106200, certify that the results of the queuing analysis–upon complete enforcement of this Traffic Management Plan–indicate that no queuing of vehicles will extend into City of Dallas rights-of-way as a result of internal queuing constraints during the study peak hours of school operation.

EXHIBIT 2

Stadium Traffic Management Plan

Shelton School, Dallas, Texas.

DeShazo Group, Inc.
Texas Registered Engineering Firm F-3199
400 S. Houston St. Suite 330
Dallas, Texas 75202
(214) 748.6740

Appendix

DeShazo Group

APPENDIX A1

DeShazo Model for Private School (v. 1.4) 2015 *DeShazo No. 15113*

PROJECT INFORMATION

School Name:	*Shelton School*	Grades:	*PreK-2nd*
City, State:	*Dallas, Texas*	District:	
School Type:	*Private School*	Date:	*8/19/2015*

A. BASE DATA

- Scenario: 1st Dismissal (3:10 PM)
- Anticipated Enrollment: 220 ***(16%)***
- Mode Split:

	Est.
Drop-Off/Pick-Up	100%
Bus/Van/Transit	0%
Walking	0%
After School	0%
Student Drivers	0%

- Net Queue Generators: **220**

B. TRIP GENERATION

- Enrollment: *220* *Students*
- ITE Land Use 534 (9th Ed.) Average Rates:

	Trip Ends	Inbound	Outbound
AM	*T=0.90x + 3.01*	*55%*	*45%*
PM	*T=0.61x - 4.70*	*47%*	*53%*

- Adjustment Factor*: 0%
- Calculated Trip Generation:

	Total	Inbound	Outbound
AM Peak	201	111	90
PM Peak	130	61	69

C. PM/AFTERNOON QUEUE MODEL

i) Projected Inbound PM Peak Hour Trips: T_{in}= 61

ii) Estimated % of PM-Inbound Trip Ends in Peak Queue: F_Q= 45%

iii) Theoretical Peak Queue:

$Q_{min} = T_{in} \times F_Q =$ *61* x *45%* = *27 vehicles in theoretical peak queue*

iv) Adjusted Peak Queue:

- Traffic Management In Effect: yes → F_m = *0.00*

  [i.e., coordinated inbound traffic/queuing plan; range: 0.00-0.47]
- Mixed Traffic Circulation: yes → F_c = *0.00*

  [i.e. apportioned location for each mode of transp.; range: 0.00-0.25]
- Parking Allocation: yes → F_P = *0.00* *(Parking expected, see Report for details)*

  [i.e. portion of theoretical peak queue heading to a parking stall; 0.00 for mandatory queues]

v) Projected Peak Queue:

$Q_{proj} = Q_{min} \times (1 + F_M - FC - F_P)$ 28 vehicles (658 LF @ 23.5 feet/vehicle)

*Calculations may yield trip generation values greater than those otherwise derived using the standard ITE equations for public schools. Adjustment factors applied in this analysis (if any) were investigated and considered appropriate based on empirical data and previous studies from other schools of similar size.

DeShazo Group

APPENDIX A2

DeShazo Model for Private School (v. 1.4) 2015 *DeShazo No. 15113*

PROJECT INFORMATION

School Name:	*Shelton School*	Grades:	*3-5 th*
City, State:	*Dallas, Texas*	District:	
School Type:	*Private School*	Date:	*8/19/2015*

A. BASE DATA

- Scenario: 2nd Dismissal (3:35 PM)
- Anticipated Enrollment: 280 ***(20%)***
- Mode Split:

	Est.
Drop-Off/Pick-Up	100%
Bus/Van/Transit	0%
Walking	0%
After School	0%
Student Drivers	0%

- Net Queue Generators: **280**

B. TRIP GENERATION

- Enrollment: *280* *Students*
- ITE Land Use 534 (9th Ed.) Average Rates:

	Trip Ends	Inbound	Outbound
AM	*T=0.90x + 3.01*	*55%*	*45%*
PM	*T=0.61x - 4.70*	*47%*	*53%*

- Adjustment Factor*: 0%
- Calculated Trip Generation:

	Total	Inbound	Outbound
AM Peak	255	140	115
PM Peak	166	78	88

C. PM/AFTERNOON QUEUE MODEL

i) Projected Inbound PM Peak Hour Trips: T_{in}= 78

ii) Estimated % of PM-Inbound Trip Ends in Peak Queue: F_Q= 45%

iii) Theoretical Peak Queue:

$Q_{min} = T_{in} \times F_Q =$ *78* x *45%* = *35 vehicles in theoretical peak queue*

iv) Adjusted Peak Queue:

- Traffic Management In Effect: yes → F_m = *0.00*

  [i.e., coordinated inbound traffic/queuing plan; range: 0.00-0.47]
- Mixed Traffic Circulation: yes → F_c = *0.00*

  [i.e. apportioned location for each mode of transp.; range: 0.00-0.25]
- Parking Allocation: yes → F_P = *0.00* *(Parking expected, see Report for details)*

  [i.e. portion of theoretical peak queue heading to a parking stall; 0.00 for mandatory queues]

v) Projected Peak Queue:

$Q_{proj} = Q_{min} \times (1 + F_M - FC - F_P)$ 36 vehicles (846 LF @ 23.5 feet/vehicle)

*Calculations may yield trip generation values greater than those otherwise derived using the standard ITE equations for public schools. Adjustment factors applied in this analysis (if any) were investigated and considered appropriate based on empirical data and previous studies from other schools of similar size.

