TRAFFIC MANAGEMENT PLAN FOR

ST. MARK'S SCHOOL OF TEXAS

IN DALLAS, TEXAS

DESHAZO PROJECT NO. 15200

Z156-218 (RB)

Prepared for:

St. Mark's School of Texas
10600 Preston Road
Dallas, Texas 75230

Prepared by:

DeShazo Group

Texas Registered Engineering Firm F-3199
400 South Houston Street, Suite 330
Dallas, Texas 75202
214.748.6740

November 30, 2015

Traffic Management Plan for

St. Mark's School of Texas

~ DeShazo Project No. 15200 ~

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LIST OF TABLES:

LIST OF EXHIBITS:

LAND AREA
Total 1,759,799 s.f. 40.3994 Acres

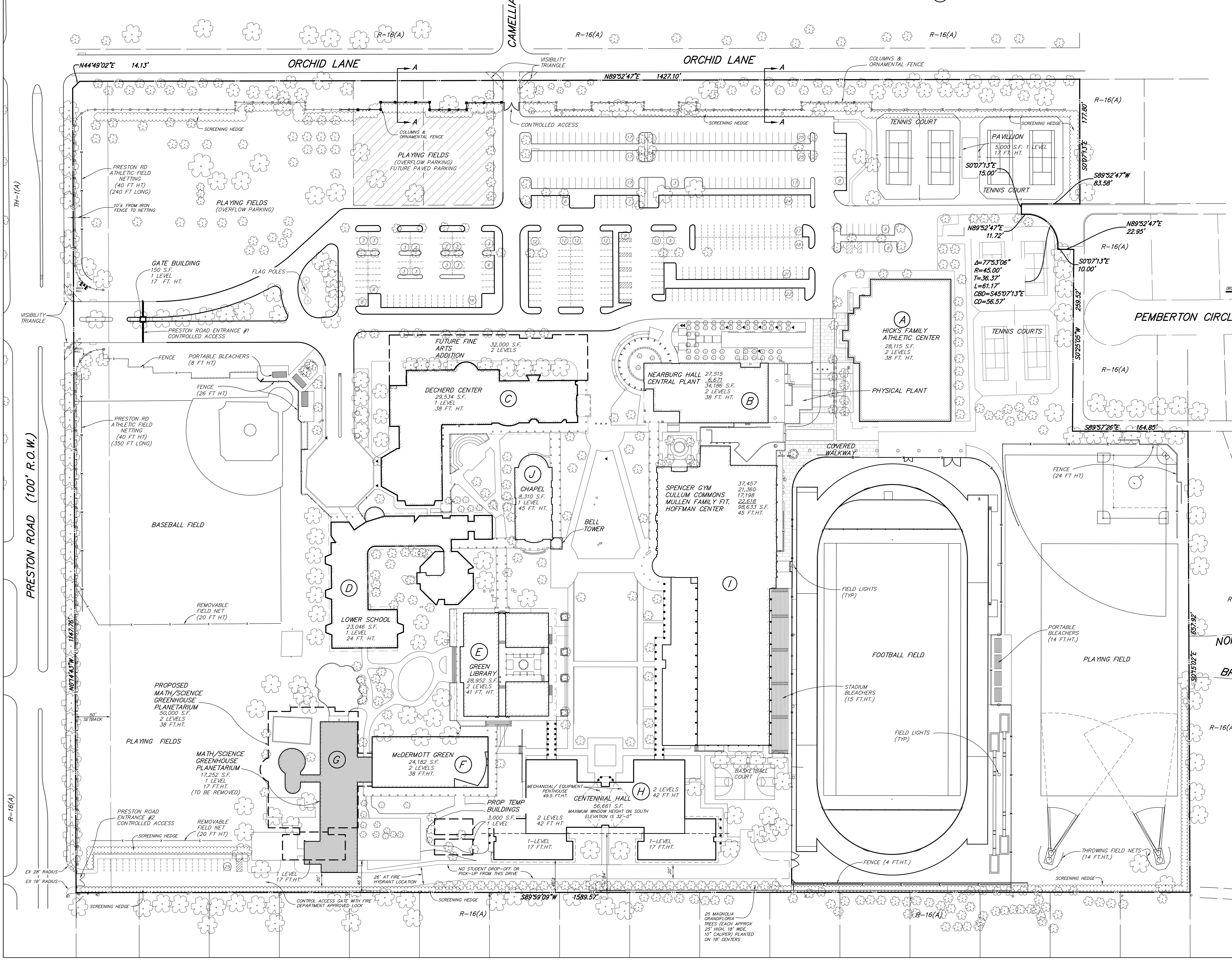
BUILDING AREA
Allowable Total 421,679 s.f.

