29181 TRAFFIC MANAGEMENT PLAN

Richardson ISD Forest Meadow Junior High Dallas, Texas

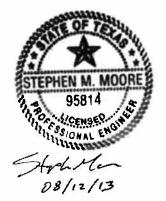
August 12, 2013

Prepared for

Richardson ISD

Planned Development No. 897 Exhibit 897B

Approved
City Plan Commission
September 26, 2013





1201 North Bowser Road Richardson, Texas 75081

Firm Registration No. 312

29181

August 12, 2013 AVO 29459

Executive Summary

Halff Associates, Inc. (Halff) conducted a Traffic Management Plan on behalf of the Richardson Independent School District (RISD) for proposed improvements to their Forest Meadow Junior High School campus. The campus, which serves approximately 700 7th and 8th grade students, is located on the northwest corner of the Abrams Road / Whitehurst Drive intersection in Dallas. The RISD plans to add 8 new classrooms to the campus in order to accommodate the projected enrollment growth to approximately 1,100 students over the next 8 to 10 years.

Halff conducted AM and PM peak period observations and traffic counts at the campus to identify current traffic patterns and estimate current trip generation for the site. The campus has a one-way loop drive along the front (south) side of the school, accessed from Whitehurst Drive, which is shared by school buses and parents. In the AM peak, buses and parents drop off students in the front loop. In the PM peak, buses queue up and load in the front loop, and parents are prohibited from entering the loop drive until the buses exit the site. Parents also drop off and pick up students in the staff parking lot on the east side of the site, accessed from a driveway along Abrams Road, and along Echo Valley Drive and Whitehurst adjacent to the school.

Based on the traffic counts and observations, Halff estimated the maximum queuing demand for the school to be 95 vehicles, occurring just after the release bell at 3:30 pm. Using a straight-line projection, the projected "maximum" queue demand once the school reaches its maximum enrollment is approximately 149 vehicles in the PM peak period.

As part of the campus improvements, the RISD will be constructing a new bus drop off / pick up area on the back (north) side of the school building and will be adding approximately 94 new parking spaces on the site, a new staff parking lot on the northwest side of the building and a new visitor parking lot on the southeast side of the building (the campus currently has 88 designated parking spaces). This will provide separate areas for the buses and parents to drop off and pick up students, and will allow parents to queue up in the front loop in the PM peak.

If would be desirable if all parent drop off / pick up activities associated with Forest Meadow Junior High could be accommodated entirely on the school campus and out of any City of Dallas right-of-way (ROW). However, even with the proposed improvements in place, it is expected that some queuing will occur on Whitehurst Drive and Echo Valley Drive, primarily during the PM peak period. (It is important to note that queuing *currently* occurs on these two streets during the PM peak period.) The queuing that occurs on Whitehurst Drive today does not appear to significantly impact the through traffic on the road; as Whitehurst is a four-lane undivided road, the two inside lanes (one in each direction) still provide adequate capacity to accommodate through traffic in the school PM peak period. Whitehurst Drive and Echo Valley Drive, *which are both areas in which parents currently queue during the PM peak period*, should provide adequate queuing space to accommodate the projected demand once the school reaches its projected maximum enrollment. Furthermore, by opening the front loop for passenger car queuing, and by making more efficient use of the available queuing space in the east staff lot and the available parking spaces on the site, the on-street queuing should not significantly increase from what it is today.



August 12, 2013 AVO 29459

Halff recommends the following measures to help facilitate the safe, efficient movement of traffic into and out of the Forest Meadow Junior High School campus:

