

December 4, 2017

PK# 3126-17.003

TRAFFIC MANAGEMENT PLAN

Project:

Harmony Science Academy

In Dallas, Texas

Prepared for:

City of Dallas

On behalf of:

Harmony Science Academy



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12/4/17

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INTRODUCTION

The services of **Pacheco Koch** (PK) were retained by on behalf of **Harmony Schools**, to prepare a Traffic Management Plan (TMP) for the Harmony Science Academy located at 11995 Forestgate Drive in Dallas, Texas. This TMP is site-specific and relates to the peak traffic activity associated with school traffic at the site.

Harmony Science Academy (the "School") is seeking to renew its Specific Use Permit (SUP) from the City of Dallas (the "Approving Agency"). Submittal of a TMP, prepared by a registered professional engineer experienced and skilled in the field of traffic/transportation engineering, is one of the requirements of City's review process. This TMP was prepared by registered professional engineers employed by Pacheco Koch. Pacheco Koch is a licensed engineering firm based in Dallas, Texas, that provides professional services in traffic engineering, transportation planning, and other fields.

Project Description

The site currently consists of a K-12 public charter school. The school consists of three, adjacent buildings—one each for the elementary, middle, and high schools. Access to the campus is via Forestgate Drive, a local street, which forms a loop that intersects with Forest Lane, a thoroughfare. In this section (between Plan Road and Skillman Street), Forest is an eight-lane, median-divided cross-section. The intersections of Forest and Forestgate are STOP-controlled. Nearby traffic signals are located on Forest Lane at the intersections with Plano Road (east of Forestgate) and Skillman Street (west of Forestgate).

The campus is located within a business park and is surrounded by small offices and other businesses. Multifamily is located north of the site and single family is located west of the site. An existing site plan, prepared by Heights Venture Architects, is provided at the end of this report.

Current enrollment is summarized below in **Table 1**. The School is not seeking to increase enrollment through the pending SUP renewal.

Table 1. Current Enrollment

LEVEL	STUDENTS ENROLLED
Kindergarten	43
1st Grade	51
2nd Grade	68
3rd Grade	76
4th Grade	81
5th Grade	74
<i>Elementary School Subtotal</i>	<i>393</i>
6th Grade	138
7th Grade	136
8th Grade	135
<i>Middle School Subtotal</i>	<i>409</i>
9th Grade	125
10th Grade	116
11th Grade	101
12th Grade	83
<i>High School Subtotal</i>	<i>425</i>
TOTAL	1,227

Currently, each school start at 7:45 AM on school days. The Elementary School ends at 2:45 PM; the Middle and High Schools end at 3:25 PM.

TMP Objectives

A Traffic Management Plan (TMP) is a site- or area-specific plan of recommended actions and strategies to manage vehicular traffic and parking, pedestrian activity, and travel by all other modes during peak demand conditions for a planned event. The "Objectives" of a TMP are to:

1. Provide a safe environment for all Users on site and the travelling public in the vicinity of the site during the Event times;
2. Minimize (and maintain within reasonable levels) travel delays and traffic congestion on site and in the vicinity of the site during the Event;
3. Ensure reasonable access and circulation is maintained on the public street system in the vicinity of the site during the Event;
4. Provide appropriate information to the travelling public in the vicinity of the site to allow for proper awareness of anticipated traffic conditions during the Event; and,
5. Promote reasonable strategies to manage travel demand to and from the site, including use of alternative modes of travel (such as walk, bike, bus, transit, etc.), when practical.