FLOOR AREA RATIO
0.24:1.0

LOT COVERAGE
Allowable Total 310,565 S.F. 17.6%

PARKING
Parking spaces Total 428 spaces

TREE AND SHRUB LEGEND
SCREENING HEDGE
TREE
(A) BUILDING IDENTIFICATION



0 25 50 100
(FEET)
1 inch = 50 ft.
ORCHID LANE
CAMELLIA
R-16(A)
N44°49'02"E 14.13'
N89°52'47"E 1427.10'
VISIBILITY TRIANGLE
COLUMNS & ORNAMENTAL FENCE
CONTROLLED ACCESS
SCREENING HEDGE
PLAYING FIELDS (OVERFLOW PARKING) FUTURE PAVED PARKING
PLAYING FIELDS (OVERFLOW PARKING)
PRESTON RD ATHLETIC FIELD NETTING (40 FT HT) (240 FT LONG)
10'± FROM IRON FENCE TO NETTING
TH-1(A)
PRESTON ROAD (100' R.O.W.)
GATE BUILDING 150 S.F. 1 LEVEL 17 FT. HT.
FLAG POLES
PRESTON ROAD ENTRANCE #1 CONTROLLED ACCESS
TENNIS COURT
PAVILLION 5,000 S.F. 1 LEVEL 17 FT. HT.
S0°07'13"E 15.00'
S89°52'47"W 83.58'
S0°07'13"E 177.80'
N89°52'47"E 11.72'
N89°52'47"E 22.95'
Δ=77°53'06" R=45.00' T=36.37' L=61.17' CBD=S45°07'13"E CD=56.57'
S0°07'13"E 10.00'
S0°25'05"W 259.52'
PEMBERTON CIRCLE
TENNIS COURTS
HICKS FAMILY ATHLETIC CENTER 28,115 S.F. 2 LEVELS 38 FT. HT.
PHYSICAL PLANT
NEARBURG HALL CENTRAL PLANT 27,515 6,671 34,186 S.F. 2 LEVELS 38 FT. HT.
FUTURE FINE ARTS ADDITION 32,000 S.F. 2 LEVELS
DECHERD CENTER 29,534 S.F. 1 LEVEL 38 FT. HT.
PORTABLE BLEACHERS (8 FT HT)
FENCE (26 FT HT)
PRESTON RD ATHLETIC FIELD NETTING (40 FT HT) (350 FT LONG)
VISIBILITY TRIANGLE
BASEBALL FIELD
CHAPEL 8,310 S.F. 1 LEVEL 45 FT. HT.
BELL TOWER
SPENCER GYM 37,457
CULLUM COMMONS 21,360
MULLEN FAMILY FIT. 17,198
HOFFMAN CENTER 22,618
98,633 S.F. 45 FT.HT.
COVERED WALKWAY
S89°57'26"E 164.85'
FENCE (24 FT HT)
LOWER SCHOOL 23,046 S.F. 1 LEVEL 24 FT. HT.
REMOVABLE FIELD NET (20 FT HT)
N0°14'43"W 1147.76'
GREEN LIBRARY 28,952 S.F. 2 LEVELS 41 FT. HT.
FIELD LIGHTS (TYP)
FOOTBALL FIELD
STADIUM BLEACHERS (15 FT.HT.)
PORTABLE BLEACHERS (14 FT.HT.)
PLAYING FIELD
R-16(A)
NORTHPORT
BROOKSHIRE
657.92'
S0°15'02"E
PROPOSED MATH/SCIENCE GREENHOUSE PLANETARIUM 50,000 S.F. 2 LEVELS 38 FT.HT.
50' SETBACK
PLAYING FIELDS
MATH/SCIENCE GREENHOUSE PLANETARIUM 17,252 S.F. 1 LEVEL 17 FT.HT. (TO BE REMOVED)
McDERMOTT GREEN 24,182 S.F. 2 LEVELS 38 FT.HT.
BASKETBALL COURT
MECHANICAL/ EQUIPMENT PENTHOUSE 49.5 FT.HT.
CENTENNIAL HALL 56,661 S.F. MAXIMUM WINDOW HEIGHT ON SOUTH ELEVATION IS 32'-0"
2 LEVELS 42 FT HT
1-LEVEL 17 FT.HT.
PROP TEMP BUILDINGS 3,000 S.F. 1 LEVEL
PRESTON ROAD ENTRANCE #2 CONTROLLED ACCESS
REMOVABLE FIELD NET (20 FT HT)
1 LEVEL 17 FT.HT.
26' AT FIRE HYDRANT LOCATION
NO STUDENT DROP-OFF OR PICK-UP FROM THIS DRIVE
FENCE (4 FT.HT.)
THROWING FIELD NETS (14 FT.HT.)
EX 28' RADIUS
EX 18' RADIUS
CONTROL ACCESS GATE WITH FIRE DEPARTMENT APPROVED LOCK
S89°59'09"W 1589.57'
25 MAGNOLIA GRANDIFLORIA TREES (EACH APPROX 25' HIGH, 18' WIDE, 10" CALIPER) PLANTED ON 18' CENTERS
ROYAL LANE
ORCHID LANE
ST. MARK'S SCHOOL OF TEXAS
PRESTON ROAD
HILLCREST
WALNUT HILL LANE
NORTH
LOCATION MAP
NTS
5' SHRUB HEDGE
ST. MARK'S COLUMN w/ ORNAMENTAL FENCE
2' BERM
DRIVE AISLE
ORCHID LANE SECTION A-A

