



## **Traffic Management Plan and Queueing Analysis 2020 Update for Athletics Master Plan**

Bishop Lynch High School  
9750 Ferguson Road, Dallas, TX 75228  
September 18, 2020

### **Introduction:**

The purpose of this memo is to provide an update to the Traffic Management Plan for the Planned Development District 490, Bishop Lynch High School (BLHS) that was completed in 2012 and updated in 2018. The TMP operations represented in this memo are generally consistent with the 2018 TMP update. *With the COVID-19 pandemic, BLHS operations have been disrupted since March 2020, so no observation of the TMP operation has been possible to test the TMP. As of September 15, BLHS is in Phase 2 of their reopening plan (<https://www.bishoplynch.org/about/reopeningcovid-19>), which has classes on campus on a limited schedule for the part of the student body that has selected in-person instruction. In Phase 3, those in-person students will expand the school day to the normal hours, but the student numbers on campus will still be lower than normal. For the in-person students, there are no changes to the arrival or departure plans indicated in the TMP. After this point, all TMP discussions will assume full daily attendance and using the normal school day schedule. If future COVID-19 conditions force change to the TMP operation, the school will adjust daily operations as needed, within their obligation to avoid impacts to the surrounding public streets.*

The Bishop Lynch High School (BLHS) is a private Catholic high school located on the southeast corner of Ferguson Road and Peavy Road. The school has been in operation on the current site since 1963. BLHS is proposing to amend PD 490 to change the development plan to include the Athletics Master Plan, which would construct new press boxes and bleachers at the football field, with resulting minor changes to the existing parking and north driveway. Classrooms on the site would remain as existing. Enrollment, which will remain at approximately current levels, so there would be no change in the typical daily traffic volumes, or in the specific morning drop-off and afternoon pick-up volumes which have been present for many years.

For the 2019-2020 school year the school had approximately 1,110 students in grades 9 through 12, along with 135 staff members. The following table shows the approximate distribution of students for the 2019-2020 school year:

<b>Grade</b>	<b>Approx. Number of Students</b>
9 <sup>th</sup> Grade	254
10 <sup>th</sup> Grade	269
11 <sup>th</sup> Grade	237
12 <sup>th</sup> Grade	250
<b>Total</b>	<b>1,110</b>

For daily access to the site, there are no significant changes to the three current access points to Ferguson Road or Inadale Avenue. The eastern parking lot is slightly changed to accommodate the

football field new bleachers and press box, with one row of parking eliminated and a realignment of the driveway throat at the easternmost driveway to Ferguson Road.

### Study Area

Daily access to the site is provided at four locations for students and parents; one location along Inadale Avenue and two locations along Ferguson Road. The access locations along Ferguson Road are full access locations for incoming traffic and right-out only for outbound traffic. The access location on Inadale Avenue is a full access location. The separate Bus Loop is provided along Inadale Avenue.

Ferguson Road is a six-lane divided Principal Arterial with daily traffic of approximately 19,000 (TxDOT 2019 count) adjacent to the school. Peavy Road is a four-lane undivided Community Collector, and Inadale Avenue is a two-lane undivided local street with parking on both sides. All adjacent roadways have a posted school speed limit of 20 MPH

### Current Traffic Management Plan (TMP) Operation:

The school operates on weekdays with several pick-up and drop-off times due to activities and varying student schedules. In addition, there are significant numbers of students on the bus system and driving their own vehicles, further reducing the peak drop-off and pick-up vehicle flows. The following table shows the type, times, and approximate 2019-2020 populations of each arrival and dismissal group.

Arrival Type	Arrival Time	Approx. Number of Students (% Of Total)
Early Arrival	7:00 AM	202 (20%)
Buses	8:00 AM	212 (21%)
Normal Arrival	8:20 AM	545 (54%)
Late Arrival	9:30 AM	51 (5%)
Departure Type	Departure Time	Approx. Number of Students (% Of Total)
Early Dismissal	2:00 PM	91 (9%)
Normal Dismissal	3:30 PM	273 (27%)
Buses	3:50 PM	212 (21%)
After School Practice	Various Groups 6:00-6:30 PM	434 (43%)

The spacing out of significant numbers of arrivals and dismissals away from the traditional drop-off and pick-up time periods results in much less intense peak traffic levels at those times. The school-related traffic is further reduced by the fact that approximately 360 student-driven vehicles are present each day. This represents at least 36% of the enrollment, and probably more since some vehicles will have more than one student. The student-driven vehicles do not further reduce the arrival and dismissal numbers in the above table, but they do reduce the number of vehicles using the loading and unloading areas and reduce the overall number of vehicle trips in and out of the campus each day.

