Traffic Management Plan M178-002(ND)

Current TMP and Combined Campus Operations (K-12) TMP

Episcopal School of Dallas (ESD)

Midway Road at Merrell Road

Dallas, TX

Original Submission: November 20, 2017

Updated Submission: March 8, 2018

Kimley-Horn and Associates, Inc.
Dallas, Texas

Project #064480000
Registered Firm F-928

Kimley»Horn

Traffic Management Plan
Combined Campus Operations (K-12)
Episcopal School Of Dallas
4100 Merrell Road, Dallas, TX
M178-002
Revised March 8, 2018

Revision Note:

This report and the attached TMPs have been updated throughout in response to City of Dallas comments on the original November 20, 2017 TMP submission.

Introduction:

The Episcopal School of Dallas (ESD) is located on the southwest corner of Midway Road and Merrell Road. The school has been in operation on the current site since 1982. As of the 2017/2018 school year, the school has approximately 1,145 students in grades Beginner/Pre-K through 12. The school has no enrollment cap but expects expansion to be limited to 1,225 students.

ESD currently operates the Middle and Upper Schools at the Merrell campus with 771 students on site. The Lower School operates separately at 4344 Colgate Avenue in Dallas. ESD is preparing a site plan for a combined campus using available unbuilt building area to include a Lower School building in the space noted as Future Phase XI. The current PD 400 governing the Merrell campus will be unchanged.

The current TMP operational plan for the Merrell Campus is shown in **Exhibit TMP-1**. This plan will remain in effect until the Lower School is moved to the Merrell Campus. The TMP for the combined campus operating as K-12 on the Merrell Campus is shown in **Exhibit TMP-2**. The Lower School campus is expected to be operation for the 2019-2020 school year, so **TMP-2** should go into effect at that time.

ESD has a strong tradition of families having multiple children enrolled at the same time. ESD reports that the 1,145 students currently enrolled come from only about 800 families, with 1.43 students per family. With separate campuses, this often results in doubling the vehicle trips per family. The consolidation of all grades to the Merrell campus will remove these inefficiencies and reduce the total vehicle trips to and from the school.

The Middle School and Upper School student dismissals are divided among regular dismissals and those students who participate in athletics and are dismissed later. ESD provided participation information for the 2014-2015 school year which showed a minimum of 141 Middle Schoolers in sports out of 334 (42.2%), with other sports seasons at 149 and 151 participants. For the Upper School, the lightest season had 182 participants out of 431 total (42.2%), with other seasons at 184 and 192 participants. To conservatively model the number of students playing sports under the 1,225-student maximum scenario, it was assumed that 40% of the students were in sports.

The following table shows the approximate distribution of students for the 2017-2018 school year, and the distribution at the 1,225-student anticipated maximum:

Grade	Approx. Number of 2017-2018 Students	Approx. Number of Students at 1,225 Max	Start Time	Dismissal Time
Beginner	25	20	8:00 AM	12:00 Noon
Pre-K	32	190	8:00 AM	2:30 PM
Kindergarten	58		8:00 AM	2:30 PM
Primer	14		8:00 AM	2:30 PM
1st Grade	53		8:00 AM	2:30 PM
2nd Grade	59	210	8:00 AM	3:30 PM
3rd Grade	65		8:00 AM	3:30 PM
4th Grade	68		8:00 AM	3:30 PM
Lower School Subtotal	**374**	**420**		
5th Grade	75	345 (207 regular, 138 sports)*	8:15 AM	3:30 PM (regular) or 4:15 PM (sports)
6th Grade	85		8:15 AM	3:30 PM or 4:15 PM
7th Grade	91		8:15 AM	3:30 PM or 4:15 PM
8th Grade	84		8:15 AM	3:30 PM or 4:15 PM
Middle School Subtotal	**335**	**345**		
9th Grade	113	460 (276 regular, 184 sports)*	8:40 AM	3:45 PM (regular) or 6:00 PM (sports)
10th Grade	107		8:40 AM	3:45 PM or 6:00 PM
11th Grade	109		8:40 AM	3:45 PM or 6:00 PM
12th Grade	107		8:40 AM	3:45 PM or 6:00 PM
Upper School Subtotal	**436**	**460**		
ESD Total	**1,145**	**1,225**		

* - Assumed 40% sports participation

Current Campus Circulation

The Montwood Loading Area is the internal campus roadway which uses the abandoned Montwood Lane, then circulates clockwise through the loading area on the south edge of the school. The Montwood Loading Area is used by the Middle School grades for drop-off and pick-up. Inbound traffic follows one lane on the old Montwood Lane, which turns in to the campus and through the loading area adjacent to the athletics building. The point where the inbound and outbound traffic flows cross is controlled by a school staffer. The two outbound lanes allow separate left- and right-turning exit maneuvers.

The Montwood Loading Area can accommodate at least 5 simultaneous vehicle loading operations. The queue storage serving the Montwood Loading Area is 1,140' in length, which will accommodate 48 vehicles[1].

The Merrell Loading Area uses the parking lot around the main school entry on Merrell Road. The central driveway at Gate #3 is blocked off when the TMP is active. A counterclockwise, doublestacked flow is established between the western entry driveway at Gate #4 and the eastern exit driveway at Gate #2. The TMP flow overrides the outbound arrows painted at Gate #4, which should be removed.

The Merrell Loading Area can accommodate at least 5 simultaneous vehicle loading operations. The queue serving the Merrell Loading Area provides 1,000' of queuing distance, which will accommodate 42 vehicles.

There is no significant pedestrian travel to and from the campus. However, with many parking spaces north of Merrell Road, a number of pedestrians cross Merrell Road during the TMP periods. Merrell Road operates with a school speed limit of 20 MPH during the TMP periods. Two marked crosswalks are provided adjacent to the parking areas, with the busier and more convenient western crosswalk also having a flashing warning beacon. A traffic officer is posted at the western crosswalk to control vehicle traffic when necessary to maintain safe pedestrian crossings.