DEFINITIONS:

Terms are used in this report:

“Event” – a planned event(s), recurring or non-recurring, for which this TMP is being prepared (i.e., “school day”)

“School” (a.k.a., “Event Organizer”) – the person, group, or organization responsible for the Event

“TMP Manager” – a person or persons designated by the School to implement the TMP (also see additional tasks in the *Expectations* section)

“Users” – guests/patrons attending the Event

“Analyst” – the person(s) preparing the TMP for the School

“Approving Agency” – the municipality or government agency requiring the Traffic Management Plan

“Traffic Department” – the department of the public agency responsible for traffic operations for a given right-of-way

“Site” – the property at which the Event is located (generally assumed to be occupied by the School)

“TMP Strategies” – actions recommended by the Analyst to be undertaken before, during, or after the Event in order to manage traffic on or off site

DISCLAIMERS:

A TMP should be developed by, or in concert with, an individual familiar with the general characteristics of the Event and the associated traffic/transportation needs. For this study, PK worked with School representatives to develop the proposed recommendations.

Recommended TMP Strategies should be based upon applicable engineering principles of traffic safety and traffic operations.

Any recommended TMP Strategies involving traffic control devices in the public right-of-way (including installation or removal of signs, pavement markings, etc.) are subject to the approval of, and must be implemented under direction of, the Traffic Department.

No private individual should perform, or attempt to perform, any act of traffic control within public right-of-way; only deputized officers of the law or other authorized representatives of the Traffic Department may manipulate traffic conditions within the public right-of-way.

Pacheco Koch was not involved with site selection, site design, or the current operations for this project. Pacheco Koch is not responsible for the *implementation* of the recommended TMP Strategies contained in this study.

Methodology

When feasible, the Analyst should conduct first-hand observations of existing event to develop an understanding of site-specific traffic/transportation characteristics, such as: drop-off/pick-up frequency, parking needs, alternative travel mode use, safety issues, queuing, traffic congestion, site access, current traffic management strategies in use, etc. When it is not feasible to conduct such observations, interviews with staff or personnel familiar with those items is desirable. When neither option is available, the Analyst may be required to rely upon published information and/or professional judgment and experience.

Once the base information is assembled, the Analyst should estimate the projected traffic/transportation characteristics generated by the proposed Event. Next, the Analyst should inventory the attributes and resources of the subject site and determine how the site can best accommodate those projected conditions. Based upon that assessment, the recommended TMP Strategies shall be developed to optimally achieve the basic TMP Objectives. The recommended TMP Strategies should be reviewed by the School (ideally, the TMP Manager) for refinement and approval before formal submittal to the Approving Agency.

Expectations

NOTE TO SCHOOL: By submittal of a TMP to the Approving Agency, the School is implicitly agreeing to implement, maintain, and comply with the recommended actions presented herein subject to acceptance by Approving Agency and any associated conditions Approving Agency may impose. It is also inferred that the School agrees to be self-accountable for these actions until and unless Approving Agency deems further measures are appropriate or the TMP is no longer required.

Recommended TMP Strategies may include one-time measures to be implemented before the Event and/or ongoing actions to be performed before, during, or after the Event. Recommended TMP Strategies involving on-site measures or actions are generally considered to be the responsibility of the School.

To ensure appropriate compliance and consistent implementation of the TMP, it is recommended that the School appoint a TMP "Manager". In general, a Manager should be a qualified and capable individual or group of individuals assigned to take responsibility of the TMP and be accountable for successful implementation in order to achieve the Objectives described earlier (see "TMP Objectives"). Other specific duties of the Manager include:

- Monitor effectiveness of TMP strategies and make prudent adjustments, as needed, to more effectively accomplish the TMP Objectives
- Maintain an awareness of readily-available alternative transportation modes serving the site and facilitate and promote their use during the Event when practical
- Serve as a liaison to the Approving Agency(-ies), when needed
- When applicable, provide training and direction to other personnel assigned to implement the TMP measures

- Provide instruction to Users on how to comply with the intent of the TMP

Recommended TMP Strategies were developed specifically for the period(s) of peak traffic demand and are depicted in the respective exhibits. For periods of less intense traffic demand, recommended TMP Strategies may be utilized, in part or in whole, as needed to realize the TMP Objectives.

Changes to TMP

Informal changes to any recommended TMP Strategies presented herein to improve efficiency or effectiveness may be implemented at the discretion of the School if those changes are prudent and do not compromise the TMP Objectives. It is recommended that changes implemented under such circumstances be documented and retained by the School for future reference or upon request. At the discretion of the Approving Agency, submittal of a formally revised TMP report/document or a validation study may be required on a predetermined or as-needed basis.