BLHS currently operates three loading areas. One is circulating counterclockwise in the east parking lot, entering and exiting from the easternmost driveway on Ferguson Road. The second enters at the western driveway on Ferguson Road, unloads/loads at the circle, and exits at the central driveway. The third operates on a one-way loop driveway on the south side of the campus, entering and exiting on Inadale Avenue. Each loading area operates with staff supervision.

The BLHS bus system currently loads and unloads students at the bus parking area which is reached from Inadale Avenue. The system operates seven buses and transports approximately 212 students.

In general, the school's traffic operations have little impact on the surrounding roadways. While it is a 6-lane arterial, Ferguson Road handles only moderate traffic volumes (19,000 vehicles per day in a 2019 TxDOT count), so entering and exiting the school's Ferguson Road driveways does not result in excessive delays. Occasional queuing is reported at the western driveway on Ferguson Road, where there is a relatively short queue length between the driveway and the loading area at the circle.

#### **Proposed TMP Operation and Queue Analysis:**

The proposed BLHS TMP will operate with three loading areas for parent vehicles and a third for the bus system. Buses load and unload in a one-way gated loop along Inadale Avenue, with no interaction with drop-off/pick-up traffic. Buses are stored at other locations. The one-way loop provides at least 300' of storage space (not accounting for possible side-by-side stacking), which can accommodate the seven buses used for the bus system.

One row of parking is being removed from the eastern parking lot to accommodate the stadium bleachers. The East Loading Area follows the same circulation pattern as the existing eastern loading area, with the loading area along the face of the Leyden Arts & Athletics Complex. Entry and exit are via the eastern driveway to Ferguson Road. The East Loading Area has an available queue distance of 660', or 29 vehicles (all queue calculations are made with an assumed 22.5' per vehicle). This is the same available queue distance as the 2018 TMP.

The Central Loading Area is to remain in the same location and vehicles entering from both the western Ferguson Road driveway and the Inadale Avenue driveway can utilize this loading area. When entering, the queue moves along the building faces and vehicles can choose to either use the West Loading area or continue north to use the Central Loading Area. Vehicles entering from Ferguson Road are directed west through the parking area to join the rear of the queue. Once through the loading area, vehicles will exit to Ferguson Road at the center driveway. Additional cones or barricades should be used to prevent vehicles from using the western driveway to exit. The primary queue from Inadale Avenue to the Central Loading Area is 840', or 37 vehicles. The available queue distance for the secondary queue from the western Ferguson Road driveway back to the end of the primary queue is an additional 920', or 40 vehicles.

In prior observations for the 2018 TMP, it was concluded that staff supervision was not necessary for successful operations. If the school would like the TMP to operate optimally, staff supervision is recommended at each of the loading areas. An additional staff member should be stationed near the western driveway on Ferguson Road, to direct inbound vehicles in the appropriate direction based on the queuing conditions. At all locations loading is performed on the passenger side, and no student has to cross vehicle paths.

Signage to direct outbound right turns only during school TMP times has been installed at each access point to Ferguson road.

**Queuing Analysis**

Based on observations of queuing at other private and public charter schools in the DFW area, Kimley-Horn uses a design standard for projecting queue demands at similar sites. The expected maximum queue in vehicles is equal to 20% of the largest number of students dismissed at one time. Students using buses, driving themselves, 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 queue formula can be stated as:

*(Students dismissed in time period – Students using other modes) \* 0.20 = Number of vehicles in queue*

With the BLHS dismissal traffic spread out between 2:00 PM and 6:30 PM and having a sizeable bus system, the loading areas will need to handle only 273 students in the normal peak dismissal time at 3:30 PM. This number is further reduced by the fact that a percentage of those students will be departing using their own vehicles. Therefore, the projected maximum queue length is:

$$273 \text{ students dismissed} - 68 \text{ student drivers} * 0.20 = 41 \text{ vehicles in queue}$$

The projected queue of 41 vehicles translates to 923' of queuing distance which needs to be provided in the loading areas. This distance corresponds well with the recommended values for equivalent Texas schools found in the Texas Transportation Institute (TTI) research report 0-4286 *Operations and Safety Around Schools* published in January 2004.