Current TMP Operations

Operations at the two existing ESD campuses were observed in 2015 and 2016. Current TMP operations were observed again on the following specific dates in 2017: Thursday, October 26; Thursday, November 15; and Friday, November 16.

The Lower School operation at 4344 Colgate Avenue has a single drop-off time period from 7:40 to 8:00 AM, and two pick-up time periods at 2:30 PM (approx. 157 students) and 3:30 PM (approx. 192 students). Parent vehicle drop-off and pick-up is conducted in the parking lots north and south of the school, with vehicle entering in multiple lines from Lomo Alto Drive. Unloading and loading is done through multiple staffed loading stations, with the pick-up period managed in the modern fashion of arriving vehicles being identified with placards and announced to match up students with vehicles.

The Middle School operation at the Merrell campus has a single drop-off time period before the 8:15 AM start, and two pick-up time periods at 3:30 PM (approx. 201 students) and 4:15 PM (approx. 134 students after sports practice). As with most middle and upper schools at other private schools, both

[1] For all queue calculations in this report, vehicles are each assumed to occupy 23.5' of queue length.

drop-off and pick-up activity is more spread out than in the lower/elementary grades. Three days of AM and PM observations of the Montwood Lane intersection with Midway Road in 2016 showed no southbound right-turn queuing for entering the campus, and only reasonable northbound left-turn queuing. While outbound vehicles from Montwood Lane faced some delay when entering Midway Road, no significant queuing was observed. Over the three days, the number of vehicles using Montwood Lane in the AM drop-off period varied from 151 to 209, and in the PM pick-up period varied from 104 to 128. The maximum queue observed in the afternoon pick-up time period was 41 vehicles.

The Upper School operation at the Merrell campus has a single drop-off time period before the 8:40 AM start, and two pick-up time periods at 3:45 PM (approx. 262 students) and around 6:00 PM (approx. 174 students after sports practice). The Middle and Upper School loading areas are staffed to monitor the operations, with the students loading and unloading themselves. Approximately 200 of the Upper School students drive their own vehicles to the campus, parking in the surface lot north of Merrell Road. Due to on-street parking in use on both sides of Merrell Road, the two remaining Merrell Road lanes are sometimes obstructed by vehicles waiting to turn into the campus. Delays to Merrell Road traffic are also caused by pedestrians crossing at the marked crosswalks.

The following tables show the drop-off and pick-up queues for the current TMP operations:

Drop-Off Queuing Summary - Montwood Loading Area - 2017-2018 School Year

Group Grades Arriving	Start Time	Students Arriving	Bus / Bike / Walk	Student Drivers	Parent Drop-Off	Maximum Queue	Available Queue	Surplus (Deficiency)
MS Group 1 5, 6, 7, 8	8:15 AM	335	0	0	335	34 Vehicles 799'	48 Vehicles 1,140'	14 Vehicles

Drop-Off Queuing Summary - Merrell Loading Area - 2017-2018 School Year

Group Grades Arriving	Start Time	Students Arriving	Bus / Bike / Walk	Student Drivers	Parent Drop-Off	Maximum Queue	Available Queue	Surplus (Deficiency)
US Group 1 9, 10, 11, 12	8:40 AM	436	0	200	236	24 Vehicles 564'	42 Vehicles 1,000'	18 Vehicles

Pick-Up Queuing Summary - Montwood Loading Area - 2017-2018 School Year

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
MS Group 1 5, 6, 7, 8	3:30 PM	201	0	0	201	41 Vehicles 964'	48 Vehicles 1,140'	7 Vehicles
MS Group 2 (Sports) 5, 6, 7, 8	4:15 PM	134	0	0	134	27 Vehicles 635'	48 Vehicles 1,140'	21 Vehicles

Pick-Up Queuing Summary - Merrell Loading Area - 2017-2018 School Year

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
US Group 1 9, 10, 11, 12	3:45 PM	262	0	120	142	29 Vehicles 682'	42 Vehicles 1,000'	13 Vehicles
US Group 2 (Sports) 9, 10, 11, 12	6:00 PM	174	0	80	94	19 Vehicles 447'	42 Vehicles 1,000'	23 Vehicles

Proposed TMP Circulation and Operation

The proposed TMP for the new campus master plan in shown in **Exhibit TMP-2**. The circulation paths pand staffing requirements are generally the same as the current TMP, with some small changes to the Montwood Loading Area due to the construction of the Lower School building. Operationally, the proposed TMP uses the same staggered AM start and PM dismissal times as the current operation, adds the Lower School operations to the Montwood Loading Area, and moves some Middle School pick-up operations to the Merrell Loading Area to balance the demands between the available loading areas.

The Montwood Loading Area operates in the same clockwise rotation as the current TMP, with the loading area moved to be south of the new Lower School building. The relocated loading area will allow a longer, doublestacked queue in front of the loading area. The Montwood Loading Area would have an available queue length of 1,800' or 76 vehicles. Upon exiting the loading area, outbound vehicles are assisted by a staffer to cross the inbound vehicle stream. The two outbound lanes allow separate left- and right-turning exit maneuvers. The now-private Montwood entrance would have a gate with a guardhouse. The gate will be opened during the drop-off and pick-up time periods. This new gate will emphasize the fact that the former Montwood Lane is now part of the campus. This change in atmosphere and the presence of traffic officers or school staffers at three points along the circulation path on Montwood will discourage speeding by vehicles. There is no significant number of pedestrians expected to cross the former Montwood Lane, so no pedestrian crosswalk is planned except along Midway Road. If a crosswalk becomes desirable, one could easily be installed near the vehicle crossover point, under control of the staffer that is already posted there. Another crosswalk location would be just west of the turn from Montwood Lane into the loading area.