DeShazo Group

APPENDIX A3

DeShazo Model for Private School (v. 1.4) 2015 *DeShazo No. 15113*

PROJECT INFORMATION

School Name:	*Shelton School*	Grades:	*6-8 th*
City, State:	*Dallas, Texas*	District:	
School Type:	*Private School*	Date:	*8/19/2015*

A. BASE DATA

- Scenario: 2nd Dismissal (3:35 PM)
- Anticipated Enrollment: 450 ***(32%)***
- Mode Split:

	Est.
Drop-Off/Pick-Up	100%
Bus/Van/Transit	0%
Walking	0%
After School	0%
Student Drivers	0%

- Net Queue Generators: **450**

B. TRIP GENERATION

- Enrollment: *450* *Students*
- ITE Land Use 534 (9th Ed.) Average Rates:

	Trip Ends	Inbound	Outbound
AM	*T=0.90x + 3.01*	*55%*	*45%*
PM	*T=0.61x - 4.70*	*47%*	*53%*

- Adjustment Factor*: 0%
- Calculated Trip Generation:

	Total	Inbound	Outbound
AM Peak	408	224	184
PM Peak	270	127	143

C. PM/AFTERNOON QUEUE MODEL

i) Projected Inbound PM Peak Hour Trips: T_{in}= 127

ii) Estimated % of PM-Inbound Trip Ends in Peak Queue: F_Q= 45%

iii) Theoretical Peak Queue:

$Q_{min} = T_{in} \times F_Q =$ *127* x *45%* = *57 vehicles in theoretical peak queue*

iv) Adjusted Peak Queue:

- Traffic Management In Effect: yes → F_m = *0.00*
  [i.e., coordinated inbound traffic/queuing plan; range: 0.00-0.47]
- Mixed Traffic Circulation: yes → F_c = *0.00*
  [i.e. apportioned location for each mode of transp.; range: 0.00-0.25]
- Parking Allocation: yes → F_P = *0.00* *(Parking expected, see Report for details)*
  [i.e. portion of theoretical peak queue heading to a parking stall; 0.00 for mandatory queues]

v) Projected Peak Queue:

$Q_{proj} = Q_{min} \times (1 + F_M - FC - F_P)$ 58 vehicles (1363 LF @ 23.5 feet/vehicle)

*Calculations may yield trip generation values greater than those otherwise derived using the standard ITE equations for public schools. Adjustment factors applied in this analysis (if any) were investigated and considered appropriate based on empirical data and previous studies from other schools of similar size.

DeShazo Group

APPENDIX A4

DeShazo Model for Private School (v. 1.4) 2015 *DeShazo No. 15113*

PROJECT INFORMATION

School Name:	*Shelton School*	Grades:	*9-12 th*
City, State:	*Dallas, Texas*	District:	
School Type:	*Private School*	Date:	*8/19/2015*

A. BASE DATA

- Scenario: 3rd Dismissal (4:05 PM)
- Anticipated Enrollment: 450 ***(32%)***
- Mode Split:

	Est.	
Drop-Off/Pick-Up	67%	*(300)*
Bus/Van/Transit	0%	*(0)*
Walking	0%	*(0)*
After School	0%	*(0)*
Student Drivers	33%	*(150)*

- Net Queue Generators: **300**

B. TRIP GENERATION

- Enrollment: *300* *Students*
- ITE Land Use 536 (9th Ed.):

	Trip Ends	Inbound	Outbound
AM	*T=0.77x + 19.92*	*61%*	*39%*
PM	*T=0.43x + 79.59*	*42%*	*58%*

- Adjustment Factor*: 0%
- Calculated Trip Generation:

	Total	Inbound	Outbound
AM Peak	273	167	106
PM Peak	209	88	121

C. PM/AFTERNOON QUEUE MODEL

i) Projected Inbound PM Peak Hour Trips: T_{in}= 88

ii) Estimated % of PM-Inbound Trip Ends in Peak Queue: F_Q= 45%

iii) Theoretical Peak Queue:

$Q_{min} = T_{in} \times F_Q =$ *88* x *45%* = *39 vehicles in theoretical peak queue*

iv) Adjusted Peak Queue:

- Traffic Management In Effect: yes → F_m = *0.00*

  [i.e., coordinated inbound traffic/queuing plan; range: 0.00-0.47]
- Mixed Traffic Circulation: yes → F_c = *0.00*

  [i.e. apportioned location for each mode of transp.; range: 0.00-0.25]
- Parking Allocation: yes → F_P = *0.00* *(Parking expected, see Report for details)*

  [i.e. portion of theoretical peak queue heading to a parking stall; 0.00 for mandatory queues]

v) Projected Peak Queue:

$Q_{proj} = Q_{min} \times (1 + F_M - FC - F_P)$ 40 vehicles (940 LF @ 23.5 feet/vehicle)

*Calculations may yield trip generation values greater than those otherwise derived using the standard ITE equations for public schools. Adjustment factors applied in this analysis (if any) were investigated and considered appropriate based on empirical data and previous studies from other schools of similar size.