The two loading areas have an available queue distance of 1,500', or over 570' in excess of the projected maximum queue demand. This excess distance would accommodate an additional 25 vehicles over the projected 41-vehicle maximum queue.

Additionally, the secondary queue serving the Central Loading Area provides 920' of queue distance which is available but is not expected to be used. With this additional space leading to the Central Loading Area, there should be no chance for the inbound traffic to queue back to Ferguson Road.

Drop-Off Queuing Summary - 1,010 Students								
Group Grades Arriving	Start Time	Students Arriving	Bus / Bike / Walk	Student Drivers	Parent Drop-Off	Maximum Queue	Available Stacking	Surplus (Deficiency)
<b>Early Arrival</b> 9, 10, 11, 12	7:00 AM	202	0	50	152	16 Vehicles 360'	66 Vehicles 1,500'	50 Vehicles 1,140'
<b>Buses</b> 9, 10, 11, 12	8:00 AM	212	n/a	n/a	n/a	n/a	n/a	n/a
<b>Late Arrival</b> 9, 10, 11, 12	8:20 AM	545	0	137	408	41 Vehicles 923'	66 Vehicles 1,500'	25 Vehicles 578'
<b>Late Arrival</b> 9, 10, 11, 12	9:30 AM	51	0	13	38	4 Vehicles 90'	66 Vehicles 1,500'	62 Vehicles 1,410'

Assumed 0.1 vehicles per student, 22.5' per vehicle

Available stacking distance is primary stacking only, not counting 920' additional secondary stacking available

Pick-Up Queuing Summary - 1,010 Students								
Group Grades Dismissed	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pick-Up	Maximum Queue	Available Stacking	Surplus (Deficiency)
<b>Early Dismissal</b> 9, 10, 11, 12	2:00 PM	91	0	23	68	14 Vehicles 315'	66 Vehicles 1,500'	52 Vehicles 1,185'
<b>Normal Dismissal</b> 9, 10, 11, 12	3:30 PM	273	0	68	205	41 Vehicles 923'	66 Vehicles 1,500'	25 Vehicles 578'
<b>Buses</b> 9, 10, 11, 12	3:50 PM	212	n/a	n/a	n/a	n/a	n/a	n/a
<b>After School/Practice</b> 9, 10, 11, 12	Varies Approx. 6:00 PM	200	0	50	150	30 Vehicles 675'	66 Vehicles 1,500'	36 Vehicles 825'
<b>After School/Practice</b> 9, 10, 11, 12	Varies Approx. 6:30 PM	234	0	59	175	35 Vehicles 788'	66 Vehicles 1,500'	31 Vehicles 713'

Assumed 0.2 vehicles per student, 22.5' per vehicle

Available stacking distance is primary stacking only, not counting 920' additional secondary stacking available

## Summary:

This TMP defines the drop-off and pick-up procedures for the Bishop Lynch High School for operations with the new development plan. The TMP vehicle routes provide an available stacking distance within the site that is greater than the projected maximum expected queue for the school's operations. With the TMP operating as shown and the dismissed students balanced between the loading areas, the school traffic will not need to queue vehicles in the right-of-way of any City street. Inbound vehicles should always have an open receiving space on the campus. There may be reasonable delays from opposing traffic 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 queue on the City streets. The TMP should be reevaluated at intervals as directed by the PD language.

Based on the vehicle queuing analysis conducted and the resulting Traffic Management Plan, I, Scot A. Johnson, P.E. #92615, certify that the results indicate that no queuing of vehicles dropping off or picking up students at the PTAA School will extend onto City of Dallas rights-of-way.

In order to ensure that all queuing of vehicles is completely accommodated on school property, BLHS 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, licensed peace officers should be allowed to direct and control traffic operating within the public right-of-way.

Prepared by:

**Kimley-Horn and Associates, Inc.**

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 September 18, 2020



Bishop Lynch High School has reviewed and will comply with the approved traffic management plan. The school will monitor the operation on a continuing basis to ensure that school traffic does not form queues in the public right-of-way. If any queuing should begin to occur in the public right-of-way the school agrees to take the necessary action to mitigate it as soon as possible. The school also agrees that any expansion of the total enrollment of the school or any changes in the grades enrolled will require the school to update this study and have a new traffic management plan approved before applying such changes.