Uniformed police traffic officers will be in control of the intersection of Midway Road and Montwood Loop during the morning drop-off, when conflicting traffic on Midway Road is at its highest. While police officers are not employed in the current TMP, the additional usage of the Montwood Loading Area by the Lower School vehicles will probably make officer control beneficial. Police officers may also control the intersection in the afternoon pick-up if conditions warrant, but with the staggered loading operations and the lower off-peak Midway Road traffic, officer control is not anticipated to be necessary. At least two traffic officers are required for this duty if both directions of Midway Road are to be stopped. The traffic officers will focus on facilitating two operations – the northbound left-turn movement inbound from Midway Road and the eastbound left- and right-turn movements outbound from the Montwood Loop. The northbound left-turn movement is the most critical due to the limited left-turn storage length, which is marked for only approximately 40', but from observation can functionally accommodate at least four vehicles.

Lower School drop-off occurs by 8:00 AM through the Montwood Loading Area, with students being received in the staffed loading area. The Middle School drop-off then occurs through the Montwood Loading Area by 8:15 AM. Vehicle departures for these groups are directly back to Midway Road. The Upper School drop-off occurs by 8:40 AM at the Merrell Loading Area. The Upper School student drivers are parking north of Merrell Road.

The major pick-up times begin with the first Lower School pick-up at 2:30 PM in the Montwood Loading Area. Vehicles queue and then arrive at the Montwood Loading Area, where they are matched with students by the traffic administrator. The traffic administrator also supervises the conversion of the

double-stacked queue to the single line through the loading area, and any pedestrian crossings. Students are assisted into the vehicle at each loading station by the staff. Vehicles then exit to Midway Road.

The next pick-up time is the second Lower School pick-up at 3:30 PM, which occurs at the same time as the first Middle School pick-up. The Lower School and the Middle School grades 5-6 will operate their staffed loading areas in the Montwood Loading Area, which is large enough to accommodate the queues for the total of 313 students. The remaining 104 students of Middle School grades 7-8 will use the Merrell Loading Area at 3:30 PM. The second Middle School pickup for students on sports teams occurs at 4:15 PM in the Montwood Loading Area.

The first Upper School pick-up occurs at 3:45 PM in the Merrell Loading Area. Vehicles enter the queue and pass through the loading areas, which are monitored by staff. Vehicles then exit in either direction to Merrell Road, with most returning to Midway Road via the traffic signal. The second Upper School pickup for students on sports teams occurs at 6:00 PM in the Merrell Loading Area.

Queuing Theory

A published source for school queue observations is the Texas Transportation Institute (TTI) report 0-4286-3 *Operations and Safety Around Schools*, from January 2004. Funded by TxDOT, US DOT, and the Federal Highway Administration, the TTI research project examined experiences and best practices for school design and operations around the country, and did extensive observations of existing school operations. Observations of morning drop-off queues and afternoon pick-up queues were done at 20 elementary and middle schools in Texas. The schools had student populations between 250 and 1,200 students. In each case the number of students arriving or departing in vehicles was found, so that the variations in walking, biking, and busing numbers were removed, and the vehicle queuing behavior could be isolated. The results found that the weighted average of the maximum morning drop-off queue was 6% of the arriving students (0.06 queued vehicles per arriving student). The weighted average of the maximum afternoon pick-up queue was 13% of the departing students (0.13 queued vehicles per departing student).

Based on experience and observations of queuing at other public and private schools in the DFW area, KHA uses a higher design standard for projecting pick-up queue demands at schools. In the normal KHA design standard, the expected maximum pick-up queue in vehicles is equal to 20% of the largest number of students dismissed at one time. Students using buses or walking/biking are deducted from the student number since they do not attract personal vehicles to the campus. This method accounts for the differences in how schools divide up the pick-up time period, as some dismiss all students in one group and therefore have higher vehicle demands in a short time period, while some spread out the dismissals over two or more groups. The projected pick-up queue formula can be stated as:

(Students dismissed in time period – Students using other modes) * 0.20 = Number of vehicles in maximum pick-up queue

The morning drop-off operation at schools is typically much simpler and has a faster service time than the afternoon pick-up operation, since drivers can arrive at any time and students do not have to be matched with vehicles. The observations on the campus show this to be the case at ESD as well. As at many schools, the traffic on the surrounding streets is heavier in the morning time period than in the

afternoon time period, so the officer-controlled operation of the Midway Road and Montwood intersection will be more important.

Experience has shown that with a staffed unloading area and adequate storage within the site for departing vehicles to clear the unloading area, the morning drop-off queue is significantly less than the afternoon pick-up queue. If a site's circulation works in the afternoon pick-up period, the morning drop-off period will also function well. Therefore, the morning drop-off queue is not normally calculated as a part of TMPs in the City of Dallas. Due to neighborhood interest around ESD, the morning drop-off queue will be examined below. The KHA design standard is that the drop-off queue is 10% of the largest number of students arriving at one time. With the addition of the Lower School traffic and its younger students, for this analysis the drop-off queue generation will be set at 15%. As noted above, the design queue standards applied in this TMP of 15% in the morning drop-off and 20% in the afternoon pick-up are much higher than the observed averages of 6% and 13%, respectively, from the TTI report.

These shorter queues observed in the TTI study influence the recommended queue lengths which the study promoted for use at Texas schools. For elementary schools of less than 500 students, the TTI recommended queue length was 400-750', where ESD is providing at least 1,800'. For middle schools of less than 600 students, the TTI recommended queue length was 500-800', where ESD is providing at least 1,800'. For high schools of 400-800 students, the TTI recommended queue length is 800-1,200'. ESD is in the middle of that range and is providing 1,000', and it also has a higher percentage of student drivers and athletics participants than most schools, leading to lower peak pick-up demand.