- School staff should monitor the front loop in the AM and PM peak periods to encourage
 parents to pull in as far to the end (west) as possible, in order to make full use of the loop
 drive. (The front door to the school is located on the east side, near the entrance to the
 loop drive, and parents were observed stopping directly at the front door to drop off
 students.)
- Consideration should be given to opening the doors on the west end of the front of the school building during the morning peak period to help encourage parents to pull up all the way to the west end of the front loop.
- School staff should also monitor the staff parking lot on the east side of the campus to
 ensure that the available stacking space and open parking spaces are being used
 efficiently.
- Stripe the right (inside) lane of the front loop drive for "Drop Off / Pick Up Only." Stripe the left (outside) lane for "Thru Traffic Only."
- Restrict parking and standing on the north side of Whitehurst Drive from 50 feet east of the loop drive exit to 50 feet west of the alley just west of the school's west driveway, in order to provide adequate visibility for vehicles exiting the school's west driveway and loop driveway onto Whitehurst Drive.
- Enforce the "No Parking or Standing" restrictions on the north side of Whitehurst Drive just west of Abrams Road, and on the south side of Whitehurst from west of Echo Valley Drive to Abrams Road.
- Widen the school's west driveway approach to Whitehurst Drive to provide adequate space for buses to turn into and out of the driveway. (If space allows, it would be desirable to provide two egress lanes and one ingress lane.)
- Install a sign for "Buses / Parking / Deliveries" at the entrance to the school's west driveway.
- Install a sign for "Parent Drop Off / Pick Up / Visitor Parking" at the front loop entrance drive off of Whitehurst Drive.
- Install a sign for "Visitor Parking" at the entrance to the new parking lot accessed from the front loop.
- Install a sign for "Exit Only" at the front loop exit drive.



29181

August 12, 2013 AVO 29459

- Replace the "No Parking or Standing Here to Corner" sign located on the south side of Whitehurst Drive just west of Abrams Road. (The sign is very faded.)
- Repaint the existing crosswalk across Whitehurst Drive on the east side of the front loop entrance drive, and install new crosswalk signs (S1-1) with downward-pointing arrow plaques (SW16-7P) on each side of the crosswalk. Stationing a crossing guard at this crosswalk would be desirable for directing students to cross to / from the south side of Whitehurst Drive
- All school staff should be encouraged to park on the site at all times.

29181

August 12, 2013 AVO 29459

Table of Contents

Execu	utive Summary	i	
Table	e of Contents	iv	
r	Total destina	1	
I.	Introduction	1	
II.	Purpose and Methodology	2	
III.	Existing Roadway Conditions	2	
IV.	Future Roadway Conditions	2	
V.	Existing School Traffic Operations	3	
VI.	Traffic Count Data and Queuing Observations	4	
VII.	Proposed Campus Improvements	5	
VIII.	Projected Queuing and Parking Demand	5	
IX.	Staff Assistance	7	
X.	Recommendations	8	
XI.	Conclusion	9	
Apper	ndıx	Α	

I. INTRODUCTION

Halff Associates, Inc. (Halff) conducted a Traffic Management Plan on behalf of the Richardson Independent School District (RISD) to address planned improvements to the district's Forest Meadow Junior High School campus, located on the northwest corner of the Abrams Road / Whitehurst Drive intersection in Dallas, Texas. Figure 1 below is a map showing the school site. A copy of the school site plan has been included in the Appendix as Figure 2.

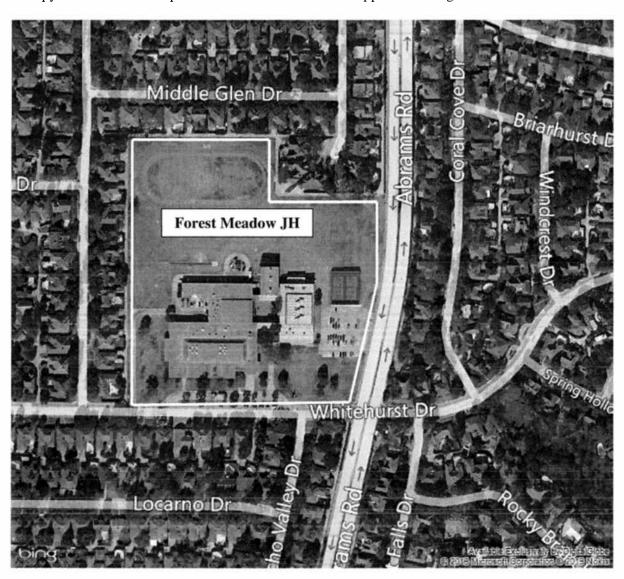


Figure 1 - RISD Forest Meadow JH Location Map

29181

August 12, 2013 AVO 29459

The RISD is planning to add eight new classrooms on the campus in order to accommodate projected enrollment growth over the next 8 to 10 years. The classrooms are expected to be in place by the fall of 2014.