\_\_\_\_\_  
 Signature

\_\_\_\_\_  
 Date

\_\_\_\_\_  
 Name

\_\_\_\_\_  
 Title

**Attachments**

1. TMP-1 Traffic Management Plan (2018 approved)
2. TMP-2 Proposed Traffic Management Plan for Athletics Master Plan



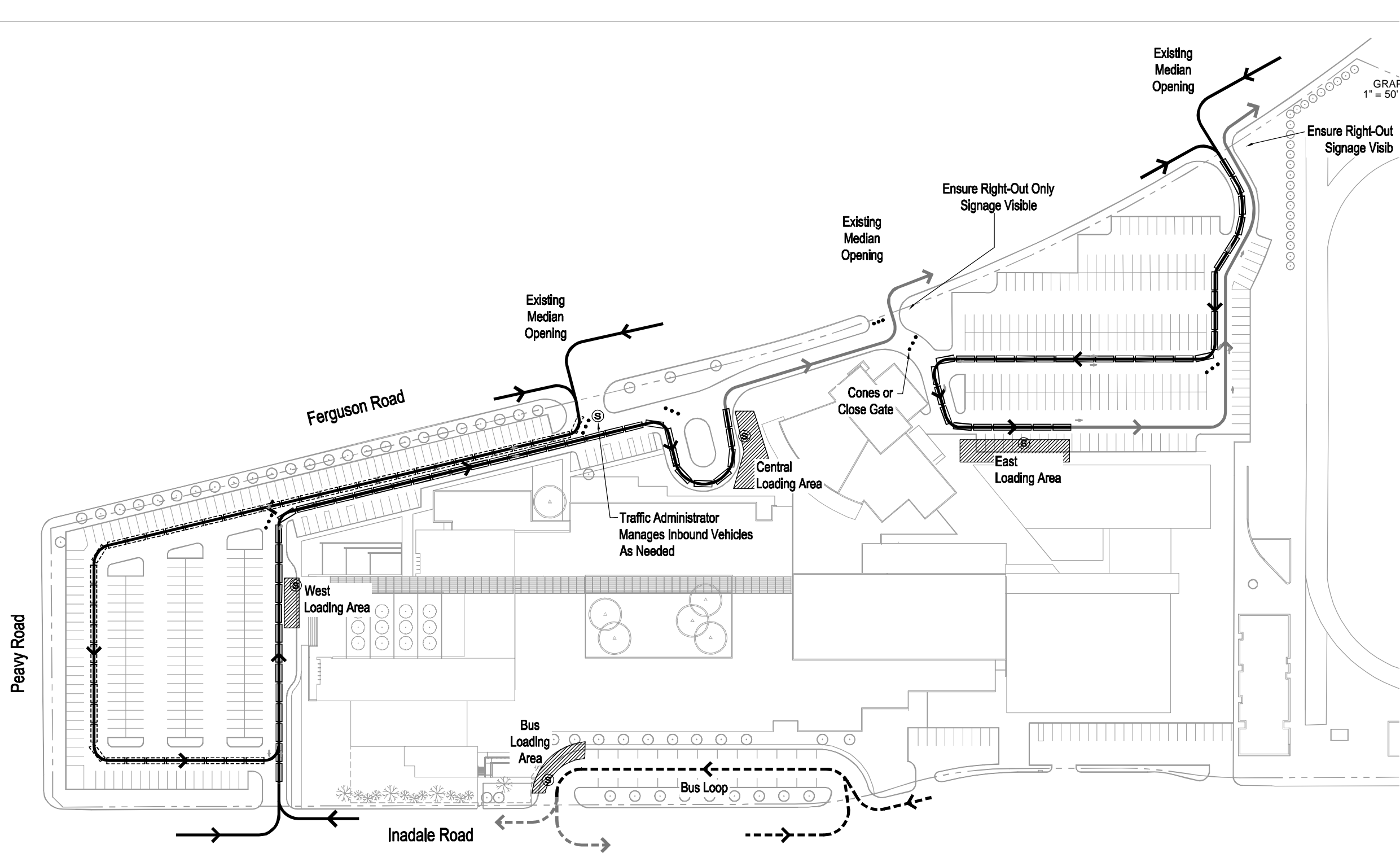


10/29/18

TMP Legend:

- Inbound Vehicle Path
- Outbound Vehicle Path
- Bus Path
- Staff Location
- Auto Queue Position (Primary Queue)
- Secondary Queue Position
- Cone or other portable barrier

Note:  
Queue calculations are made using linear feet.  
Auto queue positions shown are illustrative only.