TRAFFIC MANAGEMENT PLAN

NOTE: Recommended TMP Strategies contained herein are based upon the best data, site-specific information, and analytical processes readily available at the time of the study. However, specific quantities related to traffic congestion at peak periods (e.g., duration, length of queue, etc.) are estimated values. Actual quantities may vary due to unknown or unquantifiable variables and other operational factors that may occur. In the event that actual, future conditions generate undue burden on Users and/or the travelling public, modifications to the TMP should be considered. (See preceding NOTE for guidance on implementing changes to the TMP.) However, in extreme conditions, TMP actions may not be capable of mitigating all traffic conditions, and it may be incumbent on Harmony Science Academy to consider operational, institutional, or other long-term changes to address issues on a more permanent basis.

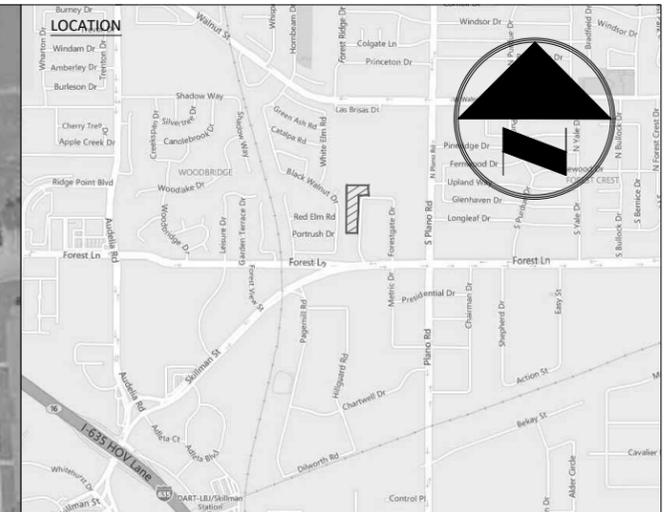
A graphical summary of existing conditions is depicted in **Exhibit 1**; graphical summaries of recommendations and proposed conditions are depicted in **Exhibits 2 and 3** for the Elementary, Middle, and High schools, respectively. All assumptions, calculations, and other quantitative data are provided in the **Appendix**.

A summary of specific recommendations are provided below:

1. During the afternoon pick-up period, transition from an “unmanaged pick-up protocol” to a “managed pick-up protocol” in which all parents must enter a controlled queue line and pick-up students at a designated loading area. See traffic control measures depicted in **Exhibits 2 and 3**.
2. Introduce a separate release (i.e., pick-up) time for all three schools: Elementary, Middle, and High schools. Release times should be separated by a minimum of 20 minutes with Elementary School release first and High School release last.

3. Disincentivize abuse of "walking" students who do not walk home but are actually picked up by parents off school property. Recommended methods are:
 - a. Do not release "walkers" until the last release time,
 - b. Scrutinize eligibility of students to register as "walker" such as by limiting the privilege to students with proof of residence within one mile of campus.
4. Install [City forces] 'No Parking' signs along Forestgate Drive at driveways and corners to improve visibility.
5. Monitor parking lot and enforce no parent parking/queuing.
6. Install a traffic sign to restrict left turns at the exit driveways in front of the elementary building.
7. Install temporary "A-stand signs (For Afternoon) to discourage school parking on private parking lots.
8. School should allow families with multiple students in different school grades to temporarily park at a designated parking area. Parents should wait for their older students (middle and high school grades).