II. PURPOSE and METHODOLOGY

Halff conducted the study for submittal to the City of Dallas, in order to identify potential traffic impacts associated with the proposed school expansion and to address and improve the existing traffic flow around the school. Halff used standard transportation engineering practices in conducting the study. Halff conducted AM and school PM peak period traffic counts at the school driveways along Whitehurst Drive and Abrams Road, and along Whitehurst Drive and Echo Valley Drive, on Tuesday and Wednesday, May 7 and 8, 2013, in order to identify the current queuing demands for the school. Halff also conducted parking surveys at the school to determine the current day parking demand. Halff conducted a site visit to identify current roadway conditions around the school and to observe student drop-off / pick-up operations during the AM and school PM peak periods.

Using the data collected at the school and information provided by the RISD, Halff developed queuing and parking demands for the school, assuming full (projected) enrollment. Halff then worked with the RISD to develop infrastructure and operational improvements to facilitate the projected increase in traffic generated by the school.

III. EXISTING ROADWAY CONDITIONS

Forest Meadow Junior High School is bordered on the east side by Abrams Road, on the south side by Whitehurst Drive, and on the north and west sides by single-family residences. Abrams Road is constructed as a six-lane divided road with a posted speed limit of 40 miles per hour (mph). There is a reduced speed school zone (20 mph) on Abrams Road adjacent to the school.

Whitehurst Drive is constructed as a four-lane undivided road with a posted speed limit of 30 mph. There is a reduced speed school zone (20 mph) on Whitehurst Drive adjacent to the school. The Abrams Road / Whitehurst Drive intersection is signalized.

IV. FUTURE ROADWAY CONDITIONS

There are no plans for improvements to either Abrams Road or Whitehurst Drive in the vicinity of the school.



29181

August 12, 2013 AVO 29459

V. EXISTING SCHOOL TRAFFIC OPERATIONS

The school campus has a one-way loop drive, two lanes wide, across the front (south side) of the building, accessed from Whitehurst Drive, with a couple of parking spaces off of the loop drive. There is a staff parking lot on the east side of the school building, accessed from a driveway along Abrams Road. There is also a small staff parking lot on the west side of the school building, in the services / delivery area, access from a driveway on Whitehurst Drive on the far west side of the site. This drive also provides fire lane access to the back (north side) of the building. (Some staff members were observed parking in this area.)

Currently, in the AM peak period students are primarily dropped off in two locations. Buses and parents drop off students in the front loop drive along Whitehurst Drive (the school is served by eight full-size buses and three handicapped / special education buses). Students are also dropped off in the staff parking lot along Abrams Road. A small number of students were also observed being dropped off along both sides of Whitehurst Drive. The school day begins at 8:30 am, but students were observed being dropped off as early as 7:30 am. Drop off activities peaked between 8:00 am and 8:15 am, and was substantially complete by 8:35 am.

In the PM peak period, the front loop drive is restricted to buses only, until the buses are loaded and exit the site approximately 10 minutes after school lets out. Once the buses exited the site, parents began using the front loop to pick up students. Prior to this time, parents queued up along both sides of Whitehurst Drive, and along Echo Valley Drive south of Whitehurst Drive, and students were observed walking to the cars in these areas. Parents also queued up in the staff parking lot along Abrams Road and parked in the empty parking spaces in this lot. Parents began queuing up around 3:00 pm, 30 minutes prior to students being released at 3:30 pm. The afternoon pick up activities were more spread out than at a typical elementary school, with students congregating in front of the school after the release time, waiting to be picked up. Most of the students had been picked up by 3:50 pm.

There are not any parking or standing restrictions in place along the north side of Whitehurst Drive, expect near the intersection with Abrams Road, where parking and standing are restricted at all times from Abrams Road to a point approximately 50 feet west of Abrams. On the south side of Whitehurst Drive, parking and standing are restricted at all times between Echo Valley Drive and Abrams Road. Parking and standing are also restricted, from 7:00 – 9:00 am and 2:45 – 4:30 pm on school days, from Echo Valley Drive west approximately 225 feet, in order to provide adequate access and visibility to an alley connection to Whitehurst Drive. (These restrictions did not appear to be enforced on the days that Halff conducted counts and observations.)