**Enrollment:** Approx 1,000 (2018-2019 is 1,010)

School Hours:		
Arrival Type	Start	Approx. % of Enrollment
Early Arrival	7:00 AM	20%
Buses	8:00 AM	21%
Normal Arrival	8:20 AM	54%
Late Arrival	9:30 AM	5%

Dismissal Type		
	End	Approx. % of Enrollment
Early Dismissal	2:00 PM	9%
Buses	3:50 PM	21%
Normal Dismissal	3:30 PM	27%
After School Practice	6:00-6:30 PM	43%

Available queue distance in the East Loading Area is 660' (33 vehicles).

Available queue distance in the primary queue in the Central Loading Area is 840' (42 vehicles). In the unlikely event that additional distance is needed, an additional 920' (46 vehicles) is available in the secondary queue.

Drop-off/Pick-up assignments and times should be actively managed in response to conditions.

Projected maximum queue demand for the school is 1,100' (55 vehicles). The available primary queue distance in the two loading areas provides 400' (20 vehicles) in excess of the expected maximum queue.

In order to ensure that all queuing of vehicles is completely accommodated on school property, school 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.

Based on the vehicle queuing analysis conducted and the resulting Traffic Management Plan, I, Jeffrey A. Whitacre, P.E. #102469 certify that the results indicate that no queuing of vehicles dropping off or picking up students at the school will extend onto City of Dallas rights-of-way as a result of internal queuing constraints.



GRAPHIC SCALE  
1" = 70' on 24x36" Plot

**TMP Legend:**

- Inbound Vehicle Path
- Outbound Vehicle Path
- Bus Path
- Staff Location
- Auto Queue Position (Primary Queue)
- Secondary Queue Position
- Cone or other portable barrier