Queuing Calculations

PM Pick-Up Period

The following calculations assume the school is at the 1,225-student maximum enrollment. The peak pick-up queue for the Montwood Loop will occur at 3:30 PM with both the second dismissal of the Lower School and the first dismissal of the Middle School. The combined 210 Lower School students and 103 Middle School grades 5-6 students being dismissed at this time means a maximum queue of 63 vehicles, or 1,481' of queuing distance. Since the Montwood Loading Area has 1,800' of queuing distance available, there would be 319' or 13 vehicles of excess queuing capacity going unused. The other pick-up periods handle fewer students and would result in even more unused space within the Montwood Loading Area. With such a large number of queue spaces on the Montwood Loop, there will be no need for vehicles to queue on Midway Road due to queue space not being available within the campus.

The peak queue for the Merrell Loading Area will occur at the 3:45 PM pick-up for Upper School students. 276 students are being dismissed at that time, with 120 of them being student drivers. The 176 students being picked up generate a maximum queue of 31 vehicles, or 729' of queuing distance. The Merrell Loading Area has 1,000' of queuing distance available within the campus, so the maximum queue can be accommodated within the campus with 271' or 11 vehicles of surplus space still available.

The following tables show the dismissal groups for each loading area, and resulting pick-up queuing conditions.

Pick-Up Queuing Summary - Montwood Loading Area - 1,225 Student Maximum								
Group Grades Dismissed	**Dismissal Time**	**Students Dismissed**	**Bus / Bike / Walk**	**Student Drivers**	**Parent Pickup**	**Maximum Queue**	**Available Queue**	**Surplus (Deficiency)**
LS Group 1 PK, K, Primer, 1	2:30 PM	190	0	0	190	38 Vehicles 893'	76 Vehicles 1,800'	38 Vehicles
LS Group 2, MS Group 1 (5-6) 2, 3, 4, 5, 6	3:30 PM	210 + 103	0	0	313	63 Vehicles 1,481'	76 Vehicles 1,800'	13 Vehicles
MS Group 2 (Sports) 5, 6, 7, 8	4:15 PM	138	0	0	138	28 Vehicles 658'	76 Vehicles 1,800'	48 Vehicles

Pick-Up Queuing Summary - Merrell Loading Area - 1,225 Student Maximum								
Group Grades Dismissed	**Dismissal Time**	**Students Dismissed**	**Bus / Bike / Walk**	**Student Drivers**	**Parent Pickup**	**Maximum Queue**	**Available Queue**	**Surplus (Deficiency)**
MS Group 1 (7-8) 7, 8	3:30 PM	104	0	0	104	21 Vehicles 494'	42 Vehicles 1,000'	21 Vehicles
US Group 1 9, 10, 11, 12	3:45 PM	276	0	120	156	31 Vehicles 729'	42 Vehicles 1,000'	11 Vehicles
US Group 2 (Sports) 9, 10, 11, 12	6:00 PM	184	0	80	104	21 Vehicles 494'	42 Vehicles 1,000'	21 Vehicles

AM Drop-Off Period

Using the morning drop-off maximum queue assumption of 15% of the arriving students, the maximum drop-off queue at the Montwood Loading Area occurs before 8:00 AM for the Lower School arrival of 420 students. The resulting maximum queue of 63 vehicles is easily accommodated by the 1,800' of available queue distance. In the Merrell Loading Area, the 460 arriving Upper Schoolers would generate a maximum queue of 39 vehicles, which fits within the available queue distance. As noted above, these assumptions of AM drop-off maximum queues are probably conservatively high.

Drop-Off Queuing Summary - Montwood Loading Area - 1,225 Student Maximum								
Group Grades Arriving	**Start Time**	**Students Arriving**	**Bus / Bike / Walk**	**Student Drivers**	**Parent Drop-Off**	**Maximum Queue**	**Available Queue**	**Surplus (Deficiency)**
LS Group 1 Beginner through 4	8:00 AM	420	0	0	420	63 Vehicles 1,481'	76 Vehicles 1,800'	27 Vehicles
MS Group 1 5, 6, 7, 8	8:15 AM	345	0	0	345	52 Vehicles 1,222'	76 Vehicles 1,800'	38 Vehicles

Drop-Off Queuing Summary - Merrell Loading Area - 1,225 Student Maximum								
Group Grades Arriving	**Start Time**	**Students Arriving**	**Bus / Bike / Walk**	**Student Drivers**	**Parent Drop-Off**	**Maximum Queue**	**Available Queue**	**Surplus (Deficiency)**
US Group 1 9, 10, 11, 12	8:40 AM	460	0	200	260	39 Vehicles 917'	42 Vehicles 1,000'	3 Vehicles

Sports Off-Season

There are brief times of the year when all sports may not be in session, and the assumed division between regular dismissals and sports dismissals would be different. As noted on the TMP plan, the school is responsible for managing its traffic at all times, and may need to modify the TMP plan to ensure smooth operations. This is the same as making special plans for other major school events where the traffic demands are atypical.

To address the sports off season, the 1,800' queue length available in the Montwood Loop (space for 76 vehicles) would accommodate the 76-vehicle maximum queue if all 172 Middle School grades 5-6 students were dismissed at one time with the 210 Lower School students. The same situation for the 460 Upper School students would generate a 52-vehicle maximum queue, which could be accommodated extending the doublestacked queue through the loading area, or which could easily be split into two pick-up periods separated by at least 15 minutes.

Montwood Loading Area Alternate Exit to Merrell Road

An unused north-south internal vehicle path is available, located between the campus buildings and the football stadium. Use of the north-south connection had been examined as part of previous TMP proposals during the withdrawn rezoning process. Activating this connection could allow vehicles leaving the Montwood Loading Area to travel north within the campus, then turn on to Merrell Road and use the signal to turn north on Midway Road. This operation would result in only outbound right-turning vehicles returning to Midway Road via Montwood, reducing the turning movements and simplifying the operations at that access point. Besides the additional traffic on Merrell Road and at the signal with Midway, the negative consequences of using the north-south path include vehicle traffic crossing through the previously car-free core of the campus, mixing with the many students crossing that path.