END OF MEMO



LEGEND:

No Parking	Parking Allowed
↔ - Proposed, On Street	— - Existing, On Street
	//// - Off-street (General)
	S - Staff Only
Queuing/Loading	
● - Parking Space Available for Parent Walk-up	
▬ - Queue Area (Controlled)	
▭ - Loading Area (Designated)	
~ - Queue Area (Unmanaged)	
xxx - Loading Area (Unmanaged)	
←← - Circulation/Flow	
➔ - Access Point (In or Out)	
Pedestrian/Other	
— - Sidewalk	
▭ - Stop Line	
oooo - Trail/Path	* - Staff Assistance
[] - School Zone	⊙ - Traffic Signal
□□□□ - Crosswalk	○ - Traffic Cone
DART (###) - Public Transit Stop (DART Route No.)	▭ - Bicycle Parking
▭ - Pedestrian Safe Zone	
— · — - City Designated Bicycle Route	

BACKGROUND:

Event Information
 Approving Agency:
 Event/Type:
 Event Organizer:
 Event Time(s)/Date (s):
 Event Frequency:

City of Dallas (Z 167-259)
 Public Charter School (Elementary, Middle, and High Schools)
 Harmony Science Academy
 Weekday morning & evenings (seasonal)
 [Recurring] / Occasional / One-Time

EXHIBIT 1 Z167-259

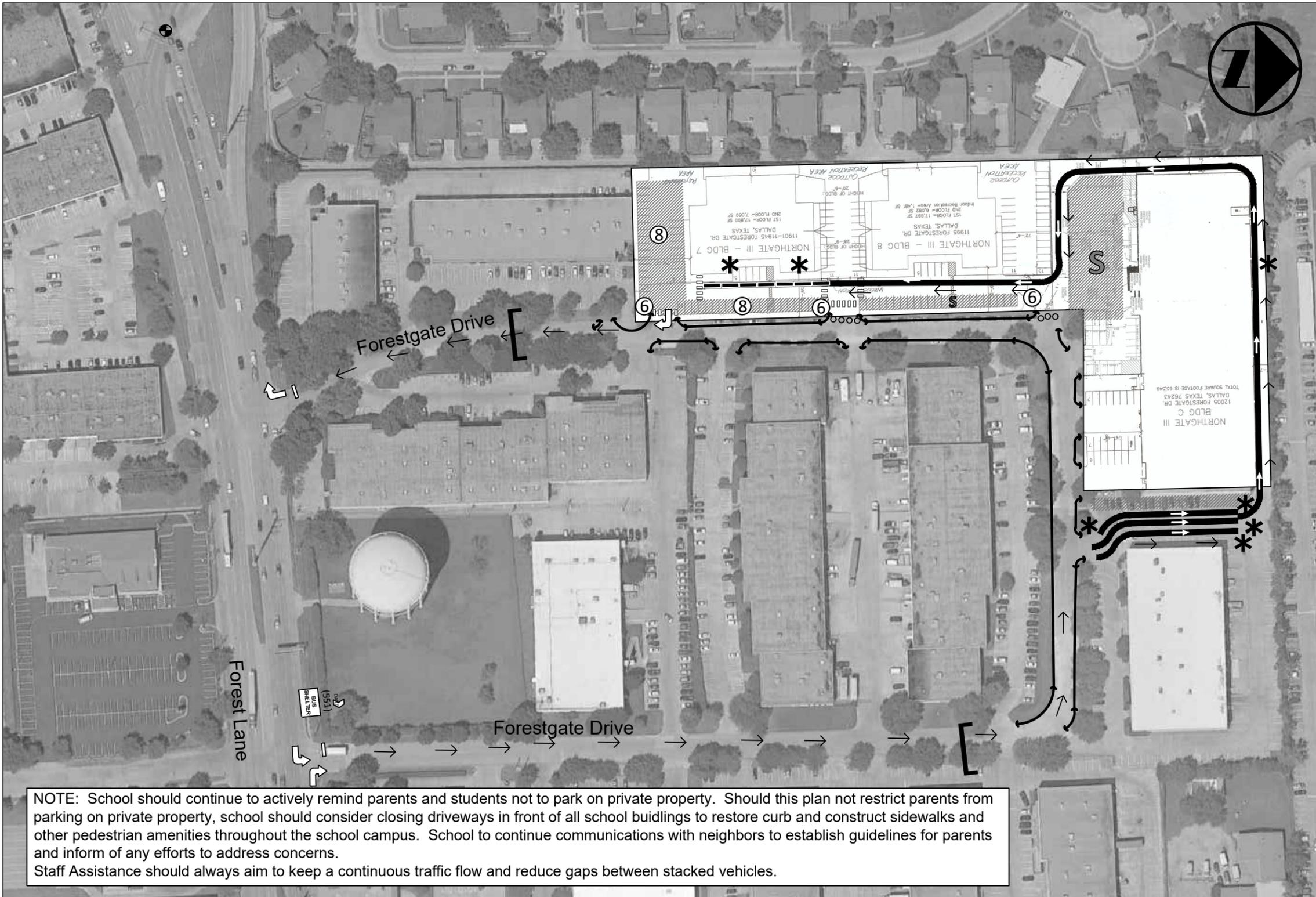
Traffic Management Plan Existing Conditions