RLG RAYMOND L. GOODSON JR.,INC. CONSULTING ENGINEERS

DEVELOPMENT/LANDSCAPE PLAN
ST. MARK'S SCHOOL OF TEXAS
10600 PRESTON ROAD
DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
RLG	RLG	4/28/11	1"=50'	PD		
JOB NO.	06-340	E-FILE		DWG. NO.		

OWNER:
ST. MARK'S SCHOOL OF TEXAS
10600 PRESTON ROAD
DALLAS, TEXAS 75230
214-346-8120
ATTN: SUZANNE TOWNSEND

CASE NO. Z101-113(RB)

DeShazo Group

Traffic. Transportation Planning. Parking. Design.

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Technical Memorandum

To: Suzanne Townsend — *St. Mark's School of Texas*

From: David Nevarez, P.E. — *DeShazo Group, Inc.*

Date: November 30, 2015

Re: Traffic Management Plan for St. Mark's School of Texas in Dallas, Texas
DeShazo Project Number 15200 ***Z156-218 (RB)***

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 **St. Mark's School of Texas** to prepare a requisite Traffic Management Plan (TMP) for the existing campus located at 10600 Preston Road in Dallas, Texas.

The academic institution currently has an enrollment of approximately 863 students in 1st through 12th grade. The school administration is planning an expansion of their current facilities. The expansion is attributed to additional didactical floor area associated with their existing observatory and planetarium. However, the school capacity and student enrollment is not anticipated to increase or change as a result of this expansion. The attached site plan includes the proposed building modifications.

The school site is zoned Planned Development (PD) District 553. In order to gain entitlements for the proposed improvements, the school administration is seeking approval of a change to the development plan. 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 overall traffic safety and efficient 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

DeShazo conducted field observations of the school on Thursday, October 29, 2015 during all student dismissal periods. **Table *1*** summarizes the operational characteristics for St. Mark's School of Texas at the time of these observations.

Table 1. School Operational Characteristics

Student Enrollment:	Lower School (1-2) ..... 66 Lower School (3-4) ..... 84 Middle School ..... 341 Upper School ..... 372 *Total (all grades): 863*
School Staff:	Approx. 1-faculty-to-9-students ratio
Daily Schedule:	Lower School (1-2) ..... 8:30 AM–2:45 PM Lower School (3-4) ..... 8:30 AM–3:15 PM Middle School (5-8) ..... 8:35 AM–3:55 PM Upper School (9-12) .... 8:30 AM–3:05 PM
Students Travelling by Modes Other Than Drop-off/Pick-up:	Bus/Van, Walk..... <5% Student Drivers..... ~5%

NOTE #1: The school holds occasional events that generate traffic outside traditional peak periods. While the measures presented in this report may apply to such cases, this analysis evaluates traffic characteristics associated only with traditional school peak periods.

NOTE #2: 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. 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

A total of three access driveways serve the school site: two driveways connect the west side of the site to Preston Road and a third driveway intersects Orchid Lane to the north. Each driveway provides access to both inbound and outbound traffic.

Site Circulation and Passenger Unloading/Loading

During the drop-off periods, parents enter the campus to unload students within the site. Most parent-vehicles enter the campus via the main (northernmost) driveway on Preston Road, unload students in front of their respective school building and proceed to exit from the site on either Orchid Lane or the same driveway on Preston Road. Alternatively, parents are also permitted to proceed toward the visitor-designated parking area and walk students to the building.