**Note:**  
Queue calculations are made using linear feet.  
Auto queue positions shown are illustrative only.

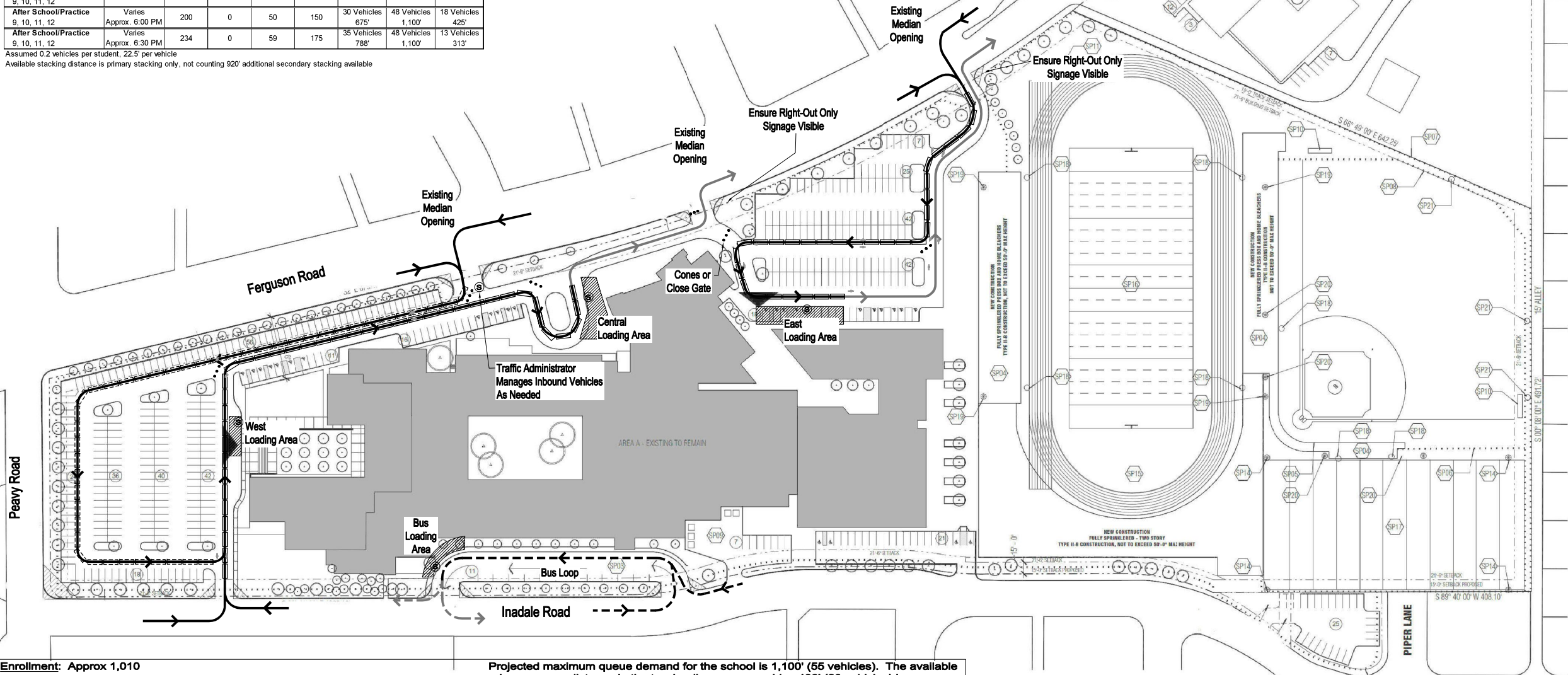


Drop-Off Queuing Summary - 1,010 Students							
Group	Start Time	Students Arriving	Bus / Bike / Walk	Student Drivers	Parent Drop-Off	Maximum Queue	Available Stacking
Grades Arriving							Surplus (Deficiency)
Early Arrival	7:00 AM	202	0	50	152	16 Vehicles 360'	48 Vehicles 1,100'
Buses	8:00 AM	212	n/a	n/a	n/a	n/a	n/a
Late Arrival	8:20 AM	545	0	137	408	41 Vehicles 923'	48 Vehicles 1,100'
Late Arrival	9:30 AM	51	0	13	38	4 Vehicles 90'	48 Vehicles 1,100'

Assumed 0.1 vehicles per student, 22.5' per vehicle  
Available stacking distance is primary stacking only, not counting 920' additional secondary stacking available

Pick-Up Queuing Summary - 1,010 Students							
Group	Dismissal Time	Students Dismissed	Bus / Bike / Walk	Student Drivers	Parent Pick-Up	Maximum Queue	Available Stacking
Grades Dismissed							Surplus (Deficiency)
Early Dismissal	2:00 PM	91	0	23	68	14 Vehicles 315'	48 Vehicles 1,100'
Normal Dismissal	3:30 PM	273	0	68	205	41 Vehicles 923'	48 Vehicles 1,100'
Buses	3:50 PM	212	n/a	n/a	n/a	n/a	n/a
After School Practice	Varies	200	0	50	150	30 Vehicles 675'	48 Vehicles 1,100'
After School Practice	Approx. 6:00 PM	234	0	59	175	35 Vehicles 788'	48 Vehicles 1,100'

Assumed 0.2 vehicles per student, 22.5' per vehicle  
Available stacking distance is primary stacking only, not counting 920' additional secondary stacking available



Enrollment: Approx 1,010

School Hours:		
Arrival Type	Start	Approx % of Enrollment
Early Arrival	7:00 AM	20%
Buses	8:00 AM	21%
Normal Arrival	8:20 AM	54%
Late Arrival	9:30 AM	5%
Dismissal Type		
Dismissal Type	End	Approx. % of Enrollment
Early Dismissal	2:00 PM	9%
Buses	3:50 PM	21%
Normal Dismissal	3:30 PM	27%
After School Practice	6:00-6:30 PM	43%

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

Available stacking distance in the East Loading Area is 660' (29 vehicles).  
Available stacking distance in the primary stacking of the Central Loading Area is 840' (37 vehicles). In the unlikely event that additional distance is needed, an additional 920' (40 vehicles) is available in the secondary stacking.

Projected maximum queue demand for the school is 1,100' (55 vehicles). The available primary queue distance in the two loading areas provides 400' (20 vehicles) in excess of the expected maximum queue.

Projected maximum queue demand for the school is 41 vehicles (923'), which occurs during the normal dismissal at 3:30 PM. The available primary stacking space of 1,500' (66 vehicles) leaves 25 vehicles (578') of stacking space during the maximum queue event.

Bus routes are through the bus loop on Inadale Road.

In order to ensure that all queuing of vehicles is completely accommodated on school property, high school 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.

PD 490 Bishop Lynch High School  
Athletics Master Plan  
Traffic Management Plan (TMP)  
9750 Ferguson Road, Dallas, TX

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