The north-south path is a viable addition to the current and proposed TMPs used in this report. However, with officer control at the Montwood and Midway intersection, the proposed TMP is expected to operate in a satisfactory manner without it. Using the north-south path would not remove the need for officers at the Montwood intersection, since they are needed to assist the larger number of entering vehicles with the Lower School in place. Considering the negative impact it would have on the campus life, the north-south path should be kept in reserve for use as a mitigation measure in case that the Montwood intersection operations unduly affect Midway Road, and normal mitigation measures such as modifying arrival and departure times do not solve the problem.

Parking

The number of parking spaces on the campus is being increased as a part of the updated site plan that includes the new Lower School facility. The parking areas north of Merrell Road will be expanded and the two separate student lots will be connected. The area dedicated to facilities support north of Merrell Road is also being reconfigured to add defined parking in that area, which will provide space for campus vehicles and staff parking. The changes to the north parking lots are expected to be completed by the 2018-2019 school year. This early completion of the expanded parking will compensate for any temporary parking losses during the construction around the Lower School.

With the new Lower School, the site is required to have 405 parking spaces by the Dallas City Code. In 2016 the school had 389 spaces. The proposed site will provide 504 spaces.

An April 2016 study by Kimley-Horn for the Z145-157 zoning case showed a maximum parking demand of 443 for the Merrell Campus, which included on-street parking observed on Merrell Road and Montwood Lane. With the observed Lower School parking demand added, the combined parking demand was estimated to be 507 vehicles. This number did not consider the efficiencies of consolidating the two campus operations, which should reduce the overall parking demand.

When the additional parking is available on the site in the future, the school will change its policies so that staff and students are not allowed to park along Merrell Road. This will be school policy, not an official City posting of no parking, so that the on-street parking can still be used by visitors (e.g., during events). Parking will be similarly discouraged along the former Montwood Lane, but that area is controlled by the school and can be used for overflow or event parking as long as the TMP circulation paths are not impeded.

Specifically, the area of the former Montwood Lane west of the TMP path can be used when needed to store visiting school buses. For events, the buses can load and unload in the Montwood Loading Area, near their storage areas in the west end of the former Montwood Lane.

Operation During Lower School Construction

Construction on the Future Phase XI area will have to be managed so that the current TMP operation is maintained. The TMP paths or loading areas are not adjacent to and are not affected by the actual construction areas, but construction vehicle traffic will have to be scheduled to avoid the drop-off and pick-up time periods. Construction activity should be controlled during those periods to reduce distractions for drivers and students. Construction worker parking will need to be provided at a remote site during the school year because all campus spaces will be in use.

Summary

These TMPs define the drop-off and pick-up procedures for ESD in the current operation and once the site is modified in accordance with the proposed site plan, including the potential growth to 1,225 students. In all cases, the TMP vehicle routes provide an available queue distance within the site that is greater than the projected maximum expected queue for the school's operations. With the TMP operating as shown, the school traffic should not need to queue vehicles in the ROW of any City street. Inbound vehicles should always have an open receiving space on the campus. There may be reasonable delays from opposing traffic or traffic officer control of the intersections when making the entering maneuver, but this will not form constant queues of static vehicles. The property owner/school administrator is responsible for the administration of the TMP and minimizing the impact of the vehicle traffic on the City streets. Only uniformed police officers should be allowed to direct and control traffic operating within the public right-of-way.

In order to ensure that all queuing of vehicles is completely accommodated on school property, ESD administrative officials should implement the proposed Traffic Management Plan, monitor the operation on a continuing basis, and if any vehicle queuing should begin to occur on public right-of-way, take the necessary action to mitigate it.