29181

August 12, 2013 AVO 29459

VI. TRAFFIC COUNT DATA and QUEUING OBSERVATIONS

Halff conducted AM and school PM peak period traffic counts and observations at the school on Tuesday and Wednesday, May 7 and 8, 2013. Traffic counts were conducted at the following locations:

- Abrams Road / staff parking lot driveway
- Whitehurst Drive / front loop entrance driveway
- Whitehurst Drive / front loop exit driveway
- Whitehurst Drive / school west driveway
- Along both sides of Whitehurst Drive adjacent to the school
- Along both sides of Echo Valley Drive south of Whitehurst Drive

Halff conducted the traffic counts and observations in order to estimate the number of vehicle trips generated by the school at its current enrollment, approximately 700 students. A summary of the observed trip generation is presented in Table 1. The trips shown are comprised of the trips turning into and out of the school driveways and the vehicles observed dropping off or picking up students along Whitehurst Drive and Echo Valley Drive during the AM and PM peak hours of the school (the school hours of operation are 8:30 am to 3:30 pm).

Table 1 Site-Generated One-Way Trips – Observed

	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Observed (700 students)	396	323	719	178	186	364

From the peak hour observations and traffic counts, Halff also identified the time when the maximum number of vehicles were "queued" on or around the school (in this case, "queued" vehicles include vehicles queued or parked on Whitehurst Drive and Echo Valley Drive, vehicles queued in the drive aisles of the staff parking lot on the east side of the site, and vehicles parked in the staff parking lot). As is common at school campuses, the maximum queue was observed in the PM peak hour, just after students were released at 3:30 pm. The number of passenger cars waiting on or around the school campus to pick up students at this time was approximately 95. Eight full size school buses were also queued in the front loop.

29181

August 12, 2013 AVO 29459

Halff also identified the parking demand for the school by counting the parked cars on the site and along the north side of Whitehurst Drive after the morning and afternoon peak periods (according to the school principal, there are some staff members that park on Whitehurst Drive instead of on the site). The maximum observed parking demand for the school was 85 vehicles which occurred after the morning peak period.

VII. PROPOSED CAMPUS IMPROVEMENTS

As mentioned, the RISD plans to add eight new classrooms to the Forest Meadow Junior High School campus. Along with the classroom addition, the RISD is planning to rebuild and improve the driveway on the west and north sides of the school building, in order to bring the drive into compliance with current fire lane codes. The RISD is also improving the area on the northwest side of the site to provide a new bus drop off / pick up area and a new staff parking lot. Additional parking will also be added on the southeast corner of the school building, in a small visitor parking lot accessed from the front loop. These improvements are shown in the concept plan included in the Appendix as Figure 3.

These improvements will add approximately 94 new parking spaces (88 regular spaces and 6 handicapped spaces) to the existing 88 on-site parking spaces (81 regular spaces and 7 handicapped spaces), for a total of 182 parking spaces on the campus. The new spaces will be primarily in the new parking lot on the northwest corner of the site (80 spaces), with the remaining 14 spaces in the new visitor parking lot on the southeast corner of the school building.

These improvements will also allow the bus drop off / pick up area to be separated from the parent drop off / pick up area. All buses will now be routed into the west driveway on Whitehurst Drive to the new drop off / pick up area on the north side of the school building. This will open the front loop to be used exclusively by parents for dropping off students in the morning and picking them up in the afternoon.

VIII. PROJECTED QUEUING and PARKING DEMAND

Halff used a straight-line projection to estimate the queuing demand in the afternoon peak period, once the school reaches its projected maximum enrollment of 1,100 students. The projected queue demand at maximum enrollment is approximately 149 passenger cars in the PM peak period. Also using a straight-line projection, the number of full-size school buses could increase to 12. It is important to note that the actual number of new trips generated by the additional student enrollment, and thus the actual queuing demand for passenger cars and buses, will vary based on where in the school's attendance zone the projected enrollment growth takes place. The current attendance zone includes a number of apartment complexes, and a number of the students living in these complexes are bused to the school. If a large percentage of the new students are drawn from this area and are bused to the school, the queuing demand for passenger cars will be less than what is projected in this report.