Harmony Science Academy, Dallas, Texas

NOTE: This drawing is conceptual only and does not represent a detailed design.

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 (HWL: 12/04/17)





LEGEND:

No Parking	Parking Allowed
↔ - Proposed, On Street	— - Existing, On Street
	/// - Off-street (General)
	S - Staff Only
Queuing/Loading	
● - Parking Space Available for Parent Walk-up	
▬ - Queue Area (Controlled)	
▭ - Loading Area (Designated)	
~ - Queue Area (Unmanaged)	
xxx - Loading Area (Unmanaged)	
← - Circulation/Flow	
➔ - Access Point (In or Out)	
Pedestrian/Other	
— - Sidewalk	
▭ - Stop Line	
oooo - Trail/Path	* - Staff Assistance
[] - School Zone	⊙ - Traffic Signal
□□□□ - Crosswalk	○ - Traffic Cone
DART (###) - Public Transit Stop (DART Route No.)	▭ - Bicycle Parking
▭ - Pedestrian Safe Zone	
— - City Designated Bicycle Route	

NOTE: School should continue to actively remind parents and students not to park on private property. Should this plan not restrict parents from parking on private property, school should consider closing driveways in front of all school buildings to restore curb and construct sidewalks and other pedestrian amenities throughout the school campus. School to continue communications with neighbors to establish guidelines for parents and inform of any efforts to address concerns. Staff Assistance should always aim to keep a continuous traffic flow and reduce gaps between stacked vehicles.

BACKGROUND:

Event Information
 Approving Agency: City of Dallas (Z 167-259)
 Event/Type: Public Charter School (Elementary and Middle Schools)
 Event Organizer: Harmony Science Academy
 Event Time(s)/Date (s): Weekday morning & evenings (seasonal)
 Event Frequency: [Recurring] / Occasional / One-Time