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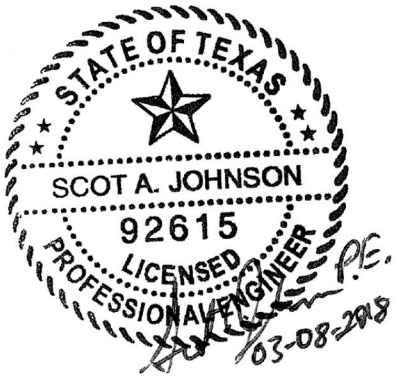
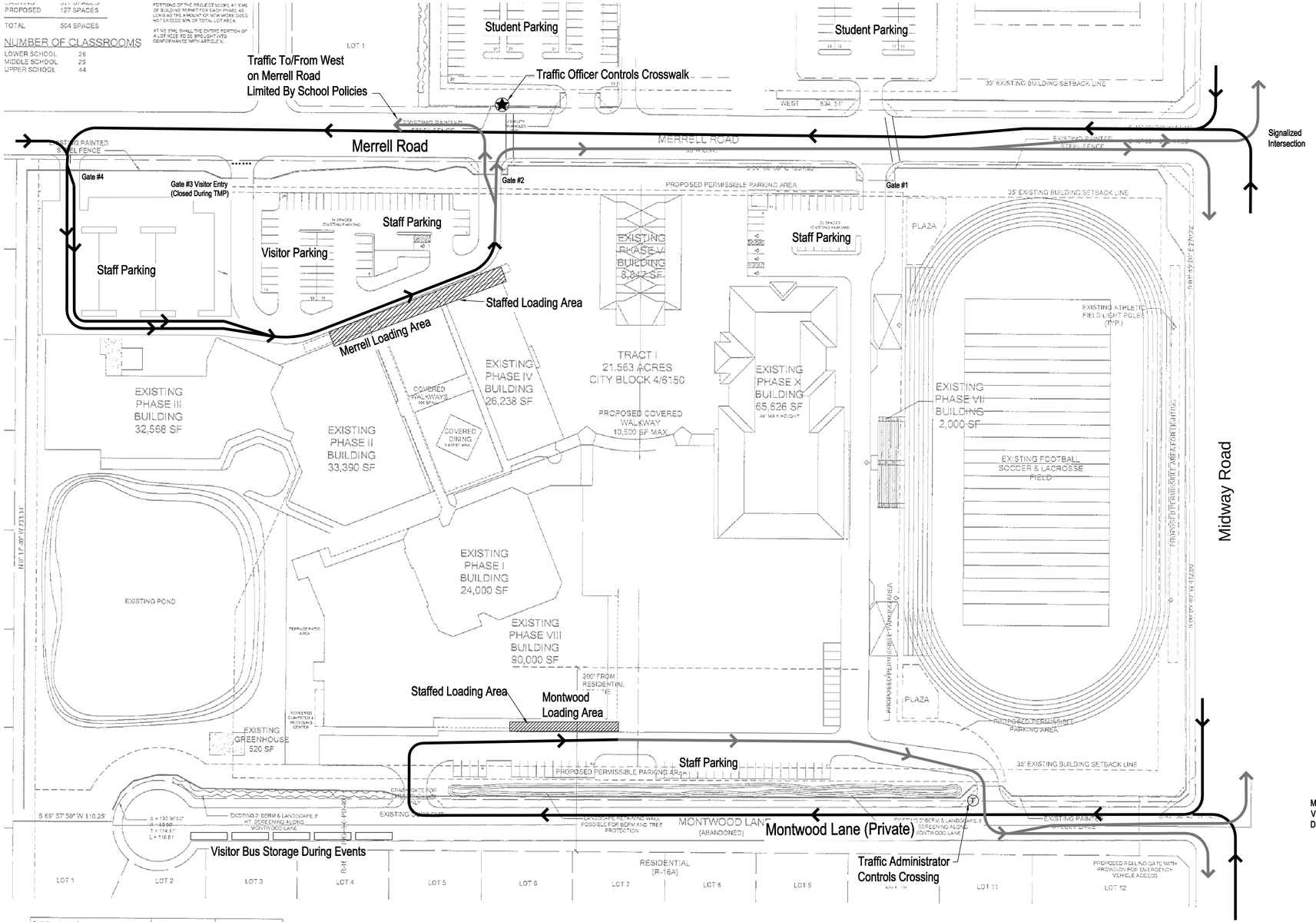
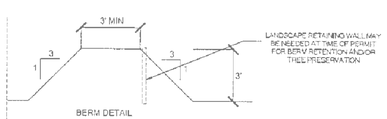


Attachments: TMP-1 Current Operations (2017 Until LS Occupied)
TMP-2 Combined Campus Operations (2019+)



Building Areas Summary	Existing	Total Allowed
Phase I (Hart Gymnasium)	24,000 SF	24,000 SF
Phase II (School House)	33,390 SF	33,390 SF
Phase III (Gill Library)	32,568 SF	32,568 SF
Phase IV (Cook Building)	26,238 SF	26,238 SF
Phase V (All Saints Chapel)	8,847 SF	8,847 SF
Phase VI (Future Science Building)	-0-	50,000 SF
Phase VII (Jones Family Stadium)	2,000 SF	2,000 SF
Phase VIII (Swann Wellness Center)	90,000 SF	90,000 SF
Phase IX (Tennis Center)	1,500 SF	1,500 SF
Phase X (Frank Building)	55,626 SF	55,626 SF
Phase XI (Proposed Lower School)	-0-	80,000 SF
Phase XII (Facility Management)	1,532 SF	10,000 SF
Greenhouse	520 SF	520 SF
Covered Walkways	900 SF	11,400 SF
Covered Dining	-0-	5,400 SF



DEVELOPMENT PLAN
EPISCOPAL SCHOOL OF DALLAS
Lot 1, Block 4/6150
and
part of Block 6151
out of the
Benjamin Merrell Survey, Abstract 933
DALLAS, DALLAS COUNTY, TEXAS

OWNER
THE EPISCOPAL SCHOOL OF DALLAS
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GFF PLANNING
2808 FAIRMOUNT ST, SUITE 300
DALLAS, TEXAS 75201
PHONE: (214)303-1500

GRAPHIC SCALE
1" = 60' on 24x36" Plot

Kimley»Horn
REGISTERED FIRM F-928

STATE OF TEXAS
SCOT A. JOHNSON
92615
LICENSED
PROFESSIONAL ENGINEER
03-08-2018

TMP Legend:

- Inbound Vehicle Path
- Outbound Vehicle Path
- Traffic Officer
- (T) Traffic Administrator
- (S) Staff Location
- ••• Cone or other portable barrier

Note:
Queue calculations are made using linear feet.

Current 2017-2018 Enrollment: Approx 771 Students in Grades 5-12

School Hours and Groups:

Grade	Approx. Student #	Start	End
Middle School			
5-8	201	8:15 AM	3:30 PM
5-8 Sports	134	8:15 AM	4:15 PM
Upper School*			
9-12	262	8:40 AM	3:45 PM
9-12 Sports	174	8:40 AM	6:00 PM

* including Approximately 200 Student Drivers.

Drop-off/Pick-up assignments and times should be actively managed in response to conditions, including changes in sports schedules.

Available queue distance in the Montwood Loading Area is 1,140' (48 vehicles at 23.5' each).

Available queue distance in the Merrell Loading Area is 1,000' (42 vehicles at 23.5' each).

Projected maximum pick-up queue demand in the Montwood Loading Area would occur during the 3:30PM release of approximately 201 Middle School students (non-sports schedule). The combined queue would total 964' (41 vehicles). The available queue distance provides 176' (7 vehicles) in excess of the expected maximum queue.

Projected maximum pick-up queue demand in the Merrell Loading Area is 682' (29 vehicles), occurring at the 3:45PM Upper School dismissal. The available Merrell Loading Area queue distance provides 318' (13 vehicles) in excess of the expected maximum queue.