29181

August 12, 2013 AVO 29459

The RISD expects to add 10 to 15 new staff members to the campus over the course of the next 8 to 10 years. If each of these new staff members drives their own vehicle, the total projected parking demand for the school will be approximately 100 (current day parking demand of 85 vehicles plus 15 new vehicles).

The new area designated for bus loading and unloading on the back (north) side of the school building will provide more than 600 feet of stacking space, which can accommodate approximately 15 full size school buses (the school is currently served by 8 full size buses).

If would be desirable if all parent drop off / pick up activities associated with Forest Meadow Junior High could be accommodated entirely on the school campus and out of any City of Dallas right-of-way (ROW). However, even with the proposed improvements in place, it is expected that some queuing will occur on Whitehurst Drive and Echo Valley Drive, primarily during the PM peak period. (It is important to note that queuing *currently* occurs on these two streets during the PM peak period.) The queuing that occurs on Whitehurst Drive today does not appear to significantly impact the through traffic on the road; as Whitehurst is a four-lane undivided road, the two inside lanes (one in each direction) still provide adequate capacity to accommodate through traffic in the school PM peak period.

The front loop drive provides approximately 460 feet of stacking space, which can accommodate approximately 23 passenger cars (assuming 20 feet per car). The staff parking lot on the east side of the school building has approximately 720 feet of stacking space (in the drive aisles), which can accommodate approximately 36 passenger vehicles.

With a projected parking demand of 100 vehicles, the site will have approximately 69 regular marked parking spaces available for parents to use during the afternoon pick up period. (Parents were observed parking in open spaces in the staff parking lot on the east side of the campus on the day Halff conducted peak period counts and observations.) If parents fill half of the open parking spaces, this would leave approximately 56 passenger vehicles that would need to queue along either Whitehurst Drive or Echo Valley Drive. The queue distance, at 20 feet per car, would be approximately 1,120 feet. A summary of this calculation is provided below:

Estimated "max" queue demand = 149 passenger vehicles (2,980 feet)

Vehicles queued in the front loop = 23 (460 feet)

Vehicles queued in the east staff lot = 36 (720 feet)

Vehicles parked on the site = 34 (680 feet)

Vehicles queued on Whitehurst Drive or Echo Valley Drive = 56 (1,120 feet)



131871 August 12, 2013 AVO 29459

This space can be distributed between Whitehurst Drive and Echo Valley Drive in the following manner:

- North side of Whitehurst Drive between front loop entrance drive and the existing parking restriction west of Abrams Road = 120 feet
- North side of Whitehurst Drive between front loop entrance drive and proposed parking restriction east of front loop exit drive = 300 feet
- South side of Whitehurst Drive from parking restriction west of Echo Valley Drive to Dove Meadow Drive (west of school site) > 500 feet
- Echo Valley Drive > 200 feet

These areas, which are all areas in which parents are currently queuing during the PM peak period, should provide adequate queuing space to accommodate the projected demand once the school reaches its projected maximum enrollment. Furthermore, by opening the front loop for passenger car queuing, and by making more efficient use of the available queuing space in the east staff lot and the available parking spaces on the site, the on-street queuing should not significantly increase from what it is today.

Overall, once the proposed improvements are made, the site will have stacking space to accommodate approximately 59 passenger vehicles and 15 full size school buses, and dedicated parking spaces for approximately 182 passenger vehicles. (As mentioned, the parking spaces not used by school staff can be used by parents in the afternoon when picking up students.) This represents an increase in on-site stacking space of 460 feet (the space gained in the front loop drive by moving the bus drop off / pick up area to the back of the school) and an increase of 94 on-site parking spaces.

Figure 3a in the Appendix shows the existing queuing areas discussed in the report; Figure 3b in the Appendix shows the proposed queuing areas discussed in this section of the report.

IX. STAFF ASSISTANCE

In order to facilitate efficient drop off and pick up activities, it would be desirable for school staff to be present during these times, especially around the front loop drive. To maximize the available space in the front loop drive, staff should encourage parents to pull through to the far west end of the drive, both in the morning and in the afternoon, and should ensure that parents remain in their vehicles at all times. Staff should also encourage students to quickly exit / enter their vehicles so that the parents may exit the drive, opening up space for more parents to drop off / pick up students. Staff assistance in the staff parking lot on the east side of the campus would also be beneficial to ensure that the available stacking space is used efficiently, and that any open parking spaces are used as well.