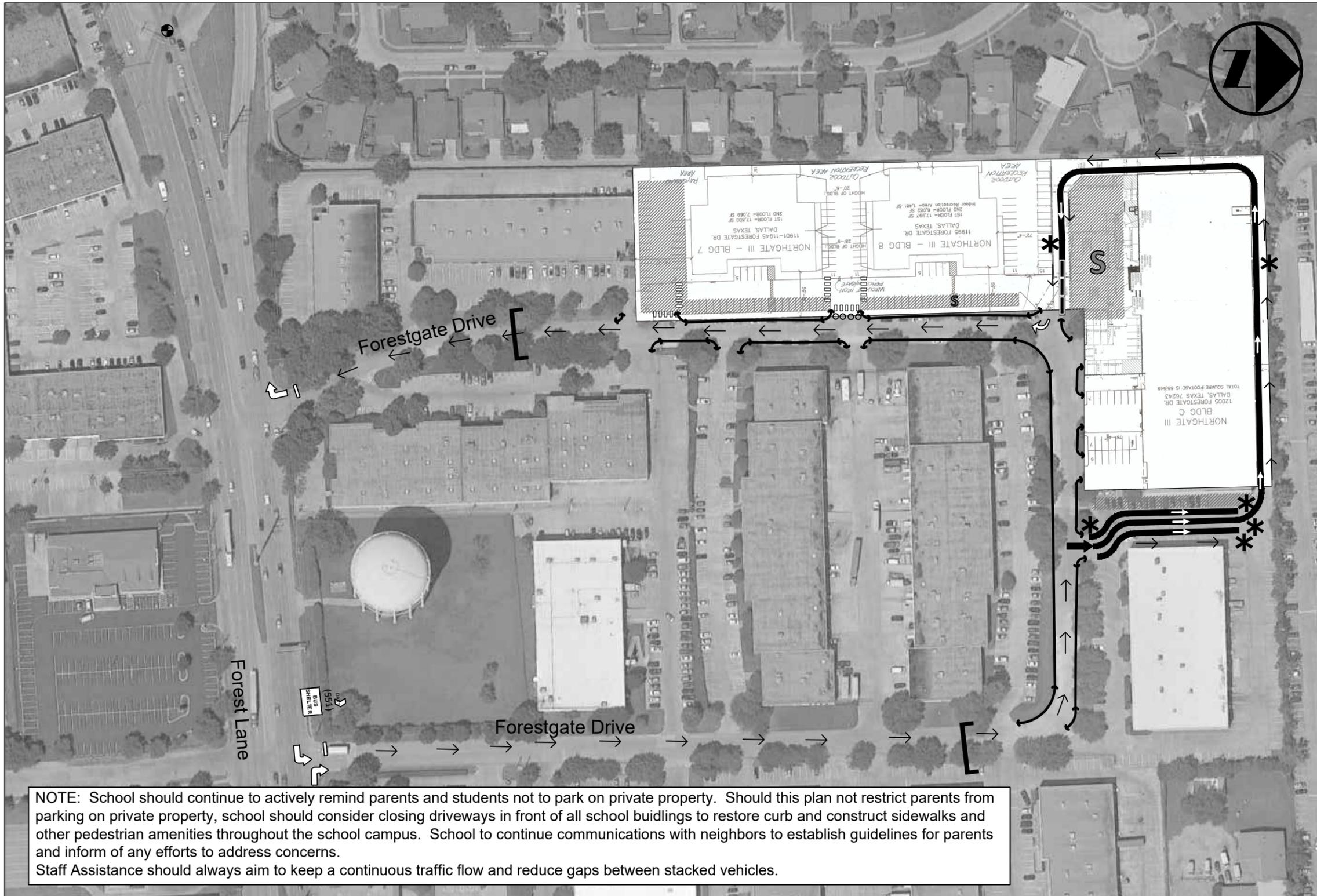
- RECOMMENDATIONS**
- ① Transition to a "managed" pick-up protocol
 - ② Introduce separate release periods for all three schools
 - ③ Deincentivize abuse of "walking" students who do not walk home
 - ④ Install 'No Parking' signs along Forestgate Drive at driveways and corners to improve visibility
 - ⑤ Monitor parking lot and enforce no parent parking/queuing
 - ⑥ Install a traffic sign to restrict left turns at the exit driveways in front of the elementary building
 - ⑦ Install temporary "A-stand" signs (For Afternoon) to discourage school parking on private parking lots
 - ⑧ Use parking area for families with multiple children to wait for older child

NOTE: This drawing is conceptual only and does not represent a detailed design.

EXHIBIT 2 Z167-259
Traffic Management Plan
Proposed Conditions
 Harmony Science Academy, Dallas, Texas

Pacheco Koch

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 (HWL: 12/04/17)