Queue information for the morning drop-off period is included in the TMP Summary document.

Pick-Up Queuing Summary - Montwood Loading Area - 2017-2018 School Year

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
MS Group 1 5, 6, 7, 8	3:30 PM	201	0	0	201	41 Vehicles 964'	48 Vehicles 1,140'	7 Vehicles
MS Group 2 (Sports) 5, 6, 7, 8	4:15 PM	134	0	0	134	27 Vehicles 635'	48 Vehicles 1,140'	21 Vehicles

Pick-Up Queuing Summary - Merrell Loading Area - 2017-2018 School Year

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
US Group 1 9, 10, 11, 12	3:45 PM	262	0	120	142	29 Vehicles 682'	42 Vehicles 1,000'	13 Vehicles
US Group 2 (Sports) 9, 10, 11, 12	6:00 PM	174	0	80	94	19 Vehicles 447'	42 Vehicles 1,000'	23 Vehicles

In order to ensure that all queuing of vehicles is completely accommodated on school property, ESD administrative officials should implement the proposed Traffic Management Plan, monitor the operation on a continuing basis, and if any vehicle queuing should begin to occur on public right-of-way, take the necessary action to mitigate it.

Only uniformed police officers should be allowed to direct and control traffic operating within the public right-of-way.

Episcopal School Of Dallas
Traffic Management Plan (TMP)
Current Operations (2017 until LS Occupied)

M178-002(ND)

Sheet No. TMP-1

PROPOSED 127 SPACES

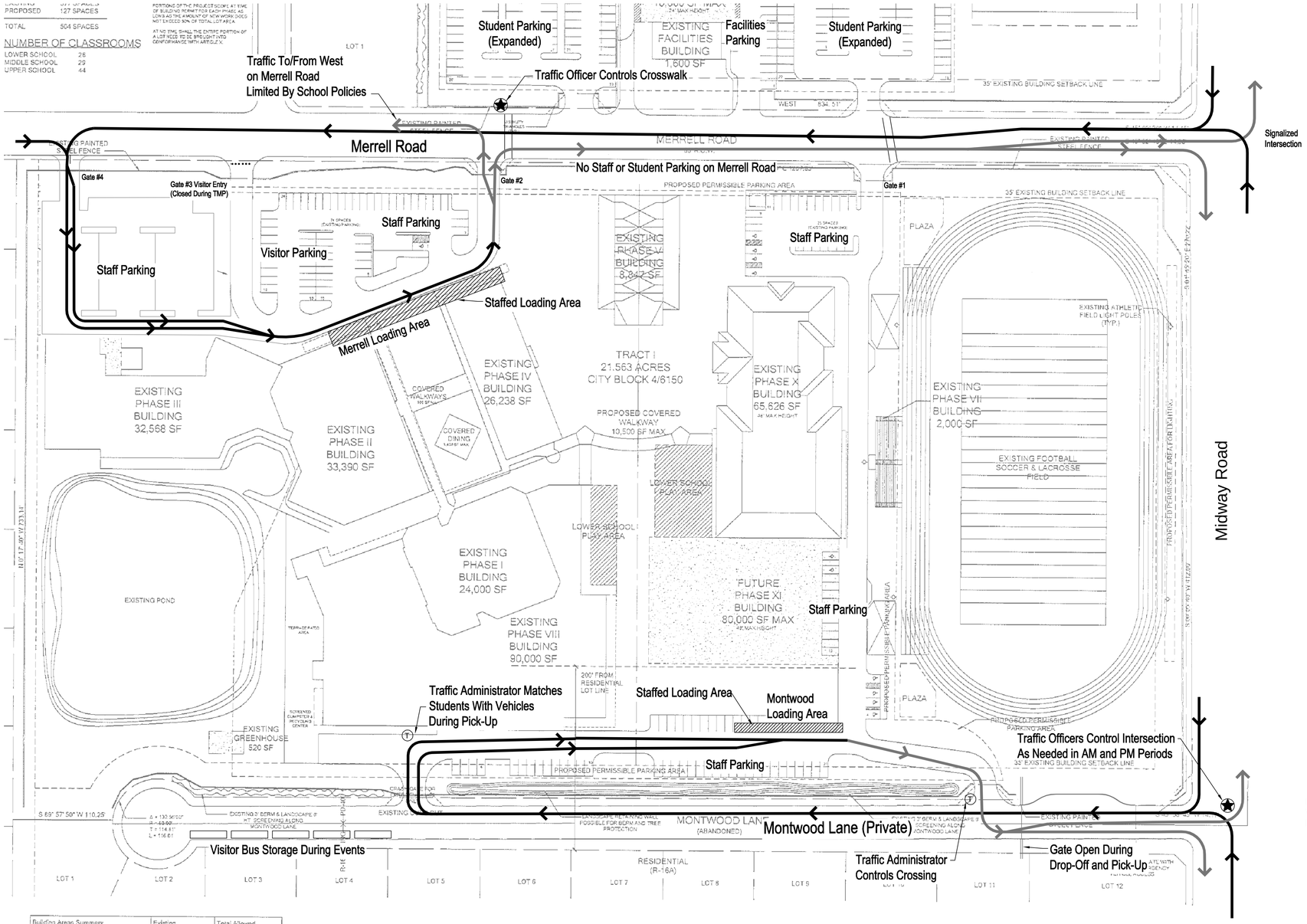
TOTAL 504 SPACES

NUMBER OF CLASSROOMS

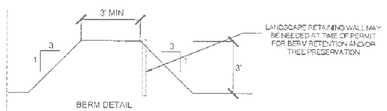
LOWER SCHOOL	26
MIDDLE SCHOOL	29
UPPER SCHOOL	44