There is an existing crosswalk across Whitehurst Drive on the east side of the front loop entrance drive / west side of Echo Valley Drive (the crosswalk needs to be repainted and proper signs should be installed). Stationing a crossing guard or school staff member at this crosswalk would help students to cross to / from the south side of Whitehurst Drive.



August 12, 2013 AVO 29459

X. <u>RECOMMENDATIONS</u>

Halff recommends the following measures to help facilitate the safe, efficient movement of traffic into and out of the Forest Meadow Junior High School campus:

- School staff should monitor the front loop in the AM and PM peak periods to encourage parents to pull in as far to the end (west) as possible, in order to make full use of the loop drive. (The front door to the school is located on the east side, near the entrance to the loop drive, and parents were observed stopping directly at the front door to drop off students.)
- Consideration should be given to opening the doors on the west end of the front of the school building during the morning peak period to help encourage parents to pull up all the way to the west end of the front loop.
- School staff should also monitor the staff parking lot on the east side of the campus to ensure that the available stacking space and open parking spaces are being used efficiently.
- Stripe the right (inside) lane of the front loop drive for "Drop Off / Pick Up Only." Stripe the left (outside) lane for "Thru Traffic Only."
- Restrict parking and standing on the north side of Whitehurst Drive from 50 feet east of the loop drive exit to 50 feet west of the alley just west of the school's west driveway, in order to provide adequate visibility for vehicles exiting the school's west driveway and loop driveway onto Whitehurst Drive.
- Enforce the "No Parking or Standing" restrictions on the north side of Whitehurst Drive just west of Abrams Road, and on the south side of Whitehurst from west of Echo Valley Drive to Abrams Road.
- Widen the school's west driveway approach to Whitehurst Drive to provide adequate space for buses to turn into and out of the driveway. (If space allows, it would be desirable to provide two egress lanes and one ingress lane.)
- Install a sign for "Buses / Parking / Deliveries" at the entrance to the school's west driveway.
- Install a sign for "Parent Drop Off / Pick Up / Visitor Parking" at the front loop entrance drive off of Whitehurst Drive.
- Install a sign for "Visitor Parking" at the entrance to the new parking lot accessed from the front loop.
- Install a sign for "Exit Only" at the front loop exit drive.



- Replace the "No Parking or Standing Here to Corner" sign located on the south side of Whitehurst Drive just west of Abrams Road. (The sign is very faded.)
- Repaint the existing crosswalk across Whitehurst Drive on the east side of the front loop entrance drive, and install new crosswalk signs (S1-1) with downward-pointing arrow plaques (SW16-7P) on each side of the crosswalk. Stationing a crossing guard at this crosswalk would be desirable for directing students to cross to / from the south side of Whitehurst Drive
- All school staff should be encouraged to park on the site at all times.

XI. CONCLUSION

The school will generate more trips due to the proposed expansion, but providing a separate bus drop off / pick up area on the back (north) side of the school building will open up the front loop to be used exclusively by parents for dropping off and picking up students. (Opening the doors on the west end of the front side of the school building will help encourage parents to use the entire front loop.) Separating the buses from the parent traffic will help improve overall traffic flow and safety around the school, and will provide more space for passenger vehicles on the site, especially during the afternoon peak period. School staff should monitor the front loop and the staff parking lot on the east side of the campus during the peak periods to ensure that both locations are functioning efficiently and maximizing the number of passenger cars able to drop off / pick up students on the site and off of the City ROW. By opening the front loop for passenger car queuing, and by making more efficient use of the available queuing space in the east staff lot and the available parking spaces on the site, the on-street queuing should not significantly increase from what it is today.

It is important to note that the actual number of new trips generated by the additional student enrollment, and thus the actual queuing demand for passenger cars and buses, will vary based on where in the school's attendance zone the projected enrollment growth takes place. Halff's queuing and parking demand estimates for when the school reaches its maximum enrollment are based on straight-line projections of the current day demands. The current attendance zone includes a number of apartment complexes, and a number of the students living in these complexes are bused to the school. If a large percentage of the new students are drawn from this area and are bused to the school, the queuing demand for passenger cars will be less than what is projected in this report.