- LEGEND:**
- | | |
|---|----------------------------|
| No Parking | Parking Allowed |
| ↔ - Proposed, On Street | — - Existing, On Street |
| | /// - Off-street (General) |
| | S - Staff Only |
| Queuing/Loading | |
| ● - Parking Space Available for Parent Walk-up | |
| ▬ - Queue Area (Controlled) | |
| ▭ - Loading Area (Designated) | |
| ~ - Queue Area (Unmanaged) | |
| xxx - Loading Area (Unmanaged) | |
| ← - Circulation/Flow | |
| ➔ - Access Point (In or Out) | |
| Pedestrian/Other | |
| — - Sidewalk | |
| ▭ - Stop Line | |
| oooo - Trail/Path | * - Staff Assistance |
| [] - School Zone | ⊙ - Traffic Signal |
| □□□□ - Crosswalk | ○ - Traffic Cone |
| DART (###) - Public Transit Stop (DART Route No.) | ▭ - Bicycle Parking |
| ▭ - Pedestrian Safe Zone | |
| — - City Designated Bicycle Route | |

NOTE: School should continue to actively remind parents and students not to park on private property. Should this plan not restrict parents from parking on private property, school should consider closing driveways in front of all school buildings to restore curb and construct sidewalks and other pedestrian amenities throughout the school campus. School to continue communications with neighbors to establish guidelines for parents and inform of any efforts to address concerns. Staff Assistance should always aim to keep a continuous traffic flow and reduce gaps between stacked vehicles.

BACKGROUND:

Event Information
 Approving Agency: City of Dallas (Z 167-259)
 Event/Type: Public Charter School (High School)
 Event Organizer: Harmony Science Academy
 Event Time(s)/Date (s): Weekday morning & evenings (seasonal)
 Event Frequency: [Recurring] / Occasional / One-Time

RECOMMENDATIONS

- ① Transition to a "managed" pick-up protocol
- ② Introduce separate release periods for all three schools
- ③ Deincentivize abuse of "walking" students who do not walk home
- ④ Install 'No Parking' signs along Forestgate Drive at driveways and corners to improve visibility
- ⑤ Monitor parking lot and enforce no parent parking/queuing
- ⑥ Install a traffic sign to restrict left turns at the exit driveways in front of the elementary building
- ⑦ Install temporary "A-stand" signs (For Afternoon) to discourage school parking on private parking lots
- ⑧ Use parking area for families with multiple children to wait for older child

NOTE: This drawing is conceptual only and does not represent a detailed design.

EXHIBIT 3 Z167-259
Traffic Management Plan
Proposed Conditions

Harmony Science Academy, Dallas, Texas

PK #3126-17.003 (HWL: 12/04/17) **Pacheco Koch**

Appendix

School TMP Trip Assumptions
Harmony Science Academy, Dallas, Texas

Pacheco Koch

2/15/2017

GRADE	ENROLLMENT	MODE SPLIT					QUEUE (FT)		
		% Bus	% Walk	% Drive	% Other*	% Pick-Up	5.12 DEMAND	AVAILABLE	SURPLUS
ELEMENTARY SCHOOL		0%	5%	0%	10%	85%			
K	43								
1st	51								
2nd	68								
3rd	76								
4th	81								
5th	74								
Subtotal	393	0	20	0	39	334	1710	1800	90
MIDDLE SCHOOL		0%	10%	0%	10%	80%			
6th	138								
7th	136								
8th	135								
Subtotal	409	0	41	0	41	327	1675	1800	125
HIGH SCHOOL		0%	20%	10%	10%	60%			
9th	125								
10th	116								
11th	101								
12th	83								
Subtotal	425	0	85	43	43	255	1306	1350	44
TOTAL	1227	0	146	43	123	916			

Data Source: The 'mode splits' listed above were based upon information provided by the School and, where practical, field-verified and refined by Pacheco Koch.

* 'Other' refers to conditions that reduce the number of students being picked-up in a single vehicles, such as: after-school programs, sibling/carpools, etc.

NOTE: The estimated rate for linear-feet-of-peak-vehicular-queue-generated-per-student used in the analysis above was obtained from studies conducted by Lee Engineering for the City of Dallas. The base rates assume a 'worst case' conditions and do not reflect site-specific characteristics or other adjustments that, in the opinion of the Engineer, may apply. This rate is subject to ongoing validation and may be refined over time as additional information becomes available.