During the pick-up period, parents enter the school campus via the main (northernmost) driveway on Preston Road and directly proceed to form a queue towards their respective loading area along the designated route. Once in queue, traffic operates as a single line of vehicles with the opportunity to exit (or by-pass) before reaching the loading area. Based upon actual on-site observations of existing traffic operations, vehicles have no problem exiting sequentially upon leaving the loading area. Exiting traffic drives back towards the egress driveway on either Preston Road or Orchid Lane. Student drivers may enter the site via the main (northernmost) driveway or Orchid Lane to proceed towards their designated parking area. A minimal number of parents parks and walks to the building to greet their child. However, as evident from observations of existing operations, school staff carefully patrols traffic activities and coordinates 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. Lower School students are dismissed from school at specified 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 is also positioned at strategic locations ahead of the pick-up areas to relay the sequence of parents' arrival back to the loading zone. School staff loads 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 of the traffic management plan for St. Mark's School of Texas is to accommodate all vehicular queuing and drop-off/pick-up procedures on private property. DeShazo's 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 occur much more quickly than student pick-up. The observed peak number of vehicles during each dismissal time is provided in **Table *2***.

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

LOADING ZONE (School Grades)	**LOWER SCHOOL** (1-2nd)	**LOWER SCHOOL** (3-4th)	**MIDDLE SCHOOL** (5-8th)	**UPPER SCHOOL** (9-12th)
Dismissal Time	2:45 PM	3:15 PM	3:55 PM	3:05 PM
Student Enrollment	*66 students*	*84 students*	*341 students*	*372 students*
Maximum Queue	20 vehicles	24 vehicles	33 vehicles	12 vehicles

SUMMARY

DeShazo conducted field observations of the school on Thursday, October 29, 2015 during all student dismissal periods. In general, existing traffic operates without any problem and in accordance with the TMP approved by the City of Dallas. These operations should continue to be enforced. Likewise, full cooperation of all school staff members, students, and parents is crucial for the continuing success of this traffic management plan. The following set of traffic operations are currently practiced at St. Mark's School of Texas administration during peak traffic conditions and expected to continue:

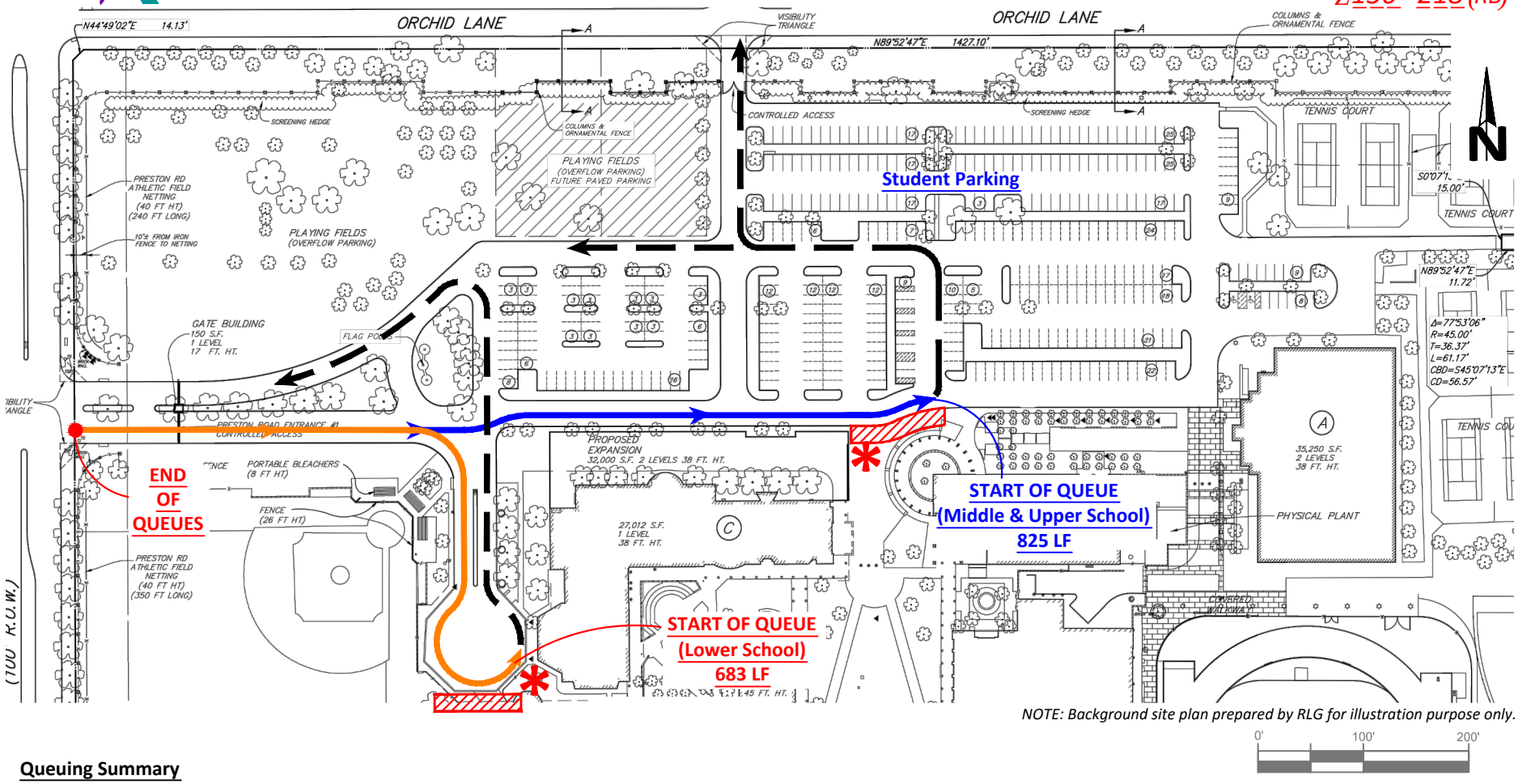
- The traffic circulation plan depicted in **Exhibit 1** is based upon a review of previous recommendations and observations of existing traffic during peak conditions. The plan provides a designated route for each queue and its respective loading zone:
    - The Lower School loading zone provides 680 linear feet of on-site vehicular queuing or storage for up to 29 vehicles at 23.5 feet per vehicle. This capacity is expected to accommodate the observed vehicle demand for Lower School students of 20 vehicles at 2:45 PM and 24 vehicles at 3:15 PM and provide a surplus of 210 feet and 116 feet, respectively.
    - The Middle and Upper School loading zone provides 825 linear feet of on-site vehicular queuing or storage for up to 35 vehicles at 23.5 feet per vehicle. This capacity accommodates the observed vehicle demand of 33 Middle School vehicles and 12 Upper School vehicles. The queue capacity also provides a surplus of 49 and 543 feet, respectively.
- As needed, staff installs temporary traffic control devices (such as traffic cones, etc.) when typical traffic conditions are expected. An appropriate number of school staff is also assigned to fulfill the duties of student supervision, traffic control, and other related duties as depicted on the plan.
- As needed, staff directing traffic 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 warning).
- As needed, the school should continue their practice of allowing no person(s) other than deputized officers of the law to engage or attempt to influence traffic operations in public right-of-way.
- Passenger loading and unloading operations should continue within public right-of to maximize personal safety. All queuing and parking should continue to be accommodated within the school site boundaries. For circumstances where this cannot be avoided, the school should coordinate with City staff responsible for traffic operations in the area to investigate appropriate mitigation measures.

Field observations of existing conditions indicate that student loading/unloading activities operate in conformance with City requirements and no activity takes place on public rights-of-way. This TMP should continue to be enforced by St. Mark's School of Texas to provide safe and efficient transportation of students, staff, and faculty to and from the site. The plan was originally 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 school should review details of this plan on a regular basis to confirm its effectiveness.

END OF MEMO

DeShazo Group, Inc. Job No. 15200 Exhibit Created on 11-4-2015

Z156 - 218 (RB)



NOTE: Background site plan prepared by RLG for illustration purpose only.

0' 100' 200'

Queuing Summary

Student Group	Dismissal Times	Vehicular Traffic
Lower School (66 Students)	2:45 PM	Provided: 683 LF (29 cars) Required: 470 LF (20 cars) Surplus: 210 LF (9 cars)
Lower School (84 Students)	3:15 PM	Provided: 683 LF (29 cars) Required: 564 LF (24 cars) Surplus: 116 LF (5 cars)
Middle School (341 Students)	3:55 PM	Provided: 825 LF (35 cars) Required: 776 LF (33 cars) Surplus: 49 LF (2 cars)
Upper School (372 Students)	3:05 PM	Provided: 825 LF (35 cars) Required: 282 LF (12 cars) Surplus: 543 LF (23 cars)

Legend

- ✱ - School Staff
- ▨ - Loading Area
- → - Queue Capacity (Lower School)
- → - Queue Capacity (Middle and Upper School)
- ⇢ - Outbound Route

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 results of internal queuing constraints during the study peak hours of school operation.

**Vehicular queue calculated at 23.5 feet/car based on field observations.*

EXHIBIT **1**

Traffic Management Plan

St. Mark's School of Texas
10600 Preston Road, Dallas, Texas

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