PORTIONS OF THE PROJECT SCOPE AT TIME OF BUILDING PERMIT FOR EACH PHASE AS LONG AS THE AMOUNT OF NEW WORK DOES NOT EXCEED 50% OF TOTAL LOT AREA

AT NO TIME SHALL THE ENTIRE PORTION OF A LOT NEED TO BE BROUGHT INTO CONFORMANCE WITH ARTICLE X



Building Areas Summary	Existing	Total Allowed
Phase I (Hart Gymnasium)	24,000 SF	24,000 SF
Phase II (School House)	33,390 SF	33,390 SF
Phase III (Gill Library)	32,568 SF	32,568 SF
Phase IV (Cook Building)	26,238 SF	26,238 SF
Phase V (All Saints Chapel)	8,847 SF	8,847 SF
Phase VI (Future Science Building)	-0-	50,000 SF
Phase VII (Jones Family Stadium)	2,000 SF	2,000 SF
Phase VIII (Swann Wellness Center)	90,000 SF	90,000 SF
Phase IX (Tennis Center)	1,500 SF	1,500 SF
Phase X (Frank Building)	55,626 SF	55,626 SF
Phase XI (Proposed Lower School)	-0-	80,000 SF
Phase XII (Facility Management)	1,532 SF	10,000 SF
Greenhouse	520 SF	520 SF
Covered Walkways	960 SF	11,400 SF
Covered Dining	-0-	5,400 SF



DEVELOPMENT PLAN

EPISCOPAL SCHOOL OF DALLAS

Lot 1, Block 4/6150
and
part of Block 6151
out of the
Benjamin Merrell Survey, Abstract 933
DALLAS, DALLAS COUNTY, TEXAS

OWNER
THE EPISCOPAL SCHOOL OF DALLAS
4100 MERRELL ROAD
DALLAS, TEXAS 75229
PHONE: (214)358-4368

PREPARED BY
OFF PLANNING
2908 FAIRMOUNT ST, SUITE 300
DALLAS, TEXAS 75201
PHONE: (214)303-1500

GRAPHIC SCALE
1" = 60' on 24x36" Plot

Kimley»Horn
REGISTERED FIRM F-928

TMP Legend:

- Inbound Vehicle Path
- Outbound Vehicle Path
- Traffic Officer
- (T) Traffic Administrator
- (S) Staff Location
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Note:
Queue calculations are made using linear feet.

STATE OF TEXAS
SCOT A. JOHNSON
92615
LICENSED PROFESSIONAL ENGINEER
03-08-2018

Current Enrollment: Approx 1,145 Students
Maximum Enrollment: 1,225 Students

School Hours and Groups: (Assuming 1,225 Students)

Grade	Approx. Student #	Start	End
Lower School			
Beginner	20	8:00 AM	12:00 PM
PK-1	190	8:00 AM	2:30 PM
2-4	210	8:00 AM	3:30 PM
Middle School			
5-8	207	8:15 AM	3:30 PM
5-8 Sports	138	8:15 AM	4:15 PM
Upper School*			
9-12	276	8:40 AM	3:45 PM
9-12 Sports	184	8:40 AM	6:00 PM

* including Approximately 200 Student Drivers.

Drop-off/Pick-up assignments and times should be actively managed in response to conditions, including changes in sports schedules.

Available queue distance in the Montwood Loading Area is 1,800' (76 vehicles at 23.5' each).

Available queue distance in the Merrell Loading Area is 1,000' (42 vehicles at 23.5' each).

Projected maximum pick-up queue demand in the Montwood Loading Area would occur during the 3:30PM release of approximately 210 Lower School students (Grades 2-4) and 103 Middle School students (Grades 5-6 non-sports schedule). The combined queue would total 1,481' (63 vehicles). The available queue distance provides 319' (13 vehicles) in excess of the expected maximum queue.

Projected maximum pick-up queue demand in the Merrell Loading Area is 729' (31 vehicles), occurring at the 3:45PM Upper School dismissal. The available Merrell Loading Area queue distance provides 271' (11 vehicles) in excess of the expected maximum queue.

Queue information for the morning drop-off period is included in the TMP Summary document.

Pick-Up Queuing Summary - Montwood Loading Area - 1,225 Student Maximum

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
LS Group 1 PK, K, Primer, 1	2:30 PM	190	0	0	190	38 Vehicles 893'	76 Vehicles 1,800'	38 Vehicles
LS Group 2, MS Group 1 (5-6) 2, 3, 4, 5, 6	3:30 PM	210 + 103	0	0	313	63 Vehicles 1,481'	76 Vehicles 1,800'	13 Vehicles
MS Group 2 (Sports) 5, 6, 7, 8	4:15 PM	138	0	0	138	28 Vehicles 658'	76 Vehicles 1,800'	48 Vehicles

Pick-Up Queuing Summary - Merrell Loading Area - 1,225 Student Maximum

Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pickup	Maximum Queue	Available Queue	Surplus (Deficiency)
MS Group 1 (7-8) 7, 8	3:30 PM	104	0	0	104	21 Vehicles 494'	42 Vehicles 1,000'	21 Vehicles
US Group 1 9, 10, 11, 12	3:45 PM	276	0	120	156	31 Vehicles 729'	42 Vehicles 1,000'	11 Vehicles
US Group 2 (Sports) 9, 10, 11, 12	6:00 PM	184	0	80	104	21 Vehicles 494'	42 Vehicles 1,000'	21 Vehicles

In order to ensure that all queuing of vehicles is completely accommodated on school property, ESD administrative officials should implement the proposed Traffic Management Plan, monitor the operation on a continuing basis, and if any vehicle queuing should begin to occur on public right-of-way, take the necessary action to mitigate it.

Only uniformed police officers should be allowed to direct and control traffic operating within the public right-of-way.

Episcopal School Of Dallas
Traffic Management Plan (TMP)
Combined Campus Operations (2019+)

M178-002(ND)

Sheet No. TMP-2